APPENDIX

Appendix A: Process Operating Data
Appendix B: Calculations
Appendix C: Raw Field Data and Calibration Data Sheets
Appendix D: Reduced Field Data Sheets
Appendix E: Sampling Log and Chain of Custody Records
Appendix F: Analytical Data Sheets
Appendix G: List of Participants

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Test 1

Date & Time	3 GENERATOR GROSS MEGAWATT MW GE3504	BOILER SUPRHTR OUTLET STEA KLBS/HR MC3526	MAIN STEAM TEMP DEGREE F MC3514	MAIN STEAM PRESSURE PSIG MC3513	MAIN STEAM STOP VLV INLET PSIG MP3525	ECONOMIZER INLET TEMP DEGREE F FT3517	COAL FLOW TOTAL TONS/HR LC3502	TOTAL BOILER AIR FLOW KLBS/HR DC3524	MAX1 AVERAGE FLUE GAS O2 PERCENT DC3566	3 LP COND CIRC WATER INLET DEGREE F HT3505
1/25/00 11:40	900.69	6169.93	999.25	Pt Created	2501.85	496.63	496.78	Pt Created	1.88	66.89
1/25/00 11:41	900.29	6218.36	999.25	2591.00	2498.92	496.32	503.41	8181.93	1.88	66.94
1/25/00 11:42	899.25	6193.27	999.25	2591.00	2498.09	495.98	499.33	8215.50	1.88	67.01
1/25/00 11:43	897.69	6248.75	999.24	2587.94	2498.47	496.19	499.84	8209.40	1.88	66.65
1/25/00 11:44	897.04	6218.06	999.24	2587.94	2498.55	495.56	500.97	8191.32	1.88	66.58
1/25/00 11:45	897.28	6246.23	999.24	2587.94	2501.85	495.95	494.16	8124.92	1.88	66.75
1/25/00 11:46	897.79	6265.10	999.23	2587.94	2501.85	496.39	498.46	8151.41	1.88	66.70
1/25/00 11:47	900.44	6229.18	1000.43	2591.10	2502.03	495.78	498.82	8116.32	1.88	66.64
1/25/00 11:48	901.39	6188.04	1000.43	2591.28	2502.03	495.96	502.38	8118.78	1.88	66.63
1/25/00 11:49	900.28	6173.88	998.89	2591.46	2502.03	496.44	499.33	8147.34	1.88	66.63
1/25/00 11:50	898.89	6211.23	998.89	2591.65	2502.03	496.04	496.28	8153.45	1.88	66.12
1/25/00 11:51	897.64	6188.60	996.88	2591.83	2502.03	496.44	496.78	8146.83	1.88	66.44
1/25/00 11:52	898.42	6213.95	996.88	2592.02	2498.82	495.56	496.28	8120.89	1.88	66.39
1/25/00 11:53	899.42	6191.84	998.27	2589.02	2498.82	495.99	499.33	8103.76	1.88	66.69
1/25/00 11:54	898.59	6169.25	998.27	2589.02	2498.64	496.23	499.33	8090.38	1.88	66.39
1/25/00 11:55	896.74	6186.84	998.27	2589.02	2498.64	496.01	496.78	8167.18	1.88	66.39
1/25/00 11:56	897.64	6155.56	998.27	2589.02	2494.80	496.00	496.28	8136.15	1.88	66.63
1/25/00 11:57	895.84	6137.16	997.58	2585.39	2494.80	495.57	499.33	8114.79	1.88	66.48
1/25/00 11:58	895.00	6172.29	997.58	2585.39	2494.80	495.56	499.33	8122.07	1.88	66.33
1/25/00 11:59	895.94	6204.80	999.66	2582.08	2491.41	495.34	501.87	8148.36	1.88	66.44
1/25/00 12:00	895.14	6179.27	999.66	2582.08	2493.67	495.75	500.34	8168.71	1.88	66.56
1/25/00 12:01	895.37	6219.96	1002.67	2582.08	2494.80	495.78	499.33	8210.16	1.88	66.40
1/25/00 12:02	895.57	6210.16	1002.67	2582.08	2498.09	495.78	499.33	8181.93	1.88	66.21
1/25/00 12:03	897.03	6229.36	1004.06	2585.59	2498.09	495.12	499.33	8159.81	1.88	66.23
1/25/00 12:04	898.72	6244.49	1004.06	2585.59	2501.48	496.45	493.22	8200.24	1.88	66.26
1/25/00 12:05	897.96	6254.69	1002.67	2591.03	2504.78	495.80	496.28	8188.03	1.88	66.29
1/25/00 12:06	897.96	6306.20	1002.67	2591.03	2497.73	495.14	502.38	8145.31	1.88	66.32
1/25/00 12:07	898.21	6271.05	1000.58	2587.72	2497.73	495.79	502.66	8191.09	1.88	66.11
1/25/00 12:08	896.69	6201.65	1000.58	2587.72	2497.73	496.45	500.74	8207.52	1.88	65.90
1/25/00 12:09	895.95	6261.56	1002.51	2589.67	2501.75	495.38	493.73	8181.68	1.88	65.95
1/25/00 12:10	896.62	6253.74	1002.51	2589.67	2504.68	495.16	493.22	8160.57	1.88	66.29
1/25/00 12:11	897.19	6220.30	1007.14	2596.99	2508.44	495.57	495.81	8180.99	1.88	66.23
1/25/00 12:12	898.58	6186.52	1007.14	2596.99	2511.73	495.81	496.28	8145.31	1.88	66.14
1/25/00 12:13	897.28	6271.81	1004.05	2600.49	2511.73	495.81	495.72	8149.75	1.88	66.18
1/25/00 12:14	896.25	6329.98	1004.05	2600.49	2507.98	495.62	493.22	8117.84	1.88	66.22
1/25/00 12:15	897.53	6229.37	1001.13	2598.93	2505.19	495.62	498.39	8116.67	1.88	66.26
1/25/00 12:16	897.18	6256.79	1001.13	2598.93	2504.68	495.22	496.80	8148.58	1.88	65.61
1/25/00 12:17	897.12	6238.92	999.51	2596.21	2504.68	495.64	496.28	8124.42	1.88	66.15

Date & Time	3 GENERATOR GROSS MEGAWATT MW GE3504	BOILER SUPRHTR OUTLET STEA KLBS/HR MC3526	MAIN STEAM TEMP DEGREE F MC3514	MAIN STEAM PRESSURE PSIG MC3513	MAIN STEAM STOP VLV INLET PSIG MP3525	ECONOMIZER INLET TEMP DEGREE F FT3517	COAL FLOW TOTAL TONS/HR LC3502	TOTAL BOILER AIR FLOW KLBS/HR DC3524	MAX1 AVERAGE FLUE GAS O2 PERCENT DC3566	3 LP COND CIRC WATER INLET DEGREE F HT3505
1/25/00 12:18	894.81	6237.41	999.51	2596.21	2501.48	495.20	490.17	8114.79	1.88	66.76
1/25/00 12:19	894.04	6189.16	998.89	2592.39	2501.48	495.42	494.91	8102.58	1.88	67.12
1/25/00 12:20	893.01	6188.77	998.89	2592.39	2501.48	495.83	497.30	8088.63	1.88	67.47
1/25/00 12:21	892.62	6169.75	998.89	2589.28	2501.85	494.98	493.06	8092.87	1.88	67.38
1/25/00 12:22	891.66	6192.76	998.89	2589.28	2498.55	495.64	496.85	8081.22	1.88	68.13
1/25/00 12:23	890.74	6210.08	1001.42	2587.53	2498.09	494.97	494.44	8085.80	1.88	68.01
1/25/00 12:24	890.52	6222.33	1001.42	2587.53	2498.09	495.64	494.24	8117.84	1.88	68.37
1/25/00 12:25	891.25	6190.25	1002.65	2589.28	2498.09	494.56	495.24	8125.98	1.88	67.83
1/25/00 12:26	891.82	6234.55	1002.65	2589.28	2501.85	494.74	495.26	8129.58	1.88	67.97
1/25/00 12:27	892.85	6227.34	1002.65	2590.84	2501.85	495.80	495.70	8151.41	1.88	68.12
1/25/00 12:28	892.59	6215.45	1002.65	2590.84	2504.87	494.94	487.47	8117.84	1.88	68.50
1/25/00 12:29	893.97	6176.15	1001.41	2594.02	2501.85	495.60	493.87	8105.64	1.88	68.46
1/25/00 12:30	893.02	6182.57	1001.41	2594.02	2497.73	495.62	497.35	8125.12	1.88	68.42
1/25/00 12:31	893.18	6158.54	1000.03	2587.14	2497.73	494.95	495.83	8104.93	1.88	68.37
1/25/00 12:32	892.34	6151.01	1000.03	2587.14	2497.73	494.24	498.43	8123.95	1.88	68.52
1/25/00 12:33	893.05	6233.91	1000.64	2587.14	2497.73	494.89	497.61	8142.81	1.88	68.68
1/25/00 12:34	893.61	6237.92	1000.64	2587.14	2497.73	494.66	493.70	8145.31	1.88	68.13
1/25/00 12:35	893.73	6249.18	1002.11	2587.14	2500.93	495.10	496.50	8133.10	1.88	68.46
1/25/00 12:36	893.73	6278.85	1002.11	2587.14	2500.93	495.11	494.06	8133.10	1.88	68.80
1/25/00 12:37	892.85	6241.26	1001.50	2590.18	2500.93	494.89	498.22	8128.64	1.88	68.75
1/25/00 12:38	893.75	6265.49	1001.50	2590.18	2500.93	495.01	495.80	8123.95	1.88	68.45
1/25/00 12:39	895.81	6206.32	1000.12	2591.74	2500.93	495.14	494.73	8127.00	1.88	68.62
1/25/00 12:40	897.94	6206.08	1000.12	2591.74	2505.51	495.35	492.53	8135.54	1.88	68.51
1/25/00 12:41	897.41	6263.02	1000.12	2596.80	2505.51	495.14	494.31	8120.89	1.88	68.92
1/25/00 12:42	895.12	6290.54	1000.12	2596.80	2505.51	495.36	494.13	8123.95	1.88	68.75
1/25/00 12:43	893.61	6233.46	997.63	2593.49	2502.21	495.14	489.68	8120.89	1.88	69.05
1/25/00 12:44	892.28	6211.67	997.63	2593.49	2498.82	495.14	494.90	8096.48	1.88	69.70
1/25/00 12:45	891.37	6249.66	996.41	2586.29	2494.71	494.69	495.21	8093.43	1.88	70.36
1/25/00 12:46	890.12	6269.58	996.41	2586.29	2491.04	494.24	496.77	8133.10	1.88	70.48
1/25/00 12:47	890.98	6265.38	999.19	2581.50	2494.34	494.24	494.78	8117.09	1.88	70.38
1/25/00 12:48	892.82	6239.89	999.19	2581.50	2498.09	494.46	495.74	8172.39	1.88	70.28
1/25/00 12:49	894.55	6241.88	1002.91	2587.14	2498.09	495.12	498.16	8140.98	1.88	69.91
1/25/00 12:50	896.93	6217.12	1002.91	2587.14	2500.35	495.55	497.58	8142.61	1.88	69.99
1/25/00 12:51	897.97	6216.29	1002.21	2591.10	2504.50	495.37	496.26	8127.88	1.88	70.09
1/25/00 12:52	898.01	6230.20	1002.21	2591.10	2504.50	495.81	495.28	8139.70	1.88	69.81
1/25/00 12:53	897.33	6208.91	999.97	2592.85	2504.50	495.59	495.87	8174.95	1.88	69.53
1/25/00 12:54	896.57	6227.52	999.97	2592.85	2501.11	494.69	494.60	8146.71	1.88	69.78
1/25/00 12:55	897.16	6246.10	998.65	2592.85	2504.50	495.35	492.16	8125.98	1.88	69.75

Date & Time	3 GENERATOR GROSS MEGAWATT MW GE3504	BOILER SUPRHTR OUTLET STEA KLBS/HR MC3526	MAIN STEAM TEMP DEGREE F MC3514	MAIN STEAM PRESSURE PSIG MC3513	MAIN STEAM STOP VLV INLET PSIG MP3525	ECONOMIZER INLET TEMP DEGREE F FT3517	COAL FLOW TOTAL TONS/HR LC3502	TOTAL BOILER AIR FLOW KLBS/HR DC3524	MAX1 AVERAGE FLUE GAS O2 PERCENT DC3566	3 LP COND CIRC WATER INLET DEGREE F HT3505
1/25/00 12:56	897.59	6211.16	998.65	2592.85	2501.11	495.59	495.91	8125.52	1.88	69.72
1/25/00 12:57	897.49	6225.20	998.07	2592.85	2497.82	495.15	502.14	8110.00	1.88	69.69
1/25/00 12:58	897.27	6241.30	998.07	2592.85	2497.82	495.14	495.21	8118.44	1.88	69.66
1/25/00 12:59	897.59	6229.88	996.40	2587.99	2498.09	495.24	497.13	8123.00	1.88	69.63
1/25/00 13:00	898.71	6203.98	996.40	2587.99	2498.09	495.35	497.37	8130.13	1.88	69.60
1/25/00 13:01	898.41	6280.68	997.10	2586.39	2494.63	494.93	499.30	8136.18	1.88	69.34
1/25/00 13:02	898.72	6253.97	997.10	2586.39	2494.34	495.70	499.80	8142.95	1.88	69.06
1/25/00 13:03	898.12	6251.35	996.37	2586.39	2494.80	495.56	501.04	8148.02	1.88	69.03
1/25/00 13:04	899.66	6226.92	996.37	2586.39	2494.80	495.54	498.84	8143.09	1.88	68.59
1/25/00 13:05	899.88	6213.01	997.72	2582.08	2491.69	495.53	501.55	8118.09	1.88	68.14
1/25/00 13:06	901.07	6215.71	997.72	2582.08	2491.41	495.32	503.15	8206.25	1.88	67.69
1/25/00 13:07	900.88	6217.73	999.85	2582.08	2491.41	495.74	503.34	8251.73	1.88	67.92
1/25/00 13:08	900.37	6246.61	999.85	2582.08	2497.59	496.62	498.02	8232.36	1.88	68.18
1/25/00 13:09	902.22	6180.34	1001.98	2585.97	2494.80	495.36	497.81	8172.35	1.88	68.44
1/25/00 13:10	902.42	6207.65	1001.98	2585.97	2497.15	496.57	503.54	8154.60	1.88	68.70
1/25/00 13:11	902.13	6198.62	1001.98	2587.14	2498.10	496.46	499.06	8175.29	1.88	68.66
1/25/00 13:12	902.14	6190.27	1001.98	2587.14	2498.11	495.78	500.41	8198.28	1.88	68.97
1/25/00 13:13	903.86	6187.84	1001.29	2589.47	2498.11	495.78	500.42	8193.80	1.89	68.61
1/25/00 13:14	904.15	6169.55	1001.29	2589.47	2494.37	496.00	504.16	8169.63	1.92	69.24
1/25/00 13:15	901.82	6200.96	1000.67	2584.03	2494.37	496.22	501.15	8201.37	1.95	69.40
1/25/00 13:16	902.01	6214.86	1000.67	2584.03	2484.47	496.68	512.58	8289.11	1.98	69.29
1/25/00 13:17	903.04	6163.49	1001.98	2576.71	2491.14	495.81	503.04	8280.56	2.01	69.16
1/25/00 13:18	904.66	6143.50	1001.98	2576.71	2498.23	497.57	497.60	8241.06	2.04	69.41
1/25/00 13:19	906.49	6195.18	1007.77	2591.49	2504.89	496.25	499.07	8200.45	2.06	69.38
1/25/00 13:20	906.13	6215.92	1007.77	2591.49	2511.56	496.23	495.60	8196.14	2.09	69.35
1/25/00 13:21	904.10	6241.05	1006.46	2600.04	2508.01	496.44	496.46	8183.13	2.12	68.93
1/25/00 13:22	901.83	6223.13	1006.46	2600.04	2504.68	496.45	499.24	8157.50	2.15	69.66
1/25/00 13:23	901.77	6245.34	1003.75	2594.46	2504.68	496.67	498.59	8129.37	2.18	69.12
1/25/00 13:24	901.95	6211.38	1003.76	2594.46	2501.45	495.78	498.72	8158.95	2.21	69.16
1/25/00 13:25	901.34	6211.47	1003.78	2592.94	2504.24	496.00	500.48	8164.46	2.24	69.01
1/25/00 13:26	899.14	6198.92	1003.79	2592.94	2500.73	495.80	495.83	8160.71	2.27	68.86
1/25/00 13:27	897.64	6277.82	1004.98	2591.26	2500.73	495.59	498.12	8187.09	2.29	68.48
1/25/00 13:28	897.16	6275.70	1004.98	2591.26	2504.06	495.59	495.61	8163.70	2.32	68.36
1/25/00 13:29	898.41	6241.80	1004.98	2593.40	2507.52	495.81	494.54	8130.62	2.35	67.80
1/25/00 13:30	898.77	6232.22	1004.98	2593.40	2504.48	495.40	498.43	8116.15	2.38	67.58
1/25/00 13:31	895.94	6281.12	1001.35	2594.99	2501.14	495.36	496.37	8073.73	2.41	67.37
1/25/00 13:32	896.38	6254.66	1001.35	2594.99	2497.81	494.92	503.67	8056.60	2.44	67.42
1/25/00 13:33	897.77	6221.44	999.33	2586.43	2501.14	496.46	497.17	8133.16	2.47	67.79

Date & Time	3 GENERATOR GROSS MEGAWATT MW GE3504	BOILER SUPRHTR OUTLET STEA KLBS/HR MC3526	MAIN STEAM TEMP DEGREE F MC3514	MAIN STEAM PRESSURE PSIG MC3513	MAIN STEAM STOP VLV INLET PSIG MP3525	ECONOMIZER INLET TEMP DEGREE F FT3517	COAL FLOW TOTAL TONS/HR LC3502	TOTAL BOILER AIR FLOW KLBS/HR DC3524	MAX1 AVERAGE FLUE GAS O2 PERCENT DC3566	3 LP COND CIRC WATER INLET DEGREE F HT3505
1/25/00 13:34	897.90	6211.77	999.33	2586.43	2501.14	495.59	497.84	8125.60	2.50	68.17
1/25/00 13:35	897.06	6234.48	999.33	2589.74	2497.70	495.37	500.39	8117.45	2.52	68.29
1/25/00 13:36	896.02	6221.30	999.33	2589.74	2491.54	495.58	504.14	8112.59	2.55	68.77
1/25/00 13:37	894.99	6207.75	999.33	2583.25	2494.78	494.92	495.01	8148.28	2.58	68.85
1/25/00 13:38	896.59	6225.74	999.33	2583.25	2498.12	495.34	497.76	8146.29	2.61	69.20
1/25/00 13:39	898.53	6238.55	999.92	2588.50	2501.45	495.36	500.10	8133.75	2.64	68.97
1/25/00 13:40	897.32	6219.06	999.92	2588.50	2501.45	495.36	497.84	8141.89	2.67	69.09
1/25/00 13:41	897.14	6192.86	998.67	2590.80	2498.01	495.80	503.01	8150.06	2.70	69.22
1/25/00 13:42	898.08	6180.38	998.67	2590.80	2494.67	495.81	501.76	8148.49	2.73	69.34
1/25/00 13:43	898.85	6156.67	997.36	2585.13	2494.67	495.81	499.80	8156.14	2.75	69.11
1/25/00 13:44	900.38	6161.63	997.36	2585.13	2494.37	495.81	503.50	8105.12	2.78	69.28
1/25/00 13:45	899.97	6184.14	998.75	2586.71	2498.12	495.59	502.91	8178.64	2.81	69.28
1/25/00 13:46	898.91	6229.09	998.75	2586.71	2494.37	495.81	504.60	8215.52	2.84	69.28
1/25/00 13:47	900.05	6210.88	998.75	2585.00	2498.12	495.59	499.19	8220.75	2.87	69.38
1/25/00 13:48	900.80	6228.48	998.75	2585.00	2498.12	496.03	500.92	8192.55	2.90	69.47
1/25/00 13:49	901.01	6172.50	999.37	2589.67	2501.45	496.25	499.32	8172.99	2.93	69.35
1/25/00 13:50	901.56	6189.56	999.37	2589.67	2501.45	495.85	498.35	8149.23	2.96	68.66
1/25/00 13:51	899.16	6173.05	998.59	2587.14	2494.78	496.03	507.64	8198.61	2.98	68.43
1/25/00 13:52	898.57	6196.34	998.59	2587.14	2494.78	495.58	500.82	8159.82	3.01	68.24
1/25/00 13:53	898.31	6158.19	999.91	2586.55	2501.03	495.78	495.44	8182.78	3.04	67.74
1/25/00 13:54	896.96	6229.13	999.91	2586.55	2504.79	495.69	491.90	8149.43	3.07	67.24
1/25/00 13:55	897.41	6289.73	1004.54	2595.11	2504.76	495.59	492.38	8132.69	3.10	67.11
1/25/00 13:56	897.89	6288.23	1004.54	2595.11	2497.81	495.16	507.46	8135.67	3.10	66.99
1/25/00 13:57	896.32	6252.98	1004.54	2585.65	2497.75	495.57	501.41	8143.19	3.10	67.46
1/25/00 13:58	896.44	6146.20	1004.54	2585.65	2501.56	495.59	492.44	8153.85	3.09	67.96
Average	**897.50**	**6218.88**	**1000.63**	**2589.33**	**2499.62**	**495.61**	**497.94**	**8149.27**	**2.10**	**68.11**

Date & Time	CIRC WATER TO COOLING TOWE DEGREE F HT3506	3 HIGH PRESS CONDENSER PRE PSIA CP3503	MAIN STEAM TEMP PSIA CP3504	BAROMETRIC PRESS IN HG ZP2701	YARD AMBIENT TEMP DEGF ZT2701	ECONOMIZER INLET TEMP DEG F M33S501_PA	SDA SPRAY ABS INLET PRESS IN H2O S38S028_AI	SDA SPRAY ABS OUTLET PRESS IN H2O S38S029_AI	FF1 FILTR SYS 31FFU DP 36F IN H2O F36F029_AI	FF2 FILTR SYS 32 FFU DP 35 IN H2O F35F030_AI	FF3 FILTR SYS 33FFU DP 36G IN H2O F36G029_AI
1/25/00 11:40	100.49	1.15	0.86	29.14	12.09	164.56	-14.71	-18.28	4.48	4.16	4.08
1/25/00 11:41	100.43	1.15	0.86	29.14	12.12	164.42	-14.59	-18.19	4.43	4.13	4.04
1/25/00 11:42	100.37	1.15	0.86	29.14	12.16	164.64	-14.76	-18.18	4.42	4.11	4.10
1/25/00 11:43	100.31	1.15	0.86	29.14	12.19	164.54	-14.85	-18.18	4.42	4.09	4.15
1/25/00 11:44	100.25	1.15	0.86	29.14	12.22	164.35	-14.32	-18.03	4.54	4.19	4.21
1/25/00 11:45	100.19	1.15	0.86	29.14	12.25	164.11	-14.66	-17.92	4.74	4.45	4.25
1/25/00 11:46	99.97	1.15	0.86	29.14	12.28	164.43	-14.53	-18.08	4.38	4.06	4.04
1/25/00 11:47	100.13	1.15	0.86	29.14	12.32	164.37	-14.39	-17.76	4.43	4.08	4.07
1/25/00 11:48	100.31	1.15	0.86	29.14	12.35	164.31	-14.48	-17.90	4.56	4.12	4.17
1/25/00 11:49	100.09	1.15	0.86	29.14	12.38	164.41	-14.59	-17.97	4.35	4.11	4.10
1/25/00 11:50	99.86	1.15	0.86	29.14	12.39	164.56	-14.49	-17.93	4.39	4.09	4.06
1/25/00 11:51	100.19	1.15	0.87	29.14	12.39	164.59	-14.39	-17.90	4.43	4.06	4.05
1/25/00 11:52	99.96	1.15	0.87	29.14	12.40	164.61	-14.49	-17.89	4.47	4.04	4.05
1/25/00 11:53	99.98	1.15	0.87	29.14	12.38	164.34	-14.51	-17.89	4.51	4.20	4.26
1/25/00 11:54	100.00	1.15	0.87	29.14	12.35	164.45	-14.63	-17.93	4.72	4.40	4.42
1/25/00 11:55	100.02	1.16	0.87	29.14	12.33	165.05	-14.70	-18.17	4.48	4.05	4.09
1/25/00 11:56	99.98	1.16	0.87	29.14	12.31	164.90	-14.58	-18.13	4.52	4.08	4.18
1/25/00 11:57	99.94	1.16	0.87	29.14	12.29	164.54	-14.63	-18.10	4.63	4.12	4.27
1/25/00 11:58	99.90	1.16	0.87	29.14	12.27	164.49	-14.57	-18.19	4.45	4.10	4.08
1/25/00 11:59	99.66	1.16	0.87	29.14	12.24	164.65	-14.65	-18.09	4.45	4.07	4.11
1/25/00 12:00	99.58	1.16	0.87	29.14	12.22	164.72	-14.73	-18.24	4.50	4.08	4.13
1/25/00 12:01	99.50	1.16	0.87	29.14	12.20	164.74	-14.73	-18.36	4.55	4.10	4.16
1/25/00 12:02	99.42	1.16	0.87	29.14	12.18	164.54	-14.72	-18.33	4.60	4.42	4.38
1/25/00 12:03	99.43	1.16	0.87	29.14	12.17	164.67	-14.82	-18.47	4.75	4.36	4.35
1/25/00 12:04	99.44	1.16	0.87	29.14	12.15	164.71	-14.77	-18.38	4.44	4.09	4.12
1/25/00 12:05	99.45	1.16	0.87	29.14	12.14	164.43	-14.56	-18.21	4.54	4.15	4.14
1/25/00 12:06	99.47	1.16	0.87	29.14	12.12	164.58	-14.85	-18.26	4.65	4.18	4.15
1/25/00 12:07	99.48	1.16	0.87	29.14	12.11	164.72	-14.89	-18.51	4.48	4.09	4.17
1/25/00 12:08	99.71	1.16	0.87	29.14	12.09	164.81	-14.89	-18.51	4.50	4.10	4.17
1/25/00 12:09	99.55	1.16	0.87	29.14	12.08	164.45	-14.75	-18.39	4.53	4.10	4.18
1/25/00 12:10	99.37	1.16	0.87	29.14	12.06	164.25	-14.73	-18.08	4.56	4.11	4.18
1/25/00 12:11	99.36	1.16	0.87	29.14	12.05	164.06	-14.44	-17.95	4.58	4.81	4.31
1/25/00 12:12	99.36	1.16	0.87	29.14	12.03	164.29	-14.76	-18.11	4.61	4.46	4.20
1/25/00 12:13	99.54	1.16	0.87	29.14	12.21	164.34	-14.48	-18.03	4.43	3.83	4.09
1/25/00 12:14	99.45	1.16	0.87	29.14	12.39	164.30	-14.39	-17.81	4.50	3.92	4.11
1/25/00 12:15	99.36	1.16	0.87	29.14	12.03	164.47	-14.37	-17.91	4.64	4.00	4.23

Date & Time	CIRC WATER TO COOLING TOWE DEGREE F HT3506	3 HIGH PRESS CONDENSER PRE PSIA CP3503	MAIN STEAM TEMP PSIA CP3504	BAROMETRIC PRESS IN HG ZP2701	YARD AMBIENT TEMP DEGF ZT2701	ECONOMIZER INLET TEMP DEG F M33S501_PA	SDA SPRAY ABS INLET PRESS IN H2O S38S028_AI	SDA SPRAY ABS OUTLET PRESS IN H2O S38S029_AI	FF1 FILTR SYS 31FFU DP 36F IN H2O F36F029_AI	FF2 FILTR SYS 32 FFU DP 35 IN H2O F35F030_AI	FF3 FILTR SYS 33FFU DP 36G IN H2O F36G029_AI
1/25/00 12:16	99.93	1.16	0.87	29.14	12.03	164.28	-14.41	-17.98	4.37	3.95	4.09
1/25/00 12:17	99.49	1.17	0.87	29.15	12.03	164.06	-14.44	-18.02	4.42	3.89	4.07
1/25/00 12:18	99.66	1.17	0.87	29.15	12.03	164.43	-14.62	-17.98	4.46	3.95	4.24
1/25/00 12:19	100.03	1.17	0.87	29.15	12.03	164.76	-14.48	-18.09	4.51	4.01	4.11
1/25/00 12:20	100.41	1.17	0.87	29.15	12.03	164.42	-14.37	-17.81	4.64	4.09	4.44
1/25/00 12:21	100.79	1.17	0.87	29.15	12.03	164.19	-14.60	-18.16	4.50	4.11	4.12
1/25/00 12:22	100.68	1.17	0.87	29.15	12.03	164.20	-14.46	-17.91	4.37	3.95	4.04
1/25/00 12:23	100.97	1.17	0.87	29.15	12.40	164.21	-14.46	-17.88	5.00	4.04	4.07
1/25/00 12:24	100.86	1.17	0.87	29.15	12.42	164.24	-14.52	-17.98	5.01	4.08	4.11
1/25/00 12:25	101.03	1.17	0.87	29.15	12.44	164.20	-14.31	-18.07	4.27	3.89	4.09
1/25/00 12:26	101.21	1.17	0.88	29.15	12.46	164.23	-14.53	-17.87	4.31	3.95	4.06
1/25/00 12:27	100.87	1.17	0.88	29.15	12.46	164.40	-14.39	-17.93	4.34	4.01	4.09
1/25/00 12:28	101.06	1.17	0.88	29.15	12.46	164.17	-14.38	-17.84	4.38	4.07	4.29
1/25/00 12:29	101.27	1.17	0.88	29.15	12.46	164.17	-14.18	-17.76	4.53	4.20	4.49
1/25/00 12:30	101.78	1.17	0.88	29.15	12.46	164.23	-14.59	-18.00	4.47	4.07	4.31
1/25/00 12:31	101.84	1.17	0.88	29.15	12.47	164.73	-14.43	-17.98	4.34	4.07	3.76
1/25/00 12:32	101.87	1.17	0.88	29.15	12.47	164.76	-14.41	-17.97	4.39	4.18	3.89
1/25/00 12:33	101.72	1.17	0.88	29.15	12.47	164.60	-14.66	-18.25	4.42	4.11	3.94
1/25/00 12:34	101.57	1.17	0.88	29.15	12.47	164.62	-14.56	-18.19	4.41	4.07	3.87
1/25/00 12:35	101.59	1.17	0.88	29.15	12.47	164.54	-14.45	-18.11	4.40	4.08	3.90
1/25/00 12:36	101.61	1.17	0.88	29.15	12.47	164.46	-14.56	-18.05	4.39	4.09	3.95
1/25/00 12:37	101.63	1.17	0.88	29.15	12.47	164.42	-14.44	-18.05	4.38	4.10	4.00
1/25/00 12:38	101.66	1.18	0.88	29.15	12.47	164.29	-14.20	-17.92	4.68	4.36	4.09
1/25/00 12:39	101.69	1.18	0.88	29.15	12.47	164.16	-14.62	-18.16	4.49	4.15	3.90
1/25/00 12:40	101.87	1.18	0.88	29.15	12.47	164.61	-14.52	-17.88	4.40	4.07	3.97
1/25/00 12:41	102.05	1.18	0.88	29.15	12.47	164.58	-14.41	-17.84	4.46	4.15	4.03
1/25/00 12:42	101.87	1.18	0.88	29.15	12.47	164.42	-14.49	-18.02	4.48	4.17	3.98
1/25/00 12:43	102.14	1.18	0.88	29.15	12.47	164.65	-14.39	-18.02	4.39	4.05	3.93
1/25/00 12:44	102.41	1.18	0.88	29.15	12.47	164.45	-14.42	-17.95	4.37	4.07	3.93
1/25/00 12:45	102.85	1.18	0.88	29.15	12.47	164.42	-14.58	-17.93	4.41	4.09	3.94
1/25/00 12:46	103.30	1.18	0.88	29.15	12.47	164.43	-14.43	-17.91	4.45	4.16	3.98
1/25/00 12:47	103.24	1.18	0.88	29.15	12.47	164.38	-14.46	-17.70	4.73	4.43	4.19
1/25/00 12:48	103.19	1.18	0.88	29.15	12.47	164.72	-14.83	-18.32	4.45	4.10	4.07
1/25/00 12:49	103.47	1.18	0.88	29.15	12.47	164.59	-14.52	-18.12	4.42	4.10	4.03
1/25/00 12:50	103.16	1.18	0.88	29.15	12.47	164.35	-14.41	-17.97	4.51	4.17	4.05
1/25/00 12:51	102.82	1.18	0.88	29.15	12.47	164.25	-14.34	-17.81	4.44	3.98	4.03

Date & Time	CIRC WATER TO COOLING TOWE DEGREE F HT3506	3 HIGH PRESS CONDENSER PRE PSIA CP3503	MAIN STEAM TEMP PSIA CP3504	BAROMETRIC PRESS IN HG ZP2701	YARD AMBIENT TEMP DEGF ZT2701	ECONOMIZER INLET TEMP DEG F M33S501_PA	SDA SPRAY ABS INLET PRESS IN H2O S38S028_AI	SDA SPRAY ABS OUTLET PRESS IN H2O S38S029_AI	FF1 FILTR SYS 31FFU DP 36F IN H2O F36F029_AI	FF2 FILTR SYS 32 FFU DP 35 IN H2O F35F030_AI	FF3 FILTR SYS 33FFU DP 36G IN H2O F36G029_AI
1/25/00 12:52	103.30	1.18	0.88	29.15	12.47	164.40	-14.46	-17.95	4.34	4.01	3.96
1/25/00 12:53	103.28	1.18	0.88	29.15	12.47	164.66	-14.48	-17.87	4.36	4.05	4.01
1/25/00 12:54	103.26	1.18	0.88	29.15	12.47	164.65	-14.48	-18.00	4.42	4.08	4.06
1/25/00 12:55	103.24	1.18	0.88	29.15	12.47	164.46	-14.45	-17.97	4.47	4.12	4.11
1/25/00 12:56	102.88	1.18	0.88	29.15	12.47	164.33	-14.40	-17.94	4.63	4.44	4.28
1/25/00 12:57	103.17	1.18	0.88	29.15	12.47	164.44	-14.60	-18.00	4.38	4.04	3.99
1/25/00 12:58	103.18	1.18	0.88	29.15	12.47	164.55	-14.47	-18.03	4.41	4.00	4.05
1/25/00 12:59	103.48	1.19	0.88	29.15	12.47	164.52	-14.17	-17.70	4.44	4.03	4.10
1/25/00 13:00	103.20	1.19	0.88	29.15	12.47	164.27	-14.38	-17.93	4.37	4.05	4.04
1/25/00 13:01	102.72	1.19	0.89	29.15	12.47	164.09	-14.47	-17.93	4.30	4.04	3.97
1/25/00 13:02	102.76	1.19	0.89	29.15	12.47	164.44	-14.50	-17.97	4.31	4.04	4.01
1/25/00 13:03	102.41	1.19	0.89	29.15	12.47	164.34	-14.52	-17.83	4.33	4.03	4.05
1/25/00 13:04	102.35	1.19	0.89	29.15	12.47	164.31	-14.39	-17.95	4.40	4.10	4.13
1/25/00 13:05	101.86	1.19	0.89	29.15	12.47	164.24	-14.43	-17.72	4.71	4.47	4.39
1/25/00 13:06	101.35	1.19	0.89	29.15	12.47	164.63	-14.82	-18.39	4.43	4.09	4.12
1/25/00 13:07	101.56	1.19	0.89	29.15	12.47	164.89	-14.61	-18.35	4.47	4.14	4.12
1/25/00 13:08	101.51	1.19	0.89	29.15	12.50	164.60	-14.66	-18.30	4.58	4.19	4.18
1/25/00 13:09	102.10	1.19	0.89	29.15	12.53	164.30	-14.60	-18.26	4.30	4.02	4.14
1/25/00 13:10	102.49	1.19	0.89	29.15	12.56	164.43	-14.50	-17.95	4.35	4.03	4.08
1/25/00 13:11	102.54	1.19	0.89	29.15	12.59	164.48	-14.60	-18.02	4.39	4.05	4.05
1/25/00 13:12	102.57	1.19	0.89	29.16	12.62	164.43	-14.61	-18.09	4.43	4.06	4.10
1/25/00 13:13	102.59	1.19	0.89	29.16	12.65	164.37	-14.56	-17.94	4.47	4.20	4.14
1/25/00 13:14	102.72	1.19	0.89	29.16	12.68	164.46	-14.68	-18.16	4.61	4.43	4.36
1/25/00 13:15	102.86	1.19	0.89	29.16	12.71	164.55	-14.89	-18.34	4.44	4.14	4.13
1/25/00 13:16	103.01	1.19	0.89	29.16	12.73	165.51	-15.08	-18.80	4.52	4.27	4.15
1/25/00 13:17	103.04	1.19	0.89	29.16	12.76	165.21	-14.92	-18.46	4.60	4.22	4.18
1/25/00 13:18	103.07	1.19	0.89	29.16	12.79	164.60	-14.89	-18.49	4.43	4.14	4.17
1/25/00 13:19	103.19	1.19	0.89	29.16	12.82	164.30	-14.72	-18.33	4.40	4.06	4.15
1/25/00 13:20	103.02	1.19	0.89	29.16	12.85	164.40	-14.74	-18.23	4.44	4.09	4.21
1/25/00 13:21	103.12	1.20	0.89	29.16	12.88	164.66	-14.83	-18.37	4.49	4.12	4.12
1/25/00 13:22	103.07	1.20	0.89	29.16	12.91	164.78	-14.65	-18.44	4.53	4.46	4.17
1/25/00 13:23	103.01	1.20	0.89	29.16	13.05	164.36	-14.83	-18.05	4.60	4.76	4.21
1/25/00 13:24	103.13	1.20	0.89	29.16	13.20	164.13	-14.63	-18.11	4.43	3.95	4.13
1/25/00 13:25	102.85	1.20	0.89	29.16	13.34	164.27	-14.56	-18.10	4.51	4.03	4.16
1/25/00 13:26	102.56	1.20	0.89	29.16	13.20	164.56	-14.77	-18.39	4.68	4.02	4.24
1/25/00 13:27	102.28	1.20	0.89	29.16	13.05	164.55	-14.77	-18.31	4.35	3.93	4.17

Date & Time	CIRC WATER TO COOLING TOWE DEGREE F HT3506	3 HIGH PRESS CONDENSER PRE PSIA CP3503	MAIN STEAM TEMP PSIA CP3504	BAROMETRIC PRESS IN HG ZP2701	YARD AMBIENT TEMP DEGF ZT2701	ECONOMIZER INLET TEMP DEG F M33S501_PA	SDA SPRAY ABS INLET PRESS IN H2O S38S028_AI	SDA SPRAY ABS OUTLET PRESS IN H2O S38S029_AI	FF1 FILTR SYS 31FFU DP 36F IN H2O F36F029_AI	FF2 FILTR SYS 32 FFU DP 35 IN H2O F35F030_AI	FF3 FILTR SYS 33FFU DP 36G IN H2O F36G029_AI
1/25/00 13:28	102.00	1.20	0.89	29.16	12.90	164.22	-14.57	-18.07	4.35	3.91	4.10
1/25/00 13:29	101.99	1.20	0.89	29.16	13.34	164.01	-14.35	-17.80	4.35	3.95	4.13
1/25/00 13:30	101.49	1.20	0.89	29.16	13.30	164.02	-14.39	-17.98	4.35	3.99	4.16
1/25/00 13:31	100.99	1.20	0.89	29.16	13.27	164.58	-14.31	-17.82	4.60	4.04	4.28
1/25/00 13:32	100.92	1.20	0.89	29.16	13.24	164.58	-14.52	-17.99	4.57	4.18	4.43
1/25/00 13:33	101.15	1.20	0.89	29.16	13.21	164.49	-14.41	-18.05	4.29	3.93	4.06
1/25/00 13:34	101.75	1.20	0.89	29.16	13.18	164.48	-14.44	-18.02	4.35	3.97	4.09
1/25/00 13:35	101.87	1.20	0.89	29.16	13.15	164.84	-14.59	-17.99	4.46	4.01	4.12
1/25/00 13:36	102.22	1.20	0.90	29.16	13.11	164.78	-14.70	-18.24	4.43	3.99	4.13
1/25/00 13:37	102.26	1.20	0.90	29.16	13.08	164.59	-14.53	-18.15	4.41	3.92	4.13
1/25/00 13:38	102.29	1.20	0.90	29.16	13.18	164.31	-14.57	-18.05	4.38	3.94	4.12
1/25/00 13:39	102.53	1.20	0.90	29.16	13.28	164.36	-14.42	-17.98	4.35	4.02	4.12
1/25/00 13:40	102.62	1.20	0.90	29.16	13.38	164.56	-14.49	-17.99	4.57	4.18	4.54
1/25/00 13:41	102.70	1.20	0.90	29.16	13.48	164.88	-14.80	-18.26	4.59	4.19	4.51
1/25/00 13:42	102.79	1.21	0.90	29.16	13.59	164.59	-14.64	-18.19	4.36	3.97	3.84
1/25/00 13:43	102.88	1.21	0.90	29.16	13.69	164.30	-14.49	-17.99	4.42	4.09	4.00
1/25/00 13:44	103.00	1.21	0.90	29.16	13.79	164.40	-14.68	-18.14	4.47	4.13	4.02
1/25/00 13:45	103.35	1.21	0.90	29.16	13.89	164.76	-14.60	-18.19	4.46	3.97	3.94
1/25/00 13:46	103.06	1.21	0.90	29.16	13.70	164.91	-14.68	-18.33	4.45	4.04	3.97
1/25/00 13:47	103.04	1.21	0.90	29.16	13.52	164.82	-14.77	-18.22	4.45	4.06	4.01
1/25/00 13:48	103.01	1.21	0.90	29.16	13.52	164.38	-14.80	-18.28	4.44	4.07	4.05
1/25/00 13:49	103.18	1.21	0.90	29.16	13.52	164.52	-14.46	-18.02	4.68	4.24	4.17
1/25/00 13:50	103.02	1.21	0.90	29.16	13.32	164.66	-15.05	-18.42	4.60	4.32	4.21
1/25/00 13:51	102.48	1.21	0.90	29.16	13.12	165.25	-14.81	-18.43	4.46	4.05	4.02
1/25/00 13:52	102.35	1.21	0.90	29.16	12.92	164.76	-14.83	-18.28	4.49	4.14	4.14
1/25/00 13:53	101.93	1.21	0.90	29.16	12.73	164.55	-14.67	-18.27	4.48	4.15	4.11
1/25/00 13:54	101.21	1.21	0.90	29.16	12.70	164.54	-14.62	-18.14	4.45	4.03	3.97
1/25/00 13:55	100.80	1.21	0.90	29.16	12.68	164.48	-14.59	-18.15	4.41	4.04	4.03
1/25/00 13:56	100.74	1.21	0.90	29.16	12.66	164.55	-14.77	-18.40	4.44	4.07	4.10
1/25/00 13:57	100.96	1.21	0.90	29.16	12.63	164.74	-14.82	-18.48	4.52	4.11	4.07
1/25/00 13:58	101.20	1.21	0.90	29.16	12.61	164.40	-14.48	-18.07	4.70	4.26	4.20
Average	**101.55**	**1.18**	**0.88**	**29.15**	**12.60**	**164.49**	**-14.58**	**-18.09**	**4.48**	**4.11**	**4.12**

Date & Time	301 COAL FEEDER FLOW KLBS/HR LM3501	302 COAL FEEDER FLOW KLBS/HR LM3502	MAIN STEAM TEMP KLBS/HR LM3503	304 COAL FEEDER FLOW KLBS/HR LM3504	305 COAL FEEDER FLOW KLBS/HR LM3505	ECONOMIZER INLET TEMP KLBS/HR LM3506	307 COAL FEEDER FLOW KLBS/HR LM3507	308 COAL FEEDER FLOW KLBS/HR LM3508	309 COAL FEEDER FLOW KLBS/HR LM3509	310 COAL FEEDER FLOW KLBS/HR LM3510
1/25/00 11:40	110.21	110.51	111.73	111.36	108.16	111.77	111.97	108.90	110.13	Under Range
1/25/00 11:41	111.38	112.27	112.15	111.05	110.54	112.29	112.95	110.44	110.93	Under Range
1/25/00 11:42	111.43	112.24	113.53	110.34	109.20	112.13	111.86	110.94	110.38	Under Range
1/25/00 11:43	109.94	110.84	110.90	110.86	108.53	110.83	111.76	109.63	109.50	Under Range
1/25/00 11:44	111.22	111.51	112.71	110.62	110.50	111.72	112.27	110.50	111.29	Under Range
1/25/00 11:45	109.25	110.51	110.28	111.00	107.45	110.30	111.46	109.58	110.71	Under Range
1/25/00 11:46	110.76	112.47	111.13	111.14	108.84	110.84	111.72	110.94	111.48	Under Range
1/25/00 11:47	111.97	113.27	112.51	111.65	109.64	111.65	111.22	110.24	110.12	Under Range
1/25/00 11:48	110.56	112.04	112.18	111.26	109.87	112.15	112.46	109.93	110.95	Under Range
1/25/00 11:49	110.53	111.01	111.64	112.31	109.28	111.39	111.70	109.64	111.04	Under Range
1/25/00 11:50	110.26	110.72	111.01	110.24	108.31	110.55	110.90	110.01	110.98	Under Range
1/25/00 11:51	110.19	110.31	110.40	109.93	108.05	110.80	110.57	109.87	109.63	Under Range
1/25/00 11:52	112.16	111.39	110.25	109.37	107.61	111.05	112.50	110.64	110.40	Under Range
1/25/00 11:53	110.58	112.61	110.87	111.41	109.83	111.17	112.10	109.37	110.98	Under Range
1/25/00 11:54	111.22	112.64	110.82	111.11	109.55	111.43	112.42	110.90	111.12	Under Range
1/25/00 11:55	110.00	110.65	109.87	109.64	110.09	111.29	111.54	110.51	109.42	Under Range
1/25/00 11:56	111.16	111.57	111.65	112.74	110.13	111.48	111.84	109.74	110.81	Under Range
1/25/00 11:57	111.32	111.68	111.98	111.50	111.50	111.44	111.70	109.94	111.28	Under Range
1/25/00 11:58	109.93	111.20	110.10	112.08	109.95	111.63	112.00	110.20	109.29	Under Range
1/25/00 11:59	112.38	111.66	111.87	111.78	110.34	112.03	112.84	110.08	111.13	Under Range
1/25/00 12:00	111.08	110.62	110.78	110.84	108.24	111.28	111.02	109.93	109.43	Under Range
1/25/00 12:01	109.16	110.88	111.45	110.41	108.72	110.47	111.72	109.34	110.32	Under Range
1/25/00 12:02	109.97	111.41	110.30	110.96	110.51	111.77	112.87	109.26	109.91	Under Range
1/25/00 12:03	110.64	111.40	111.06	109.86	109.41	111.95	112.26	109.00	110.79	Under Range
1/25/00 12:04	110.45	109.70	110.60	110.51	107.81	110.46	110.79	108.91	108.93	Under Range
1/25/00 12:05	108.62	110.98	110.26	111.90	109.10	110.94	111.52	109.61	110.88	Under Range
1/25/00 12:06	113.47	112.63	114.03	113.53	113.32	114.67	114.18	112.46	114.18	Under Range
1/25/00 12:07	110.22	112.07	112.62	112.92	109.30	111.95	112.80	111.05	111.12	Under Range
1/25/00 12:08	110.29	111.51	110.65	111.78	109.69	111.56	113.22	110.13	111.27	Under Range
1/25/00 12:09	109.39	110.42	110.51	110.61	108.70	110.92	110.46	107.52	109.35	Under Range
1/25/00 12:10	110.46	110.40	109.61	110.34	108.21	110.01	110.92	108.00	109.71	Under Range
1/25/00 12:11	109.26	110.17	109.46	107.97	108.18	110.33	111.10	109.43	108.88	Under Range
1/25/00 12:12	109.01	112.08	108.97	109.63	110.64	110.34	110.98	109.89	108.99	Under Range
1/25/00 12:13	108.48	109.42	109.41	110.01	106.93	109.98	111.25	110.60	109.66	Under Range
1/25/00 12:14	109.07	110.21	110.38	109.24	107.72	110.66	112.05	108.15	109.22	Under Range
1/25/00 12:15	110.03	110.83	111.56	111.75	109.12	111.30	111.54	110.45	109.94	Under Range
1/25/00 12:16	110.15	111.15	110.21	111.95	107.36	111.36	112.50	109.85	110.42	Under Range
1/25/00 12:17	109.97	110.40	110.09	110.50	107.20	110.52	111.00	109.41	109.51	Under Range

Date & Time	301 COAL FEEDER FLOW KLBS/HR LM3501	302 COAL FEEDER FLOW KLBS/HR LM3502	MAIN STEAM TEMP KLBS/HR LM3503	304 COAL FEEDER FLOW KLBS/HR LM3504	305 COAL FEEDER FLOW KLBS/HR LM3505	ECONOMIZER INLET TEMP KLBS/HR LM3506	307 COAL FEEDER FLOW KLBS/HR LM3507	308 COAL FEEDER FLOW KLBS/HR LM3508	309 COAL FEEDER FLOW KLBS/HR LM3509	310 COAL FEEDER FLOW KLBS/HR LM3510
1/25/00 12:18	109.35	109.37	111.49	109.05	109.20	110.10	111.05	109.84	108.49	Under Range
1/25/00 12:19	109.41	110.96	110.81	109.64	107.88	110.14	110.28	109.21	110.11	Under Range
1/25/00 12:20	110.06	110.48	110.21	111.11	108.31	111.67	111.08	109.08	110.15	Under Range
1/25/00 12:21	108.11	109.86	109.52	110.10	108.25	109.71	110.85	108.18	108.92	Under Range
1/25/00 12:22	111.74	112.36	110.99	112.38	110.71	113.43	112.12	110.58	112.06	Under Range
1/25/00 12:23	109.05	109.97	109.90	110.71	107.62	109.80	110.99	109.07	109.92	Under Range
1/25/00 12:24	109.78	110.47	111.15	111.26	107.94	109.89	111.60	109.15	109.35	Under Range
1/25/00 12:25	109.63	111.59	110.78	110.59	108.44	110.64	110.58	109.98	109.88	Under Range
1/25/00 12:26	108.53	109.82	109.63	109.32	107.32	110.14	110.50	108.56	110.09	Under Range
1/25/00 12:27	110.25	110.87	111.37	111.13	109.39	110.61	111.58	108.85	110.29	Under Range
1/25/00 12:28	107.54	109.13	110.16	109.34	106.84	109.43	109.77	107.01	109.64	Under Range
1/25/00 12:29	108.18	110.71	111.00	109.53	109.02	111.17	111.26	109.47	109.80	Under Range
1/25/00 12:30	110.31	111.43	112.57	113.10	109.24	112.16	112.15	110.10	110.24	Under Range
1/25/00 12:31	110.80	112.02	110.48	111.00	108.14	110.01	111.01	109.43	109.71	Under Range
1/25/00 12:32	109.54	110.14	110.08	110.55	108.73	110.16	111.34	110.70	110.66	Under Range
1/25/00 12:33	108.25	110.92	110.87	110.91	108.34	111.11	111.51	109.53	109.98	Under Range
1/25/00 12:34	109.09	110.27	110.14	108.56	109.37	110.44	111.45	109.03	109.24	Under Range
1/25/00 12:35	109.43	110.25	109.88	110.27	108.15	110.53	111.64	110.01	109.88	Under Range
1/25/00 12:36	109.37	109.96	110.20	111.13	109.01	110.48	110.02	109.35	110.62	Under Range
1/25/00 12:37	112.26	110.67	109.25	110.14	109.46	110.75	111.42	110.68	110.15	Under Range
1/25/00 12:38	109.98	111.71	110.35	110.58	108.05	110.46	111.05	109.33	109.56	Under Range
1/25/00 12:39	110.37	110.44	111.68	113.05	109.48	111.87	111.47	110.39	111.03	Under Range
1/25/00 12:40	109.51	109.37	109.56	109.87	107.71	110.14	110.17	107.78	108.71	Under Range
1/25/00 12:41	110.40	110.12	109.46	110.36	107.30	110.44	111.82	109.67	108.68	Under Range
1/25/00 12:42	109.51	110.35	110.44	110.40	109.11	111.43	111.02	109.51	109.47	Under Range
1/25/00 12:43	108.49	109.11	108.81	111.15	107.58	109.41	110.31	107.82	108.59	Under Range
1/25/00 12:44	109.37	110.46	108.62	113.44	107.59	110.80	111.12	108.76	108.78	Under Range
1/25/00 12:45	110.29	110.07	110.76	109.56	110.26	110.98	111.77	108.40	108.85	Under Range
1/25/00 12:46	109.74	110.54	110.17	110.75	108.43	110.68	112.16	108.88	110.23	Under Range
1/25/00 12:47	109.62	110.12	110.09	109.79	108.33	110.07	111.30	110.90	109.31	Under Range
1/25/00 12:48	110.09	110.60	109.95	110.80	108.45	110.10	111.11	109.47	110.20	Under Range
1/25/00 12:49	111.41	110.98	111.50	110.33	107.83	112.82	112.08	110.66	111.66	Under Range
1/25/00 12:50	109.92	110.87	111.16	109.99	111.33	111.83	112.07	110.44	109.82	Under Range
1/25/00 12:51	110.52	110.78	110.71	111.37	108.04	110.22	111.85	111.09	108.99	Under Range
1/25/00 12:52	111.09	111.49	111.13	111.39	108.22	110.55	111.26	110.08	110.03	Under Range
1/25/00 12:53	109.58	110.55	109.33	108.49	108.38	110.23	111.07	110.05	109.70	Under Range
1/25/00 12:54	108.68	110.25	109.30	108.38	108.24	110.89	112.31	108.49	108.17	Under Range
1/25/00 12:55	108.82	110.12	110.67	111.20	108.23	110.17	110.35	108.44	108.57	Under Range

Date & Time	301 COAL FEEDER FLOW KLBS/HR LM3501	302 COAL FEEDER FLOW KLBS/HR LM3502	MAIN STEAM TEMP KLBS/HR LM3503	304 COAL FEEDER FLOW KLBS/HR LM3504	305 COAL FEEDER FLOW KLBS/HR LM3505	ECONOMIZER INLET TEMP KLBS/HR LM3506	307 COAL FEEDER FLOW KLBS/HR LM3507	308 COAL FEEDER FLOW KLBS/HR LM3508	309 COAL FEEDER FLOW KLBS/HR LM3509	310 COAL FEEDER FLOW KLBS/HR LM3510
1/25/00 12:56	110.12	110.35	110.34	109.82	109.92	110.52	111.36	110.63	109.63	Under Range
1/25/00 12:57	111.97	111.65	111.99	112.53	111.34	112.01	112.95	110.79	110.55	Under Range
1/25/00 12:58	108.93	109.80	109.80	110.35	109.75	111.20	110.98	108.84	109.87	Under Range
1/25/00 12:59	108.51	109.95	110.48	109.15	108.83	109.81	111.27	109.45	110.09	Under Range
1/25/00 13:00	109.80	111.30	111.92	112.04	109.47	111.38	112.19	109.11	111.58	Under Range
1/25/00 13:01	110.02	111.54	110.99	112.11	109.74	111.80	112.06	110.84	111.22	Under Range
1/25/00 13:02	110.78	111.10	111.94	112.03	109.24	111.06	112.01	109.38	111.05	Under Range
1/25/00 13:03	110.36	110.90	111.40	111.34	107.33	111.45	111.77	110.84	109.90	Under Range
1/25/00 13:04	112.53	113.03	111.91	111.36	108.93	112.42	112.78	110.51	110.76	Under Range
1/25/00 13:05	110.43	110.77	110.85	111.50	110.26	112.85	112.84	110.71	111.75	Under Range
1/25/00 13:06	111.76	112.93	112.41	113.10	110.53	113.28	113.40	112.03	113.05	Under Range
1/25/00 13:07	112.25	112.20	112.33	112.61	109.83	112.23	112.68	111.43	110.54	Under Range
1/25/00 13:08	110.89	110.82	109.49	112.32	109.10	111.10	112.13	109.92	108.41	Under Range
1/25/00 13:09	110.23	111.65	110.76	110.01	111.14	111.65	112.28	110.51	110.92	Under Range
1/25/00 13:10	110.98	111.57	113.26	112.34	110.00	112.20	112.50	111.19	111.59	Under Range
1/25/00 13:11	111.71	112.48	111.05	111.48	109.49	111.11	112.33	109.81	111.15	Under Range
1/25/00 13:12	111.18	111.40	110.99	110.50	109.12	111.81	113.54	110.13	110.47	Under Range
1/25/00 13:13	110.35	111.73	113.17	111.42	109.70	112.32	112.05	109.82	110.74	Under Range
1/25/00 13:14	111.82	112.08	112.22	112.70	110.02	112.89	112.93	110.35	111.66	Under Range
1/25/00 13:15	111.09	111.33	111.32	111.58	108.61	111.81	112.25	110.25	110.20	Under Range
1/25/00 13:16	115.20	113.98	114.43	114.00	111.13	113.96	114.00	113.30	112.78	Under Range
1/25/00 13:17	110.98	111.61	110.68	110.02	109.57	111.65	111.38	111.36	111.70	Under Range
1/25/00 13:18	108.85	111.17	112.78	111.13	109.30	111.41	111.60	109.67	110.96	Under Range
1/25/00 13:19	110.14	110.95	109.77	111.25	109.55	110.27	111.52	109.47	111.53	Under Range
1/25/00 13:20	110.09	110.98	111.18	112.21	107.51	110.75	111.76	109.55	109.83	Under Range
1/25/00 13:21	110.41	110.49	109.81	110.26	110.34	111.52	111.26	110.45	109.10	Under Range
1/25/00 13:22	110.24	110.47	110.51	111.31	108.11	110.34	111.61	109.72	109.96	Under Range
1/25/00 13:23	112.45	110.05	109.30	110.55	109.13	111.57	110.85	109.44	109.95	Under Range
1/25/00 13:24	111.57	111.56	110.15	110.39	109.20	111.57	111.76	109.23	109.78	Under Range
1/25/00 13:25	111.11	111.36	110.65	112.13	109.21	111.37	111.69	109.96	110.47	Under Range
1/25/00 13:26	110.18	110.62	110.42	110.93	110.13	111.04	111.79	113.22	110.42	Under Range
1/25/00 13:27	108.85	110.79	111.40	107.35	109.11	110.85	111.62	109.04	111.12	Under Range
1/25/00 13:28	109.76	110.49	110.19	110.19	108.49	110.40	111.49	109.33	108.87	Under Range
1/25/00 13:29	108.96	112.15	108.78	111.77	108.17	110.56	111.75	109.33	109.16	Under Range
1/25/00 13:30	110.40	110.98	111.23	111.51	109.59	110.90	111.79	109.54	109.52	Under Range
1/25/00 13:31	110.55	110.86	113.52	110.79	109.43	111.02	110.44	109.58	110.61	Under Range
1/25/00 13:32	110.54	112.17	112.11	111.72	111.23	112.09	112.71	112.17	111.90	Under Range
1/25/00 13:33	110.37	110.39	109.24	109.22	108.76	110.11	111.14	109.81	109.13	Under Range

Date & Time	301 COAL FEEDER FLOW KLBS/HR LM3501	302 COAL FEEDER FLOW KLBS/HR LM3502	MAIN STEAM TEMP KLBS/HR LM3503	304 COAL FEEDER FLOW KLBS/HR LM3504	305 COAL FEEDER FLOW KLBS/HR LM3505	ECONOMIZER INLET TEMP KLBS/HR LM3506	307 COAL FEEDER FLOW KLBS/HR LM3507	308 COAL FEEDER FLOW KLBS/HR LM3508	309 COAL FEEDER FLOW KLBS/HR LM3509	310 COAL FEEDER FLOW KLBS/HR LM3510
1/25/00 13:34	111.72	111.00	111.04	110.07	108.59	110.99	111.68	109.84	110.03	Under Range
1/25/00 13:35	110.89	111.29	111.27	111.98	110.05	111.23	111.60	109.74	110.57	Under Range
1/25/00 13:36	111.97	111.44	112.00	112.81	111.61	111.96	113.46	110.27	111.52	Under Range
1/25/00 13:37	109.22	109.66	109.96	110.25	107.97	109.36	111.24	108.49	109.88	Under Range
1/25/00 13:38	109.32	110.57	109.30	111.25	107.99	111.26	111.39	109.66	111.06	Under Range
1/25/00 13:39	110.46	111.57	111.30	108.98	107.03	111.12	112.47	110.25	111.00	Under Range
1/25/00 13:40	109.86	110.69	111.66	111.04	108.37	110.93	112.04	109.78	109.55	Under Range
1/25/00 13:41	111.39	111.91	111.52	112.23	110.11	111.99	113.12	109.84	111.21	Under Range
1/25/00 13:42	110.31	112.22	110.73	111.16	110.81	112.35	112.79	110.16	111.60	Under Range
1/25/00 13:43	111.38	111.50	110.94	111.15	109.78	111.76	112.83	111.02	111.15	Under Range
1/25/00 13:44	111.24	112.17	111.19	113.82	110.32	112.08	113.03	112.64	111.22	Under Range
1/25/00 13:45	112.42	111.90	110.57	110.55	109.22	111.93	111.93	109.88	109.67	Under Range
1/25/00 13:46	111.21	112.07	112.62	112.70	111.90	112.33	112.80	111.92	112.63	Under Range
1/25/00 13:47	110.73	111.04	112.42	110.25	108.89	111.35	112.08	109.47	109.78	Under Range
1/25/00 13:48	111.11	111.67	111.00	112.03	108.49	111.48	112.54	110.62	110.17	Under Range
1/25/00 13:49	110.50	111.49	113.06	112.63	111.23	111.45	110.95	110.48	111.22	Under Range
1/25/00 13:50	110.53	110.64	110.27	110.16	109.01	112.55	112.01	110.53	110.25	Under Range
1/25/00 13:51	112.03	112.63	112.20	112.88	111.24	113.30	113.70	110.43	111.43	Under Range
1/25/00 13:52	109.99	111.03	110.81	111.01	110.08	111.20	111.31	109.63	110.31	Under Range
1/25/00 13:53	109.95	110.55	110.32	110.05	109.76	110.63	110.39	109.70	109.53	Under Range
1/25/00 13:54	113.23	109.54	109.14	109.63	106.88	109.84	111.11	110.49	108.68	Under Range
1/25/00 13:55	109.93	110.15	110.31	110.17	108.90	110.38	111.65	109.51	110.42	Under Range
1/25/00 13:56	112.72	113.05	114.19	113.32	111.51	113.07	113.81	111.99	111.69	Under Range
1/25/00 13:57	110.68	111.11	111.44	110.20	109.25	110.56	111.88	110.77	109.33	Under Range
1/25/00 13:58	108.58	110.20	109.84	109.86	107.78	110.08	110.16	108.12	109.24	Under Range
Average	**110.37**	**111.06**	**110.92**	**110.96**	**109.13**	**111.19**	**111.76**	**109.92**	**110.28**	

Test 2

	3 GENERATOR GROSS MEGAWATT	BOILER SUPRHTR OUTLET STEA	MAIN STEAM TEMPERATUR E	MAIN STEAM PRESSURE	MAIN STEAM STOP VLV INLET	ECONOMIZER INLET TEMPERATU	COAL FLOW TOTAL	TOTAL BOILER AIR FLOW	MAX1 AVERAGE FLUE GAS O2	3 LP COND CIRC WATER INLET
	MW	KLBS/HR	DEGREE F	PSIG	PSIG	DEGREE F	TONS/HR	KLBS/HR	PERCENT	DEGREE F
	GE3504	MC3526	MC3514	MC3513	MP3525	FT3517	LC3502	DC3524	DC3566	HT3505
1/25/00 2:40 PM	898.61	6194.02	1002.88	2591.00	2500.38	496.02	496.28	8124.96	1.88	66.85
1/25/00 2:41 PM	899.08	6184.87	1002.88	2594.05	2504.55	495.82	493.69	8128.88	1.88	66.73
1/25/00 2:42 PM	898.42	6255.06	1002.88	2594.05	2500.75	495.61	496.28	8107.75	1.88	66.63
1/25/00 2:43 PM	897.89	6224.54	1002.88	2591.00	2497.73	495.59	499.05	8127.00	1.88	66.32
1/25/00 2:44 PM	897.82	6233.70	1002.88	2591.00	2497.73	495.79	499.33	8169.72	1.88	65.99
1/25/00 2:45 PM	897.96	6200.13	1002.88	2587.94	2494.34	495.98	498.82	8147.85	1.88	65.85
1/25/00 2:46 PM	898.35	6206.23	1002.88	2587.94	2494.34	495.79	496.28	8154.46	1.88	65.71
1/25/00 2:47 PM	899.25	6203.18	1002.88	2587.94	2497.91	495.79	496.04	8190.15	1.88	65.57
1/25/00 2:48 PM	901.51	6270.32	1002.88	2587.94	2494.61	495.56	502.38	8215.50	1.88	65.43
1/25/00 2:49 PM	900.78	6282.53	1002.88	2584.89	2494.61	496.21	499.84	8245.26	1.88	65.56
1/25/00 2:50 PM	901.04	6270.32	1002.88	2584.89	2491.89	496.43	502.38	8194.90	1.88	65.17
1/25/00 2:51 PM	900.63	6209.28	1002.88	2584.89	2493.88	496.23	502.38	8139.67	1.88	65.81
1/25/00 2:52 PM	900.48	6200.13	1002.88	2584.89	2494.43	496.45	499.33	8191.09	1.88	66.06
1/25/00 2:53 PM	898.90	6215.39	1005.93	2587.94	2501.11	495.81	494.16	8207.28	1.88	65.84
1/25/00 2:54 PM	901.02	6282.53	1005.93	2587.94	2497.36	495.79	497.37	8161.44	1.88	65.92
1/25/00 2:55 PM	903.07	6175.71	1005.93	2587.94	2497.36	496.21	502.38	8172.22	1.88	65.77
1/25/00 2:56 PM	903.62	6175.71	1005.93	2587.94	2497.36	496.45	499.84	8175.83	1.88	65.92
1/25/00 2:57 PM	903.55	6172.66	1005.93	2587.94	2500.44	496.68	499.33	8196.36	1.88	65.64
1/25/00 2:58 PM	902.84	6184.87	1005.93	2587.94	2500.75	496.91	493.22	8230.76	1.88	65.34
1/25/00 2:59 PM	902.76	6218.44	1002.88	2594.05	2501.39	496.91	493.48	8232.29	1.88	65.69
1/25/00 3:00 PM	902.85	6175.71	1002.88	2594.05	2498.00	496.71	500.34	8177.86	1.88	65.58
1/25/00 3:01 PM	901.76	6166.56	999.83	2587.94	2494.71	496.87	499.58	8119.62	1.88	65.82
1/25/00 3:02 PM	901.95	6197.08	999.83	2587.94	2491.32	497.10	499.94	8178.88	1.88	65.83
1/25/00 3:03 PM	901.19	6197.08	999.83	2584.89	2491.32	496.70	499.33	8227.71	1.88	65.83
1/25/00 3:04 PM	901.39	6209.28	999.83	2584.89	2494.61	496.45	499.33	8236.86	1.88	65.50
1/25/00 3:05 PM	901.70	6175.71	1005.93	2584.89	2497.63	496.90	496.28	8242.97	1.88	65.50
1/25/00 3:06 PM	902.04	6227.59	1005.93	2584.89	2504.24	496.69	493.93	8194.14	1.88	65.81
1/25/00 3:07 PM	902.07	6267.27	1005.93	2594.05	2507.89	496.23	490.73	8172.50	1.88	65.38
1/25/00 3:08 PM	903.35	6245.91	1005.93	2594.05	2504.14	497.57	496.28	8160.57	1.88	65.57
1/25/00 3:09 PM	902.23	6218.44	1002.88	2594.05	2504.14	496.71	499.33	8149.38	1.88	65.30
1/25/00 3:10 PM	901.91	6230.65	1002.88	2594.05	2504.14	496.68	496.28	8139.21	1.88	65.03
1/25/00 3:11 PM	900.56	6206.23	999.83	2594.05	2506.96	496.46	490.17	8178.88	1.88	64.91
1/25/00 3:12 PM	900.74	6294.73	999.83	2594.05	2503.77	496.45	496.28	8172.77	1.88	64.81
1/25/00 3:13 PM	899.59	6316.10	996.77	2594.05	2500.38	496.04	501.91	8147.89	1.88	64.52
1/25/00 3:14 PM	899.37	6258.11	996.77	2594.05	2497.36	496.25	496.28	8172.77	1.88	64.77

	3 GENERATOR GROSS MEGAWATT	BOILER SUPRHTR OUTLET STEA	MAIN STEAM TEMPERATUR E	MAIN STEAM PRESSURE	MAIN STEAM STOP VLV INLET	ECONOMIZER INLET TEMPERATU	COAL FLOW TOTAL	TOTAL BOILER AIR FLOW	MAX1 AVERAGE FLUE GAS O2	3 LP COND CIRC WATER INLET
	MW	KLBS/HR	DEGREE F	PSIG	PSIG	DEGREE F	TONS/HR	KLBS/HR	PERCENT	DEGREE F
	GE3504	MC3526	MC3514	MC3513	MP3525	FT3517	LC3502	DC3524	DC3566	HT3505
1/25/00 3:15 PM	899.44	6209.28	996.77	2587.94	2494.06	496.03	501.87	8161.58	1.88	64.77
1/25/00 3:16 PM	900.67	6163.51	996.77	2587.94	2491.04	496.72	502.38	8157.52	1.88	65.07
1/25/00 3:17 PM	899.60	6160.45	996.77	2581.84	2495.16	496.27	500.34	8144.29	1.88	64.78
1/25/00 3:18 PM	899.49	6175.71	996.77	2581.84	2498.55	496.48	490.17	8114.79	1.88	64.83
1/25/00 3:19 PM	897.98	6148.25	996.77	2587.94	2501.57	496.04	493.22	8188.50	1.88	64.88
1/25/00 3:20 PM	896.53	6267.27	996.77	2587.94	2498.18	495.84	498.67	8201.77	1.88	64.94
1/25/00 3:21 PM	895.10	6303.89	996.77	2587.94	2494.97	495.38	496.71	8151.85	1.88	64.59
1/25/00 3:22 PM	896.82	6270.32	996.77	2587.94	2491.59	495.83	502.38	8114.79	1.88	64.75
1/25/00 3:23 PM	896.38	6252.01	996.77	2581.84	2491.59	495.60	508.01	8176.77	1.88	64.94
1/25/00 3:24 PM	898.72	6212.34	996.77	2581.84	2494.89	495.83	496.28	8212.45	1.88	64.98
1/25/00 3:25 PM	899.71	6148.25	999.83	2584.89	2497.30	495.83	499.80	8220.90	1.88	65.03
1/25/00 3:26 PM	900.21	6111.63	999.83	2584.89	2501.57	496.55	496.28	8237.74	1.88	65.07
1/25/00 3:27 PM	899.15	6157.40	1002.88	2591.00	2504.87	496.58	493.22	8188.03	1.88	65.34
1/25/00 3:28 PM	899.25	6190.97	1002.88	2591.00	2504.87	496.36	495.81	8181.93	1.88	64.67
1/25/00 3:29 PM	899.40	6255.06	999.83	2594.05	2501.57	496.56	496.28	8181.93	1.88	65.37
1/25/00 3:30 PM	899.16	6212.34	999.83	2594.05	2498.09	496.76	504.41	8149.38	1.88	65.03
1/25/00 3:31 PM	898.21	6194.02	999.83	2587.94	2498.09	496.12	499.33	8188.03	1.88	65.04
1/25/00 3:32 PM	898.47	6227.59	999.83	2587.94	2498.09	496.12	499.33	8255.17	1.88	65.07
1/25/00 3:33 PM	898.80	6218.44	1002.88	2587.94	2501.48	496.34	496.75	8250.48	1.88	65.36
1/25/00 3:34 PM	899.49	6206.23	1002.88	2587.94	2504.78	496.55	496.28	8252.12	1.88	65.16
1/25/00 3:35 PM	898.27	6200.13	1005.93	2594.05	2504.78	496.34	496.28	8157.75	1.88	64.95
1/25/00 3:36 PM	900.11	6236.75	1005.93	2594.05	2504.78	496.14	491.58	8168.78	1.88	65.46
1/25/00 3:37 PM	899.04	6264.22	1005.93	2594.05	2504.75	496.35	493.78	8130.05	1.88	65.14
1/25/00 3:38 PM	897.96	6309.99	1005.93	2594.05	2508.16	496.13	493.22	8172.77	1.88	65.90
1/25/00 3:39 PM	897.89	6386.29	1002.88	2600.15	2508.16	495.90	492.97	8162.86	1.88	66.09
1/25/00 3:40 PM	896.98	6267.27	1002.88	2600.15	2502.78	496.02	498.37	8144.93	1.88	66.29
1/25/00 3:41 PM	895.87	6239.80	999.83	2594.05	2498.00	496.15	496.53	8132.85	1.88	66.25
1/25/00 3:42 PM	897.47	6206.23	999.83	2594.05	2498.00	495.92	496.28	8160.57	1.88	66.17
1/25/00 3:43 PM	896.17	6172.66	1002.88	2591.00	2505.05	495.92	485.95	8141.08	1.88	66.08
1/25/00 3:44 PM	896.45	6285.58	1002.88	2591.00	2508.44	495.46	490.17	8117.84	1.88	65.99
1/25/00 3:45 PM	896.24	6285.58	1002.88	2597.10	2504.68	495.68	496.28	8145.05	1.88	66.06
1/25/00 3:46 PM	894.92	6160.45	1002.88	2597.10	2501.39	495.89	493.22	8148.36	1.88	66.13
1/25/00 3:47 PM	895.52	6212.34	999.83	2591.00	2498.46	495.89	498.82	8150.40	1.88	66.31
1/25/00 3:48 PM	895.32	6175.71	999.83	2591.00	2495.07	495.66	499.33	8139.21	1.88	66.49
1/25/00 3:49 PM	894.86	6206.23	999.83	2584.89	2498.46	495.88	493.73	8140.22	1.88	66.51

	3 GENERATOR GROSS MEGAWATT	BOILER SUPRHTR OUTLET STEA	MAIN STEAM TEMPERATUR E	MAIN STEAM PRESSURE	MAIN STEAM STOP VLV INLET	ECONOMIZER INLET TEMPERATU	COAL FLOW TOTAL	TOTAL BOILER AIR FLOW	MAX1 AVERAGE FLUE GAS O2	3 LP COND CIRC WATER INLET
	MW	KLBS/HR	DEGREE F	PSIG	PSIG	DEGREE F	TONS/HR	KLBS/HR	PERCENT	DEGREE F
	GE3504	MC3526	MC3514	MC3513	MP3525	FT3517	LC3502	DC3524	DC3566	HT3505
1/25/00 3:50 PM	895.78	6230.65	999.83	2584.89	2501.75	495.68	493.22	8151.85	1.88	66.53
1/25/00 3:51 PM	895.32	6230.65	1002.88	2591.00	2504.78	495.46	487.12	8160.57	1.88	66.55
1/25/00 3:52 PM	895.18	6252.01	1002.88	2591.00	2501.02	495.69	502.38	8157.52	1.88	66.26
1/25/00 3:53 PM	893.85	6258.11	1002.88	2591.00	2501.02	495.69	496.28	8141.75	1.88	66.81
1/25/00 3:54 PM	893.64	6236.75	1002.88	2591.00	2498.49	495.44	493.93	8154.46	1.88	66.54
1/25/00 3:55 PM	893.18	6282.53	1002.88	2591.00	2501.02	495.01	496.28	8135.88	1.88	66.26
1/25/00 3:56 PM	893.86	6200.13	1002.88	2591.00	2497.73	495.21	495.77	8144.80	1.88	66.49
1/25/00 3:57 PM	893.67	6221.49	1002.88	2587.94	2497.73	495.42	496.28	8139.46	1.88	66.72
1/25/00 3:58 PM	893.76	6206.23	1002.88	2587.94	2501.48	495.35	493.22	8136.15	1.88	66.95
1/25/00 3:59 PM	892.65	6224.54	1002.88	2591.00	2501.36	495.27	490.45	8129.50	1.88	66.76
1/25/00 4:00 PM	891.05	6319.15	1002.88	2591.00	2497.73	495.06	496.28	8148.54	1.88	66.58
1/25/00 4:01 PM	891.94	6264.22	1002.88	2587.94	2497.73	494.58	493.48	8114.28	1.88	66.68
1/25/00 4:02 PM	893.56	6136.04	1002.88	2587.94	2501.02	495.01	491.48	8133.10	1.88	66.57
1/25/00 4:03 PM	893.17	6218.44	1002.88	2591.00	2501.48	495.68	493.22	8113.13	1.88	66.46
1/25/00 4:04 PM	890.95	6212.34	1002.88	2591.00	2504.41	495.03	490.17	8114.79	1.88	65.93
1/25/00 4:05 PM	888.36	6282.53	999.83	2594.05	2498.00	494.35	493.22	8101.75	1.88	66.25
1/25/00 4:06 PM	888.36	6337.46	999.83	2594.05	2498.00	494.57	490.17	8084.27	1.88	66.32
1/25/00 4:07 PM	888.55	6221.49	999.83	2587.94	2498.00	494.57	490.45	8089.54	1.88	66.00
1/25/00 4:08 PM	890.24	6267.27	999.83	2587.94	2498.00	494.34	496.28	8081.22	1.88	66.39
1/25/00 4:09 PM	890.97	6215.39	999.83	2584.89	2491.50	494.98	501.87	8106.14	1.88	66.33
1/25/00 4:10 PM	891.10	6224.54	999.83	2584.89	2488.69	495.00	502.38	8153.45	1.88	66.26
1/25/00 4:11 PM	894.34	6285.58	999.83	2578.79	2494.38	495.00	496.78	8191.09	1.88	66.29
1/25/00 4:12 PM	897.81	6273.37	999.83	2578.79	2495.07	495.56	499.33	8184.98	1.88	66.32
1/25/00 4:13 PM	898.89	6163.51	1002.88	2587.94	2502.93	496.14	493.66	8196.32	1.88	66.13
1/25/00 4:14 PM	900.74	6154.35	1002.88	2587.94	2503.40	496.16	493.22	8166.67	1.88	65.43
1/25/00 4:15 PM	900.00	6175.71	999.83	2591.00	2500.23	496.57	494.16	8163.38	1.88	65.59
1/25/00 4:16 PM	898.26	6200.13	999.83	2591.00	2499.65	496.18	496.28	8156.11	1.88	65.76
1/25/00 4:17 PM	896.82	6227.59	996.77	2591.00	2499.65	496.80	496.28	8134.77	1.88	65.57
1/25/00 4:18 PM	896.79	6160.45	996.77	2591.00	2500.37	495.94	496.28	8144.22	1.88	65.75
1/25/00 4:19 PM	895.05	6187.92	996.77	2591.00	2500.11	495.89	493.22	8122.67	1.88	65.57
1/25/00 4:20 PM	893.73	6233.70	996.77	2591.00	2496.72	495.50	493.22	8151.41	1.88	65.57
1/25/00 4:21 PM	895.18	6264.22	999.83	2584.89	2496.66	495.46	496.28	8147.42	1.88	65.57
1/25/00 4:22 PM	895.37	6261.16	999.83	2584.89	2496.72	495.68	496.28	8138.03	1.88	65.69
1/25/00 4:23 PM	898.65	6239.80	999.83	2587.94	2496.72	495.69	496.78	8127.00	1.88	65.83
1/25/00 4:24 PM	898.27	6227.59	999.83	2587.94	2489.76	495.69	507.78	8190.62	1.88	65.78

	3 GENERATOR GROSS MEGAWATT	BOILER SUPRHTR OUTLET STEA	MAIN STEAM TEMPERATUR E	MAIN STEAM PRESSURE	MAIN STEAM STOP VLV INLET	ECONOMIZER INLET TEMPERATU	COAL FLOW TOTAL	TOTAL BOILER AIR FLOW	MAX1 AVERAGE FLUE GAS O2	3 LP COND CIRC WATER INLET
	MW	KLBS/HR	DEGREE F	PSIG	PSIG	DEGREE F	TONS/HR	KLBS/HR	PERCENT	DEGREE F
	GE3504	MC3526	MC3514	MC3513	MP3525	FT3517	LC3502	DC3524	DC3566	HT3505
1/25/00 4:25 PM	899.23	6261.16	1002.88	2581.84	2492.28	495.69	502.89	8261.28	1.88	65.73
1/25/00 4:26 PM	900.57	6206.23	1002.88	2581.84	2495.46	496.79	494.63	8230.99	1.88	65.68
1/25/00 4:27 PM	902.15	6154.35	1002.88	2584.89	2499.56	496.22	499.33	8196.17	1.88	65.63
1/25/00 4:28 PM	903.32	6166.56	1002.88	2584.89	2502.95	496.62	493.22	8197.19	1.88	65.37
1/25/00 4:29 PM	903.22	6187.92	1002.88	2591.00	2500.08	496.84	496.28	8171.37	1.88	65.58
1/25/00 4:30 PM	901.73	6227.59	1002.88	2591.00	2495.80	496.65	500.68	8177.86	1.88	65.79
1/25/00 4:31 PM	903.01	6267.27	999.83	2587.94	2499.92	496.85	505.43	8206.34	1.88	65.50
1/25/00 4:32 PM	904.17	6242.85	999.83	2587.94	2499.92	496.85	499.33	8209.40	1.88	65.93
1/25/00 4:33 PM	905.05	6267.27	999.83	2591.00	2499.92	496.62	499.33	8194.14	1.88	65.99
1/25/00 4:34 PM	904.03	6218.44	999.83	2591.00	2503.22	497.08	493.22	8218.55	1.88	66.06
1/25/00 4:35 PM	903.92	6190.97	999.83	2591.00	2497.10	497.72	501.87	8188.03	1.88	66.41
1/25/00 4:36 PM	904.17	6212.34	999.83	2591.00	2503.22	497.28	496.28	8163.62	1.88	66.75
1/25/00 4:37 PM	905.31	6184.87	999.83	2594.05	2503.22	497.28	498.77	8169.72	1.88	66.57
1/25/00 4:38 PM	904.76	6252.01	999.83	2594.05	2503.22	497.08	499.33	8167.69	1.88	66.40
1/25/00 4:39 PM	903.42	6288.63	996.77	2591.00	2497.45	497.09	501.87	8137.17	1.88	66.42
1/25/00 4:40 PM	901.65	6288.63	996.77	2591.00	2493.51	497.10	501.07	8201.55	1.88	66.46
1/25/00 4:41 PM	902.27	6221.49	996.77	2581.84	2493.51	497.11	501.19	8160.57	1.88	66.49
1/25/00 4:42 PM	904.91	6239.80	996.77	2581.84	2496.54	496.88	496.28	8175.83	1.88	66.19
1/25/00 4:43 PM	906.58	6300.84	996.77	2587.94	2499.92	497.30	502.63	8247.80	1.88	66.45
1/25/00 4:44 PM	906.03	6340.51	996.77	2587.94	2499.92	496.86	502.38	8226.18	1.88	66.07
1/25/00 4:45 PM	905.72	6282.53	996.77	2587.94	2496.17	497.26	505.15	8198.30	1.88	66.38
1/25/00 4:46 PM	904.86	6221.49	996.77	2587.94	2495.67	496.84	500.74	8208.93	1.88	66.20
1/25/00 4:47 PM	905.12	6200.13	996.77	2587.94	2496.54	497.67	499.33	8189.56	1.88	66.32
1/25/00 4:48 PM	907.49	6203.18	996.77	2587.94	2499.92	497.49	501.51	8228.58	1.88	65.96
1/25/00 4:49 PM	908.15	6233.70	999.83	2587.94	2496.87	497.66	502.38	8243.48	1.88	66.25
1/25/00 4:50 PM	905.11	6172.66	999.83	2587.94	2492.51	497.05	505.43	8242.97	1.88	66.24
1/25/00 4:51 PM	906.46	6203.18	999.83	2581.84	2496.17	497.43	494.63	8212.68	1.88	66.21
1/25/00 4:52 PM	907.27	6172.66	999.83	2581.84	2496.17	497.44	499.33	8209.40	1.88	66.19
1/25/00 4:53 PM	906.31	6218.44	999.83	2587.94	2499.47	497.70	497.29	8221.10	1.88	66.38
1/25/00 4:54 PM	905.72	6245.91	999.83	2587.94	2499.47	497.70	498.31	8242.97	1.88	66.20
1/25/00 4:55 PM	904.09	6261.16	1002.88	2591.00	2496.17	497.28	499.33	8242.97	1.88	65.99
1/25/00 4:56 PM	902.55	6230.65	1002.88	2591.00	2499.47	497.50	499.33	8258.93	1.88	66.04
Average	**899.22**	**6225.57**	**1001.01**	**2589.12**	**2498.92**	**496.22**	**497.26**	**8172.53**	**1.88**	**65.84**

	CIRC WATER TO COOLING TOWE	3 HIGH PRESS CONDENSER PRE	3 LOW PRESS CONDENSER PRES	BAROMETRIC PRESS	YARD AMBIENT TEMP	SDA SPRAY ABS AVG IN TEMP	SDA SPRAY ABS INLET PRESS	SDA SPRAY ABS OUTLET PRESS	FF1 FILTR SYS 31FFU DP 36F	FF2 FILTR SYS 32 FFU DP 35	FF3 FILTR SYS 33FFU DP 36G
	DEGREE F	PSIA	PSIA	IN HG	EGF	DEG F	IN H2O	IN H2O	IN H2O	IN H2O	IN H2O
	HT3506	CP3503	CP3504	ZP2701	ZT2701	M33S501_PA	S38S028_AI	S38S029_AI	F36F029_AI	F35F030_AI	F36G029_AI
1/25/00 2:40 PM	100.32	1.16	0.88	29.17	12.48	164.80	-14.51	-18.07	4.34	3.94	4.12
1/25/00 2:41 PM	99.86	1.16	0.88	29.17	12.48	164.80	-14.43	-18.02	4.41	4.01	4.15
1/25/00 2:42 PM	100.19	1.16	0.88	29.17	12.48	164.80	-14.46	-18.10	4.51	4.11	4.37
1/25/00 2:43 PM	99.98	1.16	0.88	29.17	12.47	164.80	-14.72	-18.18	4.76	4.33	4.55
1/25/00 2:44 PM	99.73	1.16	0.88	29.17	12.47	164.80	-14.77	-18.41	4.45	4.04	4.15
1/25/00 2:45 PM	99.49	1.16	0.88	29.17	12.47	164.80	-14.53	-18.00	4.46	4.05	4.09
1/25/00 2:46 PM	98.92	1.16	0.88	29.17	12.47	164.80	-14.69	-18.29	4.55	4.17	4.16
1/25/00 2:47 PM	98.94	1.16	0.88	29.17	12.47	164.80	-14.89	-18.44	4.50	4.09	4.20
1/25/00 2:48 PM	98.95	1.16	0.88	29.17	12.46	164.80	-14.91	-18.46	4.44	4.06	4.19
1/25/00 2:49 PM	98.97	1.16	0.88	29.17	12.46	164.80	-14.82	-18.47	4.50	4.09	4.18
1/25/00 2:50 PM	98.99	1.16	0.88	29.17	12.50	164.80	-14.87	-18.41	4.55	4.13	4.18
1/25/00 2:51 PM	99.24	1.16	0.88	29.18	12.54	164.80	-14.73	-18.20	4.61	4.16	4.64
1/25/00 2:52 PM	99.33	1.16	0.88	29.18	12.57	164.80	-14.91	-18.35	4.74	4.34	4.91
1/25/00 2:53 PM	99.41	1.16	0.88	29.18	12.61	164.80	-14.79	-18.28	4.40	4.15	3.77
1/25/00 2:54 PM	99.35	1.16	0.88	29.18	12.64	164.80	-14.70	-18.30	4.54	4.14	3.90
1/25/00 2:55 PM	99.29	1.16	0.88	29.18	12.65	164.80	-14.88	-18.32	4.68	4.25	4.02
1/25/00 2:56 PM	99.54	1.17	0.88	29.18	12.65	164.80	-14.86	-18.36	4.47	4.06	3.83
1/25/00 2:57 PM	99.50	1.17	0.88	29.18	12.65	164.80	-14.75	-18.44	4.48	4.10	3.88
1/25/00 2:58 PM	99.45	1.17	0.88	29.18	12.65	164.80	-14.94	-18.40	4.49	4.15	3.94
1/25/00 2:59 PM	99.40	1.17	0.88	29.18	12.65	164.80	-14.84	-18.38	4.50	4.14	4.00
1/25/00 3:00 PM	99.36	1.17	0.88	29.18	12.65	164.80	-14.62	-18.30	4.68	4.28	4.05
1/25/00 3:01 PM	99.64	1.17	0.88	29.18	12.65	164.80	-14.81	-18.51	4.76	4.36	4.18
1/25/00 3:02 PM	99.43	1.17	0.88	29.18	12.65	164.80	-14.82	-18.45	4.50	4.16	3.98
1/25/00 3:03 PM	99.42	1.17	0.88	29.18	12.65	164.80	-14.97	-18.39	4.59	4.23	4.05
1/25/00 3:04 PM	98.99	1.17	0.88	29.18	12.66	164.80	-14.93	-18.59	4.67	4.28	4.11
1/25/00 3:05 PM	99.27	1.17	0.88	29.18	12.65	164.80	-14.73	-18.43	4.43	4.10	3.95
1/25/00 3:06 PM	99.22	1.17	0.88	29.18	12.65	164.80	-14.71	-18.16	4.47	4.12	3.98
1/25/00 3:07 PM	98.93	1.17	0.88	29.18	12.65	164.80	-14.69	-18.15	4.50	4.15	4.01
1/25/00 3:08 PM	98.62	1.17	0.88	29.18	12.65	164.80	-14.58	-18.01	4.54	4.17	4.05
1/25/00 3:09 PM	98.83	1.17	0.88	29.18	12.65	164.80	-14.38	-17.85	4.63	4.26	4.08
1/25/00 3:10 PM	99.04	1.17	0.88	29.18	12.65	164.80	-14.72	-18.18	4.69	4.34	4.19
1/25/00 3:11 PM	99.05	1.17	0.88	29.18	12.64	164.80	-14.61	-18.24	4.43	4.07	3.99
1/25/00 3:12 PM	98.39	1.17	0.88	29.18	12.74	164.80	-14.57	-18.11	4.48	4.22	4.08
1/25/00 3:13 PM	98.43	1.17	0.88	29.18	12.84	164.80	-14.57	-18.13	4.56	4.22	4.17
1/25/00 3:14 PM	98.46	1.17	0.88	29.18	12.83	164.80	-14.65	-18.15	4.37	4.06	3.99

	CIRC WATER TO COOLING TOWE	3 HIGH PRESS CONDENSER PRE	3 LOW PRESS CONDENSER PRES	BAROMETRIC PRESS	YARD AMBIENT TEMP	SDA SPRAY ABS AVG IN TEMP	SDA SPRAY ABS INLET PRESS	SDA SPRAY ABS OUTLET PRESS	FF1 FILTR SYS 31FFU DP 36F	FF2 FILTR SYS 32 FFU DP 35	FF3 FILTR SYS 33FFU DP 36G
	DEGREE F	PSIA	PSIA	IN HG	EGF	DEG F	IN H2O	IN H2O	IN H2O	IN H2O	IN H2O
	HT3506	CP3503	CP3504	ZP2701	ZT2701	M33S501_PA	S38S028_AI	S38S029_AI	F36F029_AI	F35F030_AI	F36G029_AI
1/25/00 3:15 PM	98.91	1.17	0.88	29.18	12.83	164.80	-14.63	-18.17	4.44	4.10	4.08
1/25/00 3:16 PM	98.53	1.17	0.88	29.18	12.83	164.80	-14.77	-18.45	4.51	4.14	4.12
1/25/00 3:17 PM	98.46	1.17	0.88	29.18	12.82	164.80	-14.71	-18.38	4.58	4.18	4.13
1/25/00 3:18 PM	98.69	1.17	0.88	29.18	12.82	164.80	-14.64	-18.23	4.69	4.42	4.31
1/25/00 3:19 PM	98.47	1.17	0.88	29.18	12.82	164.80	-14.96	-18.59	4.81	4.53	4.30
1/25/00 3:20 PM	98.25	1.17	0.88	29.18	12.81	164.80	-14.61	-18.28	4.52	4.14	4.11
1/25/00 3:21 PM	98.23	1.17	0.88	29.18	12.81	164.80	-14.56	-18.26	4.57	4.17	4.17
1/25/00 3:22 PM	98.23	1.17	0.88	29.18	12.81	164.80	-14.84	-18.31	4.63	4.23	4.21
1/25/00 3:23 PM	98.36	1.17	0.88	29.18	12.80	164.80	-14.88	-18.46	4.47	4.23	4.18
1/25/00 3:24 PM	98.49	1.17	0.88	29.18	12.80	164.80	-15.03	-18.56	4.47	4.22	4.16
1/25/00 3:25 PM	98.62	1.17	0.88	29.18	12.80	164.80	-14.95	-18.63	4.48	4.21	4.13
1/25/00 3:26 PM	99.16	1.17	0.88	29.18	12.79	164.80	-14.68	-18.41	4.49	4.20	4.15
1/25/00 3:27 PM	98.92	1.17	0.88	29.18	12.79	164.80	-14.67	-18.30	4.70	4.43	4.38
1/25/00 3:28 PM	98.63	1.17	0.88	29.18	12.79	164.80	-14.77	-18.35	4.64	4.32	4.28
1/25/00 3:29 PM	98.92	1.17	0.88	29.18	12.78	164.80	-14.80	-18.17	4.48	4.11	4.12
1/25/00 3:30 PM	98.71	1.17	0.88	29.18	12.78	164.80	-14.60	-18.28	4.55	4.18	4.22
1/25/00 3:31 PM	98.75	1.17	0.88	29.18	12.78	164.80	-14.84	-18.40	4.62	4.25	4.26
1/25/00 3:32 PM	98.82	1.17	0.88	29.18	12.77	164.80	-14.87	-18.47	4.45	4.24	4.20
1/25/00 3:33 PM	98.41	1.17	0.88	29.18	12.77	164.80	-14.86	-18.52	4.48	4.22	4.18
1/25/00 3:34 PM	98.92	1.17	0.88	29.18	12.77	164.80	-14.69	-18.42	4.50	4.21	4.22
1/25/00 3:35 PM	98.95	1.17	0.88	29.18	12.76	164.80	-14.83	-18.36	4.52	4.19	4.26
1/25/00 3:36 PM	98.99	1.17	0.88	29.18	12.76	164.80	-14.54	-18.07	4.66	4.33	4.35
1/25/00 3:37 PM	98.91	1.17	0.88	29.18	12.76	164.80	-14.83	-18.48	4.57	4.14	4.21
1/25/00 3:38 PM	98.82	1.17	0.88	29.18	12.75	164.80	-14.61	-18.36	4.50	4.16	4.13
1/25/00 3:39 PM	99.10	1.17	0.88	29.18	12.75	164.80	-14.62	-18.25	4.58	4.19	4.18
1/25/00 3:40 PM	99.37	1.17	0.88	29.18	12.75	164.80	-14.67	-18.30	4.55	4.24	4.20
1/25/00 3:41 PM	98.88	1.17	0.88	29.18	12.74	164.80	-14.83	-18.20	4.42	4.12	4.11
1/25/00 3:42 PM	99.58	1.17	0.88	29.18	12.74	164.80	-14.64	-18.18	4.41	4.12	4.15
1/25/00 3:43 PM	99.58	1.17	0.88	29.18	12.74	164.80	-14.69	-18.10	4.40	4.12	4.20
1/25/00 3:44 PM	99.22	1.17	0.88	29.18	12.73	164.80	-14.46	-17.92	4.43	4.24	4.20
1/25/00 3:45 PM	99.22	1.17	0.88	29.19	12.73	164.80	-14.56	-17.88	4.65	4.92	4.26
1/25/00 3:46 PM	99.58	1.17	0.88	29.19	12.73	164.80	-14.73	-18.42	4.50	4.09	4.26
1/25/00 3:47 PM	99.64	1.17	0.88	29.19	12.72	164.80	-14.64	-18.20	4.45	3.93	4.14
1/25/00 3:48 PM	100.01	1.17	0.88	29.19	12.72	164.80	-14.76	-18.20	4.48	4.02	4.19
1/25/00 3:49 PM	99.93	1.17	0.88	29.19	12.72	164.80	-14.99	-18.58	4.40	3.98	4.24

	CIRC WATER TO COOLING TOWE	3 HIGH PRESS CONDENSER PRE	3 LOW PRESS CONDENSER PRES	BAROMETRIC PRESS	YARD AMBIENT TEMP	SDA SPRAY ABS AVG IN TEMP	SDA SPRAY ABS INLET PRESS	SDA SPRAY ABS OUTLET PRESS	FF1 FILTR SYS 31FFU DP 36F	FF2 FILTR SYS 32 FFU DP 35	FF3 FILTR SYS 33FFU DP 36G
	DEGREE F	PSIA	PSIA	IN HG	EGF	DEG F	IN H2O	IN H2O	IN H2O	IN H2O	IN H2O
	HT3506	CP3503	CP3504	ZP2701	ZT2701	M33S501_PA	S38S028_AI	S38S029_AI	F36F029_AI	F35F030_AI	F36G029_AI
1/25/00 3:50 PM	99.85	1.17	0.89	29.19	12.71	164.80	-14.62	-18.13	4.40	3.90	4.18
1/25/00 3:51 PM	99.81	1.17	0.89	29.19	12.71	164.80	-14.63	-18.20	4.47	3.94	4.13
1/25/00 3:52 PM	99.78	1.17	0.89	29.19	12.70	164.80	-14.58	-18.15	4.54	3.97	4.28
1/25/00 3:53 PM	100.01	1.17	0.89	29.19	12.70	164.80	-14.44	-18.14	4.61	4.09	4.30
1/25/00 3:54 PM	99.51	1.17	0.89	29.19	12.70	164.80	-14.59	-18.15	4.81	4.34	4.55
1/25/00 3:55 PM	99.55	1.17	0.89	29.19	12.69	164.80	-14.78	-18.30	4.58	4.11	4.31
1/25/00 3:56 PM	100.04	1.17	0.89	29.19	12.69	164.80	-14.57	-18.23	4.47	4.04	4.19
1/25/00 3:57 PM	100.36	1.17	0.89	29.19	12.69	164.80	-14.61	-18.10	4.53	4.15	4.31
1/25/00 3:58 PM	99.78	1.17	0.89	29.19	12.68	164.80	-14.65	-18.13	4.55	4.08	4.25
1/25/00 3:59 PM	100.14	1.17	0.89	29.19	12.68	164.80	-14.67	-18.15	4.54	4.06	4.19
1/25/00 4:00 PM	99.39	1.17	0.89	29.19	12.68	164.80	-14.67	-18.17	4.52	4.09	4.14
1/25/00 4:01 PM	100.00	1.17	0.89	29.19	12.67	164.80	-14.55	-18.19	4.51	4.12	4.15
1/25/00 4:02 PM	99.96	1.17	0.89	29.19	12.67	164.80	-14.41	-17.99	4.55	4.15	4.35
1/25/00 4:03 PM	99.91	1.17	0.89	29.19	12.67	164.80	-14.60	-17.84	4.84	4.37	5.03
1/25/00 4:04 PM	99.63	1.17	0.89	29.19	12.66	164.80	-14.77	-18.36	4.52	4.11	4.09
1/25/00 4:05 PM	99.35	1.17	0.89	29.19	12.66	164.80	-14.57	-18.20	4.51	4.09	3.97
1/25/00 4:06 PM	99.28	1.17	0.89	29.19	12.66	164.80	-14.62	-18.07	4.59	4.15	4.08
1/25/00 4:07 PM	98.99	1.17	0.89	29.19	12.65	164.80	-14.54	-18.11	4.48	4.09	4.04
1/25/00 4:08 PM	99.16	1.17	0.89	29.19	12.65	164.80	-14.45	-18.15	4.51	4.07	4.00
1/25/00 4:09 PM	99.34	1.17	0.89	29.19	12.65	164.80	-14.69	-18.26	4.53	4.09	4.03
1/25/00 4:10 PM	99.27	1.17	0.89	29.19	12.64	164.80	-14.83	-18.40	4.56	4.11	4.05
1/25/00 4:11 PM	99.19	1.17	0.89	29.19	12.63	164.80	-14.61	-18.00	4.68	4.21	4.17
1/25/00 4:12 PM	99.55	1.17	0.89	29.19	12.62	164.80	-14.58	-18.24	4.84	4.44	4.38
1/25/00 4:13 PM	99.29	1.17	0.89	29.19	12.61	164.80	-14.66	-18.14	4.48	4.10	4.02
1/25/00 4:14 PM	99.55	1.17	0.89	29.19	12.60	164.80	-14.78	-18.37	4.58	4.18	4.08
1/25/00 4:15 PM	99.48	1.17	0.89	29.19	12.59	164.80	-14.56	-18.11	4.68	4.26	4.13
1/25/00 4:16 PM	98.73	1.17	0.89	29.19	12.58	164.80	-14.72	-18.24	4.48	4.16	4.08
1/25/00 4:17 PM	99.24	1.17	0.89	29.19	12.57	164.80	-14.72	-18.15	4.48	4.10	4.05
1/25/00 4:18 PM	99.17	1.17	0.89	29.19	12.56	164.80	-14.54	-18.21	4.53	4.13	4.06
1/25/00 4:19 PM	99.08	1.17	0.89	29.19	12.55	164.80	-14.80	-18.35	4.58	4.16	4.12
1/25/00 4:20 PM	98.99	1.17	0.89	29.19	12.54	164.80	-14.68	-18.30	4.63	4.23	4.21
1/25/00 4:21 PM	99.02	1.17	0.89	29.19	12.53	164.80	-14.52	-17.94	4.77	4.48	4.39
1/25/00 4:22 PM	99.05	1.17	0.89	29.19	12.52	164.80	-14.60	-18.17	4.45	4.04	4.07
1/25/00 4:23 PM	98.89	1.17	0.89	29.19	12.51	164.80	-14.65	-18.14	4.57	4.15	4.09
1/25/00 4:24 PM	99.05	1.17	0.89	29.19	12.50	164.80	-14.85	-18.36	4.70	4.26	4.25

	CIRC WATER TO COOLING TOWE	3 HIGH PRESS CONDENSER PRE	3 LOW PRESS CONDENSER PRES	BAROMETRIC PRESS	YARD AMBIENT TEMP	SDA SPRAY ABS AVG IN TEMP	SDA SPRAY ABS INLET PRESS	SDA SPRAY ABS OUTLET PRESS	FF1 FILTR SYS 31FFU DP 36F	FF2 FILTR SYS 32 FFU DP 35	FF3 FILTR SYS 33FFU DP 36G
	DEGREE F	PSIA	PSIA	IN HG	EGF	DEG F	IN H2O	IN H2O	IN H2O	IN H2O	IN H2O
	HT3506	CP3503	CP3504	ZP2701	ZT2701	M33S501_PA	S38S028_AI	S38S029_AI	F36F029_AI	F35F030_AI	F36G029_AI
1/25/00 4:25 PM	98.89	1.18	0.89	29.19	12.49	164.80	-14.89	-18.55	4.50	4.22	4.12
1/25/00 4:26 PM	99.08	1.18	0.89	29.19	12.48	164.80	-14.80	-18.46	4.50	4.15	4.14
1/25/00 4:27 PM	99.27	1.18	0.89	29.19	12.47	164.80	-14.60	-18.16	4.51	4.12	4.16
1/25/00 4:28 PM	99.32	1.18	0.89	29.19	12.46	164.80	-14.70	-18.19	4.51	4.16	4.19
1/25/00 4:29 PM	99.37	1.18	0.89	29.19	12.45	164.80	-14.71	-18.23	4.62	4.43	4.29
1/25/00 4:30 PM	99.41	1.18	0.89	29.19	12.44	164.80	-14.71	-18.28	4.79	4.52	4.38
1/25/00 4:31 PM	99.28	1.18	0.89	29.19	12.43	164.80	-14.67	-18.34	4.49	4.09	4.15
1/25/00 4:32 PM	99.61	1.18	0.89	29.19	12.42	164.80	-14.55	-18.19	4.55	4.14	4.24
1/25/00 4:33 PM	99.61	1.18	0.89	29.19	12.41	164.80	-14.73	-18.15	4.61	4.20	4.34
1/25/00 4:34 PM	99.91	1.18	0.89	29.19	12.40	164.80	-14.72	-18.30	4.59	4.18	4.15
1/25/00 4:35 PM	99.85	1.18	0.89	29.19	12.39	164.80	-14.69	-18.14	4.52	4.10	4.17
1/25/00 4:36 PM	100.07	1.18	0.89	29.19	12.38	164.80	-14.55	-18.10	4.47	4.12	4.19
1/25/00 4:37 PM	100.30	1.18	0.89	29.19	12.37	164.80	-14.53	-18.07	4.48	4.14	4.21
1/25/00 4:38 PM	100.29	1.18	0.89	29.20	12.36	164.80	-14.37	-18.01	4.61	4.34	4.40
1/25/00 4:39 PM	100.27	1.18	0.89	29.20	12.35	164.80	-14.79	-18.40	4.82	4.53	4.42
1/25/00 4:40 PM	100.26	1.18	0.89	29.20	12.34	164.80	-14.70	-18.27	4.51	4.10	4.10
1/25/00 4:41 PM	100.24	1.18	0.89	29.20	12.33	164.80	-14.67	-18.15	4.57	4.20	4.15
1/25/00 4:42 PM	99.91	1.18	0.89	29.20	12.32	164.80	-14.71	-18.17	4.71	4.23	4.19
1/25/00 4:43 PM	100.07	1.18	0.89	29.20	12.31	164.80	-14.65	-18.22	4.49	4.21	4.20
1/25/00 4:44 PM	99.85	1.18	0.89	29.20	12.30	164.80	-14.75	-18.29	4.49	4.18	4.20
1/25/00 4:45 PM	100.23	1.18	0.89	29.20	12.29	164.80	-14.78	-18.33	4.49	4.16	4.19
1/25/00 4:46 PM	100.14	1.18	0.89	29.20	12.28	164.80	-14.53	-18.12	4.49	4.13	4.19
1/25/00 4:47 PM	100.03	1.18	0.89	29.20	12.27	164.80	-14.73	-18.30	4.72	4.51	4.38
1/25/00 4:48 PM	99.92	1.18	0.89	29.20	12.26	164.80	-14.91	-18.39	4.68	4.38	4.36
1/25/00 4:49 PM	100.23	1.18	0.89	29.20	12.25	164.80	-14.96	-18.55	4.54	4.17	4.17
1/25/00 4:50 PM	100.02	1.18	0.89	29.20	12.24	164.80	-14.80	-18.45	4.91	4.15	4.26
1/25/00 4:51 PM	99.79	1.18	0.89	29.20	12.23	164.80	-14.92	-18.49	4.85	4.14	4.30
1/25/00 4:52 PM	100.31	1.18	0.89	29.20	12.22	164.80	-14.79	-18.36	4.45	4.15	4.27
1/25/00 4:53 PM	100.26	1.18	0.89	29.20	12.21	164.80	-14.83	-18.42	4.45	4.18	4.24
1/25/00 4:54 PM	100.21	1.18	0.89	29.20	12.19	164.80	-14.98	-18.47	4.50	4.22	4.27
1/25/00 4:55 PM	99.84	1.18	0.89	29.20	12.17	164.80	-15.06	-18.60	4.56	4.25	4.31
1/25/00 4:56 PM	99.82	1.18	0.89	29.20	12.14	164.80	-14.76	-18.46	4.69	4.84	4.43
Average	**99.37**	**1.17**	**0.88**	**29.19**	**12.59**	**164.80**	**-14.71**	**-18.27**	**4.56**	**4.19**	**4.19**

	301 COAL FEEDER FLOW KLBS/HR LM3501	302 COAL FEEDER FLOW KLBS/HR LM3502	303 COAL FEEDER FLOW KLBS/HR LM3503	304 COAL FEEDER FLOW KLBS/HR LM3504	305 COAL FEEDER FLOW KLBS/HR LM3505	306 COAL FEEDER FLOW KLBS/HR LM3506	307 COAL FEEDER FLOW KLBS/HR LM3507	FEEDER FLOW KLBS/HR LM3508	FEEDER FLOW KLBS/HR LM3509	310 COAL FEEDER FLOW KLBS/HR LM3510
1/25/00 2:40 PM	109.40	110.41	110.67	110.00	108.10	110.25	111.42	108.79	109.80	Under Range
1/25/00 2:41 PM	109.70	110.32	111.29	110.67	107.91	109.95	111.39	108.94	108.60	Under Range
1/25/00 2:42 PM	111.06	111.06	110.74	111.61	108.20	110.86	111.42	108.40	109.85	Under Range
1/25/00 2:43 PM	110.08	110.23	109.82	110.39	110.55	110.76	110.93	109.91	108.76	Under Range
1/25/00 2:44 PM	110.13	111.07	112.81	110.68	108.20	111.22	111.63	109.36	110.00	Under Range
1/25/00 2:45 PM	110.28	111.44	110.81	111.83	110.30	111.06	111.91	108.75	110.05	Under Range
1/25/00 2:46 PM	110.60	110.99	110.22	112.08	107.86	110.90	110.97	110.80	109.42	Under Range
1/25/00 2:47 PM	109.39	110.62	110.75	112.65	108.56	110.47	111.17	109.96	111.37	Under Range
1/25/00 2:48 PM	112.43	112.62	113.05	112.55	110.50	112.62	113.65	110.82	112.68	Under Range
1/25/00 2:49 PM	111.54	111.02	111.47	111.40	108.67	112.25	112.53	109.87	111.32	Under Range
1/25/00 2:50 PM	110.26	111.93	111.48	110.06	109.97	112.19	112.76	111.62	112.43	Under Range
1/25/00 2:51 PM	111.27	111.85	112.45	112.10	111.92	112.12	112.49	110.06	110.12	Under Range
1/25/00 2:52 PM	110.68	111.22	111.22	112.25	108.96	111.39	111.75	110.53	110.44	Under Range
1/25/00 2:53 PM	109.03	109.52	108.82	107.76	107.67	111.14	109.73	109.42	108.43	Under Range
1/25/00 2:54 PM	111.98	111.42	111.46	112.28	110.56	111.39	114.05	110.29	111.06	Under Range
1/25/00 2:55 PM	111.12	111.65	111.17	112.07	110.58	111.51	112.07	112.33	111.59	Under Range
1/25/00 2:56 PM	112.72	111.64	111.37	111.16	109.17	111.94	112.12	111.20	110.40	Under Range
1/25/00 2:57 PM	110.77	111.01	112.14	111.90	109.10	111.27	111.72	110.15	109.91	Under Range
1/25/00 2:58 PM	110.08	109.84	110.15	110.51	108.23	110.05	110.81	108.13	109.30	Under Range
1/25/00 2:59 PM	109.53	110.22	111.31	110.53	107.82	110.54	111.55	109.02	110.69	Under Range
1/25/00 3:00 PM	109.76	111.72	111.58	111.57	110.17	111.63	112.06	110.54	110.69	Under Range
1/25/00 3:01 PM	110.76	111.82	111.85	111.94	109.84	111.57	112.26	110.88	110.79	Under Range
1/25/00 3:02 PM	111.06	112.20	112.72	111.64	109.49	112.75	112.70	111.27	111.83	Under Range
1/25/00 3:03 PM	109.95	111.39	112.44	110.98	112.08	111.69	112.39	110.81	111.66	Under Range
1/25/00 3:04 PM	109.65	111.02	113.66	111.21	108.94	111.36	112.29	109.61	110.42	Under Range
1/25/00 3:05 PM	111.77	110.85	109.93	110.44	109.20	110.98	111.32	109.41	110.46	Under Range
1/25/00 3:06 PM	110.27	110.20	111.14	109.99	108.54	110.28	110.97	110.61	109.42	Under Range
1/25/00 3:07 PM	108.72	109.47	109.93	110.49	107.37	110.08	111.22	108.79	107.64	Under Range
1/25/00 3:08 PM	111.54	111.06	112.33	111.28	110.33	111.16	111.54	110.10	111.04	Under Range
1/25/00 3:09 PM	109.63	110.97	110.90	111.02	109.85	111.65	112.07	110.66	109.87	Under Range
1/25/00 3:10 PM	109.99	110.53	110.13	110.93	108.52	110.62	111.57	109.76	109.73	Under Range
1/25/00 3:11 PM	110.26	109.61	107.78	109.59	107.82	110.15	110.28	108.77	108.43	Under Range
1/25/00 3:12 PM	108.90	110.36	110.68	109.46	109.09	110.51	111.02	108.06	109.27	Under Range
1/25/00 3:13 PM	110.93	111.10	111.27	112.14	109.85	111.86	112.84	110.25	111.05	Under Range
1/25/00 3:14 PM	109.13	110.66	110.55	110.16	108.81	111.80	111.66	110.68	111.71	Under Range
1/25/00 3:15 PM	111.35	111.78	112.24	112.87	109.76	111.44	112.27	110.54	112.21	Under Range

1/25/00 3:16 PM	110.32	111.57	113.24	111.07	109.49	110.96	113.62	109.27	111.20	Under Range
1/25/00 3:17 PM	108.99	111.30	112.39	111.59	109.10	111.73	111.78	111.04	109.77	Under Range
1/25/00 3:18 PM	108.37	109.25	109.96	111.52	108.93	110.36	110.90	109.40	109.21	Under Range
1/25/00 3:19 PM	110.05	110.20	110.41	109.92	110.06	110.39	110.93	109.55	109.22	Under Range
1/25/00 3:20 PM	111.51	112.01	113.01	111.94	109.98	112.06	111.53	109.98	110.99	Under Range
1/25/00 3:21 PM	110.21	111.19	110.98	111.47	109.82	111.95	111.80	109.54	110.34	Under Range
1/25/00 3:22 PM	110.56	111.61	110.43	110.94	108.84	112.57	112.98	111.26	110.07	Under Range
1/25/00 3:23 PM	111.15	112.96	112.91	113.63	110.79	112.35	113.78	112.03	113.23	Under Range
1/25/00 3:24 PM	109.54	111.11	113.29	112.25	110.53	111.13	111.60	110.83	110.70	Under Range
1/25/00 3:25 PM	109.58	110.61	110.78	111.06	109.75	111.40	112.13	110.40	109.91	Under Range
1/25/00 3:26 PM	110.04	110.68	110.68	110.72	108.80	110.92	110.93	110.25	109.90	Under Range
1/25/00 3:27 PM	109.35	110.05	109.99	110.23	108.08	110.33	111.21	109.13	109.24	Under Range
1/25/00 3:28 PM	111.90	110.93	110.22	110.66	108.23	110.81	110.98	109.80	110.12	Under Range
1/25/00 3:29 PM	110.10	111.36	110.81	109.86	111.83	112.89	113.42	111.84	109.76	Under Range
1/25/00 3:30 PM	112.58	111.89	111.51	112.64	110.64	112.39	113.17	111.26	110.80	Under Range
1/25/00 3:31 PM	111.56	110.46	109.74	109.91	109.27	111.65	111.86	110.55	110.66	Under Range
1/25/00 3:32 PM	111.54	110.98	110.70	111.80	110.80	111.45	112.05	109.37	110.44	Under Range
1/25/00 3:33 PM	108.99	110.51	109.43	110.93	108.74	109.81	110.66	109.95	109.04	Under Range
1/25/00 3:34 PM	109.11	110.42	109.79	110.70	107.71	110.54	111.98	109.41	110.98	Under Range
1/25/00 3:35 PM	110.22	110.52	110.64	111.19	108.03	112.21	112.35	108.97	110.76	Under Range
1/25/00 3:36 PM	110.57	110.72	109.07	109.46	108.15	111.07	111.06	108.74	109.79	Under Range
1/25/00 3:37 PM	110.59	110.44	111.46	108.54	108.17	111.28	110.66	108.63	109.46	Under Range
1/25/00 3:38 PM	108.81	109.47	110.07	109.20	107.50	110.78	111.12	110.09	110.59	Under Range
1/25/00 3:39 PM	109.87	110.17	109.96	110.40	109.42	110.26	111.17	108.09	109.53	Under Range
1/25/00 3:40 PM	110.83	110.82	111.00	110.94	110.23	111.18	112.15	109.29	110.16	Under Range
1/25/00 3:41 PM	111.32	110.65	110.48	110.68	111.44	111.35	111.34	108.79	109.80	Under Range
1/25/00 3:42 PM	110.93	111.36	109.73	111.04	108.03	111.08	111.89	110.54	109.81	Under Range
1/25/00 3:43 PM	107.04	107.23	108.58	109.73	105.63	108.36	107.53	105.77	106.22	Under Range
1/25/00 3:44 PM	107.38	109.39	111.05	110.72	107.85	110.47	111.22	108.06	109.63	Under Range
1/25/00 3:45 PM	110.34	111.13	110.72	110.56	109.50	111.52	111.62	109.44	108.74	Under Range
1/25/00 3:46 PM	109.55	110.38	110.40	110.55	109.03	110.33	110.74	110.42	109.31	Under Range
1/25/00 3:47 PM	110.06	111.40	111.35	111.45	111.25	111.18	111.82	110.98	111.12	Under Range
1/25/00 3:48 PM	110.23	111.23	112.12	110.95	110.50	111.77	112.90	109.95	109.04	Under Range
1/25/00 3:49 PM	108.58	109.95	109.92	110.15	108.53	109.60	110.88	107.53	109.00	Under Range
1/25/00 3:50 PM	109.63	110.04	110.81	111.45	108.44	110.57	110.98	109.78	109.62	Under Range
1/25/00 3:51 PM	107.01	108.85	108.87	109.06	106.15	109.36	108.20	108.62	107.59	Under Range
1/25/00 3:52 PM	111.66	110.85	109.51	112.64	109.07	110.84	111.47	109.62	108.89	Under Range
1/25/00 3:53 PM	111.12	110.49	110.58	109.56	108.94	110.12	110.89	109.00	110.29	Under Range
1/25/00 3:54 PM	110.39	111.23	110.46	110.01	108.17	111.52	111.47	110.46	109.73	Under Range
1/25/00 3:55 PM	109.55	110.38	109.95	109.66	108.68	110.14	110.79	109.36	108.57	Under Range

1/25/00 3:56 PM	109.88	111.94	109.27	110.81	108.37	111.42	111.48	109.12	108.92	Under Range
1/25/00 3:57 PM	109.84	110.25	110.21	111.95	108.94	110.65	111.07	108.54	110.38	Under Range
1/25/00 3:58 PM	108.66	108.92	108.36	110.70	107.76	109.48	110.09	106.92	109.34	Under Range
1/25/00 3:59 PM	110.19	109.92	109.89	109.85	108.53	110.33	110.66	108.20	108.56	Under Range
1/25/00 4:00 PM	109.30	109.97	109.73	111.12	107.72	110.29	110.64	110.19	108.59	Under Range
1/25/00 4:01 PM	109.46	109.96	109.69	110.89	108.79	110.91	111.42	109.81	109.06	Under Range
1/25/00 4:02 PM	111.03	110.27	109.84	108.70	107.56	110.70	110.36	108.59	109.06	Under Range
1/25/00 4:03 PM	109.09	110.58	111.53	108.02	108.04	110.47	111.44	108.33	108.91	Under Range
1/25/00 4:04 PM	107.55	108.75	108.28	110.09	107.27	109.93	110.75	107.51	108.73	Under Range
1/25/00 4:05 PM	108.81	110.33	110.83	112.27	107.78	109.84	111.41	108.36	109.05	Under Range
1/25/00 4:06 PM	109.68	109.46	109.48	108.36	107.55	109.48	110.43	108.17	108.24	Under Range
1/25/00 4:07 PM	108.50	109.50	108.98	108.29	108.88	110.86	110.14	109.06	109.64	Under Range
1/25/00 4:08 PM	109.91	110.83	111.73	110.79	110.08	110.83	110.64	109.97	108.88	Under Range
1/25/00 4:09 PM	111.55	112.66	112.43	112.20	111.21	112.84	113.30	112.04	111.45	Under Range
1/25/00 4:10 PM	110.94	111.88	111.63	112.40	110.82	112.15	113.06	111.05	111.03	Under Range
1/25/00 4:11 PM	109.32	109.63	109.92	110.87	109.18	110.84	111.70	110.60	110.87	Under Range
1/25/00 4:12 PM	111.14	111.55	111.18	111.99	109.27	112.19	112.75	111.78	111.66	Under Range
1/25/00 4:13 PM	108.20	110.16	110.25	110.28	107.46	109.96	111.33	110.02	109.18	Under Range
1/25/00 4:14 PM	109.64	110.84	111.64	109.62	109.43	109.98	111.38	108.50	110.42	Under Range
1/25/00 4:15 PM	109.83	110.37	111.16	110.67	107.93	111.06	110.99	110.15	109.38	Under Range
1/25/00 4:16 PM	109.25	110.34	110.12	110.87	108.19	110.28	111.19	108.77	109.46	Under Range
1/25/00 4:17 PM	109.65	110.07	109.17	109.65	108.36	110.45	111.17	108.96	109.53	Under Range
1/25/00 4:18 PM	108.75	110.26	109.36	111.36	108.38	110.00	111.22	108.26	109.38	Under Range
1/25/00 4:19 PM	110.73	110.81	110.57	111.75	110.02	111.15	111.46	111.01	110.86	Under Range
1/25/00 4:20 PM	109.31	110.68	111.05	110.06	108.52	111.19	111.58	110.08	109.52	Under Range
1/25/00 4:21 PM	110.49	110.65	110.33	110.67	110.36	111.25	111.21	109.57	108.47	Under Range
1/25/00 4:22 PM	110.14	110.89	111.74	111.28	109.64	111.33	112.38	110.38	109.49	Under Range
1/25/00 4:23 PM	108.93	111.38	112.25	112.38	109.45	112.74	111.12	109.82	110.40	Under Range
1/25/00 4:24 PM	112.88	114.72	112.92	110.24	111.03	113.01	114.02	112.85	111.92	Under Range
1/25/00 4:25 PM	110.61	111.50	112.24	112.58	110.60	112.43	113.01	111.35	111.39	Under Range
1/25/00 4:26 PM	111.01	110.61	110.32	111.17	109.55	110.87	111.68	109.92	109.36	Under Range
1/25/00 4:27 PM	110.01	111.22	110.51	111.79	110.23	111.67	112.42	110.21	110.40	Under Range
1/25/00 4:28 PM	109.88	110.51	111.58	110.89	109.88	110.64	111.33	108.71	110.33	Under Range
1/25/00 4:29 PM	110.68	111.21	111.33	111.81	110.35	111.10	112.08	110.25	111.48	Under Range
1/25/00 4:30 PM	111.19	111.54	111.59	111.60	110.71	111.40	112.19	109.65	111.30	Under Range
1/25/00 4:31 PM	111.24	113.60	111.26	111.58	110.16	112.57	112.69	111.33	112.41	Under Range
1/25/00 4:32 PM	110.96	110.81	111.32	110.85	109.52	111.62	112.01	111.29	111.39	Under Range
1/25/00 4:33 PM	111.56	111.88	110.96	112.22	109.71	112.22	112.13	110.85	111.49	Under Range
1/25/00 4:34 PM	110.06	110.85	109.63	110.51	109.37	110.23	112.13	109.96	109.26	Under Range
1/25/00 4:35 PM	110.59	111.26	111.51	111.89	109.60	112.28	112.50	110.08	110.60	Under Range

1/25/00 4:36 PM	109.78	110.23	110.66	110.89	107.61	110.72	110.96	108.21	110.94	Under Range
1/25/00 4:37 PM	109.89	111.00	112.35	111.62	109.36	110.98	112.81	110.93	112.27	Under Range
1/25/00 4:38 PM	110.44	112.68	111.75	111.01	109.91	111.22	112.35	110.35	110.94	Under Range
1/25/00 4:39 PM	110.77	111.84	111.71	111.96	109.85	113.20	112.81	110.82	110.76	Under Range
1/25/00 4:40 PM	110.23	111.45	110.49	112.12	109.10	112.09	112.55	109.84	110.64	Under Range
1/25/00 4:41 PM	110.55	111.21	111.13	111.43	110.51	111.75	112.08	110.81	110.70	Under Range
1/25/00 4:42 PM	110.64	111.43	110.49	109.37	108.06	111.74	111.97	110.40	110.63	Under Range
1/25/00 4:43 PM	110.74	112.30	112.88	112.04	109.92	112.02	111.98	109.46	110.58	Under Range
1/25/00 4:44 PM	110.23	112.07	110.94	112.22	109.44	111.57	111.27	110.93	110.56	Under Range
1/25/00 4:45 PM	110.57	112.01	112.66	112.10	109.69	112.27	113.13	110.47	111.89	Under Range
1/25/00 4:46 PM	110.65	111.30	112.55	112.42	110.08	111.76	112.88	111.31	110.06	Under Range
1/25/00 4:47 PM	109.63	110.83	110.64	110.64	108.80	111.16	111.73	109.84	110.11	Under Range
1/25/00 4:48 PM	110.39	111.66	112.02	112.41	109.22	112.11	112.92	109.96	111.00	Under Range
1/25/00 4:49 PM	111.34	112.37	113.21	112.16	110.32	112.18	112.26	111.94	111.49	Under Range
1/25/00 4:50 PM	113.00	112.74	113.06	113.44	110.38	113.17	113.68	112.08	113.38	Under Range
1/25/00 4:51 PM	110.74	110.98	112.45	110.62	110.86	111.48	112.12	109.72	109.95	Under Range
1/25/00 4:52 PM	110.67	111.58	110.87	114.28	109.03	111.83	112.59	111.80	109.99	Under Range
1/25/00 4:53 PM	110.50	111.27	111.03	111.70	109.03	111.81	112.03	111.11	111.16	Under Range
1/25/00 4:54 PM	111.72	112.31	112.06	112.64	110.04	113.12	113.33	111.83	110.69	Under Range
1/25/00 4:55 PM	109.98	111.27	111.03	110.79	110.26	111.45	112.20	110.62	109.48	Under Range
1/25/00 4:56 PM	110.07	110.80	111.06	110.37	109.56	111.11	112.02	110.03	110.58	Under Range
Average	**110.22**	**110.92**	**110.95**	**111.04**	**109.22**	**111.21**	**111.74**	**109.92**	**110.17**	

Test 3

Date & Time	3 GENERATOR , GROSS MEGAWATT MW GE3504	BOILER SUPRHTR OUTLET STEA KLBS/HR MC3526	MAIN STEAM TEMPERATURE DEGREE F MC3514	MAIN STEAM PRESSURE PSIG MC3513	MAIN STEAM STOP VLV INLET PSIG MP3525	ECONOMIZER INLET TEMPERATU DEGREE F FT3517	COAL FLOW TOTAL ONS/HR LC3502	TOTAL BOILER AIR FLOW KLBS/HR DC3524	MAX1 AVERAGE FLUE GAS O2 PERCENT DC3566	3 LP COND CIRC WATER INLET DEGREE F HT3505
1/26/00 8:35 AM	908.19	6297.79	1001.32	2591.00	2497.18	496.86	508.48	8288.24	1.88	68.01
1/26/00 8:36 AM	907.89	6270.32	1001.32	2591.00	2497.18	496.87	508.48	8279.59	1.88	67.68
1/26/00 8:37 AM	907.96	6331.36	1001.32	2591.00	2500.20	496.43	505.43	8309.55	1.88	68.00
1/26/00 8:38 AM	907.35	6389.34	1001.32	2591.00	2496.90	496.85	511.97	8299.21	1.88	67.91
1/26/00 8:39 AM	906.75	6337.46	1000.74	2591.00	2493.51	496.87	508.99	8330.96	1.88	67.81
1/26/00 8:40 AM	908.71	6279.48	1000.74	2591.00	2496.90	496.87	506.14	8306.59	1.88	67.99
1/26/00 8:41 AM	909.25	6309.99	1001.98	2591.00	2500.20	496.44	508.48	8326.89	1.88	67.78
1/26/00 8:42 AM	909.79	6349.67	1001.98	2591.00	2500.20	496.87	511.53	8316.21	1.88	67.54
1/26/00 8:43 AM	911.60	6371.03	1002.67	2591.00	2503.11	496.87	505.43	8300.12	1.88	67.21
1/26/00 8:44 AM	912.43	6337.46	1002.67	2591.00	2503.40	497.99	508.48	8313.16	1.88	66.88
1/26/00 8:45 AM	913.60	6319.15	1003.33	2594.05	2503.40	497.56	508.48	8350.80	1.88	67.01
1/26/00 8:46 AM	914.09	6313.05	1003.33	2594.05	2503.40	497.76	508.48	8325.84	1.88	66.70
1/26/00 8:47 AM	914.42	6288.63	1000.74	2594.05	2503.40	497.77	507.97	8343.17	1.88	67.16
1/26/00 8:48 AM	913.14	6303.89	1000.74	2594.05	2500.11	497.10	514.59	8249.07	1.88	67.31
1/26/00 8:49 AM	913.28	6303.89	1000.13	2594.05	2500.11	497.53	505.43	8304.00	1.88	68.08
1/26/00 8:50 AM	912.01	6322.20	1000.13	2594.05	2496.44	497.34	508.48	8325.37	1.88	68.14
1/26/00 8:51 AM	911.64	6325.25	1001.36	2591.00	2496.44	497.32	508.48	8325.37	1.88	68.17
1/26/00 8:52 AM	912.04	6319.15	1001.36	2591.00	2499.74	497.54	505.43	8316.21	1.88	68.50
1/26/00 8:53 AM	912.37	6331.36	1003.29	2591.00	2499.47	497.11	505.69	8317.99	1.88	68.47
1/26/00 8:54 AM	911.38	6343.56	1003.29	2591.00	2499.47	497.10	511.53	8319.26	1.88	68.43
1/26/00 8:55 AM	910.50	6294.73	1003.29	2591 00	2499.47	497.53	505.43	8288.24	1.88	68.56
1/26/00 8:56 AM	910.74	6340.51	1003.29	2591.00	2501.75	497.54	510.83	8304.94	1.88	68.46
1/26/00 8:57 AM	911.26	6358.82	1006.93	2591.00	2501.75	497.79	508.23	8285.69	1.88	68.35
1/26/00 8:58 AM	911.86	6328.30	1006.93	2591.00	2501.75	496.46	508.48	8319.26	1.88	68.24
1/26/00 8:59 AM	911.34	6300.84	1008.17	2594.05	2501.66	497.56	508.48	8358.94	1.88	68.39
1/26/00 9:00 AM	911.30	6306.94	1008.17	2594.05	2501.66	497.37	505.43	8327.55	1.88	68.55
1/26/00 9:01 AM	910.87	6358.82	1008.17	2594.05	2501.66	497.35	507.97	8292.30	1.88	68.18
1/26/00 9:02 AM	911.65	6325.25	1008.17	2594.05	2503.00	497.14	505.43	8326.67	1.88	68.36
1/26/00 9:03 AM	911.67	6334.41	1006.09	2597.10	2502.03	497.99	508.01	8289.92	1.88	68.56
1/26/00 9:04 AM	910.56	6291.68	1006.09	2597.10	2498.73	497.13	511.53	8294.85	1.88	68.57
1/26/00 9:05 AM	908.36	6245.91	1003.48	2591.00	2494.98	497.34	508.48	8292.30	1.88	68.25
1/26/00 9:06 AM	909.96	6322.20	1003.48	2591.00	2498.73	496.68	499.33	8300.95	1.88	67.68
1/26/00 9:07 AM	911.61	6361.87	1005.41	2594.05	2502.03	497.34	505.43	8339.10	1.88	68.16
1/26/00 9:08 AM	911.95	6328.30	1005.41	2594.05	2502.03	497.56	507.83	8351.52	1.88	67.74
1/26/00 9:09 AM	912.10	6291.68	1004.24	2594.05	2502.03	497.36	508.01	8302.83	1.88	67.30
1/26/00 9:10 AM	912.01	6282.53	1004.24	2594.05	2502.03	497.35	508.48	8289.15	1.88	66.86
1/26/00 9:11 AM	912.13	6261.16	1004.24	2594.05	2505.05	497.57	505.43	8314.18	1.88	66.84
1/26/00 9:12 AM	912.37	6309.99	1004.24	2594.05	2505.97	497.35	502.38	8310.11	1.88	66.86

Date & Time	3 GENERATOR GROSS MEGAWATT MW GE3504	BOILER SUPRHTR OUTLET STEA KLBS/HR MC3526	MAIN STEAM TEMPERATURE DEGREE F MC3514	MAIN STEAM PRESSURE PSIG MC3513	MAIN STEAM STOP VLV INLET PSIG MP3525	ECONOMIZER INLET TEMPERATU DEGREE F FT3517	COAL FLOW TOTAL ONS/HR LC3502	TOTAL BOILER AIR FLOW KLBS/HR DC3524	MAX1 AVERAGE FLUE GAS O2 PERCENT DC3566	3 LP COND CIRC WATER INLET DEGREE F HT3505
1/26/00 9:13 AM	912.23	6371.03	1003.42	2600.15	2505.97	497.80	505.43	8297.90	1.88	66.88
1/26/00 9:14 AM	910.18	6322.20	1003.42	2600.15	2502.21	497.58	506.09	8308.80	1.88	67.29
1/26/00 9:15 AM	909.64	6297.79	1002.85	2594.05	2502.21	497.36	505.43	8279.59	1.88	67.49
1/26/00 9:16 AM	909.22	6358.82	1002.86	2594.05	2502.21	497.35	505.43	8251.18	1.88	67.67
1/26/00 9:17 AM	908.83	6367.98	1002.87	2594.05	2499.19	497.79	505.43	8304.00	1.88	67.45
1/26/00 9:18 AM	908.32	6358.82	1002.89	2594.05	2499.19	496.46	505.43	8276.54	1.88	67.51
1/26/00 9:19 AM	908.83	6291.68	1002.90	2594.05	2499.19	497.11	505.43	8295.36	1.88	67.26
1/26/00 9:20 AM	909.09	6294.73	1002.91	2594.05	2499.19	496.92	505.43	8302.83	1.88	67.64
1/26/00 9:21 AM	909.25	6282.53	1003.53	2591.00	2499.19	497.33	500.34	8291.80	1.88	67.87
1/26/00 9:22 AM	909.23	6367.98	1003.53	2591.00	2502.49	497.35	500.74	8295.32	1.88	67.75
1/26/00 9:23 AM	909.33	6367.98	1002.88	2597.10	2502.49	496.91	502.38	8298.60	1.88	67.90
1/26/00 9:24 AM	906.93	6343.56	1002.88	2597.10	2499.28	497.32	508.48	8276.54	1.88	68.07
1/26/00 9:25 AM	905.81	6294.73	1001.68	2591.00	2499.28	496.70	504.92	8252.63	1.88	67.86
1/26/00 9:26 AM	906.26	6410.70	1001.68	2591.00	2499.28	497.10	507.18	8251.25	1.88	67.66
1/26/00 9:27 AM	906.81	6364.93	1002.92	2591.00	2499.28	496.69	502.38	8255.43	1.88	67.45
1/26/00 9:28 AM	906.81	6331.36	1002.92	2591.00	2499.28	497.57	505.43	8249.07	1.88	67.25
1/26/00 9:29 AM	907.26	6316.10	1004.14	2591.00	2496.26	496.92	511.07	8309.64	1.88	66.77
1/26/00 9:30 AM	907.44	6227.59	1004.14	2591.00	2499.56	496.90	505.43	8292.41	1.88	67.09
1/26/00 9:31 AM	908.50	6316.10	1005.38	2597.10	2503.31	496.90	501.91	8262.69	1.88	66.96
1/26/00 9:32 AM	907.44	6374.08	1005.38	2597.10	2507.52	496.49	502.38	8267.38	1.88	66.46
1/26/00 9:33 AM	907.84	6374.08	1002.59	2600.15	2504.14	496.49	505.15	8274.87	1.88	65.37
1/26/00 9:34 AM	906.93	6346.62	1002.59	2600.15	2504.14	496.49	502.38	8276.54	1.88	65.20
1/26/00 9:35 AM	906.86	6358.82	999.81	2597.10	2504.14	496.49	502.38	8291.24	1.88	64.59
1/26/00 9:36 AM	906.80	6386.29	999.81	2597.10	2504.14	496.27	504.78	8267.38	1.88	64.51
1/26/00 9:37 AM	906.78	6380.19	999.81	2594.05	2500.38	496.79	505.43	8252.12	1.88	63.96
1/26/00 9:38 AM	906.77	6383.24	999.81	2594.05	2500.39	497.35	506.04	8227.71	1.88	64.16
1/26/00 9:39 AM	907.24	6325.25	999.81	2594.04	2500.39	497.16	502.38	8215.78	1.88	64.37
1/26/00 9:40 AM	906.70	6340.51	999.81	2594.04	2500.39	496.36	502.38	8270.43	1.88	64.44
1/26/00 9:41 AM	907.74	6401.55	1001.81	2594.03	2500.39	496.95	502.38	8295.40	1.88	64.51
1/26/00 9:42 AM	908.13	6386.29	1001.81	2594.02	2500.40	496.29	502.38	8291.80	1.88	64.57
1/26/00 9:43 AM	908.52	6358.82	1000.50	2594.01	2500.40	497.61	502.38	8288.19	1.88	64.82
1/26/00 9:44 AM	908.13	6291.68	1000.50	2594.01	2500.40	497.09	502.38	8264.33	1.88	64.78
1/26/00 9:45 AM	907.03	6316.10	998.58	2590.70	2496.23	496.53	505.94	8267.38	1.88	64.74
1/26/00 9:46 AM	907.23	6352.77	998.58	2590.70	2496.23	497.18	502.38	8279.59	1.88	64.70
1/26/00 9:47 AM	907.33	6315.17	999.20	2590.70	2499.98	497.18	502.89	8256.19	1.88	64.46
1/26/00 9:48 AM	907.37	6318.44	999.20	2590.70	2499.98	497.18	502.38	8255.17	1.88	64.95
1/26/00 9:49 AM	906.49	6343.45	999.82	2590.89	2496.65	497.18	505.69	8293.83	1.88	65.01
1/26/00 9:50 AM	906.99	6398.39	999.82	2590.89	2496.65	496.98	505.43	8266.36	1.88	65.41

Date & Time	3 GENERATOR GROSS MEGAWATT MW GE3504	BOILER SUPRHTR OUTLET STEA KLBS/HR MC3526	MAIN STEAM TEMPERATURE DEGREE F MC3514	MAIN STEAM PRESSURE PSIG MC3513	MAIN STEAM STOP VLV INLET PSIG MP3525	ECONOMIZER INLET TEMPERATU DEGREE F FT3517	COAL FLOW TOTAL ONS/HR LC3502	TOTAL BOILER AIR FLOW KLBS/HR DC3524	MAX1 AVERAGE FLUE GAS O2 PERCENT DC3566	3 LP COND CIRC WATER INLET DEGREE F HT3505
1/26/00 9:51 AM	909.04	6343.28	1001.13	2589.34	2496.65	496.77	502.63	8258.23	1.88	65.45
1/26/00 9:52 AM	908.81	6294.21	1001.13	2589.34	2496.65	497.21	508.48	8261.28	1.88	65.88
1/26/00 9:53 AM	908.66	6330.59	1001.13	2591.09	2496.65	496.75	507.97	8314.68	1.88	65.94
1/26/00 9:54 AM	909.41	6305.86	1001.13	2591.09	2496.65	497.41	505.43	8304.00	1.88	66.45
1/26/00 9:55 AM	911.18	6305.52	1000.51	2589.57	2496.65	497.41	508.01	8273.02	1.88	66.98
1/26/00 9:56 AM	911.43	6296.70	1000.51	2589.57	2499.78	497.18	502.38	8276.54	1.88	67.12
1/26/00 9:57 AM	912.20	6351.02	1001.68	2591.55	2499.78	497.40	505.43	8269.26	1.88	67.79
1/26/00 9:58 AM	912.71	6348.03	1001.68	2591.55	2499.78	497.62	504.78	8303.13	1.88	67.93
1/26/00 9:59 AM	913.90	6300.84	1000.99	2593.17	2499.78	497.60	505.15	8328.42	1.88	68.05
1/26/00 10:00 AM	913.55	6339.86	1000.99	2593.17	2499.78	498.22	505.43	8309.34	1.88	68.00
1/26/00 10:01 AM	913.33	6367.11	1000.99	2592.94	2499.78	497.83	505.43	8328.42	1.88	67.93
1/26/00 10:02 AM	914.09	6339.97	1000.99	2592.94	2499.78	497.35	505.43	8322.31	1.88	67.31
1/26/00 10:03 AM	913.71	6331.16	1000.99	2591.16	2499.26	497.35	508.48	8322.31	1.88	67.59
1/26/00 10:04 AM	914.09	6267.59	1000.99	2591.16	2499.26	497.80	505.43	8304.00	1.88	67.87
1/26/00 10:05 AM	913.07	6292.62	1000.99	2592.71	2499.26	497.67	508.48	8297.90	1.88	67.75
1/26/00 10:06 AM	914.21	6389.32	1000.99	2592.71	2502.59	497.54	502.38	8297.90	1.88	67.87
1/26/00 10:07 AM	914.79	6361.48	1000.25	2594.46	2502.59	497.78	504.04	8343.95	1.88	67.99
1/26/00 10:08 AM	915.22	6339.89	1000.25	2594.46	2499.57	498.02	505.78	8297.90	1.88	67.81
1/26/00 10:09 AM	914.79	6281.08	999.63	2594.23	2498.73	497.80	508.55	8328.70	1.88	67.91
1/26/00 10:10 AM	916.11	6327.29	999.63	2594.22	2498.73	498.41	504.53	8337.57	1.88	68.01
1/26/00 10:11 AM	915.74	6279.48	999.63	2594.21	2502.07	498.25	506.19	8317.85	1.88	68.12
1/26/00 10:12 AM	916.82	6272.97	999.63	2594.20	2502.07	497.82	503.82	8319.97	1.88	68.00
1/26/00 10:13 AM	917.06	6295.11	1000.27	2597.51	2505.82	497.80	504.61	8326.64	1.88	67.38
1/26/00 10:14 AM	917.68	6300.77	1000.27	2597.51	2505.82	498.24	503.17	8288.74	1.88	67.56
1/26/00 10:15 AM	917.16	6321.65	998.86	2599.06	2505.82	497.38	501.55	8309.85	1.88	67.74
1/26/00 10:16 AM	914.65	6305.18	998.86	2599.06	2505.82	498.02	501.49	8307.06	1.88	67.63
1/26/00 10:17 AM	913.72	6417.48	995.79	2599.26	2502.07	498.02	504.67	8282.89	1.88	67.50
1/26/00 10:18 AM	913.39	6414.09	995.79	2599.26	2502.07	497.57	502.62	8258.23	1.88	67.81
1/26/00 10:19 AM	912.77	6417.62	995.01	2592.84	2498.73	497.36	503.00	8286.87	1.88	67.27
1/26/00 10:20 AM	912.64	6415.36	995.01	2592.84	2495.40	497.56	506.87	8255.17	1.88	67.25
1/26/00 10:21 AM	912.60	6326.69	996.25	2589.72	2495.40	497.57	504.20	8285.18	1.88	67.01
1/26/00 10:22 AM	912.32	6314.45	996.25	2589.72	2498.53	497.13	500.57	8304.00	1.88	67.06
1/26/00 10:23 AM	913.80	6439.76	997.54	2591.03	2498.53	497.57	504.25	8325.62	1.88	66.88
1/26/00 10:24 AM	914.09	6396.55	997.54	2591.03	2498.53	497.36	505.75	8321.34	1.88	66.28
1/26/00 10:25 AM	913.89	6340.10	996.85	2590.87	2495.31	498.01	507.16	8273.74	1.88	66.13
1/26/00 10:26 AM	914.48	6321.87	996.85	2590.87	2495.31	497.80	506.64	8261.51	1.88	66.43
1/26/00 10:27 AM	915.54	6252.10	996.85	2587.21	2495.31	498.02	507.51	8274.59	1.88	66.20
1/26/00 10:28 AM	915.35	6252.82	996.85	2587.21	2498.53	498.02	502.19	8355.88	1.88	66.38

Date & Time	3 GENERATOR , GROSS MEGAWATT MW GE3504	BOILER SUPRHTR OUTLET STEA KLBS/HR MC3526	MAIN STEAM TEMPERATURE DEGREE F MC3514	MAIN STEAM PRESSURE PSIG MC3513	MAIN STEAM STOP VLV INLET PSIG MP3525	ECONOMIZER INLET TEMPERATU DEGREE F FT3517	COAL FLOW TOTAL ONS/HR LC3502	TOTAL BOILER AIR FLOW KLBS/HR DC3524	MAX1 AVERAGE FLUE GAS O2 PERCENT DC3566	3 LP COND CIRC WATER INLET DEGREE F HT3505
1/26/00 10:29 AM	916.03	6345.79	998.85	2588.77	2498.53	498.02	508.34	8326.64	1.90	66.08
1/26/00 10:30 AM	916.99	6300.95	998.85	2588.77	2498.53	498.24	506.48	8314.30	1.93	65.78
1/26/00 10:31 AM	916.09	6277.58	998.85	2590.68	2495.51	498.46	509.29	8296.71	1.96	66.06
1/26/00 10:32 AM	916.67	6302.49	998.85	2590.68	2495.51	498.47	505.53	8318.92	1.99	65.90
1/26/00 10:33 AM	916.42	6319.29	999.48	2589.08	2495.51	498.69	505.17	8319.09	2.02	65.74
1/26/00 10:34 AM	916.54	6312.16	999.48	2589.08	2498.84	498.47	505.32	8372.39	2.04	65.57
1/26/00 10:35 AM	916.87	6292.88	1001.11	2592.13	2501.62	498.25	503.33	8315.84	2.07	65.82
1/26/00 10:36 AM	916.82	6322.94	1001.11	2592.14	2501.87	497.85	504.31	8341.45	2.10	65.79
1/26/00 10:37 AM	916.80	6287.00	1002.58	2592.15	2498.46	498.48	506.00	8368.16	2.13	65.76
1/26/00 10:38 AM	917.17	6299.98	1002.58	2592.16	2501.45	498.27	506.11	8372.11	2.16	65.91
1/26/00 10:39 AM	917.77	6283.77	1002.58	2593.72	2504.86	498.71	506.05	8314.88	2.19	66.06
1/26/00 10:40 AM	917.41	6314.06	1002.58	2593.72	2504.13	498.28	504.95	8333.50	2.21	65.90
1/26/00 10:41 AM	915.81	6321.52	1002.58	2595.70	2505.20	498.68	504.46	8338.38	2.24	66.11
1/26/00 10:42 AM	915.19	6338.17	1002.58	2595.70	2501.45	498.05	504.79	8375.29	2.27	66.36
1/26/00 10:43 AM	914.57	6340.44	1002.58	2595.70	2505.20	498.67	503.61	8331.77	2.30	66.61
1/26/00 10:44 AM	913.41	6334.43	1002.58	2595.70	2504.79	497.84	502.32	8330.06	2.33	66.86
1/26/00 10:45 AM	912.89	6412.95	1003.89	2595.70	2502.28	498.01	502.42	8333.55	2.36	67.66
1/26/00 10:46 AM	912.47	6342.32	1003.89	2595.70	2505.41	497.60	502.16	8341.07	2.38	67.68
1/26/00 10:47 AM	912.37	6399.05	1003.89	2597.25	2502.60	496.70	501.88	8317.34	2.41	67.93
1/26/00 10:48 AM	911.29	6358.52	1003.89	2597.25	2502.28	498.02	503.97	8285.64	2.44	67.56
1/26/00 10:49 AM	911.54	6315.97	1004.51	2593.95	2502.28	497.13	502.16	8313.95	2.47	67.56
1/26/00 10:50 AM	911.38	6339.64	1004.51	2593.95	2499.15	498.16	505.15	8309.79	2.50	67.87
1/26/00 10:51 AM	910.98	6305.06	1005.08	2595.63	2503.74	497.38	501.59	8306.88	2.52	68.17
1/26/00 10:52 AM	911.98	6340.79	1005.08	2595.63	2507.07	497.78	501.45	8304.58	2.55	68.08
1/26/00 10:53 AM	912.45	6352.35	1005.66	2598.68	2507.07	498.01	501.55	8313.14	2.58	67.97
1/26/00 10:54 AM	912.68	6299.22	1005.66	2598.68	2507.07	498.02	500.47	8310.42	2.61	67.86
1/26/00 10:55 AM	912.47	6309.38	1003.57	2600.23	2510.41	497.58	493.58	8332.31	2.64	67.75
1/26/00 10:56 AM	912.05	6350.05	1003.57	2600.23	2510.41	497.57	498.34	8279.95	2.67	67.93
1/26/00 10:57 AM	910.36	6401.28	1000.95	2604.12	2507.07	498.02	499.93	8234.14	2.69	67.75
1/26/00 10:58 AM	910.79	6296.70	1000.95	2604.12	2503.32	497.35	498.64	8238.02	2.72	67.93
1/26/00 10:59 AM	909.45	6330.63	998.10	2596.99	2503.32	497.57	500.40	8222.71	2.75	67.85
1/26/00 11:00 AM	907.92	6361.91	998.10	2596.99	2503.32	497.06	498.73	8291.47	2.78	67.77
Average	**911.51**	**6330.36**	**1001.66**	**2593.53**	**2500.76**	**497.45**	**505.10**	**8300.19**	**1.98**	**67.05**

Date & Time	CIRC WATER TO COOLING TOWER DEGREE F HT3506	3 HIGH PRESS CONDENSER PRE PSIA CP3503	3 LOW PRESS CONDENSER PRES PSIA CP3504	BAROMETRIC PRESS IN HG ZP2701	YARD AMBIENT T DEGF ZT2701	SDA SPRAY ABS AVG IN TEMP DEG F M33S501_PA	SDA SPRAY ABS INLET PRESS IN H2O S38S028_AI	SDA SPRAY ABS OUTLET PRESS IN H2O S38S029_AI	FF1 FILTR SYS 31FFU DP 36F IN H2O F36F029_AI	FF2 FILTR SYS 32 FFU DP 35 IN H2O F35F030_AI	FF3 FILTR SYS 33FFU DP 36G IN H2O F36G029_AI
1/26/00 8:35 AM	101.69	1.20	0.83	29.31	-3.37	164.80	-15.20	-18.67	4.70	4.30	4.50
1/26/00 8:36 AM	101.92	1.20	0.83	29.31	-3.45	164.80	-15.04	-18.72	4.62	4.20	4.39
1/26/00 8:37 AM	101.69	1.20	0.83	29.31	-3.53	164.80	-15.00	-18.52	4.59	4.24	4.40
1/26/00 8:38 AM	101.81	1.20	0.83	29.31	-3.61	164.80	-15.12	-18.63	4.67	4.28	4.42
1/26/00 8:39 AM	101.57	1.20	0.83	29.31	-3.69	164.80	-15.15	-18.56	4.74	4.33	4.76
1/26/00 8:40 AM	101.68	1.20	0.83	29.31	-3.56	164.80	-15.04	-18.51	4.90	4.46	5.28
1/26/00 8:41 AM	101.55	1.20	0.83	29.31	-3.44	164.80	-15.04	-18.81	4.67	4.33	4.33
1/26/00 8:42 AM	101.41	1.20	0.83	29.31	-3.31	164.80	-14.97	-18.49	4.67	4.31	4.23
1/26/00 8:43 AM	101.26	1.20	0.83	29.31	-3.39	164.80	-14.89	-18.47	4.73	4.41	4.39
1/26/00 8:44 AM	101.12	1.20	0.83	29.31	-3.47	164.80	-15.09	-18.67	4.69	4.30	4.28
1/26/00 8:45 AM	100.97	1.20	0.83	29.31	-3.54	164.80	-14.86	-18.63	4.58	4.18	4.17
1/26/00 8:46 AM	101.09	1.20	0.83	29.31	-3.62	164.80	-14.89	-18.49	4.60	4.22	4.24
1/26/00 8:47 AM	100.81	1.20	0.83	29.31	-3.69	164.80	-15.01	-18.59	4.63	4.26	4.31
1/26/00 8:48 AM	101.29	1.20	0.83	29.31	-3.32	164.80	-14.92	-18.48	4.74	4.35	4.38
1/26/00 8:49 AM	101.80	1.20	0.83	29.31	-2.95	164.80	-15.08	-18.46	4.99	4.66	4.60
1/26/00 8:50 AM	102.10	1.20	0.83	29.31	-2.92	164.80	-15.18	-18.76	4.65	4.23	4.27
1/26/00 8:51 AM	101.99	1.20	0.83	29.31	-2.89	164.80	-14.95	-18.79	4.68	4.21	4.31
1/26/00 8:52 AM	102.06	1.20	0.83	29.31	-2.86	164.80	-15.12	-18.59	4.77	4.36	4.34
1/26/00 8:53 AM	102.13	1.20	0.83	29.31	-2.83	164.80	-15.29	-18.83	4.60	4.28	4.35
1/26/00 8:54 AM	102.21	1.20	0.83	29.31	-2.80	164.80	-15.24	-18.80	4.63	4.23	4.31
1/26/00 8:55 AM	102.28	1.20	0.83	29.31	-2.77	164.80	-15.10	-18.77	4.67	4.24	4.27
1/26/00 8:56 AM	102.23	1.20	0.83	29.31	-2.69	164.80	-15.02	-18.62	4.71	4.25	4.32
1/26/00 8:57 AM	102.17	1.20	0.83	29.31	-2.62	164.80	-14.91	-18.53	4.75	4.41	4.42
1/26/00 8:58 AM	102.12	1.20	0.83	29.31	-2.54	164.80	-15.28	-18.61	4.98	4.63	4.65
1/26/00 8:59 AM	102.77	1.20	0.83	29.31	-2.46	164.80	-15.20	-19.06	4.61	4.28	4.30
1/26/00 9:00 AM	102.32	1.20	0.83	29.31	-2.39	164.80	-15.23	-18.87	4.69	4.28	4.37
1/26/00 9:01 AM	102.34	1.20	0.83	29.31	-2.31	164.80	-15.08	-18.59	4.77	4.38	4.44
1/26/00 9:02 AM	102.41	1.20	0.83	29.31	-2.23	164.80	-14.96	-18.72	4.59	4.28	4.30
1/26/00 9:03 AM	102.22	1.20	0.83	29.31	-2.15	164.80	-15.11	-18.80	4.57	4.22	4.28
1/26/00 9:04 AM	102.42	1.20	0.83	29.31	Bad Input	164.80	-15.04	-18.63	4.58	4.22	4.29
1/26/00 9:05 AM	102.30	1.20	0.83	29.31	-2.34	164.80	-15.14	-18.74	4.60	4.21	4.30
1/26/00 9:06 AM	102.17	1.20	0.83	29.31	Bad Input	164.80	-14.91	-18.50	4.74	4.47	4.48
1/26/00 9:07 AM	102.05	1.20	0.83	29.31	Bad Input	164.80	-15.36	-18.55	4.96	4.66	4.44
1/26/00 9:08 AM	101.79	1.20	0.83	29.31	Bad Input	164.80	-15.29	-18.92	4.59	4.27	4.38
1/26/00 9:09 AM	101.52	1.20	0.83	29.31	Bad Input	164.80	-15.21	-18.81	4.69	4.25	4.39
1/26/00 9:10 AM	101.25	1.20	0.83	29.31	Bad Input	164.80	-15.04	-18.70	4.78	4.30	4.44
1/26/00 9:11 AM	100.88	1.20	0.83	29.31	Bad Input	164.53	-14.93	-18.58	4.51	4.15	4.27

Date & Time	CIRC WATER TO COOLING TOWER DEGREE F HT3506	3 HIGH PRESS CONDENSER PRE PSIA CP3503	3 LOW PRESS CONDENSER PRES PSIA CP3504	BAROMETRIC PRESS IN HG ZP2701	YARD AMBIENT T DEGF ZT2701	SDA SPRAY ABS AVG IN TEMP DEG F M33S501_PA	SDA SPRAY ABS INLET PRESS IN H2O S38S028_AI	SDA SPRAY ABS OUTLET PRESS IN H2O S38S029_AI	FF1 FILTR SYS 31FFU DP 36F IN H2O F36F029_AI	FF2 FILTR SYS 32 FFU DP 35 IN H2O F35F030_AI	FF3 FILTR SYS 33FFU DP 36G IN H2O F36G029_AI
1/26/00 9:12 AM	100.50	1.20	0.83	29.31	Bad Input	164.45	-15.06	-18.66	4.56	4.18	4.31
1/26/00 9:13 AM	100.87	1.21	0.83	29.31	Bad Input	164.99	-15.17	-18.86	4.61	4.21	4.35
1/26/00 9:14 AM	101.24	1.21	0.83	29.31	Bad Input	165.11	-15.14	-18.83	4.65	4.24	4.40
1/26/00 9:15 AM	101.39	1.21	0.83	29.31	Bad Input	164.88	-14.91	-18.38	4.70	4.38	4.44
1/26/00 9:16 AM	101.52	1.21	0.83	29.31	Bad Input	164.56	-15.05	-18.41	4.84	4.50	4.60
1/26/00 9:17 AM	101.33	1.21	0.83	29.31	Bad Input	164.66	-14.97	-18.90	4.51	4.26	4.28
1/26/00 9:18 AM	101.54	1.21	0.83	29.31	Bad Input	164.87	-15.13	-18.60	4.66	4.28	4.33
1/26/00 9:19 AM	101.75	1.21	0.83	29.31	Bad Input	164.87	-15.14	-18.57	4.81	4.41	4.39
1/26/00 9:20 AM	101.76	1.21	0.83	29.31	Bad Input	164.92	-15.19	-18.73	4.56	4.22	4.37
1/26/00 9:21 AM	101.76	1.21	0.83	29.31	Bad Input	164.82	-15.04	-18.65	4.56	4.20	4.35
1/26/00 9:22 AM	101.98	1.21	0.83	29.31	Bad Input	164.82	-14.98	-18.57	4.56	4.22	4.33
1/26/00 9:23 AM	101.57	1.21	0.83	29.31	Bad Input	164.97	-15.15	-18.68	4.55	4.24	4.40
1/26/00 9:24 AM	101.76	1.21	0.83	29.31	Bad Input	165.13	-15.05	-18.78	4.72	4.50	4.49
1/26/00 9:25 AM	101.41	1.21	0.83	29.31	Bad Input	164.93	-15.12	-18.59	4.74	4.39	4.50
1/26/00 9:26 AM	101.32	1.21	0.83	29.31	Bad Input	164.56	-14.94	-18.64	4.54	4.20	4.33
1/26/00 9:27 AM	101.25	1.21	0.83	29.31	Bad Input	164.61	-14.89	-18.47	4.67	4.28	4.38
1/26/00 9:28 AM	101.17	1.21	0.83	29.31	-0.87	164.74	-15.23	-18.86	4.70	4.33	4.41
1/26/00 9:29 AM	101.10	1.21	0.83	29.31	-0.73	165.29	-15.14	-18.94	4.53	4.28	4.40
1/26/00 9:30 AM	101.16	1.21	0.83	29.31	-0.58	165.17	-15.03	-18.80	4.50	4.23	4.38
1/26/00 9:31 AM	100.34	1.21	0.83	29.31	-0.44	164.71	-15.11	-18.66	4.48	4.17	4.36
1/26/00 9:32 AM	100.73	1.21	0.83	29.31	-0.30	164.69	-14.93	-18.64	4.60	4.32	4.34
1/26/00 9:33 AM	99.94	1.21	0.83	29.31	-0.16	164.91	-14.99	-18.47	4.72	4.84	4.49
1/26/00 9:34 AM	99.78	1.21	0.83	29.31	-0.01	165.09	-15.27	-18.65	4.72	4.42	4.49
1/26/00 9:35 AM	99.14	1.21	0.83	29.31	0.13	165.03	-15.11	-18.74	4.49	3.94	4.31
1/26/00 9:36 AM	98.49	1.21	0.83	29.31	0.66	164.89	-15.02	-18.62	4.50	4.03	4.33
1/26/00 9:37 AM	98.52	1.21	0.83	29.31	0.31	164.79	-14.92	-18.47	4.51	4.12	4.35
1/26/00 9:38 AM	98.12	1.21	0.83	29.32	0.59	164.85	-14.95	-18.59	4.53	4.09	4.36
1/26/00 9:39 AM	98.15	1.21	0.83	29.32	0.86	165.04	-14.98	-18.71	4.54	4.05	4.38
1/26/00 9:40 AM	98.49	1.21	0.83	29.32	0.80	165.29	-15.13	-18.67	4.56	4.07	4.40
1/26/00 9:41 AM	98.35	1.21	0.83	29.32	0.75	165.36	-15.12	-18.58	4.57	4.08	4.42
1/26/00 9:42 AM	98.46	1.21	0.83	29.32	0.69	165.10	-14.86	-18.55	4.87	4.31	4.68
1/26/00 9:43 AM	98.58	1.21	0.83	29.32	0.97	165.04	-15.27	-18.85	4.74	4.24	4.37
1/26/00 9:44 AM	98.70	1.21	0.83	29.32	1.25	165.26	-15.22	-18.77	4.60	4.15	4.36
1/26/00 9:45 AM	98.46	1.21	0.83	29.32	1.25	165.06	-15.03	-18.69	4.62	4.26	4.35
1/26/00 9:46 AM	98.46	1.21	0.83	29.32	1.25	165.02	-15.06	-18.54	4.63	4.18	4.36
1/26/00 9:47 AM	98.69	1.21	0.83	29.32	1.61	164.99	-14.96	-18.66	4.62	4.06	4.36
1/26/00 9:48 AM	98.58	1.21	0.83	29.32	1.66	165.04	-15.17	-18.80	4.61	4.12	4.37

Date & Time	CIRC WATER TO COOLING TOWER DEGREE F HT3506	3 HIGH PRESS CONDENSER PRE PSIA CP3503	3 LOW PRESS CONDENSER PRES PSIA CP3504	BAROMETRIC PRESS IN HG ZP2701	YARD AMBIENT T DEGF ZT2701	SDA SPRAY ABS AVG IN TEMP DEG F M33S501_PA	SDA SPRAY ABS INLET PRESS IN H2O S38S028_AI	SDA SPRAY ABS OUTLET PRESS IN H2O S38S029_AI	FF1 FILTR SYS 31FFU DP 36F IN H2O F36F029_AI	FF2 FILTR SYS 32 FFU DP 35 IN H2O F35F030_AI	FF3 FILTR SYS 33FFU DP 36G IN H2O F36G029_AI
1/26/00 9:49 AM	98.46	1.21	0.83	29.32	1.70	165.27	-15.02	-18.81	4.61	4.18	4.37
1/26/00 9:50 AM	98.62	1.21	0.83	29.32	1.75	165.23	-15.10	-18.82	4.72	4.27	4.55
1/26/00 9:51 AM	99.24	1.21	0.83	29.32	1.79	164.86	-14.86	-18.52	4.84	4.37	5.35
1/26/00 9:52 AM	99.90	1.21	0.84	29.32	1.98	164.99	-15.28	-18.69	4.68	4.35	4.48
1/26/00 9:53 AM	99.78	1.21	0.84	29.32	2.17	165.15	-15.26	-18.82	4.63	4.24	4.02
1/26/00 9:54 AM	100.14	1.21	0.84	29.32	2.36	165.28	-15.17	-18.81	4.68	4.26	4.11
1/26/00 9:55 AM	100.83	1.21	0.84	29.32	2.55	165.12	-15.21	-18.94	4.69	4.27	4.13
1/26/00 9:56 AM	101.26	1.21	0.84	29.32	2.56	165.06	-15.17	-18.74	4.67	4.25	4.04
1/26/00 9:57 AM	101.68	1.21	0.84	29.32	2.56	165.03	-15.28	-18.59	4.64	4.24	4.08
1/26/00 9:58 AM	101.24	1.21	0.84	29.32	2.75	165.24	-15.25	-18.80	4.64	4.25	4.14
1/26/00 9:59 AM	101.92	1.21	0.84	29.32	2.94	165.44	-15.24	-18.87	4.65	4.29	4.21
1/26/00 10:00 AM	102.20	1.21	0.84	29.32	3.13	165.48	-15.21	-18.82	4.98	4.58	4.38
1/26/00 10:01 AM	102.46	1.21	0.84	29.32	3.33	165.40	-15.52	-19.06	4.71	4.28	4.29
1/26/00 10:02 AM	101.99	1.21	0.84	29.32	3.12	165.54	-15.28	-19.10	4.78	4.31	4.17
1/26/00 10:03 AM	102.04	1.21	0.84	29.32	2.92	165.44	-15.21	-18.93	4.85	4.35	4.28
1/26/00 10:04 AM	102.09	1.21	0.84	29.32	3.12	165.28	-15.30	-18.96	4.68	4.32	4.21
1/26/00 10:05 AM	102.13	1.21	0.85	29.32	3.33	165.36	-15.23	-18.92	4.62	4.25	4.18
1/26/00 10:06 AM	102.18	1.21	0.85	29.32	3.52	165.34	-15.22	-18.87	4.64	4.25	4.21
1/26/00 10:07 AM	101.77	1.21	0.85	29.32	3.70	165.30	-15.21	-18.81	4.65	4.29	4.24
1/26/00 10:08 AM	102.06	1.21	0.85	29.32	3.89	165.32	-15.16	-18.79	4.72	4.40	4.26
1/26/00 10:09 AM	101.82	1.21	0.85	29.32	3.51	165.15	-15.11	-18.89	5.03	4.69	4.49
1/26/00 10:10 AM	102.26	1.21	0.85	29.32	3.60	165.11	-15.47	-18.95	4.68	4.26	4.23
1/26/00 10:11 AM	102.12	1.21	0.85	29.32	3.70	165.40	-15.12	-18.71	4.67	4.28	4.28
1/26/00 10:12 AM	102.29	1.21	0.85	29.32	4.26	165.28	-15.10	-18.78	4.82	4.30	4.40
1/26/00 10:13 AM	102.00	1.21	0.85	29.32	3.89	165.19	-15.14	-18.89	4.59	4.30	4.33
1/26/00 10:14 AM	101.99	1.21	0.85	29.32	4.12	165.37	-15.23	-18.83	4.61	4.28	4.23
1/26/00 10:15 AM	101.78	1.21	0.85	29.32	4.35	165.17	-15.19	-18.81	4.63	4.26	4.26
1/26/00 10:16 AM	101.57	1.21	0.85	29.32	4.58	164.98	-15.12	-18.87	4.66	4.24	4.29
1/26/00 10:17 AM	101.63	1.21	0.85	29.32	4.82	164.94	-14.84	-18.56	4.69	4.41	4.33
1/26/00 10:18 AM	101.70	1.21	0.86	29.32	4.77	164.83	-14.87	-18.39	4.86	4.66	4.48
1/26/00 10:19 AM	101.29	1.21	0.86	29.32	4.73	164.91	-15.18	-18.60	4.60	4.23	4.21
1/26/00 10:20 AM	101.42	1.21	0.86	29.32	4.68	164.99	-15.03	-18.52	4.62	4.20	4.29
1/26/00 10:21 AM	101.57	1.21	0.86	29.32	4.64	165.48	-15.09	-18.72	4.84	4.27	4.37
1/26/00 10:22 AM	101.33	1.21	0.86	29.32	4.59	165.19	-15.21	-18.72	4.59	4.29	4.34
1/26/00 10:23 AM	100.63	1.21	0.86	29.32	4.54	165.06	-15.11	-18.77	4.58	4.26	4.31
1/26/00 10:24 AM	100.79	1.21	0.86	29.32	4.50	165.01	-15.10	-18.69	4.62	4.24	4.29
1/26/00 10:25 AM	100.74	1.21	0.86	29.32	4.45	164.96	-15.03	-18.54	4.67	4.26	4.26

Date & Time	CIRC WATER TO COOLING TOWER DEGREE F HT3506	3 HIGH PRESS CONDENSER PRE PSIA CP3503	3 LOW PRESS CONDENSER PRES PSIA CP3504	BAROMETRIC PRESS IN HG ZP2701	YARD AMBIENT T DEGF ZT2701	SDA SPRAY ABS AVG IN TEMP DEG F M33S501_PA	SDA SPRAY ABS INLET PRESS IN H2O S38S028_AI	SDA SPRAY ABS OUTLET PRESS IN H2O S38S029_AI	FF1 FILTR SYS 31FFU DP 36F IN H2O F36F029_AI	FF2 FILTR SYS 32 FFU DP 35 IN H2O F35F030_AI	FF3 FILTR SYS 33FFU DP 36G IN H2O F36G029_AI
1/26/00 10:26 AM	100.39	1.21	0.86	29.32	4.64	164.92	-15.11	-18.71	4.72	4.42	4.43
1/26/00 10:27 AM	100.32	1.21	0.86	29.32	4.82	164.85	-15.17	-18.34	4.86	4.67	4.60
1/26/00 10:28 AM	100.68	1.21	0.86	29.32	4.80	164.90	-15.31	-18.84	4.74	4.32	4.35
1/26/00 10:29 AM	100.32	1.21	0.86	29.32	4.78	165.05	-15.15	-18.74	4.73	4.26	4.33
1/26/00 10:30 AM	100.41	1.21	0.86	29.32	4.76	165.16	-15.08	-18.64	4.88	4.34	4.36
1/26/00 10:31 AM	100.50	1.21	0.87	29.32	4.74	165.43	-15.20	-19.03	4.61	4.33	4.38
1/26/00 10:32 AM	100.14	1.21	0.87	29.32	4.72	165.44	-15.26	-18.89	4.65	4.30	4.37
1/26/00 10:33 AM	100.14	1.21	0.87	29.32	4.70	165.35	-15.33	-19.03	4.69	4.33	4.39
1/26/00 10:34 AM	99.84	1.21	0.87	29.32	4.68	165.57	-15.33	-19.05	4.74	4.38	4.45
1/26/00 10:35 AM	100.20	1.21	0.87	29.32	4.67	165.53	-15.26	-19.01	4.78	4.44	4.51
1/26/00 10:36 AM	99.94	1.21	0.87	29.32	4.65	165.49	-15.41	-18.96	4.94	4.58	4.66
1/26/00 10:37 AM	99.67	1.21	0.87	29.32	4.63	165.77	-15.35	-19.33	4.65	4.37	4.31
1/26/00 10:38 AM	99.83	1.21	0.87	29.32	5.00	165.85	-15.27	-18.94	4.82	4.30	4.38
1/26/00 10:39 AM	100.01	1.21	0.87	29.32	5.05	165.63	-15.44	-18.92	5.84	4.40	4.46
1/26/00 10:40 AM	100.18	1.21	0.87	29.32	5.09	165.73	-15.39	-19.01	4.62	4.41	4.45
1/26/00 10:41 AM	100.22	1.21	0.87	29.32	5.14	165.79	-15.28	-19.12	4.57	4.41	4.39
1/26/00 10:42 AM	100.26	1.20	0.87	29.32	5.19	165.75	-15.36	-19.09	4.63	4.41	4.39
1/26/00 10:43 AM	100.55	1.20	0.88	29.32	5.23	165.76	-15.29	-19.06	4.69	4.41	4.40
1/26/00 10:44 AM	100.56	1.20	0.88	29.32	5.26	165.51	-15.39	-19.03	4.78	4.78	4.56
1/26/00 10:45 AM	101.20	1.20	0.88	29.32	5.30	165.71	-15.49	-19.00	4.84	4.73	4.68
1/26/00 10:46 AM	101.34	1.20	0.88	29.32	5.34	165.84	-15.38	-19.16	4.65	4.07	4.44
1/26/00 10:47 AM	101.46	1.20	0.88	29.32	5.38	165.68	-15.23	-18.84	4.70	4.18	4.47
1/26/00 10:48 AM	101.88	1.20	0.88	29.32	5.55	165.56	-15.31	-18.82	4.76	4.18	4.49
1/26/00 10:49 AM	101.46	1.20	0.88	29.32	5.73	165.84	-15.26	-18.97	4.58	4.10	4.48
1/26/00 10:50 AM	101.90	1.20	0.88	29.32	5.65	165.72	-15.42	-18.91	4.61	4.11	4.46
1/26/00 10:51 AM	101.85	1.20	0.88	29.32	5.56	165.84	-15.43	-19.10	4.65	4.13	4.44
1/26/00 10:52 AM	101.76	1.20	0.88	29.32	5.68	165.69	-15.32	-18.95	4.69	4.15	4.44
1/26/00 10:53 AM	101.87	1.20	0.88	29.32	5.80	165.46	-15.10	-18.81	4.85	4.30	4.60
1/26/00 10:54 AM	101.69	1.20	0.88	29.32	5.92	165.48	-15.48	-18.89	4.80	4.39	4.65
1/26/00 10:55 AM	101.99	1.20	0.88	29.32	5.92	165.59	-15.28	-18.89	4.60	4.10	4.39
1/26/00 10:56 AM	101.78	1.20	0.89	29.32	5.92	165.47	-15.12	-18.84	4.63	4.23	4.38
1/26/00 10:57 AM	101.57	1.20	0.89	29.32	5.92	165.35	-15.10	-18.63	4.66	4.25	4.44
1/26/00 10:58 AM	101.65	1.20	0.89	29.32	5.92	165.29	-15.06	-18.63	4.54	4.10	4.28
1/26/00 10:59 AM	101.72	1.20	0.89	29.32	5.92	165.05	-15.00	-18.63	4.56	4.13	4.29
1/26/00 11:00 AM	101.80	1.20	0.89	29.32	5.93	165.53	-15.17	-18.78	4.62	4.21	4.34
Average	**101.05**	**1.21**	**0.85**	**29.32**	**1.88**	**165.10**	**-15.14**	**-18.75**	**4.69**	**4.30**	**4.38**

Date & Time	301 COAL FEEDER FLOW KLBS/HR LM3501	FEEDER FLOW KLBS/HR LM3502	303 COAL FEEDER FLOW KLBS/HR LM3503	304 COAL FEEDER FLOW KLBS/HR LM3504	305 COAL FEEDER FLOW KLBS/HR LM3505	306 COAL FEEDER FLOW KLBS/HR LM3506	307 COAL FEEDER FLOW KLBS/HR LM3507	FEEDER FLOW KLBS/HR LM3508	309 COAL FEEDER FLOW KLBS/HR LM3509	310 COAL FEEDER FLOW KLBS/HR LM3510
1/26/00 8:35 AM	112.65	113.43	113.26	113.68	111.97	113.82	113.63	112.46	112.08	Under Range
1/26/00 8:36 AM	113.55	113.10	113.34	113.54	112.07	112.69	114.06	110.47	111.75	Under Range
1/26/00 8:37 AM	112.04	114.69	112.99	113.25	110.91	113.38	114.97	112.70	111.64	Under Range
1/26/00 8:38 AM	112.84	113.90	114.06	114.45	110.32	114.58	114.88	112.97	112.72	Under Range
1/26/00 8:39 AM	112.63	113.56	113.02	114.63	112.06	114.25	113.86	113.18	111.59	Under Range
1/26/00 8:40 AM	111.94	112.03	112.05	112.50	112.21	113.07	112.96	111.13	111.60	Under Range
1/26/00 8:41 AM	113.40	113.38	113.05	114.10	112.16	114.01	114.71	110.87	112.92	Under Range
1/26/00 8:42 AM	112.41	113.84	113.54	112.35	110.84	113.46	114.21	112.47	113.05	Under Range
1/26/00 8:43 AM	113.29	112.70	115.08	113.18	111.40	113.66	114.03	112.59	111.96	Under Range
1/26/00 8:44 AM	111.72	113.42	112.48	112.71	113.72	112.92	114.70	111.79	112.41	Under Range
1/26/00 8:45 AM	111.74	113.07	113.13	113.12	110.82	113.86	114.25	112.24	111.87	Under Range
1/26/00 8:46 AM	112.31	114.10	113.17	113.03	110.93	113.39	114.03	111.43	111.85	Under Range
1/26/00 8:47 AM	112.61	112.51	113.14	113.37	111.97	114.57	113.57	111.18	112.99	Under Range
1/26/00 8:48 AM	113.65	114.12	116.40	115.18	112.06	114.42	115.13	113.25	112.99	Under Range
1/26/00 8:49 AM	111.38	113.16	112.69	113.29	109.47	113.76	112.97	111.66	112.56	Under Range
1/26/00 8:50 AM	114.45	113.38	113.20	114.19	111.08	113.48	114.25	111.70	112.78	Under Range
1/26/00 8:51 AM	113.48	113.82	113.15	112.27	110.95	114.36	113.77	112.03	111.50	Under Range
1/26/00 8:52 AM	111.68	112.50	113.20	112.62	111.25	112.67	113.65	111.27	111.79	Under Range
1/26/00 8:53 AM	113.28	112.87	113.89	113.56	111.40	113.64	115.02	112.16	111.53	Under Range
1/26/00 8:54 AM	113.12	113.46	112.93	114.47	113.23	113.54	113.87	112.01	112.18	Under Range
1/26/00 8:55 AM	113.19	113.63	112.96	113.48	111.41	113.22	114.23	112.58	112.07	Under Range
1/26/00 8:56 AM	111.45	112.74	113.90	112.27	110.70	113.08	114.93	110.71	111.76	Under Range
1/26/00 8:57 AM	113.15	113.17	113.24	112.33	113.26	113.37	112.61	112.83	112.44	Under Range
1/26/00 8:58 AM	114.17	113.37	112.58	112.48	110.56	113.33	113.78	113.33	112.71	Under Range
1/26/00 8:59 AM	111.95	112.48	112.59	114.93	111.52	112.96	113.08	111.56	111.79	Under Range
1/26/00 9:00 AM	111.88	112.34	112.52	112.47	110.50	112.98	113.43	111.67	112.19	Under Range
1/26/00 9:01 AM	112.11	113.05	113.19	113.45	110.68	112.79	112.91	114.59	115.12	Under Range
1/26/00 9:02 AM	111.31	112.97	112.22	111.94	110.22	112.55	113.65	111.68	111.72	Under Range
1/26/00 9:03 AM	113.96	112.96	112.48	113.02	112.19	113.05	114.07	113.14	111.86	Under Range
1/26/00 9:04 AM	114.00	113.89	114.75	115.59	111.99	115.36	114.39	112.50	112.76	Under Range
1/26/00 9:05 AM	112.45	113.25	113.83	112.58	112.50	113.85	115.36	113.35	113.13	Under Range
1/26/00 9:06 AM	110.89	112.14	111.52	112.10	109.67	112.01	112.76	109.43	112.08	Under Range
1/26/00 9:07 AM	111.99	112.47	114.27	113.16	111.08	112.66	113.47	111.27	111.91	Under Range
1/26/00 9:08 AM	112.90	114.21	114.76	114.32	111.35	113.83	115.00	112.92	114.19	Under Range
1/26/00 9:09 AM	111.69	112.66	114.17	113.87	110.83	113.12	115.08	112.77	112.86	Under Range
1/26/00 9:10 AM	113.90	113.17	113.67	113.11	110.77	113.35	113.63	111.17	112.38	Under Range
1/26/00 9:11 AM	111.63	112.26	112.07	111.82	110.00	111.70	113.26	110.82	112.38	Under Range
1/26/00 9:12 AM	110.32	112.55	111.87	112.64	112.48	112.85	113.67	111.82	112.14	Under Range
1/26/00 9:13 AM	112.29	112.31	112.29	112.37	110.63	112.80	112.65	111.47	111.43	Under Range

Date & Time	301 COAL FEEDER FLOW KLBS/HR LM3501	FEEDER FLOW KLBS/HR LM3502	303 COAL FEEDER FLOW KLBS/HR LM3503	304 COAL FEEDER FLOW KLBS/HR LM3504	305 COAL FEEDER FLOW KLBS/HR LM3505	306 COAL FEEDER FLOW KLBS/HR LM3506	307 COAL FEEDER FLOW KLBS/HR LM3507	FEEDER FLOW KLBS/HR LM3508	309 COAL FEEDER FLOW KLBS/HR LM3509	310 COAL FEEDER FLOW KLBS/HR LM3510
1/26/00 9:14 AM	112.88	112.40	112.75	113.23	110.25	112.43	113.54	111.56	110.89	Under Range
1/26/00 9:15 AM	112.36	112.51	112.64	110.01	110.57	112.13	112.86	110.75	111.62	Under Range
1/26/00 9:16 AM	111.55	112.18	111.58	113.58	109.76	113.11	113.44	112.49	111.27	Under Range
1/26/00 9:17 AM	110.96	113.25	115.76	114.15	111.67	113.06	113.48	111.33	112.65	Under Range
1/26/00 9:18 AM	112.72	112.49	112.83	113.00	111.90	112.79	113.53	112.34	112.55	Under Range
1/26/00 9:19 AM	112.10	112.45	112.76	113.03	110.60	112.59	114.07	110.46	110.78	Under Range
1/26/00 9:20 AM	111.19	112.65	112.59	111.94	110.79	113.45	113.75	112.99	113.40	Under Range
1/26/00 9:21 AM	111.66	111.63	111.42	112.22	110.55	111.95	112.52	110.26	112.18	Under Range
1/26/00 9:22 AM	113.20	111.67	111.18	110.10	110.45	111.75	112.32	110.10	110.80	Under Range
1/26/00 9:23 AM	112.85	111.81	112.37	113.94	110.72	112.81	112.64	112.50	112.68	Under Range
1/26/00 9:24 AM	111.94	113.62	113.45	115.08	111.96	113.84	114.39	111.60	113.64	Under Range
1/26/00 9:25 AM	111.81	111.97	112.39	111.16	110.89	112.83	113.15	112.02	111.16	Under Range
1/26/00 9:26 AM	111.35	112.18	112.07	112.80	112.46	114.02	112.74	112.10	113.21	Under Range
1/26/00 9:27 AM	110.83	114.10	113.95	112.45	109.72	112.07	112.79	112.17	111.31	Under Range
1/26/00 9:28 AM	111.45	112.63	111.43	112.43	109.86	112.67	113.60	112.44	111.62	Under Range
1/26/00 9:29 AM	112.47	113.59	113.21	113.17	111.93	113.81	114.35	112.79	113.36	Under Range
1/26/00 9:30 AM	111.15	112.39	113.40	111.88	109.73	113.02	112.81	111.16	110.39	Under Range
1/26/00 9:31 AM	111.69	111.22	111.41	112.26	111.90	111.42	111.51	110.49	110.87	Under Range
1/26/00 9:32 AM	111.57	112.81	111.12	111.80	111.67	113.30	113.39	110.75	110.99	Under Range
1/26/00 9:33 AM	112.12	113.02	113.95	114.73	110.44	113.21	113.32	112.44	110.75	Under Range
1/26/00 9:34 AM	110.34	111.73	111.31	111.73	109.98	112.40	111.97	109.74	111.28	Under Range
1/26/00 9:35 AM	111.87	111.74	111.47	112.41	110.81	111.39	113.92	109.90	110.25	Under Range
1/26/00 9:36 AM	110.18	112.24	111.78	112.46	110.65	112.35	112.61	112.33	112.03	Under Range
1/26/00 9:37 AM	111.76	112.38	112.48	114.09	109.91	112.76	113.13	112.05	111.66	Under Range
1/26/00 9:38 AM	111.86	112.25	112.23	110.97	110.63	113.08	113.17	109.93	111.69	Under Range
1/26/00 9:39 AM	111.27	111.86	111.69	112.70	110.19	112.92	112.11	110.96	111.83	Under Range
1/26/00 9:40 AM	110.98	112.11	111.97	113.34	110.30	111.62	112.37	111.24	110.92	Under Range
1/26/00 9:41 AM	108.71	112.28	111.93	112.37	109.04	112.49	112.87	111.36	111.62	Under Range
1/26/00 9:42 AM	110.80	111.90	111.51	113.09	108.78	111.66	112.52	111.14	110.39	Under Range
1/26/00 9:43 AM	110.77	111.77	110.61	110.62	110.47	113.71	113.37	112.56	110.69	Under Range
1/26/00 9:44 AM	111.94	112.17	113.18	112.64	110.11	111.40	113.50	110.72	111.40	Under Range
1/26/00 9:45 AM	111.44	112.51	111.91	111.87	111.63	112.61	113.53	110.51	111.56	Under Range
1/26/00 9:46 AM	111.81	112.18	112.18	111.47	109.62	112.90	113.65	110.76	112.30	Under Range
1/26/00 9:47 AM	110.27	113.37	111.04	112.82	110.96	112.59	112.84	110.10	110.48	Under Range
1/26/00 9:48 AM	110.70	111.51	111.36	111.55	109.36	111.36	113.09	109.58	111.72	Under Range
1/26/00 9:49 AM	112.35	112.66	112.37	112.26	110.55	113.01	113.55	112.37	112.02	Under Range
1/26/00 9:50 AM	112.82	112.44	113.09	112.56	112.12	113.33	113.48	111.77	111.69	Under Range
1/26/00 9:51 AM	110.86	112.37	112.66	111.11	110.83	113.53	113.01	110.67	111.91	Under Range
1/26/00 9:52 AM	112.63	113.08	112.39	112.97	111.58	112.22	113.04	111.09	111.26	Under Range

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1/26/00 9:53 AM	112.82	112.55	112.83	112.22	111.09	113.18	113.44	110.79	112.21	Under Range
1/26/00 9:54 AM	112.52	112.46	111.47	111.81	110.61	112.30	112.50	110.89	112.75	Under Range
1/26/00 9:55 AM	111.48	112.63	112.49	114.81	112.91	112.93	113.81	110.58	111.37	Under Range
1/26/00 9:56 AM	110.23	112.58	112.20	111.94	110.07	113.09	113.24	111.22	111.40	Under Range
1/26/00 9:57 AM	111.63	111.59	111.83	112.64	110.25	112.74	113.36	110.95	111.50	Under Range
1/26/00 9:58 AM	112.22	112.76	112.55	111.47	110.69	113.05	113.52	111.55	112.28	Under Range
1/26/00 9:59 AM	110.88	112.42	112.47	112.31	109.53	112.20	112.84	110.52	111.35	Under Range
1/26/00 10:00 AM	112.08	113.07	112.93	113.47	110.27	113.15	112.90	111.48	112.26	Under Range
1/26/00 10:01 AM	110.89	112.71	116.30	113.38	111.28	113.09	113.32	110.59	112.50	Under Range
1/26/00 10:02 AM	112.31	112.61	112.70	113.83	110.91	112.63	113.45	112.04	111.84	Under Range
1/26/00 10:03 AM	112.42	112.44	111.65	113.22	111.26	114.71	114.05	111.38	111.97	Under Range
1/26/00 10:04 AM	110.43	112.68	114.24	114.35	111.76	113.11	113.60	112.14	112.59	Under Range
1/26/00 10:05 AM	113.43	112.55	112.83	111.73	110.24	112.79	114.86	111.31	110.30	Under Range
1/26/00 10:06 AM	112.76	110.87	112.91	113.32	109.59	112.29	111.82	111.16	111.67	Under Range
1/26/00 10:07 AM	111.59	111.70	112.25	110.82	111.10	112.46	113.60	111.76	111.78	Under Range
1/26/00 10:08 AM	113.37	113.00	114.37	114.82	110.77	113.62	114.33	111.35	111.69	Under Range
1/26/00 10:09 AM	112.87	113.38	114.50	113.01	111.18	113.34	113.39	110.79	111.81	Under Range
1/26/00 10:10 AM	111.56	112.71	112.33	112.95	110.85	112.44	112.57	110.68	111.15	Under Range
1/26/00 10:11 AM	113.03	113.23	113.04	111.05	110.08	113.55	113.77	111.54	111.74	Under Range
1/26/00 10:12 AM	111.01	111.13	111.81	112.54	108.93	111.54	112.44	111.16	110.85	Under Range
1/26/00 10:13 AM	111.88	112.50	112.35	111.12	109.88	112.87	113.51	110.81	112.93	Under Range
1/26/00 10:14 AM	110.87	112.14	113.60	111.74	109.26	113.19	112.81	111.06	110.85	Under Range
1/26/00 10:15 AM	111.33	111.74	111.44	112.10	109.20	112.59	112.53	110.59	110.79	Under Range
1/26/00 10:16 AM	111.91	113.90	112.19	111.07	110.53	112.55	113.99	110.66	109.87	Under Range
1/26/00 10:17 AM	111.16	112.35	113.08	112.10	110.16	112.47	112.50	112.07	111.79	Under Range
1/26/00 10:18 AM	111.26	111.87	112.32	110.94	109.86	112.79	112.27	111.59	112.62	Under Range
1/26/00 10:19 AM	111.03	111.88	111.21	112.43	109.58	112.67	113.38	110.00	111.12	Under Range
1/26/00 10:20 AM	112.82	113.29	113.34	112.08	110.15	113.33	113.94	111.45	112.05	Under Range
1/26/00 10:21 AM	112.46	111.86	113.07	112.95	110.99	113.22	113.24	111.74	112.39	Under Range
1/26/00 10:22 AM	112.42	112.11	112.03	113.19	110.04	112.63	113.34	110.91	111.21	Under Range
1/26/00 10:23 AM	110.44	112.20	112.03	111.73	110.12	112.03	113.09	109.94	111.85	Under Range
1/26/00 10:24 AM	112.48	112.51	114.51	112.95	109.97	112.72	112.61	112.53	111.65	Under Range
1/26/00 10:25 AM	113.31	112.85	113.52	113.09	111.66	113.80	114.09	111.71	114.49	Under Range
1/26/00 10:26 AM	110.64	112.39	113.61	112.55	110.48	112.86	113.90	112.41	110.78	Under Range
1/26/00 10:27 AM	111.23	112.61	112.39	112.96	111.64	112.38	113.07	111.69	111.77	Under Range
1/26/00 10:28 AM	112.18	112.09	112.78	114.35	112.69	111.64	113.06	111.54	111.33	Under Range
1/26/00 10:29 AM	111.82	112.14	113.74	113.23	110.64	113.38	113.45	112.63	112.09	Under Range
1/26/00 10:30 AM	112.29	112.78	112.81	113.58	111.28	113.77	114.91	112.04	112.78	Under Range
1/26/00 10:31 AM	111.95	113.02	113.72	111.30	110.80	112.54	112.87	111.40	111.78	Under Range

Date & Time	301 COAL FEEDER FLOW KLBS/HR LM3501	FEEDER FLOW KLBS/HR LM3502	303 COAL FEEDER FLOW KLBS/HR LM3503	304 COAL FEEDER FLOW KLBS/HR LM3504	305 COAL FEEDER FLOW KLBS/HR LM3505	306 COAL FEEDER FLOW KLBS/HR LM3506	307 COAL FEEDER FLOW KLBS/HR LM3507	FEEDER FLOW KLBS/HR LM3508	309 COAL FEEDER FLOW KLBS/HR LM3509	310 COAL FEEDER FLOW KLBS/HR LM3510
1/26/00 10:32 AM	111.71	112.63	112.93	112.40	109.78	113.00	113.81	112.80	111.90	Under Range
1/26/00 10:33 AM	112.03	112.55	113.25	114.30	111.41	113.10	114.24	112.67	110.51	Under Range
1/26/00 10:34 AM	110.38	112.37	111.84	112.12	111.15	113.23	113.38	110.83	113.00	Under Range
1/26/00 10:35 AM	111.23	112.50	112.02	112.11	111.26	113.04	113.11	111.10	112.27	Under Range
1/26/00 10:36 AM	111.81	112.96	113.02	111.92	110.64	112.84	113.46	111.39	111.98	Under Range
1/26/00 10:37 AM	112.89	113.19	112.06	113.49	109.70	113.38	113.99	112.26	113.18	Under Range
1/26/00 10:38 AM	111.32	112.76	112.50	113.10	109.88	113.08	112.54	111.58	111.24	Under Range
1/26/00 10:39 AM	111.80	112.33	112.55	113.66	110.17	111.98	113.11	110.78	110.78	Under Range
1/26/00 10:40 AM	111.81	111.44	112.58	112.48	109.79	113.02	112.98	111.45	111.51	Under Range
1/26/00 10:41 AM	111.41	114.18	112.27	111.63	110.78	112.39	113.08	112.01	111.04	Under Range
1/26/00 10:42 AM	110.98	112.54	112.82	112.72	109.51	112.51	113.35	110.06	113.10	Under Range
1/26/00 10:43 AM	110.94	112.41	114.09	112.17	111.04	112.38	112.83	112.01	111.97	Under Range
1/26/00 10:44 AM	112.55	112.11	112.29	111.21	110.27	113.46	112.62	110.59	111.10	Under Range
1/26/00 10:45 AM	111.78	111.98	112.20	111.30	110.03	111.15	112.13	110.10	110.69	Under Range
1/26/00 10:46 AM	111.51	112.04	111.65	112.51	109.91	112.43	112.64	110.05	111.63	Under Range
1/26/00 10:47 AM	113.20	112.25	111.00	112.36	111.11	111.88	112.99	110.74	111.56	Under Range
1/26/00 10:48 AM	111.41	111.94	113.70	112.84	110.72	113.04	113.59	112.09	111.21	Under Range
1/26/00 10:49 AM	112.03	113.55	110.81	111.94	110.38	111.90	112.80	110.21	110.74	Under Range
1/26/00 10:50 AM	110.69	112.67	113.14	111.81	109.66	112.89	113.11	110.86	111.25	Under Range
1/26/00 10:51 AM	110.93	111.25	110.89	113.32	108.60	111.80	112.21	110.54	111.04	Under Range
1/26/00 10:52 AM	109.95	111.29	110.68	112.72	110.05	112.32	111.80	110.95	110.50	Under Range
1/26/00 10:53 AM	110.70	112.83	112.33	113.59	109.32	111.75	112.90	112.24	111.08	Under Range
1/26/00 10:54 AM	110.70	110.31	110.61	110.59	108.83	110.94	111.94	112.31	110.59	Under Range
1/26/00 10:55 AM	111.30	110.52	110.24	111.08	108.40	110.64	111.32	110.25	110.16	Under Range
1/26/00 10:56 AM	110.91	110.98	111.04	112.97	109.48	110.92	111.75	110.17	109.71	Under Range
1/26/00 10:57 AM	111.51	112.09	111.62	111.26	109.78	113.15	111.73	111.32	111.13	Under Range
1/26/00 10:58 AM	109.74	112.52	111.19	111.13	109.63	110.38	111.77	109.95	110.98	Under Range
1/26/00 10:59 AM	110.51	111.59	111.60	111.77	108.97	112.02	111.78	110.95	110.83	Under Range
1/26/00 11:00 AM	110.27	111.33	111.72	110.53	108.94	111.58	111.86	109.85	110.50	Under Range
Average	**111.86**	**112.56**	**112.65**	**112.67**	**110.68**	**112.83**	**113.32**	**111.46**	**111.78**	

SUMMARY OF RESULTS CALCULATIONS

$$Vm\,(std) = 17.647 \times Vm \times \left[\frac{P_{bar} + \frac{DH}{13.6}}{(460 + Tm)}\right] \times Y$$

$$Vw\,(std) = 0.0471 \times Vlc$$

Vlc = water + silica net

$$Bws = \left[\frac{Vw\,(std)}{Vw\,(std) + Vm\,(std)}\right]$$

$$Md = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + [0.28 \times (100 - \%CO_2 - \%O_2)]$$

$$MS = Md \times (1 - Bws) + (18 \times Bws)$$

$$Vs = \sqrt{\frac{(Ts + 460)}{Ms \times Ps}} \times \sqrt{DP} \times Cp \times 85.49$$

Cp = pitot tube correction factor
Ps = absolute flue gas pressure
Ms = molecular weight of gas (lb/lb mole)
Md = dry molecular weight of gas (lb/lb mole)
Bws = water vapor in gas stream proportion by volume

$$Acfm = Vs \times Area\,(of\ stack\ or\ duct) \times 60$$

$$Dscfm = Acfm \times 17.647 \times \left[\frac{Ps}{(460 + Ts)}\right] \times (1 - Bws)$$

$$Scfm = Acfm \times 17.647 \times \left[\frac{Ps}{(460 + Ts)}\right]$$

$$Scfh = Scfm \times 60 \frac{min}{hr}$$

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CALCULATION FORMULAS

1. $$V_{m(std)} = V_m Y \left(\frac{T_{std}}{T_m}\right)\left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{P_{std}}\right) = K_1 V_m Y \frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}$$

2. $$V_{w(std)} = V_{lc}\left(\frac{\rho_w}{M_w}\right)\left(\frac{RT_{std}}{P_{std}}\right) = K_2 V_{lc}$$

3. $$B_{ws} = \frac{V_{w(std)}}{V_{m(std)} + V_{w(std)}}$$

4a. $$C_a = \frac{m_a}{V_a \rho_a}$$

4b. $$W_a = C_a V_{aw} \rho_a$$

5. $$C_S = (15.43 \text{ grains/gram})\,(m_n / V_{m(std)})$$

6. $$C_{acf} = 15.43 K_i \left(\frac{m_n P_s}{V_{w(std)} + V_{m(std)}\, T_s}\right)$$

7. $$\%EA = \left(\frac{\%O_2 - (0.5\,\%CO}{0.264\,\%N_2 - (\%O_2 - 0.5\,\%CO)}\right) \times 100$$

8. $$M_d = 0.44(\%CO_2) + 0.32(\%O_2) + 0.28(\%N_2 + \%CO)$$

9. $$M_s = M_d(1 - B_{ws}) + 18.0 B_{ws}$$

10. $$v_s = K_p C_p \sqrt{\frac{\Delta P\, T_s}{P_s M_s}}$$

11. $$Q_{acfm} = v_s A(60_{sec/min})$$

12. $$Q_{sd} = (3600_{sec/hr})(1 - B_{ws})\, v_s \left(\frac{T_{std} P_s}{T_s P_{std}}\right) A$$

13. $$E \text{ (emission rate, lbs/hr)} = Q_{std}\left(C_s / 7000 \text{ grains/lb}\right)$$

14. $$IKV = \frac{T_s V_{m(std)} P_{std}}{T_{std} v_s \theta A_n P_s 60(1 - B_{ws})} = K_4 \frac{T_s V_{m(std)}}{P_s v_s A_n \theta (1 - B_{ws})}$$

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NOMENCLATURE

A = Cross-sectional area of stack or duct, ft^2
A_n = Cross-sectional area of nozzle, ft^2
B_{ws} = Water vapor in gas stream, proportion by volume
C_a = Acetone blank residue concentration, g/g
C_{acf} = Concentration of particulate matter in gas stream at actual conditions, gr/acf
C_p = Pitot tube coefficient, dimensionless
C_s = Concentration of particulate matter in gas stream, dry basis, corrected to standard conditions, gr/dscf
IKV = Isokinetic sampling variance, must be $.90 \leq IKV \leq 1.10$
M_d = Dry molecular weight of gas, lb/lb-mole
m_n = Total amount of particulate matter collected, grams
M_s = Molecular weight of gas, wet basis, lb/lb-mole
M_w = Molecular weight of water, 18.0 lb/lb-mole
m_a = Mass of residue of acetone after evaporation, grams
P_{bar} = Barometric pressure at testing site, in. Hg
P_g = Static pressure of gas, in. Hg (in. H_2O/13.6)
P_s = Absolute pressure of gas, in. Hg = $P_{bar} + P_g$
P_{std} = Standard absolute pressure, 29.92 in. Hg
Q_{acfm} = Actual volumetric gas flow rate, acfm
Q_{sd} = Dry volumetric gas flow rate corrected to standard conditions, dscf/hr
R = Ideal gas constant, 21.85 in. Hg-ft^3/°R-lb-mole
T_m = Absolute dry gas meter temperature, °R
T_s = Absolute gas temperature, °R
T_{std} = Standard absolute temperature, 528°R
V_a = Volume of acetone blank, ml
V_{aw} = Volume of acetone used in wash, ml
V_{lc} = Total volume of liquid collected in impingers and silica gel, ml
V_m = Volume of gas sample as measured by dry gas meter, dcf
$V_{m(std)}$ = Volume of gas sample measured by dry gas meter, corrected to standard conditions, dscf
v_s = Gas velocity, ft/sec
$V_{w(std)}$ = Volume of water vapor in gas sample, corrected to standard conditions, scf
W_a = Weight of residue in acetone wash, grams
Y = Dry gas meter calibration factor
ΔH = Average pressure differential across the orifice meter, in. H_2O
Δp = Velocity head of gas, in. H_2O
ρ_a = Density of acetone, 0.7855 g/ml (average)
ρ_w = Density of water, 0.002201 lb/ml
θ = Total sampling time, minutes
K_1 = 17.64 °R/in. Hg
K_2 = 0.04707 ft^3/ml
K_4 = 0.09450/100 = 0.000945
K_p = Pitot tube constant, $85.49 \frac{ft}{sec}\left[\frac{(lb/lb-mole)(in.Hg)}{(°R)(in.H_2O)}\right]^{1/2}$
%EA = Percent excess air
$\%CO_2$ = Percent carbon dioxide by volume, dry basis
$\%O_2$ = Percent oxygen by volume, dry basis
%CO = Percent carbon monoxide by volume, dry basis
$\%N_2$ = Percent nitrogen by volume, dry basis
0.264 = Ratio of O_2 to N_2 in air, v/v
0.28 = Molecular weight of N_2 or CO, divided by 100
0.32 = Molecular weight of O_2 divided by 100
0.44 = Molecular weight of CO_2 divided by 100
13.6 = Specific gravity of mercury (Hg)

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MERCURY CALCULATIONS

Determination of Speciated Mercury

Concentration

$$\frac{\text{ug of Mercury detected} \times \frac{10^{-6}\text{g}}{\text{ug}}}{453.6\,\text{g/lb}} = \text{lbs Mercury/sample}$$

$$\frac{\text{lbs Mercury/sample}}{\text{Vm(std)}} = \text{lbs Mercury/dscf}$$

Emission Rates

$$\text{lbs Mercury/hr} = \text{lbs/dscf} \times \text{dscf/min} \times 60\ \text{min/hr}$$

$$\text{lbs Mercury}/10^{12}\,\text{Btu} = \text{lbs/dscf} \times F_d\,\text{Factor}\left(\text{dscf}/10^{6}\,\text{Btu}\right) \times \frac{20.9\%}{20.9\% - O_2\%} \times 10^{6}$$

Mercury Fractions

Elemental Mercury Catch – mercury collected in the acidified hydrogen peroxide (HNO_3-H_2O_2) and potassium permanganate (H_2SO_4-$KMnO_4$) impinger solutions.

Oxidized Mercury Catch – mercury collected in the aqueous potassium chloride (KCl) impinger solution.

Particle-bound Mercury Catch – mercury associated with the particulate matter collected in the front half of the sampling train.

Determination of Mercury Available from Coal

$$\text{lbs Mercury/hr} = \frac{\text{ug Mercury}}{\text{g Coal}}(\text{dry}) \times \frac{10^{-6}\text{g}}{\text{ug}} \times \frac{\text{lbs Coal (wet)}}{\text{hr}} \times (1 - B_{ws})\,\text{moisture corr.}$$

$$\text{lbs Mercury}/10^{12}\,\text{Btu} = \frac{\text{lbs Mercury}}{\text{hr}} \div \frac{10^{12}\,\text{Btu}}{\text{hr}}$$

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EMISSION RATE CALCULATIONS

A pollutant emission rate (E), expressed as pounds of pollutant per million Btu heat input from the fuel combusted can be calculated by several methods as follows:

1. $C = C_s/7000$ where, C = pollutant concentration, lb/dscf
   c_s = pollutant concentration, grains/dscf

2. If fuel flow is monitored and the fuel combusted during the test is sampled and analyzed for gross calorific value, then:

$$E = \frac{Q_{sd} C}{\text{fuel flow rate (lb / hr) GCV}} \times 10^6$$

where, E = lbs per million Btu
GCV = gross calorific value, Btu / lb
Q_{sd} = dry volumetric gas flow at standard conditions, dscf / hr

3. If an integrated gas sample is taken during the test and analyzed for $\%CO_2$ or $\%O_2$, dry basis by volume, with an Orsat gas analyzer, then

$$E = C F_c \frac{100}{(\%CO_2)} \text{ or, } E = C F \frac{20.9}{(20.9 - \%O_2)} \text{ where,}$$

$\%CO_2$ and $\%O_2$ are expressed as percent; and, for example, for subbituminous and bituminous coals:

F_c = a factor representing a ratio of the volume of carbon dioxide generated to the calorific value of the fuel combusted, 1800 scf CO_2/million Btu.

F = a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted, 9780 dscf/million Btu.

4. If fuel sample increments are taken and composited during the test and an ultimate analysis is performed and the GCV is determined, then

$$F_c = \frac{321 \times 10^3 (\%C)}{GCV}$$ where, %C = carbon content by weight expressed as percent

$$F = \frac{[3.64 (\%H) + 1.53 (\%C) + 0.57 (\%S) + 0.14 (\%N) - 0.46 (\%O_2)]}{GVC} \times 10^6$$

where, H, C, S, N, and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent) respectively.

5. If fuels other than subbituminous and bituminous coals are fired, other F-factors than those above will apply; and, if combinations of different fuels are fired, the F-factors must be prorated according to the fraction of the total heat input derived from each type of fuel.

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MOSTARDI-PLATT ASSOCIATES, INC.
TEST SUPPORT DATA

TEST RUN NO. 1

COMPANY: Northern States Power
PLANT: Sherburne County
TEST LOCATION: Unit 3 inlet
CLIENT: NSP
OPERATOR: J. Tryba
DATE: 01/25/00
CONTROL BOX: E46 POT. NO.:
METER NO.: E46
METER CALIBRATION FACTOR: 1.007
PITOT ID NO.: 260A
PITOT TUBE COEFFICIENT: .835
PORT LENGTH: 17 in.
PORT SIZE: 4 in.
PORT TYPE: 6A NIPPLE

IMPINGER H_2O
FINAL: 4859.7 ml/gm
INITIAL: 4688.9 ml/gm
GAIN: 170.8 ml/gm

SILICA GEL:
FINAL WT: 738.8 gm
INITIAL WT: 719.7 gm
WT. GAIN: 19.1 gm

TOTAL H_2O COLLECTED: 189.9
DESCRIPTION OF IMPINGER H_2O:
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY:
SILICA GEL WEIGHED BY:

THIMBLE NO: ~~108~~ TARE WT: —
FILTER NO: 108 + 113 TARE WT: 3.2781 + 3.1383
BAROMETRIC PRESSURE in. Hg: 29.60
FLUE PRESSURE in. H_2O: -14.5
FLUE PRESSURE in. Hg ABS: 28.53
PROBE LENGTH: 14 ft.
PROBE LINER MATERIAL: Teflon
NOZZLE IDENTIFICATION NO: Set B #8
CALIBRATED NOZZLE DIAMETER: 0.240
LEAK CHECK: Filter 1 PRE: 0.000 @ 18" POST: 0.001 @ 17 in. Hg
Filter 2 0.001 @ 17" 0.000 @ 18
DUCT SHAPE: Rectangular DIAMETER:
DUCT AREA: 1090.00 sq. ft. L 30' deep x W 36' 4"
DISTURBANCE UPSTREAM: DOWNSTREAM:
TEST LENGTH: 120 min.
MINUTES PER POINT: 20
TOTAL NUMBER OF TRAVERSE POINTS: 6
GAS ANALYSIS (ORSAT/FYRITE):
CO_2: 15.2 15.2 15.2
O_2: 3.8 3.8 3.8

PITOT LEAK CHECK: PRE O.K. POST O.K.
ΔH@ 1.843
SAMPLES REMOVED FROM SITE BY:

COMMENTS & NOTES

For computer data entry: Supervisor, please complete.
Do you want to enter a fuel analysis? Y ☐ N ☐
What value do you want to use? F = 9,780 F_c = 1,800 Other =
Circle to indicate "Yes" or add other value if not given.

Form 1053 [Rev. 6/97]

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FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT _____
TEST RUN NO. 1
TEST LOCATION Unit 3 Inlet

DATE 01/25/00 PAGE 1 OF _____

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	711.138 Meter Volume (Vm) ft^3	Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	Meter Rate cfm	Pump Vacuum in. Hg	Notes	Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
1-1	0.66		11:32	716.573	1.36	294	85	84	.75	7		239	234	59
2	0.65		11:37	719.3	1.36	295	85	84	.75	7		242	231	56
3	0.60		11:42	717.4	1.26	294	86	84	.75	7		244	235	57
4	0.60		11:47	720.2	1.26	294	87	84	.75	7		247	234	58
2-1	0.62		11:52	723.0	1.30	294	89	85	.75	7		247	234	59
2	0.58		11:57	725.9	1.23	294	90	85	.75	8		247	235	59
3	0.60		12:04	728.8	1.27	296	92	87	.75	8		246	233	58
4	0.66		12:07	731.6	1.40	296	92	86	.75	9		244	234	57
3-1	0.66		12:12	734.7	1.40	296	92	86	.75	9		244	233	57
2	0.62		12:17	737.6	1.31	295	93	86	.75	10		246	235	57
3	0.64		12:22	740.6	1.36	295	93	87	.75	11		247	231	58
4	0.60		12:27	743.5	1.27	295	93	87	.75	11		247	233	58
4-1	0.60		12:32	746.6	1.28	291	93	87	.75	12		246	236	59
2	0.71		12:37	749.5	1.52	291	93	87	.75	13		245	235	60
3	0.68		12:42	752.7	1.45	291	93	87	.75	14		245	234	58
4	0.61		12:47	755.8	1.30	290	92	88	.75	15		245	236	58
5-1	0.49		12:52	758.8	1.05	288	91	87	.75	16		246	233	57
2	0.43		12:57	761.2	0.92	288	91	88	.75	16		245	236	56
3	0.43		13:02	764.4	0.92	288	91	88	.75	16		246	234	56
4	0.44		13:07	767.1	0.94	289	91	88	.75	16		246	235	56
6-1	0.40		13:12	769.8	0.85	289	90	88	.75	5	Changed filter 70.080	246	235	60
2	0.44		13:44	773.9	0.94	289	90	88	.75	5	Post leak check 0.00 @ 17	245	233	57
3	0.44		13:49	776.5	0.94	290	93	88	.75	5	Pre-leak check 0.00 @ 15	246	234	56
4	0.43		13:54	779.1	0.92	291	92	88	.75	5	770.691	246	236	57
				781.529										

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MOSTARDI-PLATT ASSOCIATES, INC.
TEST SUPPORT DATA

TEST RUN NO. 2

COMPANY: NSP
PLANT: NSP - Sherco
TEST LOCATION: Unit 3 inlet
CLIENT: NSP
OPERATOR:
DATE: 01/25/00
CONTROL BOX: E46 POT. NO.:
METER NO.: E46
METER CALIBRATION FACTOR: 1.007
PITOT ID NO.: 260A
PITOT TUBE COEFFICIENT: 0.835
PORT LENGTH: 17" in.
PORT SIZE: 4" in.
PORT TYPE: SS Nipple

IMPINGER H_2O
FINAL: 4730.8 ml/gm
INITIAL: 4556.0 ml/gm
GAIN: 174.8 ml/gm
TOTAL H_2O COLLECTED: 193.9

SILICA GEL:
FINAL WT: 714.7 gm
INITIAL WT: 695.6 gm
WT. GAIN: 19.1 gm

DESCRIPTION OF IMPINGER H_2O:
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY:
SILICA GEL WEIGHED BY:

COMMENTS & NOTES

THIMBLE NO: 112 & 115 TARE WT: 3.4534 + 3.1668
FILTER NO: TARE WT:
BAROMETRIC PRESSURE in. Hg: 29.60
FLUE PRESSURE in. H_2O: -14.5
FLUE PRESSURE in. Hg ABS: 28.53
PROBE LENGTH: 14 ft.
PROBE LINER MATERIAL: Teflon
NOZZLE IDENTIFICATION NO: Set B #8
CALIBRATED NOZZLE DIAMETER: 0.240
LEAK CHECK: Filter 1 PRE: 0.000018 POST: 0.001 @ 20 in. Hg
Filter 2 0.000019 0.001 15
DUCT SHAPE: Rectangular DIAMETER:
DUCT AREA: 1090.00 sq. ft. L 30' W 36'4"
DISTURBANCE UPSTREAM: DOWNSTREAM:
TEST LENGTH: 120 min
MINUTES PER POINT: 20
TOTAL NUMBER OF TRAVERSE POINTS: 6
GAS ANALYSIS (ORSAT/FYRITE):
CO_2: 15.4 15.4 15.4
O_2: 3.6 3.6 3.6

PITOT LEAK CHECK: PRE ok. POST O.K.
ΔH@ 1.843
SAMPLES REMOVED FROM SITE BY: Jim Platt

For computer data entry: Supervisor, please complete.
Do you want to enter a fuel analysis? Y ☐ N ☐
What value do you want to use? F = 9,780 F_c = 1,800 Other =
Circle to indicate "Yes" or add other value if not given.

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FIELD TEST DATA SHEET FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT NSP - Sherco

TEST RUN NO. 2

TEST LOCATION Unit 3 Inlet

DATE 01/25/00 PAGE 1 OF

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	Meter Rate cfm	Pump Vacuum in. Hg	Notes	Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
1-1	0.66		14:40	782.201	1.38	300	88	87	0.75	11		243	234	65
2	0.62		14:47	785.5	1.30	300	88	87	0.75	11		244	234	64
3	0.65		14:50	788.3	1.36	300	88	87	0.75	11		245	234	65
4	0.65		14:55	791.4	1.36	299	89	87	0.75	11		247	233	62
				794.3										
2-1	0.65		15:00	794.3	1.36	300	90	87	0.75	12		249	231	56
2	0.59		15:05	797.3	1.24	300	91	87	0.75	12		247	233	55
3	0.60		15:10	800.2	1.26	298	92	87	0.75	13		247	233	55
4	0.62		15:15	802.9	1.30	297	92	87	0.75	13		246	233	55
				806.0										
3-1	0.61		15:20	806.0	1.28	297	92	87	0.75	14		246	233	56
2	0.61		15:25	808.7	1.28	297	92	88	0.75	15		246	233	56
3	0.60		15:30	811.8	1.27	298	92	87	0.75	16		246	234	56
4	0.65		15:35	815.438	1.38	298	91	88	0.75	17		246	233	57
				818.435							changed filter			
4-1	0.61		15:56	818.512	1.28	294	89	88	0.75	11		246	233	59
2	0.67		16:01	821.3	1.42	294	89	87	0.75	11		245	234	58
3	0.68		16:06	824.3	1.44	295	91	87	0.75	11		246	234	58
4	0.68		16:11	827.4	1.44	294	92	88	0.75	11		245	234	59
5-1	0.52		16:16	830.5	1.11	293	93	88	0.75	11		246	233	59
2	0.48		16:21	833.2	1.06	293	93	88	0.75	12		246	233	59
3	0.50		16:26	836.0	1.06	293	93	88	0.75	12		246	233	59
4	0.50		16:31	838.8	1.06	293	93	88	0.75	12		246	233	60
6-1	0.42		16:36	841.6	0.89	293	93	88	0.75	12		245	233	60
2	0.44		16:41	844.4	0.94	291	93	88	0.75	12		246	235	60
3	0.43		16:46	846.8	0.92	291	93	88	0.75	12		246	234	61
4	0.43		16:51	849.3	0.92	291	94	89	0.75	12		246	230	61
			16:56	851.898										

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MOSTARDI-PLATT ASSOCIATES, INC.
TEST SUPPORT DATA

TEST RUN NO. 3

COMPANY: NSP
PLANT: Sherco
TEST LOCATION: Unit 3 inlet
CLIENT: NSP
OPERATOR:
DATE: 01/26/00
CONTROL BOX: E46 POT. NO.:
METER NO.: E46
METER CALIBRATION FACTOR: 1.007
PITOT ID NO.: 260A
PITOT TUBE COEFFICIENT: 0.835
PORT LENGTH: 17" in.
PORT SIZE: 8 4" in.
PORT TYPE: 8 Nipple

IMPINGER H_2O
FINAL: 4888.7 ml/gm
INITIAL: 4711.8 ml/gm
GAIN: 176.9 ml/gm
TOTAL H_2O COLLECTED: 193.0

SILICA GEL:
FINAL WT: 733.5 gm
INITIAL WT: 717.4 gm
WT. GAIN: 16.1 gm

DESCRIPTION OF IMPINGER H_2O:
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY:
SILICA GEL WEIGHED BY:

COMMENTS & NOTES

THIMBLE NO: #099 #084 TARE WT: 3.0948 3.1125
FILTER NO: TARE WT:
BAROMETRIC PRESSURE in. Hg: 29.70
FLUE PRESSURE in. H_2O: -15.0
FLUE PRESSURE in. Hg ABS: 28.60
PROBE LENGTH: 14 ft.
PROBE LINER MATERIAL: Teflon
NOZZLE IDENTIFICATION NO: Set B #8
CALIBRATED NOZZLE DIAMETER: 0.240
LEAK CHECK: filter 0.000 @ 19" 0.002
filter PRE: 0.000 @ 19" POST: 0.000 @ 17 15 in. Hg
DUCT SHAPE: Rectangular DIAMETER:
DUCT AREA: 1090.00 sq. ft. L 30' W 36'-4"
DISTURBANCE UPSTREAM: DOWNSTREAM:
TEST LENGTH: 120 min
MINUTES PER POINT: 20
TOTAL NUMBER OF TRAVERSE POINTS: 6
GAS ANALYSIS (ORSAT/FYRITE):
CO_2: 14.7 14.7 14.7
O_2: 4.2 4.2 4.2

PITOT LEAK CHECK: PRE O.K. POST O.K.
ΔH@ 1.843
SAMPLES REMOVED FROM SITE BY:

For computer data entry: Supervisor, please complete.
Do you want to enter a fuel analysis? Y ☐ N ☐
What value do you want to use? F = 9,780 F_c = 1,800 Other = _____
Circle to indicate "Yes" or add other value if not given.

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FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT NSP - Sherco
TEST RUN NO. 3
TEST LOCATION Unit 3 inlet

DATE 01/26/00 PAGE 1 OF

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	Meter Rate cfm	Pump Vacuum in. Hg	Notes	Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
1-1	0.63		8:35	852.324	1.30	301	82	81	0.75	6		259	235	62
2	0.63		8:40	855.7	1.30	302	82	81	0.75	6		246	234	55
3	0.62		8:45	858.5	1.29	301	84	81	0.75	6		248	234	54
4	0.60		8:50	861.4	1.24	302	85	82	0.75	6		248	233	55
2-1	0.57		8:55	864.3	1.19	301	86	82	0.75	7		244	232	56
2	0.53		9:00	866.9	1.10	300	88	84	0.75	7		244	233	56
3	0.53		9:05	869.8	1.10	304	88	83	0.75	8		245	233	56
4	0.51		9:10	872.5	1.06	304	88	83	0.75	8		240	232	56
3-1	0.62		9:15	875.3	1.29	304	89	83	0.75	9		242	231	56
2	0.60		9:20	878.2	1.25	304	90	84	0.75	9		242	232	56
3	0.62		9:25	881.0	1.30	304	90	84	0.75	10		245	232	57
4	0.62		9:30	883.8	1.30	305	90	85	0.75	11	End Vol. 883.333	245	233	57
4-1	0.62		9:46	887.333 887.792	1.30	303	88	85	0.75	7	changed Filter	241	233	58
2	0.65		9:51	891.1	1.37	301	89	85	0.75	7	Start vol. 887.792	242	233	58
3	0.68		9:56	894.0	1.43	301	90	85	0.75	7		242	236	58
4	0.68		10:01	897.1	1.43	302	91	85	0.75	8		242	234	58
5-1	0.52		10:06	900.1	1.10	300	92	86	0.75	8		239	234	59
2	0.52		10:11	902.8	1.10	300	92	86	0.75	8		244	234	60
3	0.54		10:16	905.6	1.14	300	92	86	0.75	8		243	234	57
4	0.52		10:21	908.4	1.10	299	92	87	0.75	8		243	235	56
6-1	0.40		10:26	911.2	0.85	298	92	86	0.75	8		243	234	56
2	0.42		10:31	913.6	0.89	297	92	87	0.75	8		243	234	56
3	0.42		10:36	916.3	0.89	298	92	87	0.75	8		242	232	56
4	0.46		10:41	918.8	0.97	299	92	87	0.75	9		242	233	55
			10:46	921.454										

MOSTARDI-PLATT ASSOCIATES, INC.
TEST SUPPORT DATA

TEST RUN NO. 1 - Mercury

COMPANY: NSP - Sherburne Co.
PLANT: Sherburne Co.
TEST LOCATION: Unit 3 Stack
CLIENT: NSP
OPERATOR: Tom Wenzel
DATE: 1-25-00
CONTROL BOX: ESI POT. NO.: ESI
METER NO.: ESI
METER CALIBRATION FACTOR: 0.998
PITOT ID NO.: 383(A)
PITOT TUBE COEFFICIENT: 0.839
PORT LENGTH: 40 in.
PORT SIZE: 4 in.
PORT TYPE: 3" Flange

IMPINGER H_2O / SILICA GEL:
FINAL: 4823.3 ml/gm — FINAL WT: 744.8 gm
INITIAL: 4660.9 ml/gm — INITIAL WT: 737.5 gm
GAIN: 162.4 ml/gm — WT. GAIN: 7.3 gm
TOTAL H_2O COLLECTED: 169.7

DESCRIPTION OF IMPINGER H_2O:
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY:
SILICA GEL WEIGHED BY:

COMMENTS & NOTES

169.7

THIMBLE NO: TARE WT:
FILTER NO: 843 TARE WT: 6659
BAROMETRIC PRESSURE in. Hg: 29.31
FLUE PRESSURE in. H_2O: -1.5
FLUE PRESSURE in. Hg ABS: 29.200
PROBE LENGTH: 11 ft.
PROBE LINER MATERIAL: Teflon
NOZZLE IDENTIFICATION NO:
CALIBRATED NOZZLE DIAMETER: 0.180
LEAK CHECK: PRE: 0.009 POST: 0.005 @ 10/12 in. Hg
DUCT SHAPE: Circular DIAMETER: 29.5'
DUCT AREA: 683.492 sq. ft. L — W —
DISTURBANCE UPSTREAM: DOWNSTREAM:
TEST LENGTH: 120 min
MINUTES PER POINT: 10
TOTAL NUMBER OF TRAVERSE POINTS: 12
GAS ANALYSIS (ORSAT/FYRITE):
CO_2: 12.5 12.5 12.5
O_2: 6.3 6.3 6.3

PITOT LEAK CHECK: PRE 3.1 "H_2O POST 4.7 "H_2O
ΔH@ 1.882
SAMPLES REMOVED FROM SITE BY:

For computer data entry: Supervisor, please complete.
Do you want to enter a fuel analysis? Y ☐ N ☐
What value do you want to use? F = 9,780 F_c = 1,800 Other = _____
Circle to indicate "Yes" or add other value if not given.

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FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT NSP - Shorburne Co.
TEST RUN NO. 1- Mercury
TEST LOCATION Unit 3 Stack

DATE 1-25-00 PAGE 1 OF 1

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	0.674 Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	0.432 Meter Rate cfm	Pump Vacuum in. Hg	Notes		Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
1-1	1.15	1.072	11:30	74.299	0.775	176	19	19	0.463	5	4.633	—	251	238	≤68
-2	1.30	1.140	11:40	79.44	0.886	177	22	19	0.493	5	4.926	79.427	251	241	Fully
-3	1.05	1.025	11:50	84.35	0.708	175	23	20	0.443	5	4.427	84.353	251	241	Iced
			12:00	88.754								88.780			
2-1	1.35	1.162	12:03	88.754	0.909	176	23	20	0.502	5	5.019	—	253	235	
-2	1.40	1.183	12:13	93.77	0.944	178	23	20	0.511	5	5.111	93.773	251	241	
-3	1.20	1.095	12:23	98.884	0.809	177	25	21	0.473	6	4.732	98.884	250	236	
			12:33	103.620								103.616			
3-1	1.20	1.095	12:39	103.620	0.809	176	25	22	0.473	6	4.732	—	251	242	
-2	1.15	1.072	12:49	108.35	0.775	176	25	22	0.463	8	4.633	108.352	251	241	
-3	1.50	1.225	12:59	112.99	1.011	177	26	24	0.529	7	5.291	112.985	250	244	
			13:09	118.278								118.276			
4-1	1.20	1.095	13:18	118.278	0.809	179	26	24	0.473	7	4.732	—	251	238	
-2	1.20	1.095	13:28	123.01	0.809	178	28	23	0.473	7	4.732	123.010	251	238	
-3	1.10	1.049	13:38	127.74	0.741	177	29	23	0.453	7	4.531	127.742	249	243	
			13:48	132.279								132.273			
		1.109		57.485	0.931	176.83	22.958		0.479						

MOSTARDI-PLATT ASSOCIATES, INC.
TEST SUPPORT DATA

TEST RUN NO. 2- Mercury

COMPANY: Northern States Power
PLANT: Sherburne County
TEST LOCATION: Unit 3 Stack
CLIENT: NSP
OPERATOR: Tom Wenzel
DATE: 1-25-00
CONTROL BOX: BS1 POT. NO.: BS1
METER NO.: BS1
METER CALIBRATION FACTOR: 0.998
PITOT ID NO.: 383(A)
PITOT TUBE COEFFICIENT: .839
PORT LENGTH: 40 in.
PORT SIZE: 4 in.
PORT TYPE: Flange

IMPINGER H_2O
FINAL: 4847.8 ml/gm
INITIAL: 4572.0 ml/gm
GAIN: 275.8 ml/gm

SILICA GEL:
FINAL WT: 713.6 gm
INITIAL WT: 702.7 gm
WT. GAIN: 10.9 gm

TOTAL H_2O COLLECTED: 286.7
DESCRIPTION OF IMPINGER H_2O:
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY:
SILICA GEL WEIGHED BY:

COMMENTS & NOTES

286.7

THIMBLE NO: TARE WT:
FILTER NO: 844 TARE WT: 0.6630
BAROMETRIC PRESSURE in. Hg: 29.31
FLUE PRESSURE in. H_2O: -1.5
FLUE PRESSURE in. Hg ABS: 29.200
PROBE LENGTH: 11 ft.
PROBE LINER MATERIAL: Teflon
NOZZLE IDENTIFICATION NO:
CALIBRATED NOZZLE DIAMETER: 0.160
LEAK CHECK: PRE: 0.007 POST: 0.005 @ 13/14 in. Hg
DUCT SHAPE: Circular DIAMETER: 29.5'
DUCT AREA: 683.492 sq. ft. L W
DISTURBANCE UPSTREAM: DOWNSTREAM:
TEST LENGTH: 120 min
MINUTES PER POINT: 10
TOTAL NUMBER OF TRAVERSE POINTS: 12
GAS ANALYSIS (ORSAT/FYRITE):
CO_2: 12.2 12.2
O_2: 6.6 6.6

PITOT LEAK CHECK: PRE 3.2 POST 4.8
ΔH@ 1.882
SAMPLES REMOVED FROM SITE BY:

For computer data entry: Supervisor, please complete.
Do you want to enter a fuel analysis? Y ☐ N ☐
What value do you want to use? F = 9,780 F_c = 1,800 Other =
Circle to indicate "Yes" or add other value if not given.

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FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT NSP-, Sherburne Co.
TEST RUN NO. 2-Mercury
TEST LOCATION Unit 3 - Stack

DATE 1-25-00 PAGE 1 OF 1

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	0.716 Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	0.459 Meter Rate cfm	Pump Vacuum in. Hg	x 10 Notes		Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
C-3 1	1.15	1.072	14:40	32.885	0.823	176	42	42	0.492	5	4.922	—	237	235	≤68°F
-2	1.15	1.072	14:50	37.815	0.823	176	43	42	0.492	5	4.922	37.807	235	236	Fully
-3	1.00	1.00	15:00	42.730	0.716	176	43	42	0.459	6	4.590	42.729	236	234	Iced
			15:10	47.322								47.319			
				0.067											
B-3 2 -1	1.40	1.183	15:15	47.389	1.002	176	44	42	0.543	6	5.431	—	236	235	
-2	1.30	1.140	15:25	52.823	.931	177	44	42	.523	7	5.233	52.820	239	235	
-3	1.30	1.140	15:35	58.053	0.931	177	46	43	0.523	7	5.233	58.053	237	236	
2			15:45	63.281								63.286			
				0.075											
3 -1	1.35	1.162	15:49	63.356	0.967	176	47	42	0.533	7	5.333	—	235	235	
-2	1.35	1.162	15:59	68.69	0.967	177	48	43	0.533	7	5.333	68.689	234	236	
-3	1.15	1.072	16:09	74.022	0.823	176	49	43	0.492	7	4.922	74.022	236	234	
			16:19	78.947								78.944			
				0.223											
4 -1	1.20	1.095	16:25	79.165	0.859	178	50	43	0503	7	5.028	—	236	238	
-2	1.15	1.072	16:35	84.193	0.823	176	50	43	0.492	7	4.922	84.193	235	236	
-3	1.05	1.025	16:45	89.115	0.752	176	50	44	0.470	7	4.703	89.115	236	238	
			16:55	93.820								93.818			
		1.100		60.570	0.968	176.4	44.458		0.505						

MOSTARDI-PLATT ASSOCIATES, INC.
TEST SUPPORT DATA

TEST RUN NO. 3-Hg

COMPANY: NSP
PLANT: Sherburne Co.
TEST LOCATION: Unit 3 Stack
CLIENT: Northern States Power
OPERATOR: Tom Wenzel
DATE: 1-26-00
CONTROL BOX: E51 POT. NO.: E51
METER NO.: E51
METER CALIBRATION FACTOR: 0.998
PITOT ID NO.: 383(A)
PITOT TUBE COEFFICIENT: 0.839
PORT LENGTH: 40 in.
PORT SIZE: H in.
PORT TYPE: H Flange

IMPINGER H_2O
FINAL: 4896.1 ml/gm
INITIAL: 4674.5 ml/gm
GAIN: 221.6 ml/gm

SILICA GEL:
FINAL WT: 752.8 gm
INITIAL WT: 740.3 gm
WT. GAIN: 12.5 gm

TOTAL H_2O COLLECTED: 234.1
DESCRIPTION OF IMPINGER H_2O:
SILICA GEL EXHAUSTED?:
IMPINGERS RECOVERED BY:
SILICA GEL WEIGHED BY:

COMMENTS & NOTES
234.1

THIMBLE NO: — TARE WT: —
FILTER NO: 845 TARE WT: 0.6303
BAROMETRIC PRESSURE in. Hg: 29.51
FLUE PRESSURE in. H_2O: -1.5
FLUE PRESSURE in. Hg ABS: 29.40
PROBE LENGTH: 11 ft.
PROBE LINER MATERIAL: Teflon
NOZZLE IDENTIFICATION NO: N/A
CALIBRATED NOZZLE DIAMETER: 0.180
LEAK CHECK: PRE: 0.008 POST: 0.005 @ 14/13 in. Hg
DUCT SHAPE: Circular DIAMETER: 29.5'
DUCT AREA: 683.492 sq. ft. L W
DISTURBANCE UPSTREAM: DOWNSTREAM:
TEST LENGTH: 120 min
MINUTES PER POINT: 10
TOTAL NUMBER OF TRAVERSE POINTS: 12
GAS ANALYSIS (ORSAT/FYRITE):
CO_2: 12.7 12.7 12.7
O_2: 6.5 6.5 6.5

PITOT LEAK CHECK: PRE 4.1 POST 3.2
ΔH@ 1.882
SAMPLES REMOVED FROM SITE BY:

For computer data entry: Supervisor, please complete.
Do you want to enter a fuel analysis? Y ☐ N ☐
What value do you want to use? F = 9,780 F_c = 1,800 Other = _____
Circle to indicate "Yes" or add other value if not given.

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FIELD TEST DATA SHEET
FOR ISOKINETIC SAMPLING

MOSTARDI-PLATT ASSOCIATES, INC.

PROJECT Northern States Power
TEST RUN NO. 3 - Hg
TEST LOCATION Unit 3 Stack

DATE 1-26-00 PAGE 1 OF 1

Port-Point No.	Velocity Head (P) in. H_2O	$\sqrt{P}$	Clock Time 24 hr.	Meter Volume (Vm) ft^3	Orifice (H) in. H_2O	Stack Temp (t_s) °F	Meter Temp. (t_m) Inlet °F	Meter Temp. (t_m) Outlet °F	Meter Rate cfm	Pump Vacuum in. Hg	Notes		Probe Temp. °F	Filter Holder Temp. °F	Impinger Outlet Temp. °F
1 -1	1.20	1.095	8:37	94.038	0.868	177	50	50	0.506	3	5.057	—	232	230	≤68
-2	1.15	1.072	8:47	99.10	0.832	178	53	50	0.475	3	4.951	99.095	231	235	Full
-3	1.20	1.095	8:57	104.05	0.868	178	56	51	0.506	3	5.057	104.046	231	233	Frost
		1.087	9:07	109.106	0.856	177.67	51.67		0.502			109.103			
				(0.125)											
2 -1	1.40	1.183	9:13	109.231	1.013	177	58	52	0.546	3	5.462	—	232	234	
-2	1.35	1.162	9:23	114.69	0.977	177	59	52	0.536	3	5.364	114.693	231	233	
-3	1.25	1.118	9:33	120.06	0.904	177	59	53	0.516	3	5.161	120.057	231	232	
SI			9:43	125.220								125218			
				(0.198)											
3 -1	1.35	1.162	9:54	125.418	0.977	178	60	53	0.536	3	5.364	—	231	234	
-2	1.35	1.162	10:04	130.78	0.977	178	60	53	0.536	3	5.364	130.782	233	231	
-3	1.25	1.118	10:14	136.18	0.904	178	61	53	0.516	3	5.161	136.146	230	230	
			10:24	141.310								141.307			
				(0.638)											
4 -1	1.15	1.072	10:30	141.948	0.832	178	61	53	0.495	5	4.951	—	231	232	
-2	1.15	1.072	10:40	146.90	0.832	178	61	53	0.495	5	4.951	146.899	232	230	
-3	1.10	1.049	10:50	151.95	0.796	178	61	54	0.484	5	4.842	151.850	233	231	
			11:00	156.697								156.692			
		(1.113)		(61.686)	(0.842)	(177.67)	(55.25)		(0.514)						

m 102 5/2?

CALIBRATION PROCEDURES

PITOT TUBES

The pitot tubes used during this test program are fabricated according to the specification described and illustrated in the *Code of Federal Regulations*, Title 40, Part 60, Appendix A, Methods 1 through 5 as published in the *Federal Register*, Volume 42, No. 160; hereafter referred to by the appropriate method number. The pitot tubes comply with the alignment specifications in Method 2, Section 4; and the pitot tube assemblies are in compliance with specifications in the same section.

Pitot tube assemblies are calibrated in accordance with Method 2, Section 4, against a standard hemispherical pitot utilizing a wind tunnel meeting the specification in Method 2, Section 4.1.2.

TEMPERATURE SENSING DEVICES

The potentiometer and thermocouples are calibrated against a mercury thermometer in a calibration well. Alternatively, readings are checked utilizing a NBS traceable millivolt source.

DRY GAS METERS

The test meters are calibrated according to Method 5, Section 5.3 and "Procedures for Calibrating and Using Dry Gas Volume Meters as Calibration Standards" by P.R. Westlin and R.T. Shigehara, March 10, 1978.

ANALYTICAL BALANCE

The accuracy of the analytical balance is checked with Class S, Stainless Steel Type 303 weights manufactured by F. Hopken and Son, Jersey City, New Jersey.

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Pitot Tube Calibration Data

Calibration Pitot Tube: Type: Std. Hemi Size (OD): .250 " Pitot ID #: N/A

Type "S" Pitot Tube ID Number: 260 A & B Cp(std) = 0.99

Calibration Date: 12/27/95 Performed By: L. Campo

P_{std}, (in.) H_2O		A-Side Calibration		
Set Value	**Read Value**	**P_s, (in.) H_2O**	**$C_{p(S)}$ [a]**	**DEV. [b]**
0.25	0.26	0.36	0.841	0.007
0.55	0.48	0.67	0.838	0.003
0.85	0.78	1.10	0.834	0.001
1.00	1.05	1.50	0.828	0.007
2.00	2.00	2.80	0.837	0.002
3.00	3.10	4.40	0.831	0.004
		Average	0.835	0.004

P_{std}, (in.) H_2O		B-Side Calibration		
Set Value	**Read Value**	**P_s, (in.) H_2O**	**$C_{p(S)}$ [a]**	**DEV. [b]**
0.25	0.26	0.36	0.847	0.011
0.55	0.48	0.67	0.838	0.002
0.85	0.78	1.10	0.834	0.002
1.00	1.05	1.50	0.828	0.008
2.00	2.00	2.80	0.837	0.001
3.00	3.10	4.40	0.831	0.005
		Average	0.836	0.005

$\overline{C_p}(A) - \overline{C_p}(B) =$ 0.001 ***(must be ≤ 0.01)***

[a] $C_{p(S)} = C_{p(std)}\sqrt{\frac{\Delta P_{std}}{\Delta P_s}}$

[b] $DEV = C_{p(S)} - \overline{C_p}$, (must be ≤ 0.01)

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? X yes _____ no

Pitot tube openings damaged? _____ yes (explain below) X no

α_1 = 3 ° (<10°), α_2 = 1.5 ° (<10°) z = A sin γ = 0.038 (in.); (<0.125 in.)

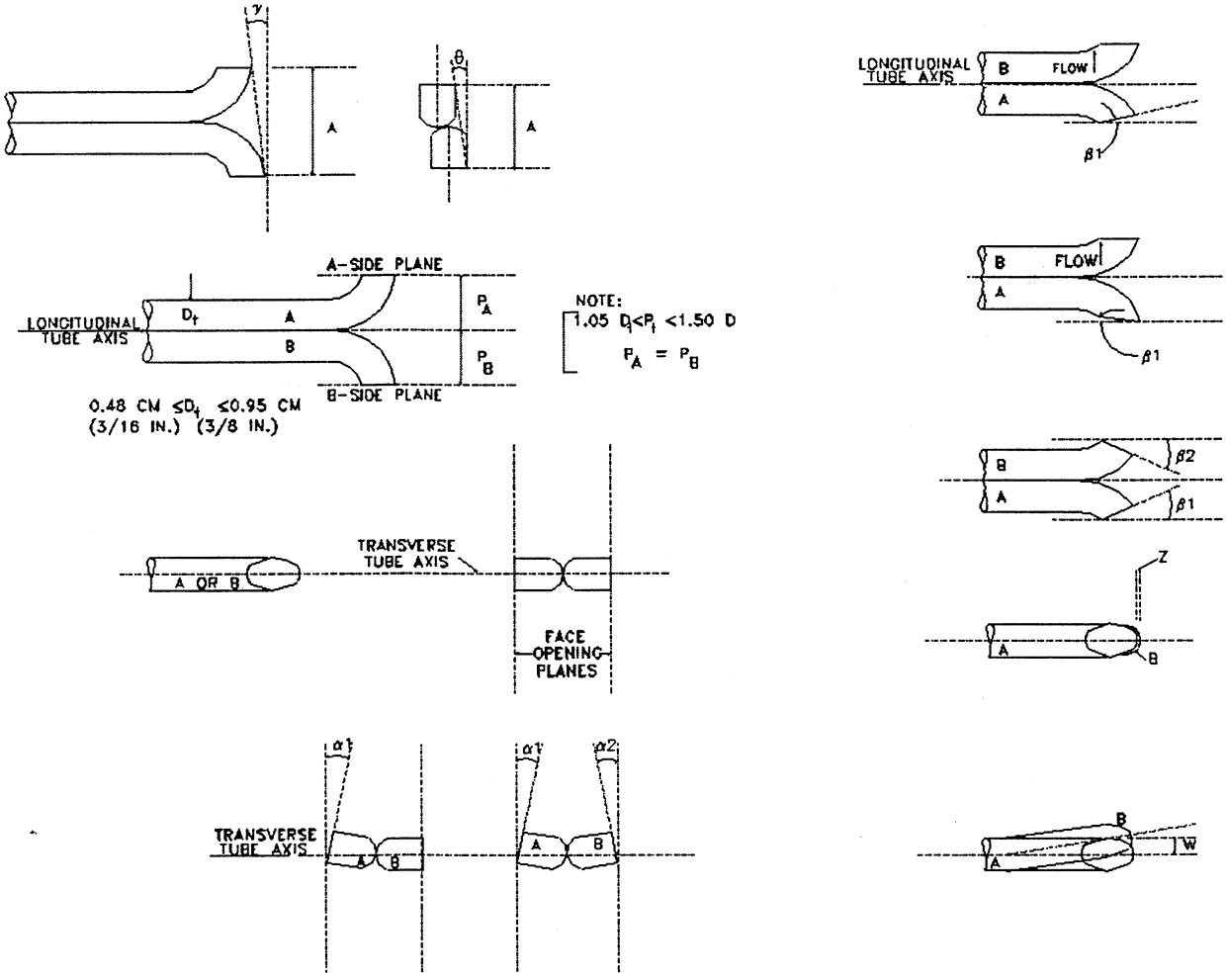
β_1 0 ° (<5°), β_2 = 1.5 ° (<5°) w = A sin θ = 0.000 (in.); (<0.03125 in.)

γ = 3 °, θ = 0 °, A = 0.728 (in.) P_A 0.36 (in.), P_B = 0.36 (in.), D_t = 0.255 (in.)

Comments: 6' M2 PROBE

Calibration required? _____ yes X no

Pitot Tube No.: 260 Date: 04/07/1999 Name: R.Q.JIMENEZ



Pitot Tube Calibration Data

Calibration Pitot Tube: Type: Standard Size (OD): 0.25 Pitot ID #: 160-18

Type "S" Pitot Tube ID Number: 383 Cp(std) = 0.99

Calibration Date: 4/4/96 Performed By: JAB

P_{std}, (in.) H_2O		A-Side Calibration		
Set Value	Read Value	P_s, (in.) H_2O	$C_{p(S)}$ [a]	DEV. [b]
0.25	0.26	0.36	0.839	0.000
0.55	0.57	0.80	0.835	0.004
0.85	0.86	1.20	0.838	0.001
1.00	1.00	1.38	0.843	0.004
2.00	2.06	2.85	0.842	0.003
3.00	3.00	4.20	0.837	0.002
		Average	0.839	0.002

P_{std}, (in.) H_2O		B-Side Calibration		
Set Value	Read Value	P_s, (in.) H_2O	$C_{p(S)}$ [a]	DEV. [b]
0.25	0.26	0.36	0.841	0.003
0.55	0.57	0.81	0.833	0.005
0.85	0.86	1.20	0.838	0.000
1.00	1.00	1.40	0.837	0.002
2.00	2.05	2.83	0.843	0.004
3.00	3.00	4.18	0.839	0.000
		Average	0.838	0.002

$\overline{C_p}(A) - \overline{C_p}(B) =$ 0.000 ***(must be ≤ 0.01)***

[a] $C_{p(S)} = C_{p(std)}\sqrt{\frac{\Delta P_{std}}{\Delta P_s}}$

[b] $DEV = C_{p(S)} - \overline{C_p}$, (must be ≤ 0.01)

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? X yes _____ no

Pitot tube openings damaged? _____ yes (explain below) X no

α_1 = 5 ° (<10°), α_2 = 3 ° (<10°) z = A sin γ = 0.013 (in.); (<0.125 in.)

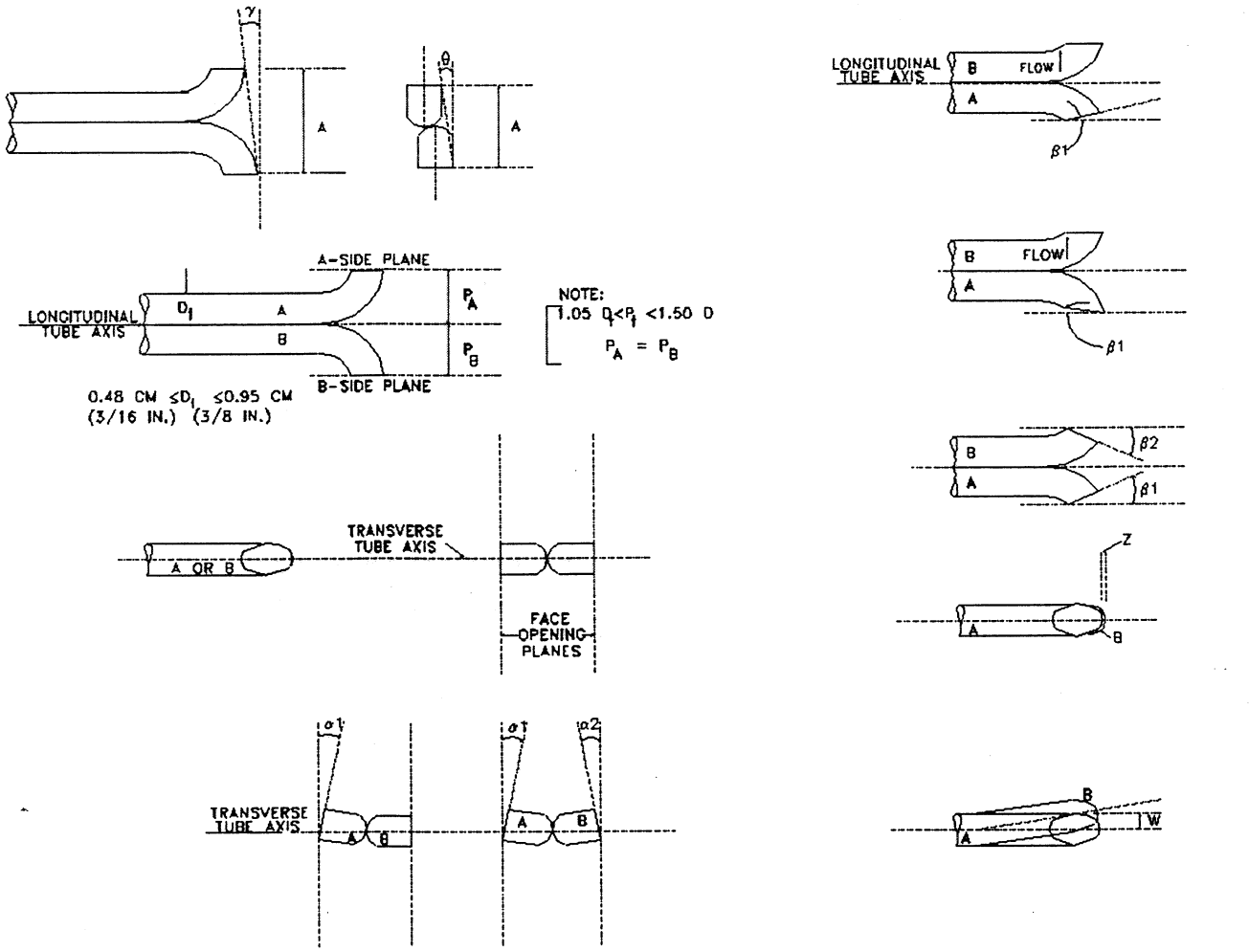
β_1 1 ° (<5°), β_2 = 1 ° (<5°) w = A sin θ = 0.026 (in.); (<0.03125 in.)

γ = 1 °, θ = 2 °, A = 0.740 (in.) P_A 0.37 (in.), P_B = 0.37 (in.), D_t = 0.258 (in.)

Comments: 11' 2" M5 PROBE

Calibration required? _____ yes X no

Pitot Tube No.: 383 Date: 11/18/1999 Name: RR

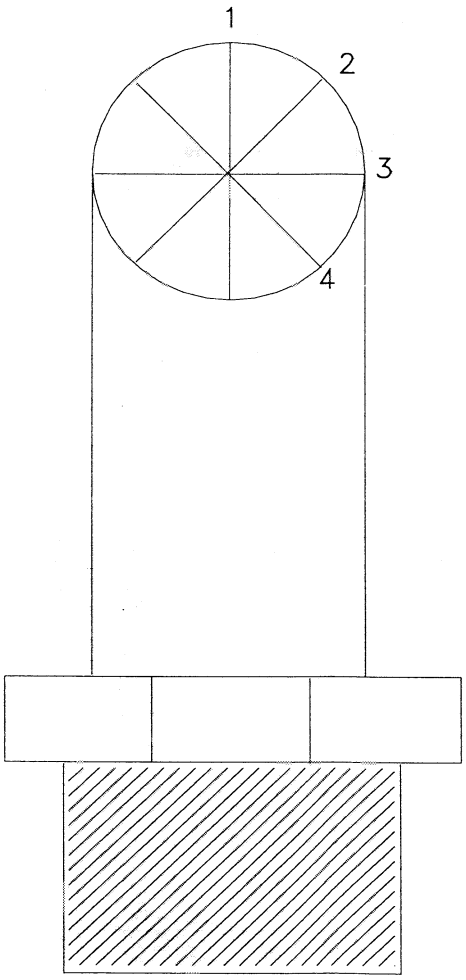


Nozzle Calibration

Date: 1/25/00

Nozzle ID No.: Set B #8

Analyst: JT



Pre Test		Post Test
0.239	1	√
0.240	2	√
0.240	3	√
0.240	4	√

Average
0.240

DWG-AN2 (indnozzl.xls)

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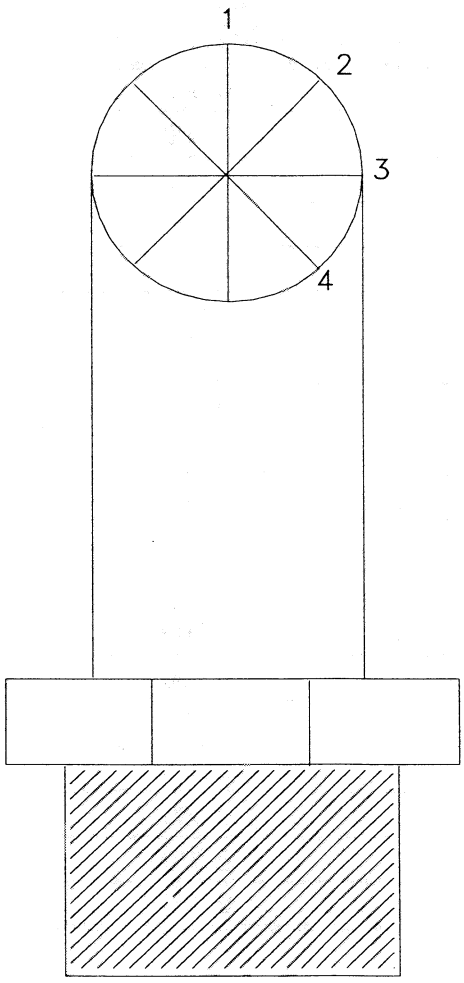
Nozzle Calibration

Date: 1/25/00

Nozzle ID No.: N/A

Analyst: JT



Pre Test		Post Test
0.180	1	√
0.179	2	√
0.181	3	√
0.179	4	√

Average
0.180

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STACK TEMPERATURE SENSOR CALIBRATION DATA FORM (FOR K-TYPE THERMOCOUPLES)

EPA Control Module Number: E46 Name: Rich Russ

Ambient Temperature: 68 °F Date: 01-14-00

Model 1061; S/N: A20821 Reference Source (T/C Calibrator): Transmation, Inc.

Date of Calibration Verification: 10/18/94

Primary Standards Directly Traceable to
National Institute of Standards and Technology (NIST)

Reference[a] Source Temperature, (°F)	Test Thermometer Temperature, (°F)	Temperature Difference,[b] %
50	50	0.000
100	100	0.000
150	150	0.000
200	200	0.000
250	250	0.000
300	300	0.000
350	350	0.000
400	400	0.000
450	450	0.000
500	500	0.000
550	550	0.000
600	600	0.000
650	650	0.000
700	700	0.000
800	800	0.000
900	900	0.000
1000	1000	0.000
1100	1100	0.000
1200	1200	0.000

[a]Every (50°F) for each reference point.

$$\frac{(\text{Ref. Temp., °F} + 460) - (\text{Test Therm. Temp., °F} + 460)}{\text{Ref. Temp., °F} + 460} * 100 <= 1.5\ \%$$

STACK TEMPERATURE SENSOR CALIBRATION DATA FORM (FOR K-TYPE THERMOCOUPLES)

EPA Control Module Number: E51 Name: Rich Russ

Ambient Temperature: 66 °F Date: 01-07-00

Model 1061; S/N: A20821 Reference Source (T/C Calibrator): Transmation, Inc.

Date of Calibration Verification: 10/18/94

Primary Standards Directly Traceable to
National Institute of Standards and Technology (NIST)

Reference[a] Source Temperature, (°F)	Test Thermometer Temperature, (°F)	Temperature Difference,[b] %
50	50	0.000
100	100	0.000
150	150	0.000
200	200	0.000
250	250	0.000
300	300	0.000
350	350	0.000
400	400	0.000
450	450	0.000
500	500	0.000
550	550	0.000
600	600	0.000
650	650	0.000
700	700	0.000
800	799	0.079
900	899	0.074
1000	999	0.068
1100	1099	0.064
1200	1199	0.060

[a]Every (50°F) for each reference point.

$$\frac{(\text{Ref. Temp., °F} + 460) - (\text{Test Therm. Temp., °F} + 460)}{\text{Ref. Temp., °F} + 460} * 100 <= 1.5\ \%$$

METER BOX CALIBRATION

Dry Gas Meter No.	E46	Date:	01-14-00
Standard Meter No.	677191	Calibrated By:	Rich Russ
Standard Meter (Yr)	0.9991	Barometric Pressure :	30.11

Formula Protection Password: MPA

Run Number		Orifice Setting in H20 Chg (H)	Standard Meter Gas Volume Vr	Dry Meter Gas Volume Vd	Standard Meter Temp. F tr	Dry Gas Meter Inlet Temp. F tdi	Dry Gas Meter Outlet Temp. F tdo	Dry Gas Meter Avg. Temp. F td	Time Min.	Time Sec.	Y	Chg (H@)
Final			96.544	95.749	67	74	71					
Inital			91.513	90.711	66	75	70					
Difference	1	0.20	5.031	5.038	66.5	74.5	70.5	72.5	20	3	1.010	1.740
Final			103.330	25.100	69	80	77					
Inital			97.639	19.352	69	78	77					
Difference	2	0.50	5.691	5.748	69	79	77	78	14	29	1.006	1.772
Final			85.927	85.119	66	73	69					
Inital			80.019	79.209	64	70	68					
Difference	3	0.70	5.908	5.910	65	71.5	68.5	70	12	56	1.007	1.835
Final			8.511	30.332	69	81	77					
Inital			3.481	25.251	69	79	77					
Difference	4	0.90	5.030	5.081	69	80	77	78.5	9	47	1.006	1.862
Final			13.665	35.520	69	84	77					
Inital			8.644	30.460	69	81	77					
Difference	5	1.20	5.021	5.060	69	82.5	77	79.75	8	36	1.010	1.920
Final			91.370	90.565	66	77	70					
Inital			86.135	85.331	66	73	69					
Difference	6	2.00	5.235	5.234	66	75	69.5	72.25	6	57	1.007	1.928
									Average		1.007	1.843

VOLUME METERING SYSTEM FIELD AUDIT

Date: 01-14-00 Name: Rich Russ

EPA Control Module No.: E46 Ambient Temperature: 66 °F

Calibration (Y): 1.007 Barometric Pressure: 30.11 "Hg

Delta H: 1.843

Run No.	Time (Minutes)	Gas Meter Reading/Gas Meter Temperature (Cubic Feet)	Inlet (°F)	Outlet (°F)	Yc (Calculated)
1	0	87.814	81	71	1.017
	10	95.227	82	72	
	Vm=	7.413	Avg.= 76.50	536.50	
2	0	95.227	82	72	1.014
	10	102.671	83	73	
	Vm=	7.444	Avg.= 77.50	537.50	
3	0	102.671	83	73	1.016
	10	110.106	84	74	
	Vm=	7.435	Avg.= 78.50	538.50	

$$Yc = \frac{10}{Vm}\sqrt{\frac{Pbar}{0.0319Tm}}$$

Limit: $0.97Y < Yc < 1.03Y$

Limit: $0.977 < Yc < 1.037$

$$\text{Calc. Delta H @} = \frac{0.0319\ (\text{Delta H})(Tm)(100)}{Pbar(Y^2)(Vm^2)}$$ (From Calibration Data) = 1.878

METER BOX CALIBRATION

Dry Gas Meter No.	E51	Date:	01-07-00
Standard Meter No.	3623852	Calibrated By:	Rich Russ
Standard Meter (Yr)	1.0058	Barometric Pressure :	29.76

Formula Protection Password: MPA

Run Number		Orifice Setting in H20 Chg (H)	Standard Meter Gas Volume Vr	Dry Meter Gas Volume Vd	Standard Meter Temp. F tr	Dry Gas Meter Inlet Temp. F tdi	Dry Gas Meter Outlet Temp. F tdo	Dry Gas Meter Avg. Temp. F td	Time Min.	Time Sec.	Y	Chg (H@)
Final			95.145	26.307	70	76	72					
Inital			90.119	21.227	70	75	71					
Difference	1	0.20	5.026	5.080	70	75.5	71.5	73.5	19	40	0.995	1.716
Final			100.379	31.592	70	79	74					
Inital			95.319	26.471	70	76	73					
Difference	2	0.50	5.060	5.121	70	77.5	73.5	75.5	13	2	0.997	1.852
Final			90.073	21.186	70	76	70					
Inital			85.045	16.109	70	72	70					
Difference	3	0.70	5.028	5.077	70	74	70	72	11	3	0.992	1.900
Final			105.551	36.812	70	82	75					
Inital			100.517	31.722	70	79	74					
Difference	4	0.90	5.034	5.090	70	80.5	74.5	77.5	9	50	1.001	1.910
Final			10.680	41.979	71	84	75					
Inital			5.647	36.899	70	81	75					
Difference	5	1.20	5.033	5.080	70.5	82.5	75	78.75	8	37	1.003	1.956
Final			16.215	47.589	71	87	76					
Inital			10.824	42.131	71	82	75					
Difference	6	2.00	5.391	5.458	71	84.5	75.5	80	7	9	1.000	1.955
									Average		0.998	1.882

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VOLUME METERING SYSTEM FIELD AUDIT

Date: 01-07-00 Name: Rich Russ

EPA Control Module No.: E51 Ambient Temperature: 66 °F

Calibration (Y): 0.998 Barometric Pressure: 29.76 "Hg

Delta H: 1.882

un N 32	Time (Minutes)	Gas Meter Reading/Gas Meter Temperature (Cubic Feet)	Inlet (°F)	Outlet (°F)	Yc (Calculated)
1	0	48.612	84	77	1.016
	10	56.110	87	77	
	Vm=	7.498	Avg.= 81.25	541.25	
2	0	56.110	87	77	1.017
	10	63.612	89	78	
	Vm=	7.502	Avg.= 82.75	542.75	
3	0	63.612	89	78	1.015
	10	71.137	90	79	
	Vm=	7.525	Avg.= 84.00	544.00	

$$Yc = \frac{10}{Vm}\sqrt{\frac{Pbar}{0.0319Tm}}$$

Limit: $0.97Y < Yc < 1.03Y$

Limit: $0.968 < Yc < 1.028$

$$\text{Calc. Delta H @} = \frac{0.0319\ (\text{Delta H})(Tm)(100)}{Pbar(Y^2)(Vm^2)}$$ (From Calibration Data) = 1.945

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	000403	**TEST RUN NO.:**	1	**TEST DATE:**	1/25/2000

CUSTOMER:	Northern States Power Company	**BAROMETRIC PRESSURE (Pb)**	29.6 **in. Hg.**
PLANT:	Sherburne County Generating Plant	**STATIC PRESSURE**	-14.5 **in. H2O**
TEST LOC.:	Unit 3 Inlet	**FLUE PRESSURE (Ps)**	28.53 **in. Hg. abs.**
CLIENT:	Northern States Power Company	**PROBE LENGTH:**	14 **ft.**
OPERATOR:	J. Tryba	**PROBE LINER MATERIAL:**	Teflon
CONTROL BOX:	E-46	**NOZZLE IDENTIFICATION NO.:**	Set B, #8
METER NO.:	E-46	**CALIBRATED NOZZLE DIAMETER:**	0.240 **in.**
METER CALIBRATION FACTOR:	1.007	**LEAK CHECK PRE:**	0.000 **POST:** 0.000
PITOT ID NO.:	260A	**DUCT SHAPE:**	Circular DIA. Feet
PITOT TUBE COEFFICIENT:	0.835		Rectangular 30 Feet 36.33 Feet
PORT LENGTH:	17 in.	**DUCT AREA:**	1089.999 **sq. ft.**
PORT SIZE:	4 in.	**TEST LENGTH:**	120 **min.**
PORT TYPE:	Nipple	**MINUTES PER POINT:**	20
		TOTAL NUMBER OF TRAVERSE POINTS:	6

ONTARIO HYDRO METHOD TRAVERSE DATA

Company: Northern States Power Company **Date:** 1/25/2000 **Test Run:** 1

Location: Unit 3 Inlet

Point	Δp	Sq. Root Δp	Time	Volume cubic feet	ΔH	Stack Temp °F	Meter Inlet °F	Meter Outlet °F	Vacuum in. Hg	
1-1	0.65	0.806	11:32	711.14	1.36	294	85	84	7	3.162
1-2	0.65	0.806	11:37	714.30	1.36	295	85	84	7	3.100
1-3	0.60	0.775	11:42	717.40	1.26	294	86	84	7	2.800
1-4	0.60	0.775	11:47	720.20	1.26	294	87	84	7	2.800
			11:47	723.00						0.000
2-1	0.62	0.787	11:52	723.00	1.30	294	89	85	7	2.900
2-2	0.58	0.762	11:57	725.90	1.23	294	90	85	8	2.900
2-3	0.60	0.775	12:02	728.80	1.27	296	92	85	8	2.800
2-4	0.66	0.812	12:07	731.60	1.40	296	92	86	9	3.100
			12:07	734.70						0.000
3-1	0.66	0.812	12:12	734.70	1.40	296	92	86	9	2.900
3-2	0.62	0.787	12:17	737.60	1.31	295	93	86	10	3.000
3-3	0.64	0.800	12:22	740.60	1.36	295	93	87	11	2.900
3-4	0.60	0.775	12:27	743.50	1.27	295	93	87	11	3.100
			12:27	746.60						0.000
4-1	0.60	0.775	12:32	746.60	1.28	291	93	87	12	2.900
4-2	0.71	0.843	12:37	749.50	1.52	291	93	87	13	3.200
4-3	0.68	0.825	12:42	752.70	1.45	291	93	87	14	3.100
4-4	0.61	0.781	12:47	755.80	1.30	290	92	88	15	3.000
			12:47	758.80						0.000
5-1	0.49	0.700	12:52	758.80	1.05	288	91	87	16	2.400
5-2	0.43	0.656	12:57	761.20	0.92	288	91	88	16	3.200
5-3	0.43	0.656	13:02	764.40	0.92	288	91	88	16	2.700
5-4	0.44	0.663	13:07	767.10	0.94	289	91	88	16	2.700
			13:07	769.80						0.000
6-1	0.40	0.632	13:39	769.80	0.85	289	90	88	5	4.100
6-2	0.44	0.663	13:44	773.90	0.94	289	90	88	5	2.600
6-3	0.44	0.663	13:49	776.50	0.94	290	93	88	5	2.600
6-4	0.43	0.656	13:54	779.10	0.92	291	92	88	5	2.429
			13:54	781.53						0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
		0.749		70.391	1.20	292	91	86		#####
							88.58			

MOISTURE, DILUENT AND MERCURY DATA

Company Northern States Power Company **Date:** 1/25/2000 **Test Run:** 1

Location: Unit 3 Inlet

SILICA GEL FINAL WT.:	738.80	**grams**
SILICA GEL INITIAL WT.:	719.70	**grams**
DIFFERENCE:	19.10	
FINAL IMPINGER WATER:	4859.70	**mls.**
INITIAL IMPINGER WATER:	4688.90	**mls.**
DIFFERENCE:	170.80	
TOTAL WATER GAIN:	189.90	

ITEM	MERCURY (UG)		= NET WT. (G)
FILTER:	0.000		0.000000000
PROBE WASH:	0.000		0.000000000
		Particle-bound Total:	0.000000000
KCl:	0.980		0.000000980
		Oxidized Total:	0.000000980
HNO_3/H_2O_2:	0.000		0.000000000
$KMNO_4$:	20.000		0.000020000
		Elemental Total:	0.000020000

Orsat Analysis	1	2	3	Average
Carbon Dioxide:	15.20	15.20	15.20	15.20
Oxygen:	3.80	3.80	3.80	3.80

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	Northern States Power Company
Date:	1/25/2000
Test Run:	1
Stack or Duct No.:	Unit 3 Inlet
Start Time:	11:32
Stop Time:	13:54

Pb:	29.60	Inches Hg
Static	-14.50	Inches H2O
Ps:	28.53	Inches Hg Abs.
Vlc:	190	ml + grams
Mn:	0.0000	gm
Test Time:	120	minutes
% O2:	3.80	%
% CO2:	15.20	%
% N2:	81.00	%
Delta H:	1.20	Inches H20
Cp:	0.835	Dimensionless - pitot
Tm:	88.58	°F
Sqrt P:	0.749	Inches H20
Ts:	292.21	°F
Vm:	70.391	Cubic Feet
Dn:	0.240	Inches - nozzle
As:	1090.00	Sq. Feet
Yd:	1.007	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	dscf/10^6 Btu
Fc:	N/A	scf/10^6 Btu

Vmstd:	67.695	cubic feet (dry)
Vwstd:	8.944	cubic feet (wet)
Bwo:	0.117	
Md:	30.584	lb/lb-mole (dry)
Ms:	29.115	lb/lb-mole (wet)
Excess Air (%)	21.611	
Vs:	50.900	fps
ACFM:	3328858.	
DSCFM:	1968310.	
WSCFM:	2228373	
%I:	99.5	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	000403	**TEST RUN NO.:**	2	**TEST DATE:**	1/25/2000

CUSTOMER:	Northern States Power Company	**BAROMETRIC PRESSURE (Pb)**	29.6	**in. Hg.**	
PLANT:	Sherburne County Generating Plant	**STATIC PRESSURE**	-14.5	**in. H2O**	
TEST LOC.:	Unit 3 Inlet	**FLUE PRESSURE (Ps)**	28.53	**in. Hg. abs.**	
CLIENT:	Northern States Power Company	**PROBE LENGTH:**	14	**ft.**	
OPERATOR:	J. Tryba	**PROBE LINER MATERIAL:**	Teflon		
CONTROL BOX:	E-46	**NOZZLE IDENTIFICATION NO.:**	Set B, #8		
METER NO.:	E-46	**CALIBRATED NOZZLE DIAMETER:**	0.240	**in.**	
METER CALIBRATION FACTOR:	1.007	**LEAK CHECK** **PRE:**	0.000	**POST:**	0.001
PITOT ID NO.:	260A	**DUCT SHAPE:**	Circular DIA.		Feet
PITOT TUBE COEFFICIENT:	0.835		Rectangular	30 Feet	36.33 Feet
PORT LENGTH:	17 in.	**DUCT AREA:**	1089.999	**sq. ft.**	
PORT SIZE:	4 in.	**TEST LENGTH:**	120	**min.**	
PORT TYPE:	Nipple	**MINUTES PER POINT:**	20		
		TOTAL NUMBER OF TRAVERSE POINTS:	6		

ONTARIO HYDRO METHOD TRAVERSE DATA

Company: Northern States Power Company **Date:** 1/25/2000 **Test Run:** 2

Location: Unit 3 Inlet

Point	Δp	Sq. Root Δp	Time	Volume cubic feet	ΔH	Stack Temp °F	Meter Inlet °F	Meter Outlet °F	Vacuum in. Hg	
1-1	0.66	0.812	14:40	782.20	1.38	300	88	87	11	3.299
1-2	0.62	0.787	14:45	785.50	1.30	300	88	87	11	2.800
1-3	0.65	0.806	14:50	788.30	1.36	300	88	87	11	3.100
1-4	0.65	0.806	14:55	791.40	1.36	299	89	87	11	2.900
			14:55	794.30						0.000
2-1	0.65	0.806	15:00	794.30	1.36	300	90	87	12	3.000
2-2	0.59	0.768	15:05	797.30	1.24	300	91	87	12	2.900
2-3	0.60	0.775	15:10	800.20	1.26	298	92	87	13	2.700
2-4	0.62	0.787	15:15	802.90	1.30	297	92	87	13	3.100
			15:15	806.00						0.000
3-1	0.61	0.781	15:20	806.00	1.28	297	92	87	14	2.700
3-2	0.61	0.781	15:25	808.70	1.28	297	92	88	15	3.100
3-3	0.60	0.775	15:30	811.80	1.27	298	92	87	16	6.638
3-4	0.65	0.806	15:35	818.44	1.38	298	91	88	17	0.000
			15:35	818.44						0.000
4-1	0.61	0.781	15:56	818.51	1.28	294	89	88	11	2.788
4-2	0.67	0.819	16:01	821.30	1.42	294	89	87	11	3.000
4-3	0.68	0.825	16:06	824.30	1.44	295	91	87	11	3.100
4-4	0.68	0.825	16:11	827.40	1.44	294	92	88	11	3.100
			16:11	830.50						0.000
5-1	0.52	0.721	16:16	830.50	1.21	293	93	88	11	2.700
5-2	0.48	0.693	16:21	833.20	1.02	293	93	88	12	2.800
5-3	0.50	0.707	16:26	836.00	1.06	293	93	88	12	2.800
5-4	0.50	0.707	16:31	838.80	1.06	293	93	88	12	2.800
			16:31	841.60						0.000
6-1	0.42	0.648	16:36	841.60	0.89	293	93	88	12	2.800
6-2	0.44	0.663	16:41	844.40	0.94	291	93	88	12	2.400
6-3	0.43	0.656	16:46	846.80	0.92	291	93	88	12	2.500
6-4	0.43	0.656	16:51	849.30	0.92	291	94	89	12	2.595
			16:56	851.90						0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
		0.758		69.620	1.22	296	91	88		#####
							89.42			

MOISTURE, DILUENT AND MERCURY DATA

Company Northern States Power Company **Date:** 1/25/2000 **Test Run:** 2

Location: Unit 3 Inlet

SILICA GEL FINAL WT.:	714.70	**grams**
SILICA GEL INITIAL WT.:	695.60	**grams**
DIFFERENCE:	19.10	
FINAL IMPINGER WATER:	4730.80	**mls.**
INITIAL IMPINGER WATER:	4556.00	**mls.**
DIFFERENCE:	174.80	
TOTAL WATER GAIN:	193.90	

ITEM	MERCURY (UG)		= NET WT. (G)
FILTER:	0.000		0.000000000
PROBE WASH:	0.000		0.000000000
		Particle-bound Total:	0.000000000
KCl:	0.420		0.000000420
		Oxidized Total:	0.000000420
HNO_3/H_2O_2:	0.000		0.000000000
$KMNO_4$:	20.000		0.000020000
		Elemental Total:	0.000020000

Orsat Analysis	1	2	3	Average
Carbon Dioxide:	15.40	15.40	15.40	15.40
Oxygen:	3.60	3.60	3.60	3.60

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	**Northern States Power Company**
Date:	1/25/2000
Test Run:	2
Stack or Duct No.:	Unit 3 Inlet
Start Time:	14:40
Stop Time:	16:56

Pb:	29.60	Inches Hg
Static	-14.50	Inches H2O
Ps:	28.53	Inches Hg Abs.
Vlc:	194	ml + grams
Mn:	0.0000	gm
Test Time:	120	minutes
% O2:	3.60	%
% CO2:	15.40	%
% N2:	81.00	%
Delta H:	1.22	Inches H20
Cp:	0.835	Dimensionless - pitot
Tm:	89.42	°F
Sqrt P:	0.758	Inches H20
Ts:	295.79	°F
Vm:	69.620	Cubic Feet
Dn:	0.240	Inches - nozzle
As:	1090.00	Sq. Feet
Yd:	1.007	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	dscf/10^6 Btu
Fc:	N/A	scf/10^6 Btu

Vmstd:	66.856	cubic feet (dry)
Vwstd:	9.133	cubic feet (wet)
Bwo:	0.120	
Md:	30.608	lb/lb-mole (dry)
Ms:	29.093	lb/lb-mole (wet)
Excess Air (%)	20.243	
Vs:	51.628	fps
ACFM:	3376452.	
DSCFM:	1979160.	
WSCFM:	2249517	
%I:	97.7	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	000403	**TEST RUN NO.:**	3	**TEST DATE:**	1/26/2000

CUSTOMER:	Northern States Power Company	**BAROMETRIC PRESSURE (Pb)**	29.7	**in. Hg.**	
PLANT:	Sherburne County Generating Plant	**STATIC PRESSURE**	-15	**in. H2O**	
TEST LOC.:	Unit 3 Inlet	**FLUE PRESSURE (Ps)**	28.60	**in. Hg. abs.**	
CLIENT:	Northern States Power Company	**PROBE LENGTH:**	14	**ft.**	
OPERATOR:	J. Tryba	**PROBE LINER MATERIAL:**	Teflon		
CONTROL BOX:	E-46	**NOZZLE IDENTIFICATION NO.:**	Set B, #8		
METER NO.:	E-46	**CALIBRATED NOZZLE DIAMETER:**	0.240	**in.**	
METER CALIBRATION FACTOR:	1.007	**LEAK CHECK** **PRE:**	0.000	**POST:**	0.000
PITOT ID NO.:	260A	**DUCT SHAPE:**	Circular DIA.		Feet
			Rectangular	30 Feet	36.33 Feet
PITOT TUBE COEFFICIENT:	0.835	**DUCT AREA:**	1089.999	**sq. ft.**	
PORT LENGTH:	17 in.	**TEST LENGTH:**	120	**min.**	
PORT SIZE:	4 in.	**MINUTES PER POINT:**	20		
PORT TYPE:	Nipple	**TOTAL NUMBER OF TRAVERSE POINTS:**	6		

ONTARIO HYDRO METHOD TRAVERSE DATA

Company: Northern States Power Company **Date:** 1/26/2000 **Test Run:** 3

Location: Unit 3 Inlet

Point	Δp	Sq. Root Δp	Time	Volume cubic feet	ΔH	Stack Temp °F	Meter Inlet °F	Meter Outlet °F	Vacuum in. Hg	
1-1	0.63	0.794	8:35	852.32	1.30	301	82	81	6	3.376
1-2	0.63	0.794	8:40	855.70	1.30	302	82	81	6	2.800
1-3	0.62	0.787	8:45	858.50	1.29	301	84	81	6	2.900
1-4	0.60	0.775	8:50	861.40	1.24	302	85	82	6	2.900
			8:50	864.30						0.000
2-1	0.57	0.755	8:55	864.30	1.19	301	86	82	7	2.600
2-2	0.53	0.728	9:00	866.90	1.10	300	88	84	7	2.900
2-3	0.53	0.728	9:05	869.80	1.10	304	88	83	8	2.700
2-4	0.51	0.714	9:10	872.50	1.06	304	88	83	8	2.800
			9:10	875.30						0.000
3-1	0.62	0.787	9:15	875.30	1.29	304	89	83	9	2.900
3-2	0.60	0.775	9:20	878.20	1.25	304	90	84	9	2.800
3-3	0.62	0.787	9:25	881.00	1.30	304	90	84	10	2.800
3-4	0.62	0.787	9:30	883.80	1.30	305	90	85	11	3.533
			9:30	887.33						0.000
4-1	0.62	0.787	9:46	887.79	1.30	303	88	85	7	3.308
4-2	0.65	0.806	9:51	891.10	1.37	301	89	85	7	2.900
4-3	0.68	0.825	9:56	894.00	1.43	301	90	85	7	3.100
4-4	0.68	0.825	10:01	897.10	1.43	302	91	85	8	3.000
			10:01	900.10						0.000
5-1	0.52	0.721	10:06	900.10	1.10	300	92	86	8	2.700
5-2	0.52	0.721	10:11	902.80	1.10	300	92	86	8	2.800
5-3	0.54	0.735	10:16	905.60	1.14	300	92	86	8	2.800
5-4	0.52	0.721	10:21	908.40	1.10	299	92	87	8	2.800
			10:21	911.20						0.000
6-1	0.40	0.632	10:26	911.20	0.85	298	92	86	8	2.400
6-2	0.42	0.648	10:31	913.60	0.89	297	92	87	8	2.700
6-3	0.42	0.648	10:36	916.30	0.89	298	92	87	8	2.500
6-4	0.46	0.678	10:41	918.80	0.97	299	92	87	9	2.674
			10:46	921.47						0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
		0.748		68.691	1.18	301	89	84		#####
							86.69			

MOISTURE, DILUENT AND MERCURY DATA

Company Northern States Power Company **Date:** 1/26/2000 **Test Run:** 3

Location: Unit 3 Inlet

SILICA GEL FINAL WT.:	733.50	**grams**
SILICA GEL INITIAL WT.:	717.40	**grams**
DIFFERENCE:	16.10	
FINAL IMPINGER WATER:	4888.70	**mls.**
INITIAL IMPINGER WATER:	4711.80	**mls.**
DIFFERENCE:	176.90	
TOTAL WATER GAIN:	193.00	

ITEM	MERCURY (UG)		= NET WT. (G)
FILTER:	0.000		0.000000000
PROBE WASH:	0.000		0.000000000
		Particle-bound Total:	0.000000000
KCl:	0.340		0.000000340
		Oxidized Total:	0.000000340
HNO_3/H_2O_2:	0.000		0.000000000
$KMNO_4$:	18.000		0.000018000
		Elemental Total:	0.000018000

Orsat Analysis	1	2	3	Average
Carbon Dioxide:	14.70	14.70	14.70	14.70
Oxygen:	4.20	4.20	4.20	4.20

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	Northern States Power Company
Date:	1/26/2000
Test Run:	3
Stack or Duct No.:	Unit 3 Inlet
Start Time:	8:35
Stop Time:	10:46

Pb:	29.70	Inches Hg
Static	-15.00	Inches H2O
Ps:	28.60	Inches Hg Abs.
Vlc:	193	ml + grams
Mn:	0.0000	gm
Test Time:	120	minutes
% O2:	4.20	%
% CO2:	14.70	%
% N2:	81.10	%
Delta H:	1.18	Inches H20
Cp:	0.835	Dimensionless - pitot
Tm:	86.78	°F
Sqrt P:	0.748	Inches H20
Ts:	301.20	°F
Vm:	68.691	Cubic Feet
Dn:	0.240	Inches - nozzle
As:	1090.00	Sq. Feet
Yd:	1.007	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	$dscf/10^6$ Btu
Fc:	N/A	$scf/10^6$ Btu

Vmstd:	66.498	cubic feet (dry)
Vwstd:	9.090	cubic feet (wet)
Bwo:	0.120	
Md:	30.520	lb/lb-mole (dry)
Ms:	29.014	lb/lb-mole (wet)
Excess Air (%)	24.404	
Vs:	51.164	fps
ACFM:	3346102.	
DSCFM:	1951580.	
WSCFM:	2218363	
%I:	98.6	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	000403	**TEST RUN NO.:**	1	**TEST DATE:**	01/25/2000

CUSTOMER:	Northern States Power Company	**BAROMETRIC PRESSURE (Pb)**			29.31	**in. Hg.**	
PLANT:	Sherburne County Generating Plant	**STATIC PRESSURE**			-1.5	**in. H2O**	
TEST LOC.:	Unit 3 Stack	**FLUE PRESSURE (Ps)**			29.20	**in. Hg. abs.**	
CLIENT:	Northern States Power Company	**PROBE LENGTH:**			11	**ft.**	
OPERATOR:	T. Wenzel	**PROBE LINER MATERIAL:**			Teflon		
CONTROL BOX:	E-51	**NOZZLE IDENTIFICATION NO.:**			N/A		
METER NO.:	E-51	**CALIBRATED NOZZLE DIAMETER:**			0.180	**in.**	
METER CALIBRATION FACTOR:	0.998	**LEAK CHECK**	**PRE:**		0.009	**POST:**	0.005
PITOT ID NO.:	383A	**DUCT SHAPE:**	Circular Rectangular	DIA. Feet	29.5 Feet	Feet	Feet
PITOT TUBE COEFFICIENT:	0.839	**DUCT AREA:**			683.49217	**sq. ft.**	
PORT LENGTH:	10 in.	**TEST LENGTH:**			120	**min.**	
PORT SIZE:	4 in.	**MINUTES PER POINT:**			10		
PORT TYPE:	Flange	**TOTAL NUMBER OF TRAVERSE POINTS:**			12		

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ONTARIO HYDRO METHOD TRAVERSE DATA

Company: Northern States Power Company **Date:** 01/25/2000 **Test Run:** 1

Location: Unit 3 Stack

Point	Δp	Sq. Root Δp	Time	Volume cubic feet	ΔH	Stack Temp °F	Meter Inlet °F	Meter Outlet °F	Vacuum in. Hg	
1-1	1.15	1.072	11:30	74.79	0.78	176	19	19	5	4.646
1-2	1.30	1.140	11:40	79.44	0.88	177	22	19	5	4.910
1-3	1.05	1.025	11:50	84.35	0.71	175	23	20	5	4.404
			12:00	88.75						0.000
2-1	1.35	1.162	12:03	88.75	0.91	176	23	20	5	5.016
2-2	1.40	1.183	12:13	93.77	0.94	178	23	20	5	5.110
2-3	1.20	1.095	12:23	98.88	0.81	177	25	21	6	4.740
			12:33	103.62						0.000
3-1	1.20	1.095	12:39	103.62	0.81	176	25	22	6	4.730
3-2	1.15	1.072	12:49	108.35	0.78	176	25	22	8	4.640
3-3	1.50	1.225	12:59	112.99	1.01	177	26	24	7	5.288
			13:09	118.28						0.000
4-1	1.20	1.095	13:18	118.28	0.81	179	26	24	7	4.732
4-2	1.20	1.095	13:28	123.01	0.81	178	28	23	7	4.730
4-3	1.10	1.049	13:38	127.74	0.74	177	29	23	7	4.539
			13:48	132.28						0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
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										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
		1.109		57.485	0.83	177	25	21		#####
							22.96			

MOISTURE, DILUENT AND MERCURY DATA

Company Northern States Power Company **Date:** 01/25/2000 **Test Run:** 1

Location: Unit 3 Stack

SILICA GEL FINAL WT.:	744.80	**grams**
SILICA GEL INITIAL WT.:	737.50	**grams**
DIFFERENCE:	7.30	
FINAL IMPINGER WATER:	4823.30	**mls.**
INITIAL IMPINGER WATER:	4660.90	**mls.**
DIFFERENCE:	162.40	
TOTAL WATER GAIN:	169.70	

ITEM	MERCURY (UG)		= NET WT. (G)
FILTER:	0.170		0.000000170
PROBE WASH:	0.000		0.000000000
		Particle-bound Total:	0.000000170
KCl:	0.280		0.000000280
		Oxidized Total:	0.000000280
HNO_3/H_2O_2:	0.000		0.000000000
$KMNO_4$:	12.000		0.000012000
		Elemental Total:	0.000012000

Orsat Analysis	1	2	3	Average
Carbon Dioxide:	12.50	12.50	12.50	12.50
Oxygen:	6.30	6.30	6.30	6.30

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	**Northern States Power Company**
Date:	01/25/2000
Test Run:	1
Stack or Duct No.:	Unit 3 Stack
Start Time:	11:30
Stop Time:	13:48

Pb:	29.31	Inches Hg
Static	-1.50	Inches H2O
Ps:	29.20	Inches Hg Abs.
Vlc:	170	ml + grams
Mn:	0.0000	gm
Test Time:	120	minutes
% O2:	6.30	%
% CO2:	12.50	%
% N2:	81.20	%
Delta H:	0.83	Inches H20
Cp:	0.839	Dimensionless - pitot
Tm:	22.96	°F
Sqrt P:	1.109	Inches H20
Ts:	176.83	°F
Vm:	57.485	Cubic Feet
Dn:	0.180	Inches - nozzle
As:	683.49	Sq. Feet
Yd:	0.998	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	dscf/10^6 Btu
Fc:	N/A	scf/10^6 Btu

Vmstd:	61.570	cubic feet (dry)
Vwstd:	7.993	cubic feet (wet)
Bwo:	0.115	
Md:	30.252	lb/lb-mole (dry)
Ms:	28.844	lb/lb-mole (wet)
Excess Air (%)	41.620	
Vs:	69.178	fps
ACFM:	2836976.	
DSCFM:	2031752.	
WSCFM:	2295510	
%I:	97.7	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	000403	**TEST RUN NO.:**	2	**TEST DATE:**	1/25/2000

CUSTOMER:	Northern States Power Company	**BAROMETRIC PRESSURE (Pb)**		29.31	**in. Hg.**
PLANT:	Sherburne County Generating Plant	**STATIC PRESSURE**		-1.5	**in. H2O**
TEST LOC.:	Unit 3 Stack	**FLUE PRESSURE (Ps)**		29.20	**in. Hg. abs.**
CLIENT:	Northern States Power Company	**PROBE LENGTH:**		11	**ft.**
OPERATOR:	T. Wenzel	**PROBE LINER MATERIAL:**		Teflon	
CONTROL BOX:	E-51	**NOZZLE IDENTIFICATION NO.:**		N/A	
METER NO.:	E-51	**CALIBRATED NOZZLE DIAMETER:**		0.180	**in.**
METER CALIBRATION FACTOR:	0.998	**LEAK CHECK**	**PRE:**	0.007	**POST:** 0.005
PITOT ID NO.:	383A	**DUCT SHAPE:**	Circular / Rectangular	DIA.	29.5 Feet / Feet Feet
PITOT TUBE COEFFICIENT:	0.839	**DUCT AREA:**		683.49217	**sq. ft.**
PORT LENGTH:	40 in.	**TEST LENGTH:**		120	**min.**
PORT SIZE:	4 in.	**MINUTES PER POINT:**		10	
PORT TYPE:	Flange	**TOTAL NUMBER OF TRAVERSE POINTS:**		12	

ONTARIO HYDRO METHOD TRAVERSE DATA

Company: Northern States Power Company **Date:** 1/25/2000 **Test Run:** 2

Location: Unit 3 Stack

Point	Δp	Sq. Root Δp	Time	Volume cubic feet	ΔH	Stack Temp °F	Meter Inlet °F	Meter Outlet °F	Vacuum in. Hg	
1-1	1.15	1.072	14:40	32.89	0.82	176	47	42	5	4.930
1-2	1.15	1.072	14:50	37.82	0.82	176	43	42	5	4.915
1-3	1.00	1.000	15:00	42.73	0.72	176	43	42	6	4.592
			15:10	47.32						0.000
2-1	1.40	1.183	15:15	47.39	1.00	176	44	42	6	5.436
2-2	1.30	1.140	15:25	52.83	0.93	177	44	42	7	5.228
2-3	1.30	1.140	15:35	58.05	0.93	177	46	43	7	5.228
			15:45	63.28						0.000
3-1	1.35	1.162	15:49	63.36	0.97	176	47	42	7	5.334
3-2	1.35	1.162	15:59	68.69	0.97	177	48	43	7	5.330
3-3	1.15	1.072	16:09	74.02	0.82	176	49	43	7	4.922
			16:19	78.94						0.000
4-1	1.20	1.095	16:25	79.17	0.86	178	50	43	7	5.025
4-2	1.15	1.072	16:35	84.19	0.82	176	50	43	7	4.920
4-3	1.05	1.025	16:45	89.11	0.75	176	50	44	7	4.710
			16:55	93.82						0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
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										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
		1.100		60.570	0.87	176	47	43		#####
							44.67			

MOISTURE, DILUENT AND MERCURY DATA

Company Northern States Power Company **Date:** 1/25/2000 **Test Run:** 2

Location: Unit 3 Stack

SILICA GEL FINAL WT.:	713.60	**grams**
SILICA GEL INITIAL WT.:	702.70	**grams**
DIFFERENCE:	10.90	
FINAL IMPINGER WATER:	4847.80	**mls.**
INITIAL IMPINGER WATER:	4572.00	**mls.**
DIFFERENCE:	275.80	
TOTAL WATER GAIN:	286.70	

ITEM	MERCURY (UG)		= NET WT. (G)
FILTER:	0.200		0.000000200
PROBE WASH:	0.000		0.000000000
		Particle-bound Total:	0.000000200
KCl:	0.250		0.000000250
		Oxidized Total:	0.000000250
HNO_3/H_2O_2:	0.000		0.000000000
$KMNO_4$:	17.000		0.000017000
		Elemental Total:	0.000017000

Orsat Analysis	1	2	3	Average
Carbon Dioxide:	12.20	12.20		12.20
Oxygen:	6.60	6.60		6.60

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	Northern States Power Company
Date:	1/25/2000
Test Run:	2
Stack or Duct No.:	Unit 3 Stack
Start Time:	14:40
Stop Time:	16:55

Pb:	29.31	Inches Hg
Static	-1.50	Inches H2O
Ps:	29.20	Inches Hg Abs.
Vlc:	287	ml + grams
Mn:	0.0000	gm
Test Time:	120	minutes
% O2:	6.60	%
% CO2:	12.20	%
% N2:	81.20	%
Delta H:	0.87	Inches H20
Cp:	0.839	Dimensionless - pitot
Tm:	44.67	°F
Sqrt P:	1.100	Inches H20
Ts:	176.42	°F
Vm:	60.570	Cubic Feet
Dn:	0.180	Inches - nozzle
As:	683.49	Sq. Feet
Yd:	0.998	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	dscf/10^6 Btu
Fc:	N/A	scf/10^6 Btu

Vmstd:	62.089	cubic feet (dry)
Vwstd:	13.504	cubic feet (wet)
Bwo:	0.179	
Md:	30.216	lb/lb-mole (dry)
Ms:	28.034	lb/lb-mole (wet)
Excess Air (%)	44.484	
Vs:	69.552	fps
ACFM:	2852314.	
DSCFM:	1896884.	
WSCFM:	2309432	
%I:	105.6	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

ONTARIO HYDRO METHOD TEST SUPPORT DATA

PROJECT NO.:	000403	**TEST RUN NO.:**	3	**TEST DATE:**	1/26/2000

CUSTOMER:	Northern States Power Company	**BAROMETRIC PRESSURE (Pb)**	29.51	**in. Hg.**	
PLANT:	Sherburne County Generating Plant	**STATIC PRESSURE**	-1.5	**in. H2O**	
TEST LOC.:	Unit 3 Stack	**FLUE PRESSURE (Ps)**	29.40	**in. Hg. abs.**	
CLIENT:	Northern States Power Company	**PROBE LENGTH:**	11	**ft.**	
OPERATOR:	T. Wenzel	**PROBE LINER MATERIAL:**	Teflon		
CONTROL BOX:	E-51	**NOZZLE IDENTIFICATION NO.:**	N/A		
METER NO.:	E-51	**CALIBRATED NOZZLE DIAMETER:**	0.180	**in.**	
METER CALIBRATION FACTOR:	0.998	**LEAK CHECK** **PRE:**	0.008	**POST:**	0.005
PITOT ID NO.:	383A	**DUCT SHAPE:**	Circular / Rectangular	DIA. / Feet / Feet	29.5 Feet / Feet
PITOT TUBE COEFFICIENT:	0.839	**DUCT AREA:**	683.49217	**sq. ft.**	
PORT LENGTH:	40 in.	**TEST LENGTH:**	120	**min.**	
PORT SIZE:	4 in.	**MINUTES PER POINT:**	10		
PORT TYPE:	Flange	**TOTAL NUMBER OF TRAVERSE POINTS:**	12		

ONTARIO HYDRO METHOD TRAVERSE DATA

Company: Northern States Power Company **Date:** 1/26/2000 **Test Run:** 3

Location: Unit 3 Stack

Point	Δp	Sq. Root Δp	Time	Volume cubic feet	ΔH	Stack Temp °F	Meter Inlet °F	Meter Outlet °F	Vacuum in. Hg	
1-1	1.20	1.095	8:37	94.04	0.87	177	50	50	3	5.062
1-2	1.15	1.072	8:47	99.10	0.83	178	53	50	3	4.950
1-3	1.20	1.095	8:57	104.05	0.87	178	56	51	3	5.056
			9:07	109.11						0.000
2-1	1.40	1.183	9:13	109.23	1.01	177	58	52	3	5.459
2-2	1.35	1.162	9:23	114.69	0.98	177	59	52	3	5.370
2-3	1.25	1.118	9:33	120.06	0.90	177	59	53	3	5.160
			9:43	125.22						0.000
3-1	1.35	1.162	9:54	125.42	0.98	178	60	53	3	5.362
3-2	1.35	1.162	10:04	130.78	0.98	178	60	53	3	5.400
3-3	1.25	1.118	10:14	136.18	0.90	178	61	53	3	5.130
			10:24	141.31						0.000
4-1	1.15	1.072	10:30	141.95	0.83	178	61	53	5	4.952
4-2	1.15	1.072	10:40	146.90	0.83	178	61	53	5	4.950
4-3	1.10	1.049	10:50	151.85	0.80	178	61	54	5	4.837
			11:00	156.69						0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
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										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
										0.000
		1.113		61.688	0.90	178	58	52		#####
							55.25			

MOISTURE, DILUENT AND MERCURY DATA

Company Northern States Power Company **Date:** 1/26/2000 **Test Run:** 3

Location: Unit 3 Stack

SILICA GEL FINAL WT.:	752.80	**grams**
SILICA GEL INITIAL WT.:	740.30	**grams**
DIFFERENCE:	12.50	
FINAL IMPINGER WATER:	4896.10	**mls.**
INITIAL IMPINGER WATER:	4674.50	**mls.**
DIFFERENCE:	221.60	
TOTAL WATER GAIN:	234.10	

ITEM	MERCURY (UG)		= NET WT. (G)
FILTER:	0.390		0.000000390
PROBE WASH:	0.000		0.000000000
		Particle-bound Total:	0.000000390
KCl:	0.340		0.000000340
		Oxidized Total:	0.000000340
HNO_3/H_2O_2:	0.000		0.000000000
$KMNO_4$:	14.000		0.000014000
		Elemental Total:	0.000014000

Orsat Analysis	1	2	3	Average
Carbon Dioxide:	12.70	12.70	12.70	12.70
Oxygen:	6.50	6.50	6.50	6.50

ONTARIO HYDRO METHOD DATA ENTRY FORM

Field Data/Calculated Data

Company:	Northern States Power Company
Date:	1/26/2000
Test Run:	3
Stack or Duct No.:	Unit 3 Stack
Start Time:	8:37
Stop Time:	11:00

Pb:	29.51	Inches Hg
Static	-1.50	Inches H2O
Ps:	29.40	Inches Hg Abs.
Vlc:	234	ml + grams
Mn:	0.0000	gm
Test Time:	120	minutes
% O2:	6.50	%
% CO2:	12.70	%
% N2:	80.80	%
Delta H:	0.90	Inches H20
Cp:	0.839	Dimensionless - pitot
Tm:	55.25	°F
Sqrt P:	1.113	Inches H20
Ts:	177.67	°F
Vm:	61.688	Cubic Feet
Dn:	0.180	Inches - nozzle
As:	683.49	Sq. Feet
Yd:	0.998	Mcf
CF:	N/A	Process tons/hr
Heat Input:	N/A	MM BTU/hr
Fd:	N/A	dscf/10^6 Btu
Fc:	N/A	scf/10^6 Btu

Vmstd:	62.363	cubic feet (dry)
Vwstd:	11.026	cubic feet (wet)
Bwo:	0.150	
Md:	30.292	lb/lb-mole (dry)
Ms:	28.445	lb/lb-mole (wet)
Excess Air (%)	43.827	
Vs:	69.740	fps
ACFM:	2860005.	
DSCFM:	1977343.	
WSCFM:	2326950	
%I:	101.7	isokinetic variance
GR/ACF:	---	
GR/DSCF:	---	
lbs/hr	---	
lbs/ton prod.:	N/A	
lbs/MM BTU:	N/A	Heat Input
lbs/MM BTU:	N/A	O2 Basis
lbs/MM BTU:	N/A	CO2 Basis

Project Summary-Samples Received Report

Project	*Client*	*Unit*
000403	NORTHERN STATE POWER	SHERBURNE CO. BECKER,MN

Project	*Sample*	*Sample Point*	*Date Received*	*Analyte Detail*
000403	001	UN3 ST FLT T1	1/28/2000	Mercury
000403	002	UN3 ST FLT T2	1/28/2000	Mercury
000403	003	UN3 ST FLT T3	1/28/2000	Mercury
000403	004	UN3 ST HNO3 T1	1/28/2000	Mercury
000403	005	UN3 ST HNO3 T2	1/28/2000	Mercury
000403	006	UN3 ST HNO3 T3	1/28/2000	Mercury
000403	007	UN3 ST KCL T1	1/28/2000	Mercury
000403	008	UN3 ST KCL T2	1/28/2000	Mercury
000403	009	UN3 ST KCL T3	1/28/2000	Mercury
000403	010	UN3 ST IMP 4 T	1/28/2000	Mercury
000403	011	UN3 ST IMP 4 T2	1/28/2000	Mercury
000403	012	UN3 ST IMP 4 T3	1/28/2000	Mercury
000403	013	UN3 ST IM5-7 T1	1/28/2000	Mercury
000403	014	UN3 ST IM5-7 T2	1/28/2000	Mercury
000403	015	UN3 ST IM5-7 T3	1/28/2000	Mercury
000403	016	UN3 INL FLT T1	1/28/2000	Mercury
000403	017	UN3 INL FLT T2	1/28/2000	Mercury
000403	018	UN3 INL FLT T3	1/28/2000	Mercury
000403	019	UN3 INL HNO3 T1	1/28/2000	Mercury
000403	020	UN3 INL HNO3 T2	1/28/2000	Mercury
000403	021	UN3 INL HNO3 T3	1/28/2000	Mercury
000403	022	UN3 INL KCL T1	1/28/2000	Mercury
000403	023	UN3 INL KCL T2	1/28/2000	Mercury
000403	024	UN3 INL KCL T3	1/28/2000	Mercury
000403	025	UN3 INL IMP4 T1	1/28/2000	Mercury
000403	026	UN3 INL IMP4 T2	1/28/2000	Mercury

Project	*Sample*	*Sample Point*	*Date Received*	*Analyte Detail*
000403	027	UN3 INL IMP4 T3	1/28/2000	Mercury
000403	028	UN3 IN IM5-7 T1	1/28/2000	Mercury
000403	029	UN3 IN IM5-7 T2	1/28/2000	Mercury
000403	030	UN3 IN IM5-7 T3	1/28/2000	Mercury
000403	031	UN1/2 ST FLT T1	1/28/2000	Mercury
000403	032	UN1/2 ST FLT T2	1/28/2000	Mercury
000403	033	UN1/2 ST FLT T3	1/28/2000	Mercury
000403	034	UN1/2 ST HNO3-1	1/28/2000	Mercury
000403	035	UN1/2 ST HNO3-2	1/28/2000	Mercury
000403	036	UN1/2 ST HNO3-3	1/28/2000	Mercury
000403	037	UN1/2 ST KCL-1	1/28/2000	Mercury
000403	038	UN1/2 ST KCL-2	1/28/2000	Mercury
000403	039	UN1/2 ST KCL-3	1/28/2000	Mercury
000403	040	UN1/2 ST IMP4-1	1/28/2000	Mercury
000403	041	UN1/2 ST IMP4-2	1/28/2000	Mercury
000403	042	UN1/2 ST IMP4-3	1/28/2000	Mercury
000403	043	UN1/2 ST 5-7 T1	1/28/2000	Mercury
000403	044	UN1/2 ST 5-7 T2	1/28/2000	Mercury
000403	045	UN1/2 ST 5-7 T3	1/28/2000	Mercury
000403	046	UN1 INL FLT T1	1/28/2000	Mercury
000403	047	UN1 INL FLT T2	1/28/2000	Mercury
000403	048	UN1 INL FLT T3	1/28/2000	Mercury
000403	049	UNI INL HNO3 T1	1/28/2000	Mercury
000403	050	UN1 INL HNO3 T2	1/28/2000	Mercury
000403	051	UN1 INL HNO3 T3	1/28/2000	Mercury
000403	052	UN1 INL KCL T1	1/28/2000	Mercury
000403	053	UN1 INL KCL T2	1/28/2000	Mercury
000403	054	UN1 INL KCL T3	1/28/2000	Mercury
000403	055	UN1 INL IMP4 T1	1/28/2000	Mercury
000403	056	UN1 INL IMP4 T2	1/28/2000	Mercury

Project	*Sample*	*Sample Point*	*Date Received*	*Analyte Detail*
000403	057	UN1 INL IMP4 T3	1/28/2000	Mercury
000403	058	IN1 IN IM5-7 T1	1/28/2000	Mercury
000403	059	UNI IN IM5-7 T2	1/28/2000	Mercury
000403	060	IN1 IN IM5-7 T3	1/28/2000	Mercury
000403	061	UN2 INL FLT T1	1/28/2000	Mercury
000403	062	UN2 INL FLT T2	1/28/2000	Mercury
000403	063	UN2 INL FLT T3	1/28/2000	Mercury
000403	064	UN2 INL HNO3 T1	1/28/2000	Mercury
000403	065	UN2 INL HNO3 T2	1/28/2000	Mercury
000403	066	UN2 INL HNO3 T3	1/28/2000	Mercury
000403	067	UN2 INL KCL T1	1/28/2000	Mercury
000403	068	UN2 INL KCL T2	1/28/2000	Mercury
000403	069	UN2 INL KCL T3	1/28/2000	Mercury
000403	070	UN2 INL IMP4 T1	1/28/2000	Mercury
000403	071	UN2 INL IMP4 T2	1/28/2000	Mercury
000403	072	UN2 INL IMP4 T3	1/28/2000	Mercury
000403	073	IN2 IN IM5-7 T1	1/28/2000	Mercury
000403	074	UN2 IN IM5-7 T2	1/28/2000	Mercury
000403	075	UN2 IN IM5-7 T3	1/28/2000	Mercury
000403	076	UN3 ST F/BL KCL	1/28/2000	Mercury
000403	077	UN3 ST F/BL IM4	1/28/2000	Mercury
000403	078	UN3 ST F/BL 5-7	1/28/2000	Mercury
000403	079	UN3 IN F/BL KCL	1/28/2000	Mercury
000403	080	UN3 IN F/BL IM4	1/28/2000	Mercury
000403	081	UN3 IN F/BL 5-7	1/28/2000	Mercury
000403	082	UN1/2 F/BL KCL	1/28/2000	Mercury
000403	083	UN1/2 F/BL IM4	1/28/2000	Mercury
000403	084	UN1/2 F/BL 5-7	1/28/2000	Mercury
000403	085	UN1 IN F/BL KCL	1/28/2000	Mercury
000403	086	UN1 IN F.BL IM4	1/28/2000	Mercury

Project	*Sample*	*Sample Point*	*Date Received*	*Analyte Detail*
000403	087	UN1 IN F/BL 5-7	1/28/2000	Mercury
000403	088	UN2 IN F/BL KCL	1/28/2000	Mercury
000403	089	UN2 IN F/BL IM4	1/28/2000	Mercury
000403	090	UN2 IN F/BL 5-7	1/28/2000	Mercury
000403	091	FLT BLNK,THIMBL	1/28/2000	Mercury
000403	092	FLT BLNK,THIMBL	1/28/2000	Mercury
000403	093	FLT BLNK,THIMBL	1/28/2000	Mercury
000403	094	FLT BLNK,M5	1/28/2000	Mercury
000403	095	FLT BLNK,M5	1/28/2000	Mercury
000403	096	FLT BLNK,M5	1/28/2000	Mercury
000403	097	BLANK,HNO3	1/28/2000	Mercury
000403	098	BLANK,KCL	1/28/2000	Mercury
000403	099	BLNK HNO3/H2O2	1/28/2000	Mercury
000403	100	BLNK,HYDROXYLAM	1/28/2000	Mercury
000403	101	BL KMNO4/H2SO4	1/28/2000	Mercury
000403	102	BL KMNO4/H2SO4	1/28/2000	Mercury
000403	103	BL KMNO4/H2SO4	1/28/2000	Mercury
000403	104	BL KMNO4/H2SO4	1/28/2000	Mercury
000403	105	COAL SMPL UN3-1	1/28/2000	Mercury
000403	105	COAL SMPL UN3-1	1/28/2000	Ultimate/Proximate on Coal
000403	105	COAL SMPL UN3-1	1/28/2000	Chlorine
000403	106	COAL SMPL UN3-2	1/28/2000	Mercury
000403	106	COAL SMPL UN3-2	1/28/2000	Chlorine
000403	106	COAL SMPL UN3-2	1/28/2000	Ultimate/Proximate on Coal
000403	107	COAL SMPL UN3-3	1/28/2000	Ultimate/Proximate on Coal
000403	107	COAL SMPL UN3-3	1/28/2000	Chlorine
000403	107	COAL SMPL UN3-3	1/28/2000	Mercury
000403	108	COAL SMPL UN1-1	1/28/2000	Mercury
000403	108	COAL SMPL UN1-1	1/28/2000	Ultimate/Proximate on Coal
000403	108	COAL SMPL UN1-1	1/28/2000	Chlorine

Project	*Sample*	*Sample Point*	*Date Received*	*Analyte Detail*
000403	109	COAL SMPL UN1-2	1/28/2000	Mercury
000403	109	COAL SMPL UN1-2	1/28/2000	Ultimate/Proximate on Coal
000403	109	COAL SMPL UN1-2	1/28/2000	Chlorine
000403	110	COAL SMPL UN1-3	1/28/2000	Mercury
000403	110	COAL SMPL UN1-3	1/28/2000	Ultimate/Proximate on Coal
000403	110	COAL SMPL UN1-3	1/28/2000	Chlorine
000403	111	COAL SMPL UN2-1	1/28/2000	Chlorine
000403	111	COAL SMPL UN2-1	1/28/2000	Mercury
000403	111	COAL SMPL UN2-1	1/28/2000	Ultimate/Proximate on Coal
000403	112	COAL SMPL UN2-2	1/28/2000	Mercury
000403	112	COAL SMPL UN2-2	1/28/2000	Ultimate/Proximate on Coal
000403	112	COAL SMPL UN2-2	1/28/2000	Chlorine
000403	113	COAL SMPL UN2-3	1/28/2000	Mercury
000403	113	COAL SMPL UN3-3	1/28/2000	Chlorine
000403	113	COAL SMPL UN2-3	1/28/2000	Ultimate/Proximate on Coal
000403	115	ASH SMPL UN1	1/28/2000	Hold
000403	116	ASH SMPL UN2	1/28/2000	Hold
000403	117	EXTRA COAL UN1	1/28/2000	Hold
000403	118	EXTRA COAL UN2	1/28/2000	Hold

INORGANIC DATA PACKAGE
FOR
MOSTARDI-PLATT ASSOCIATES INC.
Project #000403

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

Submission #0C0381

Prepared by: Shari Typer – CSR
Approved by : Dr. Ron McLeod - Principal Scientist

Initial : _____
Initial : _____

1. CASE NARRATIVE

PROJECT NARRATIVE

PHILIP Analytical Services (Burlington ON)
Philip Project: AN000243
Philip Submission #:0C0381

Client: MOSTARDI-PLATT ASSOCIATES INC.
Client Project: Proj# 000403

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Philip ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Run Date
Mercury via SW846 Method 7471					
010515 00	NIST 1633b reference	00/03/14	00/03/14	00/03/27	00/03/27
Draft ASTM Mercury Speciation Method (October 27, 1999 Revision)- Front Half Outlet					
010387 00	Method Blank	00/01/25	00/03/09	00/03/27	00/03/27
010388 00	Filter Blank 091	00/01/25	00/03/09	00/03/27	00/03/27
010389 00	Filter Blank 092	00/01/25	00/03/09	00/03/27	00/03/27
010390 00	Filter Blank 093	00/01/25	00/03/09	00/03/27	00/03/27
010391 00	Filter Blank 094	00/01/25	00/03/09	00/03/27	00/03/27
010392 00	Filter Blank 095	00/01/25	00/03/09	00/03/27	00/03/27
010393 00	Filter Blank 096	00/01/25	00/03/09	00/03/27	00/03/27
010403 00	Unit 3 Stack-R1	00/01/25	00/03/09	00/03/27	00/03/27
010404 00	Unit 3 Stack-R2	00/01/25	00/03/09	00/03/27	00/03/27
010405 00	Unit 3 Stack-R3	00/01/26	00/03/09	00/03/27	00/03/27
010406 00	Unit 1/2 Stack-R1	00/01/27	00/03/09	00/03/27	00/03/27
010407 00	Unit 1/2 Stack-R2	00/01/27	00/03/09	00/03/27	00/03/27
010408 00	Unit 1/2 Stack-R3	00/01/28	00/03/09	00/03/27	00/03/27
Draft ASTM Mercury Speciation Method (October 27, 1999 Revision)- Front Half Inlet					
010409 00	Unit 3 Inlet-R1	00/01/25	00/03/09	00/03/27	00/03/27
010410 00	Unit 3 Inlet-R2	00/01/25	00/03/09	00/03/27	00/03/27
010411 00	Unit 3 Inlet-R3	00/01/26	00/03/09	00/03/27	00/03/27
010412 00	Unit 1 Inlet-R1	00/01/27	00/03/09	00/03/27	00/03/27
010413 00	Unit 1 Inlet-R2	00/01/27	00/03/09	00/03/27	00/03/27
010414 00	Unit 1 Inlet-R3	00/01/28	00/03/09	00/03/27	00/03/27
010415 00	Unit 2 Inlet-R1	00/01/27	00/03/09	00/03/27	00/03/27
010416 00	Unit 2 Inlet-R2	00/01/27	00/03/09	00/03/27	00/03/27
010417 00	Unit 2 Inlet-R3	00/01/28	00/03/09	00/03/27	00/03/27
Draft ASTM Mercury Speciation Method (October 27, 1999 Revision)- Hydroxylamine					
010387 00	Method Blank	00/01/25	00/03/09	00/03/30	00/03/30
010394 00	Reagent Blank 01/25	00/01/25	00/03/09	00/03/30	00/03/30

Draft ASTM Mercury Speciation Method (October 27, 1999 Revision)- KCl Impingers/Rinses

010387	00	Method Blank	00/01/25	00/03/09	00/03/22	00/03/22
010394	00	Reagent Blank 01/25	00/01/25	00/03/09	00/03/22	00/03/22
010398	00	Unit 1/2 Stack-FB	00/01/27	00/03/09	00/03/22	00/03/22
010399	00	Unit 3 Stack-FB	00/01/25	00/03/09	00/03/22	00/03/22
010400	00	Unit 1 Inlet-FB	00/01/27	00/03/09	00/03/22	00/03/22
010401	00	Unit 2 Inlet-FB	00/01/27	00/03/09	00/03/22	00/03/22
010402	00	Unit 3 Inlet-FB	00/01/25	00/03/09	00/03/22	00/03/22
010403	00	Unit 3 Stack-R1	00/01/25	00/03/09	00/03/24	00/03/24
010404	00	Unit 3 Stack-R2	00/01/25	00/03/09	00/03/22	00/03/22
010405	00	Unit 3 Stack-R3	00/01/26	00/03/09	00/03/22	00/03/22
010406	00	Unit 1/2 Stack-R1	00/01/27	00/03/09	00/03/22	00/03/22
010407	00	Unit 1/2 Stack-R2	00/01/27	00/03/09	00/03/22	00/03/22
010408	00	Unit 1/2 Stack-R3	00/01/28	00/03/09	00/03/22	00/03/22
010409	00	Unit 3 Inlet-R1	00/01/25	00/03/09	00/03/22	00/03/22
010410	00	Unit 3 Inlet-R2	00/01/25	00/03/09	00/03/22	00/03/22
010411	00	Unit 3 Inlet-R3	00/01/26	00/03/09	00/03/22	00/03/22
010412	00	Unit 1 Inlet-R1	00/01/27	00/03/09	00/03/22	00/03/22
010413	00	Unit 1 Inlet-R2	00/01/27	00/03/09	00/03/24	00/03/24
010414	00	Unit 1 Inlet-R3	00/01/28	00/03/09	00/03/24	00/03/24
010415	00	Unit 2 Inlet-R1	00/01/27	00/03/09	00/03/24	00/03/24
010416	00	Unit 2 Inlet-R2	00/01/27	00/03/09	00/03/24	00/03/24
010417	00	Unit 2 Inlet-R3	00/01/28	00/03/09	00/03/24	00/03/24

Draft ASTM Mercury Speciation Method (October 27, 1999 Revision)- HNO3/H202 Impingers/Rinses

010387	00	Method Blank	00/01/25	00/03/09	00/03/17	00/03/17
010394	00	Reagent Blank 01/25	00/01/25	00/03/09	00/03/17	00/03/17
010398	00	Unit 1/2 Stack-FB	00/01/27	00/03/09	00/03/17	00/03/17
010399	00	Unit 3 Stack-FB	00/01/25	00/03/09	00/03/17	00/03/17
010400	00	Unit 1 Inlet-FB	00/01/27	00/03/09	00/03/17	00/03/17
010401	00	Unit 2 Inlet-FB	00/01/27	00/03/09	00/03/17	00/03/17
010402	00	Unit 3 Inlet-FB	00/01/25	00/03/09	00/03/17	00/03/17
010403	00	Unit 3 Stack-R1	00/01/25	00/03/09	00/03/17	00/03/17
010404	00	Unit 3 Stack-R2	00/01/25	00/03/09	00/03/17	00/03/17
010405	00	Unit 3 Stack-R3	00/01/26	00/03/09	00/03/17	00/03/17
010406	00	Unit 1/2 Stack-R1	00/01/27	00/03/09	00/03/17	00/03/17
010407	00	Unit 1/2 Stack-R2	00/01/27	00/03/09	00/03/17	00/03/17
010408	00	Unit 1/2 Stack-R3	00/01/28	00/03/09	00/03/17	00/03/17
010409	00	Unit 3 Inlet-R1	00/01/25	00/03/09	00/03/17	00/03/17
010410	00	Unit 3 Inlet-R2	00/01/25	00/03/09	00/03/17	00/03/17
010411	00	Unit 3 Inlet-R3	00/01/26	00/03/09	00/03/17	00/03/17
010412	00	Unit 1 Inlet-R1	00/01/27	00/03/09	00/03/17	00/03/17
010413	00	Unit 1 Inlet-R2	00/01/27	00/03/09	00/03/17	00/03/17
010414	00	Unit 1 Inlet-R3	00/01/28	00/03/09	00/03/17	00/03/17
010415	00	Unit 2 Inlet-R1	00/01/27	00/03/09	00/03/17	00/03/17
010416	00	Unit 2 Inlet-R2	00/01/27	00/03/09	00/03/17	00/03/17
010417	00	Unit 2 Inlet-R3	00/01/28	00/03/09	00/03/17	00/03/17

Draft ASTM Mercury Speciation Method (October 27, 1999 Revision)- HNO3 Rinse

010394	00	Reagent Blank 01/25	00/01/25	00/03/09	00/03/30	00/03/30

Draft ASTM Mercury Speciation Method (October 27, 1999 Revision)- Probe Rinse

010409	00	Unit 3 Inlet-R1	00/01/25	00/03/09	00/03/29	00/03/29
010410	00	Unit 3 Inlet-R2	00/01/25	00/03/09	00/03/29	00/03/29
010411	00	Unit 3 Inlet-R3	00/01/26	00/03/09	00/03/29	00/03/29
010412	00	Unit 1 Inlet-R1	00/01/27	00/03/09	00/03/27	00/03/27
010413	00	Unit 1 Inlet-R2	00/01/27	00/03/09	00/03/27	00/03/27
010414	00	Unit 1 Inlet-R3	00/01/28	00/03/09	00/03/27	00/03/27
010415	00	Unit 2 Inlet-R1	00/01/27	00/03/09	00/03/27	00/03/27
010416	00	Unit 2 Inlet-R2	00/01/27	00/03/09	00/03/27	00/03/27
010417	00	Unit 2 Inlet-R3	00/01/28	00/03/09	00/03/27	00/03/27

Draft ASTM Mercury Speciation Method (October 27, 1999 Revision)- KMNO4 Impingers/Rinses

010387	00	Method Blank	00/01/25	00/03/09	00/03/30	00/03/30
010394	00	Reagent Blank 01/25	00/01/25	00/03/09	00/03/30	00/03/30
010395	00	Reagent Blank 01/26	00/01/26	00/03/09	00/03/30	00/03/30
010396	00	Reagent Blank 01/27	00/01/27	00/03/09	00/03/30	00/03/30
010397	00	Reagent Blank 01/28	00/01/28	00/03/09	00/03/30	00/03/30
010398	00	Unit 1/2 Stack-FB	00/01/27	00/03/09	00/03/30	00/03/30
010399	00	Unit 3 Stack-FB	00/01/25	00/03/09	00/03/30	00/03/30
010400	00	Unit 1 Inlet-FB	00/01/27	00/03/09	00/03/30	00/03/30
010401	00	Unit 2 Inlet-FB	00/01/27	00/03/09	00/03/30	00/03/30
010402	00	Unit 3 Inlet-FB	00/01/25	00/03/09	00/03/30	00/03/30
010403	00	Unit 3 Stack-R1	00/01/25	00/03/09	00/03/30	00/03/30
010404	00	Unit 3 Stack-R2	00/01/25	00/03/09	00/03/30	00/03/30
010405	00	Unit 3 Stack-R3	00/01/26	00/03/09	00/03/30	00/03/30
010406	00	Unit 1/2 Stack-R1	00/01/27	00/03/09	00/03/30	00/03/30
010407	00	Unit 1/2 Stack-R2	00/01/27	00/03/09	00/03/30	00/03/30
010408	00	Unit 1/2 Stack-R3	00/01/28	00/03/09	00/03/30	00/03/30
010409	00	Unit 3 Inlet-R1	00/01/25	00/03/09	00/03/30	00/03/30
010410	00	Unit 3 Inlet-R2	00/01/25	00/03/09	00/03/30	00/03/30
010411	00	Unit 3 Inlet-R3	00/01/26	00/03/09	00/03/30	00/03/30
010412	00	Unit 1 Inlet-R1	00/01/27	00/03/09	00/03/30	00/03/30
010413	00	Unit 1 Inlet-R2	00/01/27	00/03/09	00/03/30	00/03/30
010414	00	Unit 1 Inlet-R3	00/01/28	00/03/09	00/03/30	00/03/31
010415	00	Unit 2 Inlet-R1	00/01/27	00/03/09	00/03/30	00/03/30
010416	00	Unit 2 Inlet-R2	00/01/27	00/03/09	00/03/30	00/03/30
010417	00	Unit 2 Inlet-R3	00/01/28	00/03/09	00/03/30	00/03/31

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

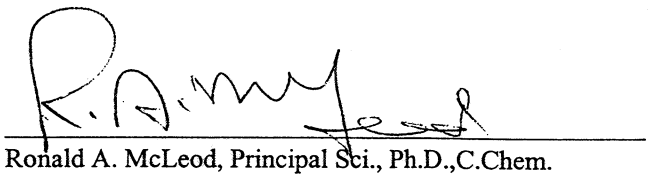
III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis.

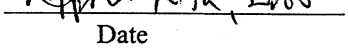
a) Hold Times: all within recommended hold times

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:	Jim Platt	**Contact:**	Ron McLeod
Client Name:	MOSTARDI-PLATT ASSOCIATES INC.	**Project:**	AN000243
Project:	Proj# 000403	**Date Received:**	00/03/09
Project Desc:	Northern States Power	**Date Reported:**	00/03/31
Address:	1301 Corporate Center Drive Suite 177 Eagan, Minnesota 55121	**Submission No.:**	0C0381
		Sample No.:	010387-010417
Fax Number:	651-686-4434		
Phone Number:	651-686-0700		

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

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

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

COMMENTS:

Certified by: _____

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

	Client ID:		Method Blank	Blank Spike #1	Blank Spike #1	Blank Spike #2	Blank Spike #2	Filter Blank 091	Filter Blank 092	Filter Blank 093	Filter Blank 094
	Lab No.:		010387 00	010387 00	010387 00	010387 00	010387 00	010388 00	010389 00	010390 00	010391 00
	Date Sampled:		-	-	-	-	-	00/01/25	00/01/25	00/01/25	00/01/25
Component	**MDL**	**Units**			% Recoveries		% Recoveries				
Mercury - filter (FH Outlet)	0.010	ug	<	0.10	100	0.10	100	<0.060	<0.070	<0.060	<
Mercury - filter - (FH Inlet)	0.010	"	-	-	-	-	-	-	-	-	-
Mercury - hydroxylamine	0.010	"	<	0.098	98	0.097	97	-	-	-	-
Mercury - KCl	0.030	"	<	0.33	110	0.33	110	-	-	-	-
Mercury - KMnO4	0.030	"	<	0.31	100	0.31	100	-	-	-	-
Mercury - H202	0.010	"	<	0.097	97	0.097	97	-	-	-	-
Mercury - probe rinse	0.010	"	-	-	-	-	-	-	-	-	-

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00008

	Client ID:		Filter Blank 095	Filter Blank 096	Reagent Blank 01/25	Reagent Blank 01/26	Reagent Blank 01/27	Reagent Blank 01/28	Unit 1/2 Stack-FB	Unit 3 Stack-FB	Unit 1 Inlet-FB
	Lab No.:		010392 00	010393 00	010394 00	010395 00	010396 00	010397 00	010398 00	010399 00	010400 00
	Date Sampled:		00/01/25	00/01/25	00/01/25	00/01/26	00/01/27	00/01/28	00/01/27	00/01/25	00/01/27
Component	**MDL**	**Units**									
Mercury - filter (FH Outlet)	0.010	ug	<	<	-	-	-	-	-	-	-
Mercury - filter - (FH Inlet)	0.010	"	-	-	-	-	-	-	-	-	-
Mercury - hydroxylamine	0.010	"	-	-	<	-	-	-	-	-	-
Mercury - KCl	0.030	"	-	-	<0.050	-	-	-	<0.050	0.29	<0.050
Mercury - KMnO4	0.030	"	-	-	<	<	<	<	<0.10	<0.10	<0.10
Mercury - H202	0.010	"	-	-	<0.25	-	-	-	<0.25	<0.25	<0.25
Mercury - probe rinse	0.010	"	-	-	-	-	-	-	-	-	-

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000069

PASC - Certificate of Analysis

			Unit 2	Unit 3	Unit 3	Unit 3	Unit 3	Unit 3
	Client ID:		Inlet-FB	Inlet-FB	Stack-R1	Stack-R1	Stack-R1	Stack-R1
	Lab No.:		010401 00	010402 00	010403 00	010403 00	010403 00	010403 00
	Date Sampled:		00/01/27	00/01/25	00/01/25	00/01/25	00/01/25	00/01/25
Component	**MDL**	**Units**				Duplicate	M. Spike	MS % Rec.
Mercury - filter (FH Outlet)	0.010	ug	-	-	0.17	0.17	0.37	97
Mercury - filter - (FH Inlet)	0.010	"	-	-	-	-	-	-
Mercury - hydroxylamine	0.010	"	-	-	-	-	-	-
Mercury - KCl	0.030	"	<0.050	0.13	0.28	0.27	1.3	110
Mercury - KMnO4	0.030	"	<0.10	<0.10	12	12	22	93
Mercury - H202	0.010	"	<0.25	<0.25	<0.25	<0.25	2.5	99
Mercury - probe rinse	0.010	"	-	-	-	-	-	-

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00010

			Unit 3	Unit 3	Unit 3	Unit 3	Unit 1/2	Unit 1/2	Unit 1/2	Unit 1/2
Client ID:			Stack-R1	Stack-R1	Stack-R2	Stack-R3	Stack-R1	Stack-R1	Stack-R1	Stack-R1
Lab No.:			010403 00	010403 00	010404 00	010405 00	010406 00	010406 00	010406 00	010406 00
Date Sampled:			00/01/25	00/01/25	00/01/25	00/01/26	00/01/27	00/01/27	00/01/27	00/01/27
Component	**MDL**	**Units**	MS Dup	MSD % Rec.				Duplicate	M. Spike	MS % Rec.
Mercury - filter (FH Outlet)	0.010	ug	0.37	97	0.20	0.39	0.46	-	-	-
Mercury - filter - (FH Inlet)	0.010	"	-	-	-	-	-	-	-	-
Mercury - hydroxylamine	0.010	"	-	-	-	-	-	-	-	-
Mercury - KCl	0.030	"	1.3	100	0.25	0.34	1.2	-	-	-
Mercury - KMnO4	0.030	"	22	95	17	14	17	17	36	95
Mercury - H202	0.010	"	2.6	100	<0.25	<0.25	<0.25	-	-	-
Mercury - probe rinse	0.010	"	-	-	-	-	-	-	-	-

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000111

			Unit 1/2	Unit 1/2	Unit 1/2	Unit 1/2	Unit 3	Unit 3	Unit 3	Unit 3
Client ID:			Stack-R1	Stack-R1	Stack-R2	Stack-R3	Inlet-R1	Inlet-R1	Inlet-R1	Inlet-R1
Lab No.:			010406 00	010406 00	010407 00	010408 00	010409 00	010409 00	010409 00	010409 00
Date Sampled:			00/01/27	00/01/27	00/01/27	00/01/28	00/01/25	00/01/25	00/01/25	00/01/25
Component	**MDL**	**Units**	MS Dup	MSD % Rec.				Duplicate	M. Spike	MS % Rec.
Mercury - filter (FH Outlet)	0.010	ug	-	-	0.54	0.079	-	-	-	-
Mercury - filter - (FH Inlet)	0.010	"	-	-	-	-	<	-	-	-
Mercury - hydroxylamine	0.010	"	-	-	-	-	-	-	-	-
Mercury - KCl	0.030	"	-	-	2.3	0.37	0.98	0.98	2.0	110
Mercury - KMnO4	0.030	"	36	96	17	16	20	-	-	-
Mercury - H202	0.010	"	-	-	<0.25	<0.25	<0.25	<0.25	2.7	100
Mercury - probe rinse	0.010	"	-	-	-	-	<	<	0.11	100

130

00012

			Unit 3	Unit 3	Unit 3	Unit 3	Unit 1	Unit 1	Unit 1	Unit 1
Client ID:			Inlet-R1	Inlet-R1	Inlet-R2	Inlet-R3	Inlet-R1	Inlet-R1	Inlet-R1	Inlet-R1
Lab No.:			010409 00	010409 00	010410 00	010411 00	010412 00	010412 00	010412 00	010412 00
Date Sampled:			00/01/25	00/01/25	00/01/25	00/01/26	00/01/27	00/01/27	00/01/27	00/01/27
Component	**MDL**	**Units**	MS Dup	MSD % Rec.				Duplicate	M. Spike	MS % Rec.
Mercury - filter (FH Outlet)	0.010	ug	-	-	-	-	-	-	-	-
Mercury - filter - (FH Inlet)	0.010	"	-	-	<	<	0.18	0.18	0.37	93
Mercury - hydroxylamine	0.010	"	-	-	-	-	-	-	-	-
Mercury - KCl	0.030	"	2.0	110	0.42	0.34	2.2	-	-	-
Mercury - KMnO4	0.030	"	-	-	20	18	4.8	-	-	-
Mercury - H202	0.010	"	2.8	100	<0.25	<0.25	<0.25	-	-	-
Mercury - probe rinse	0.010	"	0.11	100	<	<	0.020	0.019	0.12	100

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000013

			Unit 1	Unit 1	Unit 1	Unit 1	Unit 2
	Client ID:		Inlet-R1	Inlet-R1	Inlet-R2	Inlet-R3	Inlet-R1
	Lab No.:		010412 00	010412 00	010413 00	010414 00	010415 00
	Date Sampled:		00/01/27	00/01/27	00/01/27	00/01/28	00/01/27
Component	**MDL**	**Units**	MS Dup	MSD % Rec.			
Mercury - filter (FH Outlet)	0.010	ug	-	-	-	-	-
Mercury - filter - (FH Inlet)	0.010	"	0.37	97	0.22	0.088	0.64
Mercury - hydroxylamine	0.010	"	-	-	-	-	-
Mercury - KCl	0.030	"	-	-	1.5	3.0	0.67
Mercury - KMnO4	0.030	"	-	-	8.9	8.2	1.9
Mercury - H202	0.010	"	-	-	<0.25	<0.25	<0.25
Mercury - probe rinse	0.010	"	0.12	100	0.072	<	0.061

132

00014

	Client ID:		Unit 2 Inlet-R1	Unit 2 Inlet-R1	Unit 2 Inlet-R1	Unit 2 Inlet-R1	Unit 2 Inlet-R1	Unit 2 Inlet-R2	Unit 2 Inlet-R3
	Lab No.:		010415 00	010415 00	010415 00	010415 00	010415 00	010416 00	010417 00
	Date Sampled:		00/01/27	00/01/27	00/01/27	00/01/27	00/01/27	00/01/27	00/01/28
Component	**MDL**	**Units**	Duplicate	M. Spike	MS % Rec.	MS Dup	MSD % Rec.		
Mercury - filter (FH Outlet)	0.010	ug	-	-	-	-	-	-	-
Mercury - filter - (FH Inlet)	0.010	"	-	-	-	-	-	0.60	0.43
Mercury - hydroxylamine	0.010	"	-	-	-	-	-	-	-
Mercury - KCl	0.030	"	0.66	1.7	100	1.7	110	0.99	0.96
Mercury - KMnO4	0.030	"	1.9	3.7	93	3.7	93	1.4	2.3
Mercury - H202	0.010	"	-	-	-	-	-	<0.25	<0.25
Mercury - probe rinse	0.010	"	-	-	-	-	-	0.028	0.12

133

00015

Batch Code:	**0327MNF1**	**0327MNF2**
Mercury - filter (FH Outlet)	010387 00	010407 00
	010388 00	010408 00
	010389 00	
	010390 00	
	010391 00	
	010392 00	
	010393 00	
	010403 00	
	010404 00	
	010405 00	
	010406 00	
Run Date:	00/03/27	00/03/27
Date of Sample Prep:	00/03/27	00/03/27

Batch Code:	**0327MNB1**
Mercury - filter - (FH Inlet)	010409 00
	010410 00
	010411 00
	010412 00
	010413 00
	010414 00
	010415 00
	010416 00
	010417 00
Run Date:	00/03/27
Date of Sample Prep:	00/03/27

Batch Code:	**03306BHY**
Mercury - hydroxylamine	010387 00
	010394 00
Run Date:	00/03/30
Date of Sample Prep:	00/03/30

Batch Code:	**03221BKC**	**03243BKC**	**03222BKC**	**03241BKC**
Mercury - KCl	010387 00	010403 00	010407 00	010413 00
	010394 00		010408 00	010414 00
	010398 00		010409 00	010415 00
	010399 00		010410 00	010416 00
	010400 00		010411 00	010417 00
	010401 00		010412 00	
	010402 00			
	010404 00			
	010405 00			
	010406 00			
Run Date:	00/03/22	00/03/24	00/03/22	00/03/24
Date of Sample Prep:	00/03/22	00/03/24	00/03/22	00/03/24

Batch Code:	**03301BMN**	**03302BMN**	**03303BMN**	**03303BMN**
Mercury - KMnO4	010387 00	010404 00	010414 00	010415 00
	010394 00	010405 00	010417 00	010416 00
	010395 00	010406 00		
	010396 00	010407 00		
	010397 00	010408 00		
	010398 00	010409 00		
	010399 00	010410 00		
	010400 00	010411 00		
	010401 00	010412 00		
	010402 00	010413 00		
	010403 00			
Run Date:	00/03/30	00/03/30	00/03/31	00/03/30
Date of Sample Prep:	00/03/30	00/03/30	00/03/30	00/03/30

Batch Code:	**03171NPO**	**03172NPO**
Mercury - H202	010387 00	010407 00
	010394 00	010408 00
	010398 00	010409 00
	010399 00	010410 00
	010400 00	010411 00
	010401 00	010412 00
	010402 00	010413 00
	010403 00	010414 00
	010404 00	010415 00
	010405 00	010416 00
	010406 00	010417 00
Run Date:	00/03/17	00/03/17
Date of Sample Prep:	00/03/17	00/03/17

Batch Code:	**0329MNP1**	**0327MNP1**
Mercury - probe rinse	010409 00	010412 00
	010410 00	010413 00
	010411 00	010414 00
		010415 00
		010416 00
		010417 00
Run Date:	00/03/29	00/03/27
Date of Sample Prep:	00/03/29	00/03/27

00018

PSC
PHILIP SERVICES

Certificate of Analysis

CLIENT INFORMATION		LABORATORY INFORMATION	
Attention:	Jim Platt	**Contact:**	Ron McLeod
Client Name:	MOSTARDI-PLATT ASSOCIATES INC.	**Project:**	AN000243
Project:	Proj# 000403	**Date Received:**	00/03/14
Project Desc:	Northern States Power	**Date Reported:**	00/03/31
Address:	1301 Corporate Center Drive Suite 177 Eagan, Minnesota 55121	**Submission No.:**	0C0381
		Sample No.:	010515
Fax Number:	651-686-4434		
Phone Number:	651-686-0700		

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: _____

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

			NIST 1633b	
	Client ID:		reference	
	Lab No.:		010515 00	
	Date Sampled:		00/03/14	
Component	**MDL**	**Units**	Observed	Theoretical
Mercury	0.04	mg/kg	0.14	0.141

Batch Code:	**0327MNF1**
Mercury	010515 00
Run Date:	00/03/27
Date of Sample Prep:	00/03/27

3. RAW DATA

Lenon 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
10387	MOSTARDI	MB R456	Mercury -	PV	-0.010	-99999.0	0.101	101.	0.101	101.	00/03/27	MNF1	00/03/27	MG01	62.	18.	
10388	MOSTARDI	Filter Blank 091	Mercury -	PV	-0.060						00/03/27	MNF1	00/03/27	MG01	62.	18.	
10389	MOSTARDI	Filter Blank 092	Mercury -	PV	-0.070						00/03/27	MNF1	00/03/27	MG01	62.	18.	
10390	MOSTARDI	Filter Blank 093	Mercury -	PV	-0.060						00/03/27	MNF1	00/03/27	MG01	62.	18.	
10391	MOSTARDI	Filter Blank 094	Mercury -	PV	-0.010						00/03/27	MNF1	00/03/27	MG01	62.	18.	
10392	MOSTARDI	Filter Blank 095	Mercury -	PV	-0.010						00/03/27	MNF1	00/03/27	MG01	62.	18.	
10393	MOSTARDI	Filter Blank 096	Mercury -	PV	-0.010						00/03/27	MNF1	00/03/27	MG01	62.	18.	
10403	MOSTARDI	Unit 3 Stack-R1	Mercury -	PV	0.172	0.172	0.366	97.	0.365	97.	00/03/27	MNF1	00/03/27	MG01	62.	18.	
10404	MOSTARDI	Unit 3 Stack-R2	Mercury -	PV	0.196						00/03/27	MNF1	00/03/27	MG01	62.	18.	
10405	MOSTARDI	Unit 3 Stack-R3	Mercury -	PV	0.392						00/03/27	MNF1	00/03/27	MG01	61.	18.	
10406	MOSTARDI	Unit 1/2 Stack-R1	Mercury -	PV	0.457						00/03/27	MNF1	00/03/27	MG01	60.	18.	
L0327	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.101	101.	0.101	101.	00/03/27	MNF1	00/03/27	MG01	$$$	$$$	
10407	MOSTARDI	Unit 1/2 Stack-R2	Mercury -	PV	0.541						00/03/27	MNF2	00/03/27	MG01	60.	18.	
10408	MOSTARDI	Unit 1/2 Stack-R3	Mercury -	PV	0.079						00/03/27	MNF2	00/03/27	MG01	59.	18.	

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

140

00022

enon umber	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
10409	MOSTARDI	Unit 3 Inlet-R1	Mercury -	PV	-0.010						00/03/27	MNB1	00/03/27	MG01	62.	18.	
10410	MOSTARDI	Unit 3 Inlet-R2	Mercury -	PV	-0.010						00/03/27	MNB1	00/03/27	MG01	62.	18.	
10411	MOSTARDI	Unit 3 Inlet-R3	Mercury -	PV	-0.010						00/03/27	MNB1	00/03/27	MG01	61.	18.	
10412	MOSTARDI	Unit 1 Inlet-R1	Mercury -	PV	0.179	0.180	0.367	93.	0.374	97.	00/03/27	MNB1	00/03/27	MG01	60.	18.	
10413	MOSTARDI	Unit 1 Inlet-R2	Mercury -	PV	0.219						00/03/27	MNB1	00/03/27	MG01	60.	18.	
10414	MOSTARDI	Unit 1 Inlet-R3	Mercury -	PV	0.088						00/03/27	MNB1	00/03/27	MG01	59.	18.	
10415	MOSTARDI	Unit 2 Inlet-R1	Mercury -	PV	0.638						00/03/27	MNB1	00/03/27	MG01	60.	18.	
10416	MOSTARDI	Unit 2 Inlet-R2	Mercury -	PV	0.598						00/03/27	MNB1	00/03/27	MG01	60.	18.	
10417	MOSTARDI	Unit 2 Inlet-R3	Mercury -	PV	0.432						00/03/27	MNB1	00/03/27	MG01	59.	18.	
LO327	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.105	105.	0.105	105.	00/03/27	MNB1	00/03/27	MG01	$$$	$$$	

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

141

00023

Xenon 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
)10412	MOSTARDI	Unit 1 Inlet-R1	Mercury -	PV	0.020	0.019	0.123	103.	0.124	104.	00/03/27	MNP1	00/03/27	MG01	60.	18.	
)10413	MOSTARDI	Unit 1 Inlet-R2	Mercury -	PV	0.072						00/03/27	MNP1	00/03/27	MG01	60.	18.	
)10414	MOSTARDI	Unit 1 Inlet-R3	Mercury -	PV	-0.010						00/03/27	MNP1	00/03/27	MG01	59.	18.	
)10415	MOSTARDI	Unit 2 Inlet-R1	Mercury -	PV	0.061						00/03/27	MNP1	00/03/27	MG01	60.	18.	
)10416	MOSTARDI	Unit 2 Inlet-R2	Mercury -	PV	0.028						00/03/27	MNP1	00/03/27	MG01	60.	18.	
)10417	MOSTARDI	Unit 2 Inlet-R3	Mercury -	PV	0.117						00/03/27	MNP1	00/03/27	MG01	59.	18.	
3L0327	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.101	101.	0.103	103.	00/03/27	MNP1	00/03/27	MG01	$$$	$$$	

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

142

00024

enon umber	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
10515	MOSTARDI	NIST 1633b reference	Mercury	PV	0.14						00/03/27	MNF1	00/03/27	MG01	13.	13.	
L0327	INTERNAL		Mercury	PV	-0.04	-99999.0	1.01	101.	1.01	101.	00/03/27	MNF1	00/03/27	MG01	$$$	$$$	

2 Tests for 7471HG-S with an MDL of 0.04 mg/kg Validated By CMB Control Chart Updated N/A IO Requirements met N/A

143

00025

00026 1/2

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.03.27 Run Code: MG01 Matrix: MP

Analyst: MG Units: ug (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			BL0327	MNF1.		
13			"			
14			BL0327 S			
15			"			
16			BL0327 DS			
17			"			
18		1/2	10403			
19			"			
20			10403 D			
21			"			
22			10403 S			
23			"			
24			10403 DS			
25			"			
26			10388			
27			"			
28			10389			
29			"			
30			10390			
31			"			
32			10391			
33			"			
34			CCV			
35			B			
36			D4			
37			10392			
38			"			
39			10393			
40			"			
41			10404			
42			"			
43		1/4	10405			
44			"			
45			10406			
46			"			
47			10407			
48			"			
49			10408			
50			"			
51			10515			
52			"			
53			BL0327	MNP1		
54			"			
55			BL0327 S			
56			"			
57			CCV			
58			B			
59			D4			
60			BL0327 DS			
61			"			
62			10412			
63			"			
64			10412 D			
65			"			
66			10412 S			
67			"			
68			10412 DS			
69			"			
70			10413			
71			"			
72			10414			
73			"			
74			10415			
75			10415			
76			10416			
77			10416			
78			10417			
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)

00027 2/2

Date: 00.03.27 Run Code: MG01 Matrix: IMP.

Analyst: MC Units: ug (see comments) MDL: 0.01

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			B			
22			D4			
23			BL0327	MN31		
24			"			
25			BL0327 S			
26			"			
27			BL0327 D			
28			"			
29		1/2	10412			
30			"			
31			10412 D			
32			"			
33			10412 S			
34			"			
35			10412 DS			
36			"			
37			10409			
38			"			
39			10410			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			10411			
42			"			
43			CCV			
44			B			
45			D4			
46			10413			
47			"			
48			10414			
49			"			
50		1/4	10415			
51			"			
52			10416			
53			"			
54			10417			
55			"			
56			NIST 1633b			
57			"			
58			CCV			
59			B			
60			D4			
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80						

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

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

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

Revision 1.0
Effective 000216

00028

DGOHFLT (FILTER + F 1/2 RINSE)

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

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
8	Standard 6	1.67	1000 ul of 0.05 ppm IV working standard	2.5

LARDS TRIX CHED WITH F & HNO3 AQUA REGIA

Check List

- ✓ Digest Code/labels
- ✓ Samples poured out
- ✓ Acids added
- Reagents added
- Samples spiked
- ✓ Bath at 85 degrees C
- ✓ Samples digested 8 HRS
- Hydroxylamine HCl added
- ✓ Samples shaken and bulked
- Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	MNF1	20 ml	30 ml	1 X	1.5 ppb = 600 ul of MES-ZENO 30/QCA (Ref Std)
	10	BL 0327	"	"	"	"	(Processed Blank)
	11	BL 0327 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	12	BL 0327 DS					(Duplicate Blank Spike) 600 ml S
1	13	10388	"	"	"	"	FILTER ONLY SUBMITTED
1	14	D	"	"	"	"	(Duplicate sample)
1	15	000327MN S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	16	DS	"	"	"	"	(Duplicate Spiked sample)
2	17	89	"	"	"	"	FILTER ONLY SUBMITTED 700
3	18	90	"	"	"	"	FILTER ONLY SUBMITTED 600
4	19	91	"	"	"	"	FILTER ONLY SUBMITTED 100
5	20	92	"	"	"	"	FILTER ONLY SUBMITTED 100
6	21	93	"	"	"	"	FILTER ONLY SUBMITTED 100
7	22	10403	"	"	"	"	DUP & POST SPIKE 100
8	23	10404	"	"	"	"	400
9	23	10405	"	"	"	"	100
10	24	10406	"	"	"	"	100
	25	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)
	26	BL 0327	MNF2	20 ml	30 ml	"	(Processed Blank)
	27	BL 0327 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	28	BL 0327 DS					(Duplicate Blank Spike)
1	29	10407	"	"	"	"	100
1	30	D	"	"	"	"	(Duplicate sample)
1	31	000327MN S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	32	DS	"	"	"	"	(Duplicate Spiked sample)
2	33	10408	"	"	"	"	100
3	34	10515	"	"	"	"	REFERENCE NIST 1633 b 100
4	35		"	"	"	"	
5	36		"	"	"	"	
6	37		"	"	"	"	
7	38		"	"	"	"	
8	39		"	"	"	"	
9	40		"	"	"	"	
10	41		"	"	"	"	
	42	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Comments HF & AQUA REGIA DIGEST FOR ONTARIO HYDRO METHOD

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

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

DG29HGI, DG29HGF, DG101AA1, DG101AA2

Philip Analytical Services-Burlington

DG0HPRO 90029 DG0HFLTB (FILTER) ~~+ RINSE~~)

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

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
8	Standard 6	1.67	1000 ul of 0.05 ppm IV working standard	2.5

MATRIX MATCHED WITH HF + HNO3 AQUA REGIA

Check List
- ✓ Digest Code/labels
- ✓ Samples poured out
- ✓ Acids added HF + HNO3
- Reagents added
- Samples spiked
- ✓ Bath at 85 degrees C 8 HRS
- Samples digested
- Hydroxylamine HCl added
- ✓ Samples shaken and bulked
- Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	MNB1	20 ml	30 ml	1 X	1.5 ppb = 600 ul of MES-ZENO 30/QCA (Ref Std)
	10	BL 0327	"	"	"	"	(Processed Blank)
	11	BL 0327 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	12	BL 0327 DS					(Duplicate Blank Spike) FINAL VOL 100
1	13	10409	"	"	"	"	
1	14	D	"	"	"	"	(Duplicate sample)
1	15	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	16	000327 MN DS	"	"	"	"	(Duplicate Spiked sample)
2	17	10410	"	"	"	"	
3	18	10411	"	"	"	"	
4	19	12	"	"	"	"	DUP & POST SPIKE
5	20	13	"	"	"	"	
6	21	14	"	"	"	"	
7	22	15	"	"	"	"	
8	23	16	"	"	"	"	
9	23	17	"	"	"	"	
10	24		"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)
	26	BL 0327	MNP1	20 ml	30 ml	"	(Processed Blank)
	27	BL 0327 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	28	BL 0327 DS					(Duplicate Blank Spike)
1	29	10409 000327 MN	"	"	"	"	FINAL VOL 100
1	30	D	"	"	"	"	(Duplicate sample)
1	31	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	32	DS	"	"	"	"	(Duplicate Spiked sample)
2	33	10410 000327 MN	"	"	"	"	
3	34	11 000327 MN	"	"	"	"	
4	35	12	"	"	"	"	DUP + POST SPIKE
5	36	13	"	"	"	"	
6	37	14	"	"	"	"	
7	38	15	"	"	"	"	
8	39	16	"	"	"	"	
9	40	17	"	"	"	"	
10	41		"	"	"	"	
	42	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Comments HF + AQUA REGIA DIGEST FOR ONTARIO HYDRO METHOD

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

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

DG29HGI, DG29HGF, DG101AA1, DG101AA2

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	43	BL		"	"	"	(Processed Blank)
	44	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	45	BL DS					(Duplicate Blank Spike)
1	46		"	"	"	"	
1	47	D	"	"	"	"	(Duplicate sample)
1	48	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	49	DS	"	"	"	"	(Duplicate Spiked sample)
2	50		"	"	"	"	
3	51		"	"	"	"	
4	52		"	"	"	"	
5	53		"	"	"	"	
6	54		"	"	"	"	
7	55		"	"	"	"	
8	56		"	"	"	"	
9	57		"	"	"	"	
10	58		"	"	"	"	
	57	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Procedure/Methodology:

1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO_3
2 Prepare 0.05 ppm Working standard daily by pipetting 200 ul. of 25 ppm Intermediate to 100 ml final volume of 2% HNO_3
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 Include one External Reference Material sample per run
7 Incude one Organic Mercury Control Standard per run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 6% $KMnO_4$, purple colour must remain for at least 15 minutes
12 Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$), to each tube
13 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
14 Remove tubes and allow to cool to room temperature
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless
17 Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	N HG02019	000401
Intermediate Cal Standard	Internal	00 03 09 A	00 04 09
Stock Reference Standard	High Purity	836309	00FEB
External Reference Material	SPEX		
Organic Mercury Control Standard	Aldrich		
6% potassium permanganate	Internal		
5% potassium persulphate	Internal		
20% hydroxylamine hydrochloride	Internal		
HNO_3 / HCl	Anachemia	119100 / 419061	000513 / 000422
H_2SO_4	Anachemia	519070	00 05 27
Bath Temps: 1 175 C	Time ON: 11:30 AM	Time OFF: 2:30 PM	
Prepared By: M Mayrap	Date: 000327	Checked by: M Mayrap	

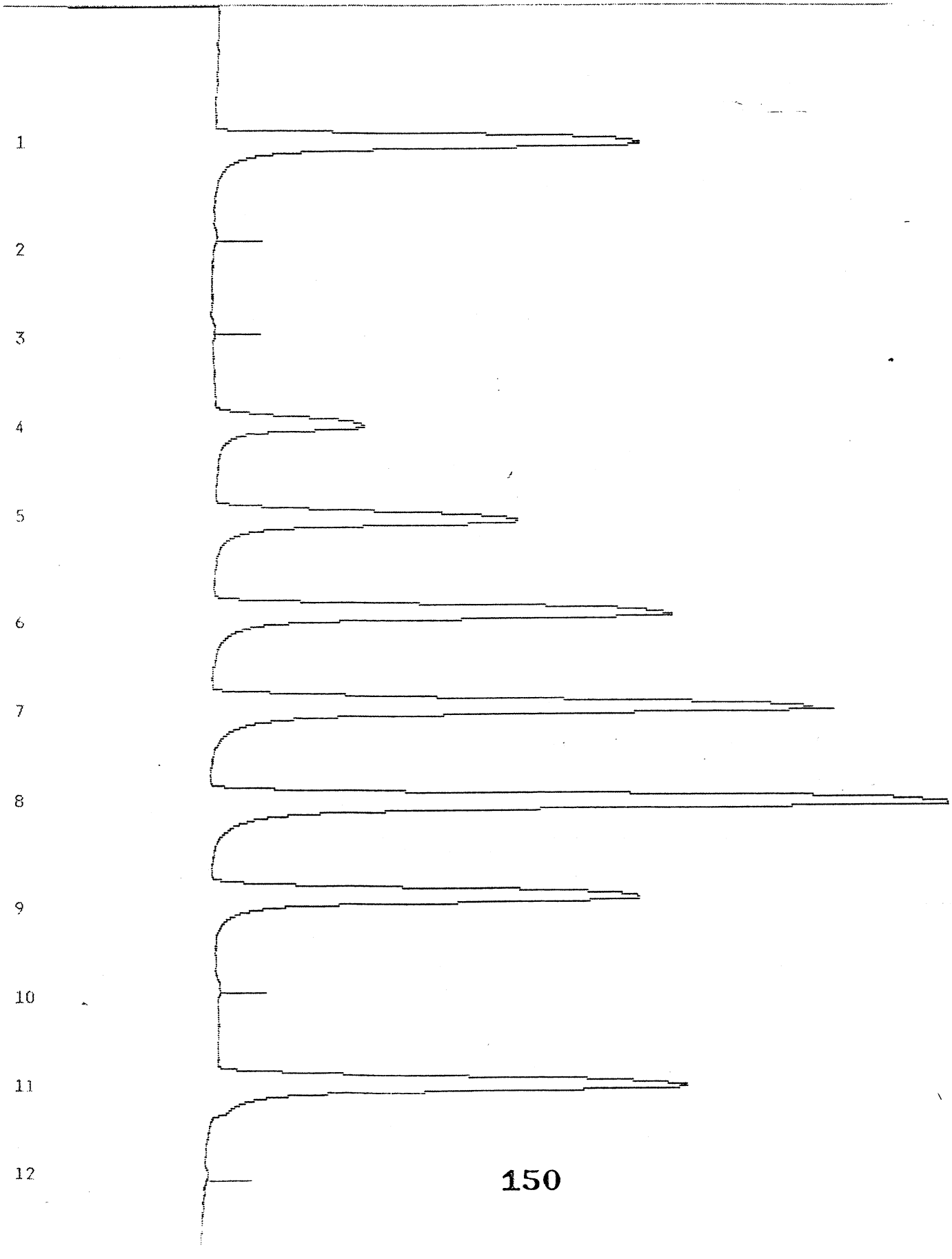
	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	43	BL		"	"	"	(Processed Blank)
	44	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	45	BL DS					(Duplicate Blank Spike)
1	46		"	"	"	"	
1	47	D	"	"	"	"	(Duplicate sample)
1	48	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	49	DS	"	"	"	"	(Duplicate Spiked sample)
2	50		"	"	"	"	
3	51		"	"	"	"	
4	52		"	"	"	"	
5	53		"	"	"	"	
6	54		"	"	"	"	
7	55		"	"	"	"	
8	56		"	"	"	"	
9	57		"	"	"	"	
10	58		"	"	"	"	
	57	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

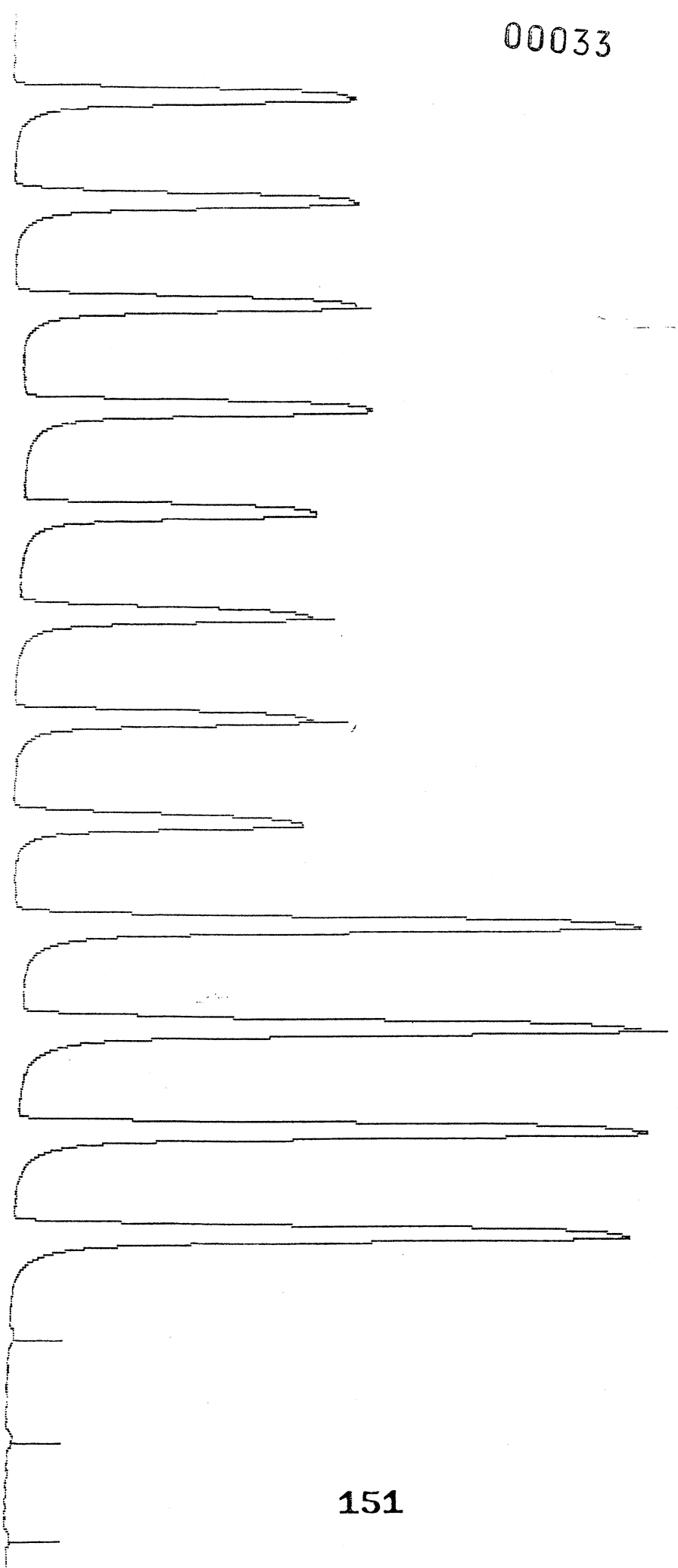
Procedure/Methodology:

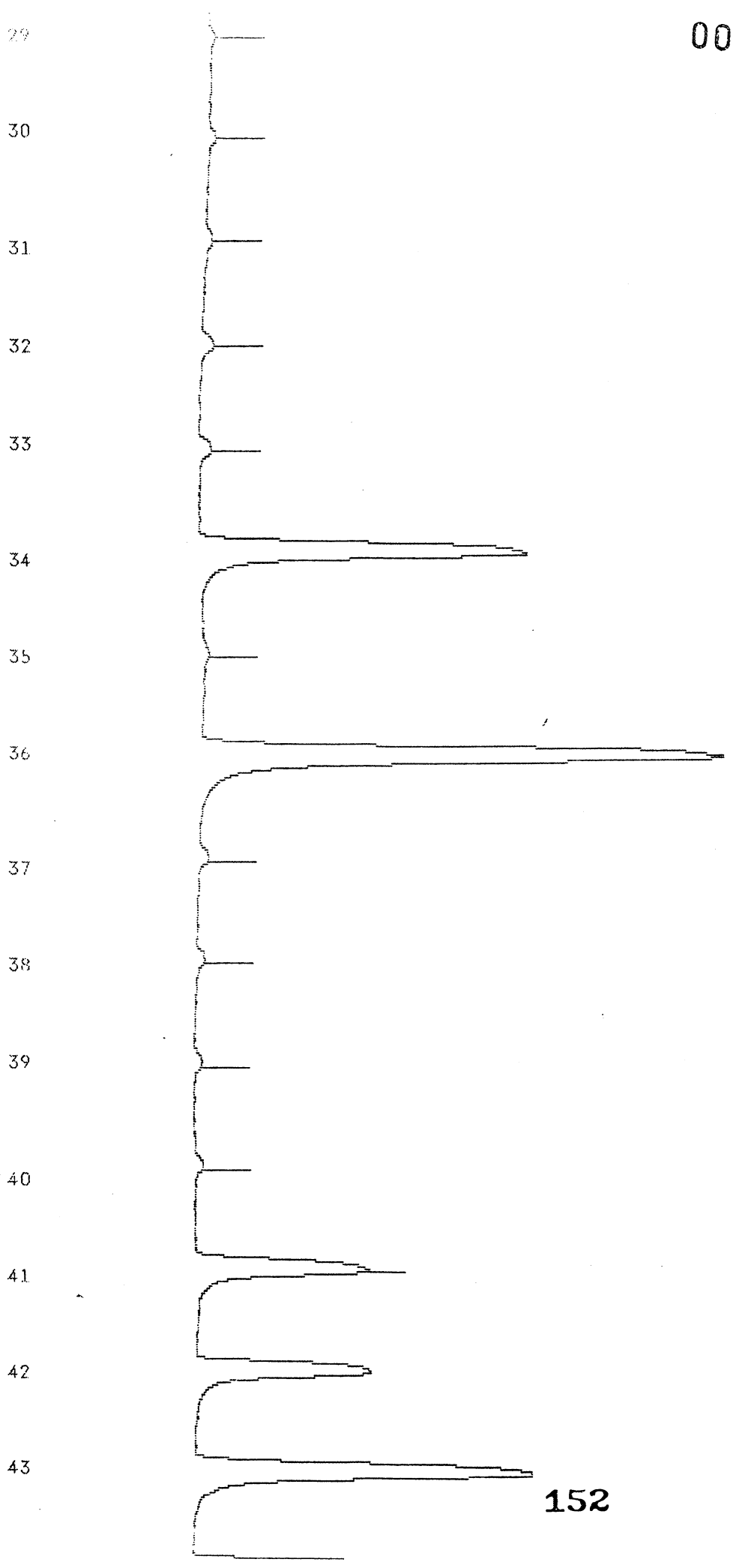
1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO_3
2 Prepare 0.05 ppm Working standard daily by pipetting 200 ul., of 25 ppm Intermediate to 100 ml final volume of 2% HNO_3
3 Using the LIMS Screen "SCNDIG" enter the 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 Include one External Reference Material sample per run
7 Incude one Organic Mercury Control Standard per run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 6% $KMnO_4$, purple colour must remain for at least 15 minutes
12 Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$), to each tube
13 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
14 Remove tubes and allow to cool to room temperature
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless
17 Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	N HG02019	00 04 01
Intermediate Cal Standard	Internal	00 03 09 A	00 04 09
Stock Reference Standard	High Purity	836309	00 FEB
External Reference Material	SPEX		
Organic Mercury Control Standard	Aldrich		
6% potassium permanganate	Internal		
5% potassium persulphate	Internal		
20% hydroxylamine hydrochloride	Internal		
HNO_3 / HCl	Anachemia	119100 / 419061	00 05 13 / 000422
000327 MN ~~H_2SO_4~~ HF	Anachemia	519070	00 05 27
Bath Temps: 1 185 C	Time ON: 11:30 AM	Time OFF: 7:30 PM	
Prepared By: M Nisperos	Date: 000327	Checked by: M Nisperos	

RUN DATE: 03-27-2000 CHART DATE: 03-28-2000
CHART SPEED: 30
DATA FILE NAME: C:\DP4\DATA\000327W.DAT



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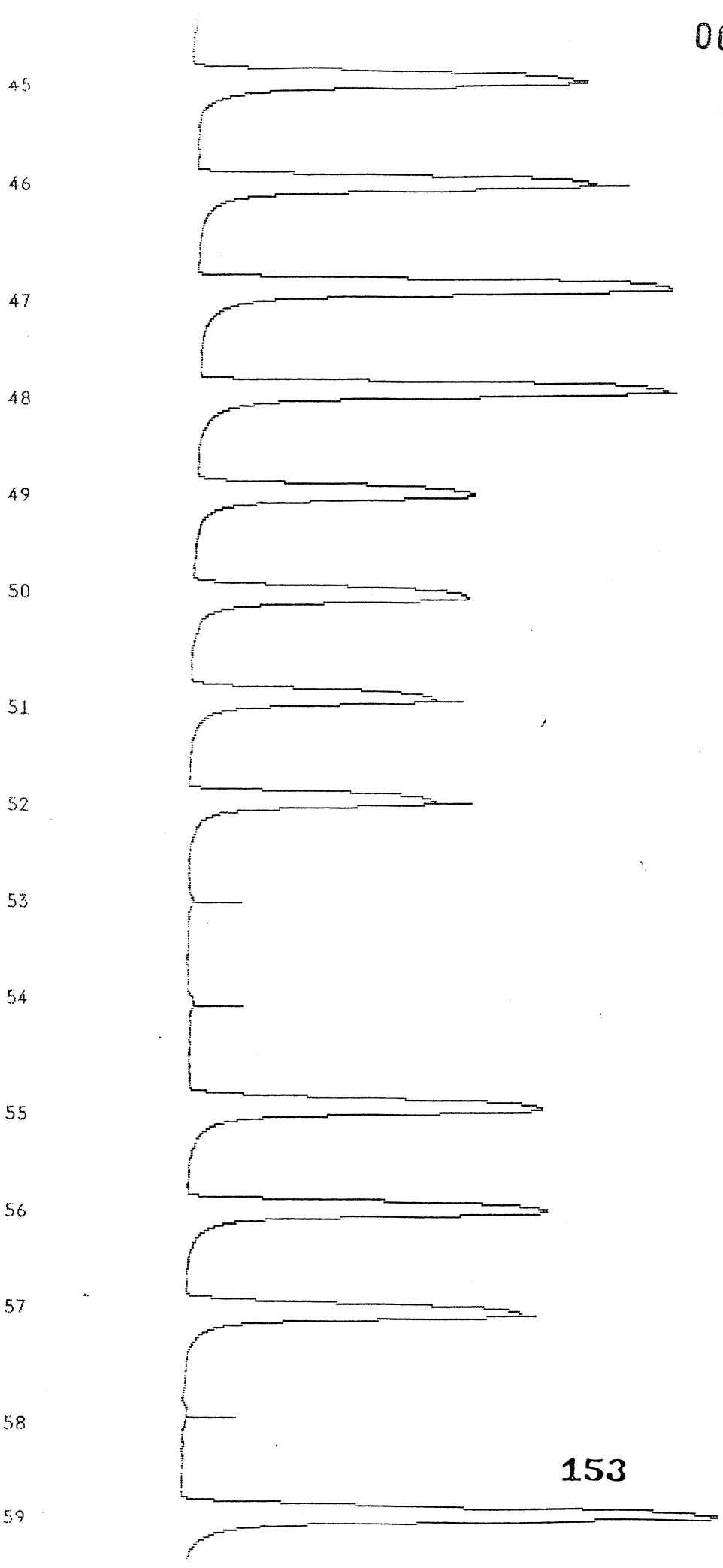
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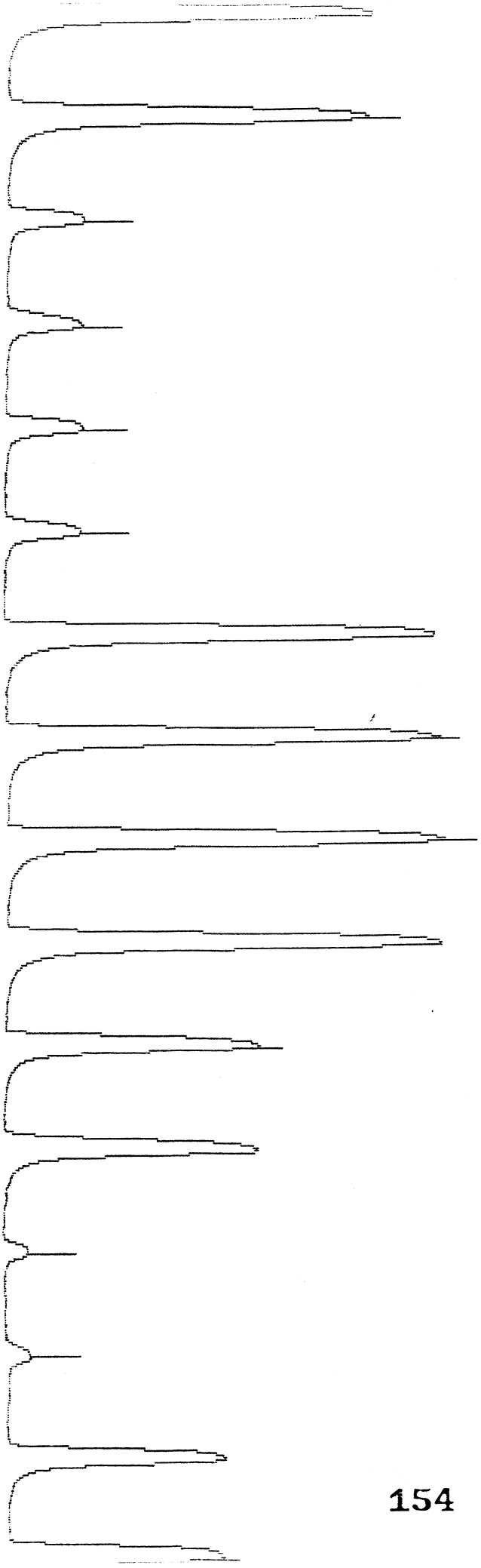
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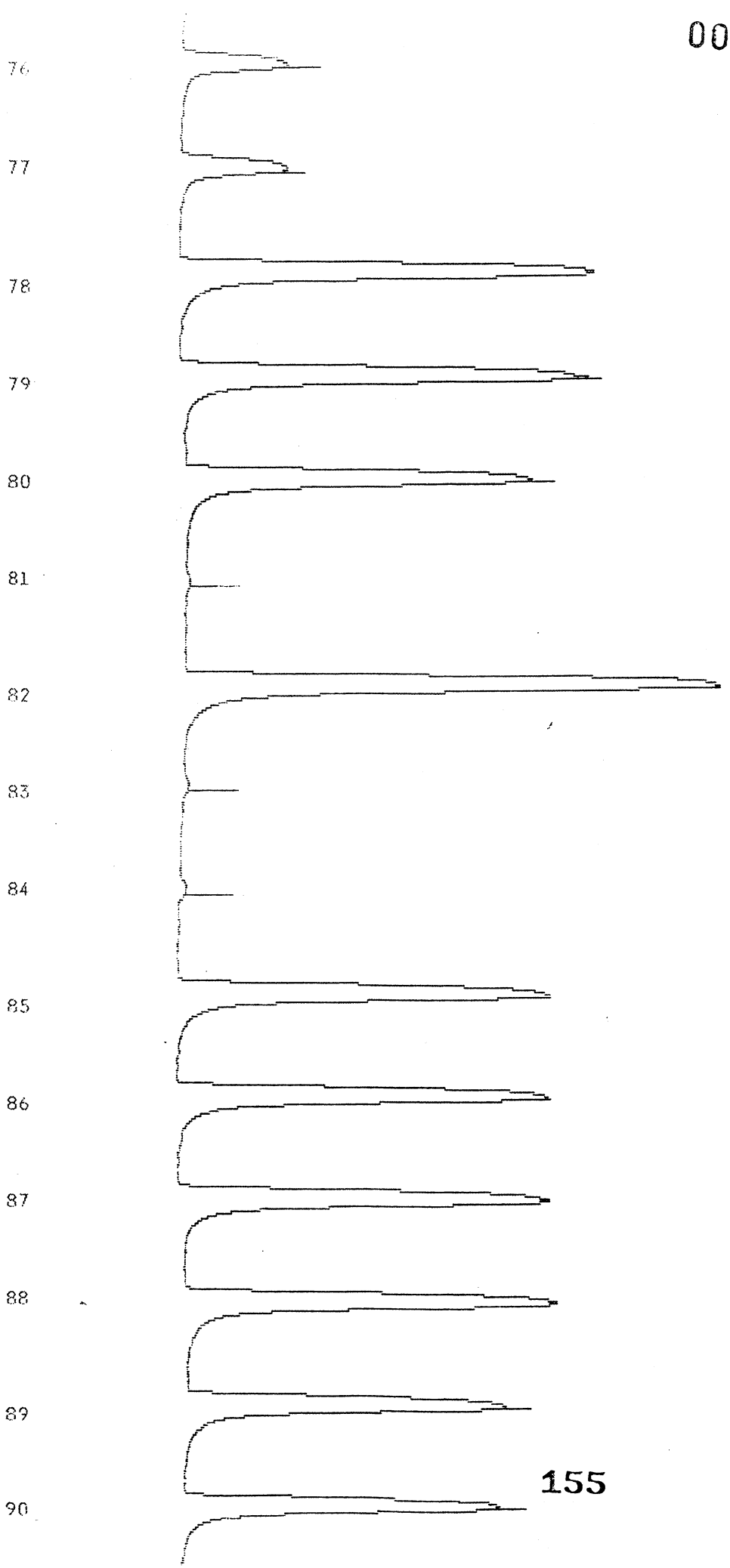
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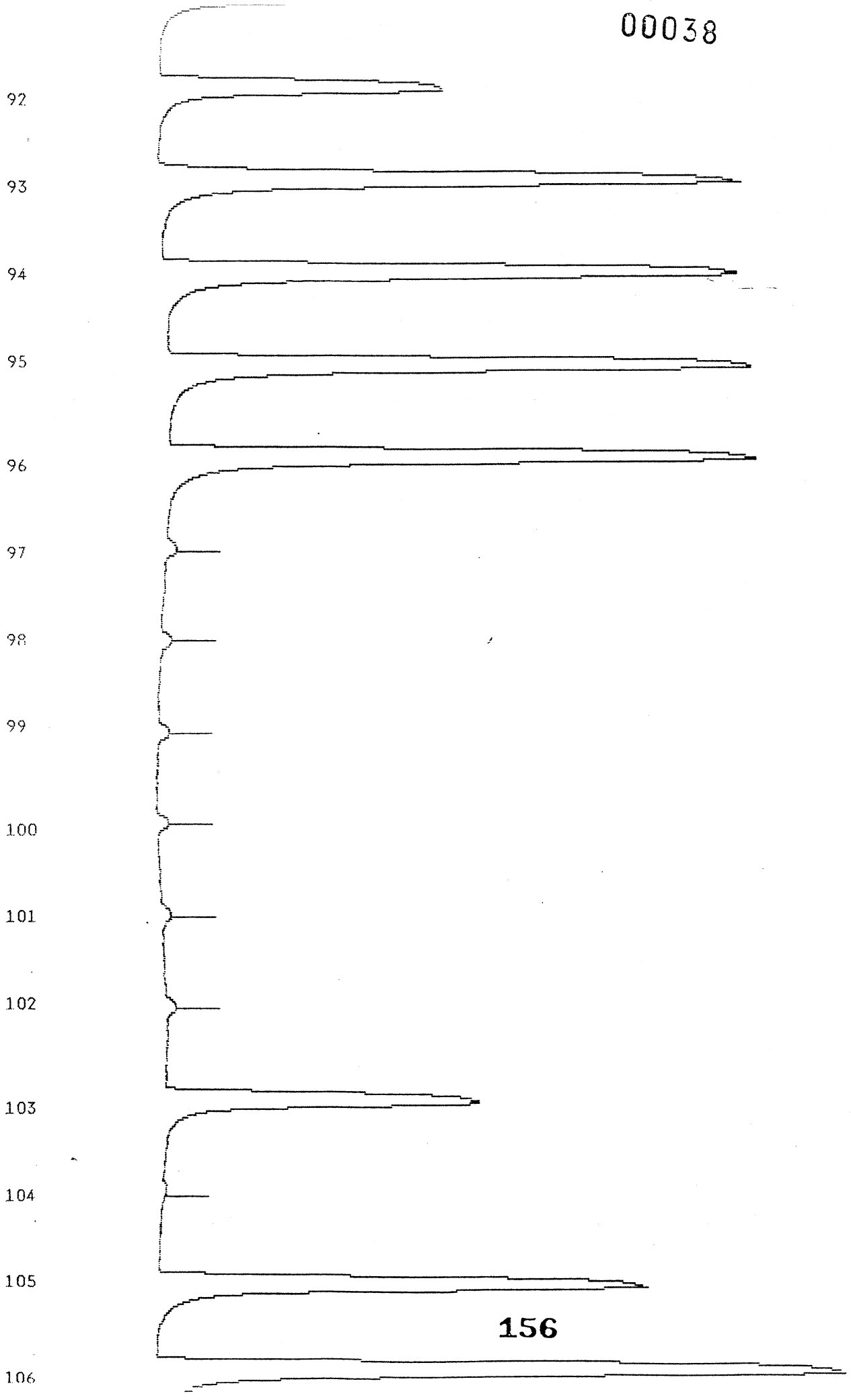
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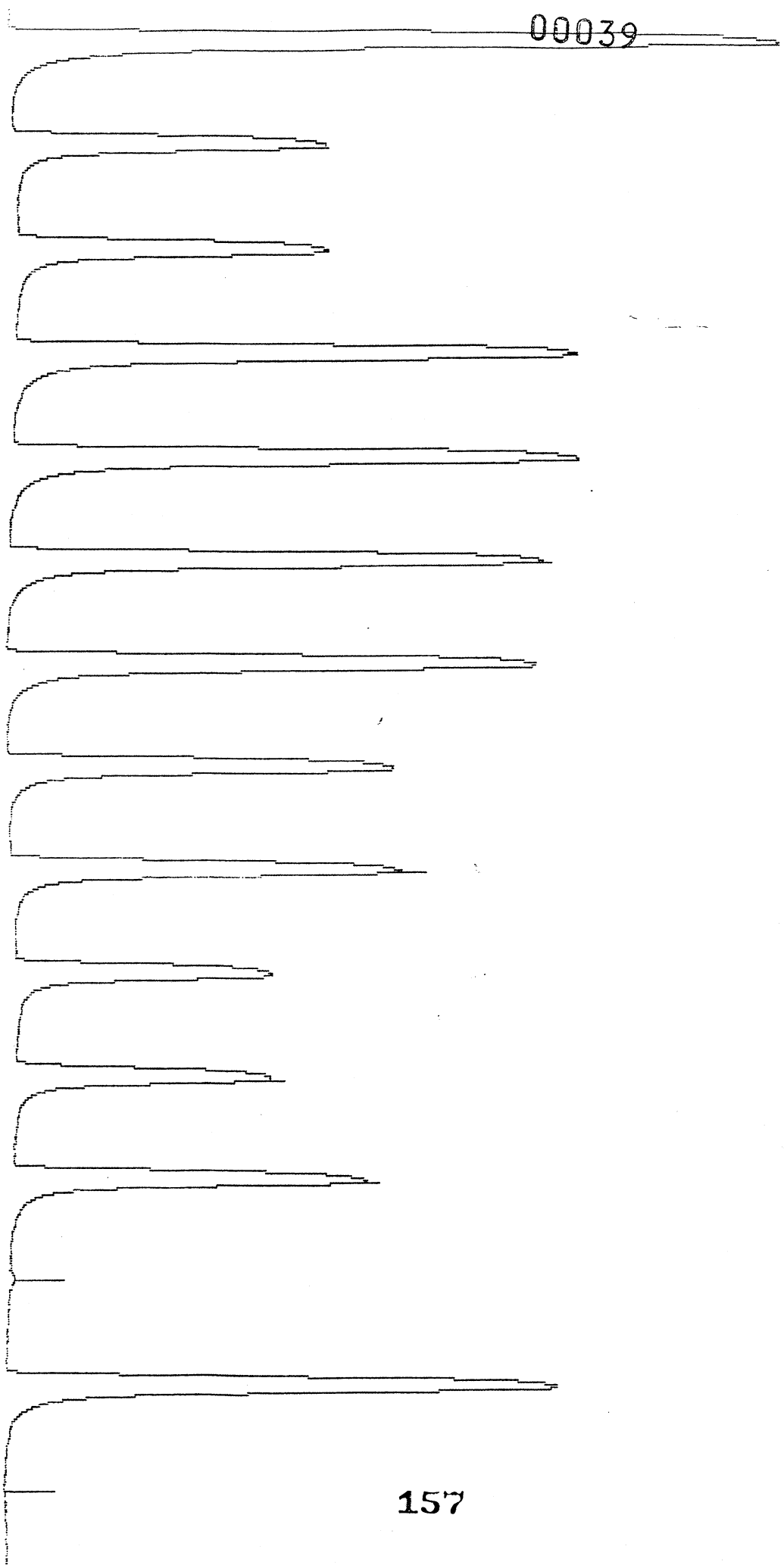
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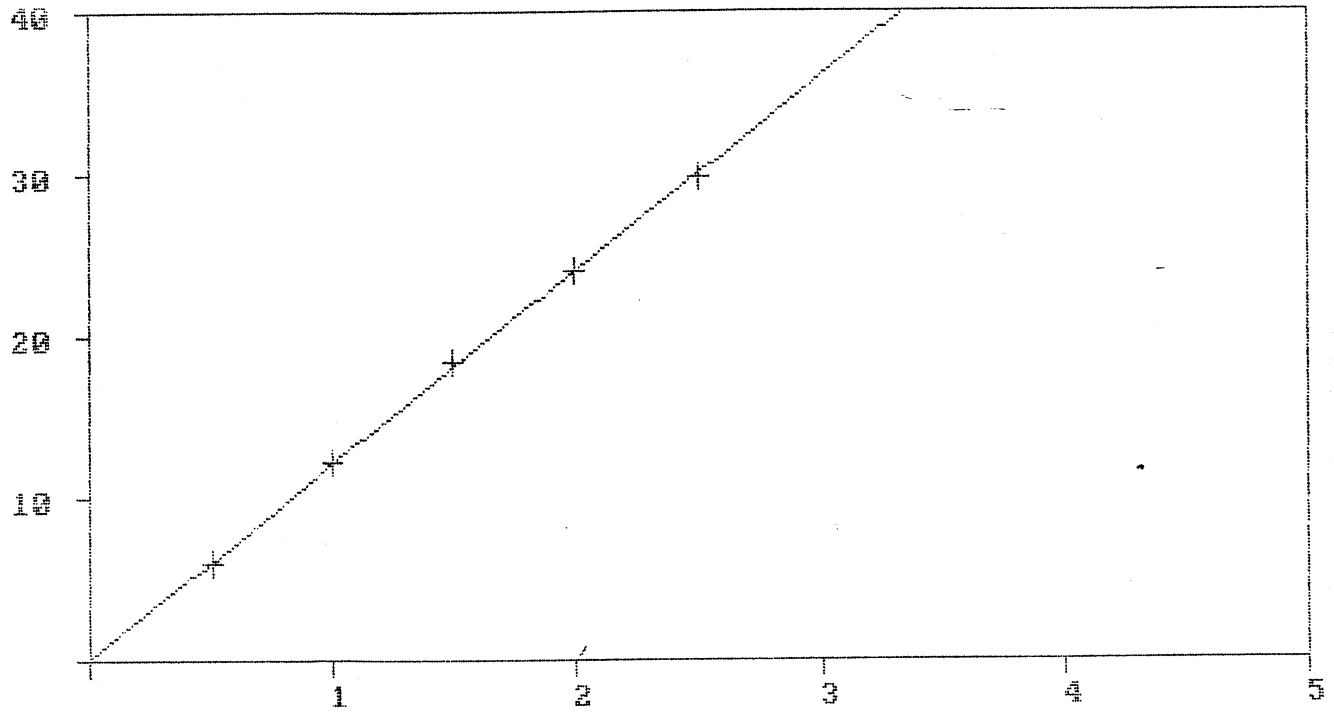
CHANNEL NAME: LDC
RUN NAME: 000327W



DATA TYPE: FIA
INTERCEPT = 0.11

CALIBRATION ORDER: 1
SLOPE = 11.93511

CORRELATION: .9998206

CHANNEL NAME: LDC
RUN DATE: 03-27-2000
SAMPLE TABLE NAME: 000327W
METHOD NAME: HG-W-20

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION (µg/L)	EF
1	PRIMER	1	1	17.1		1.423	s
2	DUMMY	1	1	0.1		0.003	I
3	S1: 0	1	1	0.0		-0.007	I
4	S2: .5	1	1	6.0		0.490	
5	S3: 1	1	1	12.1		1.005	
6	S4: 1.5	1	1	18.4		1.533	
7	S5: 2	1	1	23.9		1.994	
8	S6: 2.5	1	1	29.8		2.485	
9	ICV	1	1	16.8		1.394	93%
10	B	1	1	0.0	TMG	-0.009	b
11	D4	1	1	18.4		1.533	d
12	BL0327-MNF1 10387	1	1	0.0	20.01	-0.005	I
13	BL0327-MNF1	1	1	0.0		-0.005	I
14	BL0327S	1	1	12.2	0.101	1.014	101%
15	BL0327S	1	1	12.2		1.016	
16	BL0327DS	1	1	12.0	0.101	0.993	101%
17	BL0327DS	1	1	12.3		1.024	
18	10403	2	1	10.5	0.172	1.733	

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21	10403D	2	1	10.2		1.676		
22	10403S	2	1	22.1	0.388	3.676	97%	
23	10403S	2	1	21.8		3.636		
24	10403DS	2	1	22.2	0.365	3.705	97%	
25	10403DS	2	1	21.6		3.599		
26	10388	1	1	0.0	<0.06	-0.009	I	
27	10388	1	1	0.0		-0.007	I	
28	10389	1	1	0.0	<0.07	-0.009	I	
29	10389	1	1	0.0		-0.005	I	
30	10390	1	1	0.0	<0.06	-0.009	I	
31	10390	1	1	0.0		-0.007	s	
32	10391	1	1	0.2	<0.01	0.011	I	
33	10391	1	1	0.2		-0.009	I	
34	CCV	1	1	11.5		0.954	95%	
35	B	1	1	0.0		-0.009	b	
36	D4	1	1	18.4		1.533	d	
37	10392	1	1	0.1	<0.01	0.001	I	
38	10392	1	1	0.1		-0.001	I	
39	10393	1	1	0.1	<0.01	-0.003	I	
40	10393	1	1	0.2		0.005	I	
41	10404	1	1	6.0	0.196	0.490		
42	10404	1	1	6.0		0.490		
43	10405	4	1	11.8	0.392	3.907		
44	10405	4	1	11.8		3.932		
45	10406	4	1	13.7	0.457	4.562		
46	10406	4	1	13.8		4.579	s	
47	10407	4	1	16.4	0.541	5.446		
48	10407	4	1	16.1		5.372		
49	10408	1	1	9.6	0.079	0.793		
50	10408	1	1	9.6		0.793		
51	* 10515	1	1	8.4	MB ~~0.070~~	0.699	0.140 µg/g	
52	10515	1	1	8.4		0.699		
53	BL0327-MNP1	1	1	0.0	<0.01	-0.009	I	
54	BL0327-MNP1	1	1	0.0		-0.009	I	
55	BL0327S	1	1	12.2	0.101	1.010	101%	
56	BL0327S	1	1	12.3		1.022		
57	CCV	1	1	11.5		0.952	95%	
58	B	1	1	0.0		-0.009	b	
59	D4	1	1	18.4		1.533	d	
60	BL0327DS	1	1	12.5	0.103	1.034	103%	
61	BL0327DS	1	1	12.3		1.018		
62	10412	1	1	2.5	0.020	0.199		
63	10412	1	1	2.4		0.193		
64	10412D	1	1	2.4	0.019	0.193		
65	10412D	1	1	2.4		0.193		
66	10412S	1	1	14.7	0.123	1.222	103%	
67	10412S	1	1	14.9		1.237		
68	10412DS	1	1	14.9	0.124	1.241	104%	
69	10412DS	1	1	14.9		1.239		
70	10413	1	1	8.7	0.072	0.719		
71	10413	1	1	8.7		0.717		
72	10414	1	1	0.6	<0.01	0.040	I	
73	10414	1	1	0.6		0.042	I	
74	10415	1	1	7.4	0.061	0.609		
75	10415	1	1	7.4		0.609		
76	10416	1	1	3.4	0.028	0.277	s	
77	10416	1	1	3.4		0.279		
78	10417	1	1	14.2	0.117	1.177		
79	10417	1	1	14.0		1.161		
80	CCV	1	1	11.9		0.985	99%	
81	B	1	1	0.0		-0.009	b	
82	D4	1	1	18.4		1.533	d	
83	BL0327-MNR1	1	1	0.1	<0.01	-0.001	I	
84	BL0327-MNR1	1	1	0.1		0.001	I	

87	BL0327DS	1	1	12.6	0.005	1.046	105%
88	BL0327DS	1	1	12.6	00042	1.048	
89	10412	2	1	10.8	0.179	1.798	
90	10412	2	1	10.7		1.774	
91	10412D	2	1	10.8	0.180	1.798	s
92	10412D	2	1	10.8		1.794	
93	10412S	2	1	22.0	0.367	3.664	93%
94	10412S	2	1	22.1		3.681	
95	10412DS	2	1	22.4	0.374	3.730	97%
96	10412DS	2	1	22.5		3.750	
97	10409	1	1	0.2	<0.01	0.005	I
98	10409	1	1	0.2		0.009	I
99	10410	1	1	0.2	<0.01	-0.005	I
100	10410	1	1	0.1		0.003	I
101	10411	1	1	0.1	<0.01	0.001	I
102	10411	1	1	0.2		0.005	I
103	CCV	1	1	11.9		0.989	99%
104	B	1	1	0.0		-0.009	b
105	D4	1	1	18.4		1.533	d
106	10413	1	1	26.2	0.219	2.182	s
107	10413	1	1	26.4		2.202	
108	10414	1	1	10.6	0.088	0.877	
109	10414	1	1	10.5		0.873	
110	10415	4	1	19.1	0.638	6.379	
111	10415	4	1	19.1		6.379	
112	10416	4	1	18.0	0.598	5.986	
113	10416	4	1	17.9		5.970	
114	10417	4	1	12.9	0.432	4.300	
115	10417	4	1	13.1		4.341	
116	NIST 1633B	1	1	8.6		0.709	0.141 µg/g
117	NIST 1633B	1	1	8.5	mb ~~0.071~~	0.701	
118	CCV	1	1	11.7		0.975	97%
119	B	1	1	0.0		-0.009	b
120	D4	1	1	18.4		1.533	d

INTERCEPT: 0.11 LINEAR COEF: 11.93511
CORRELATION COEF: .9998206

$* \; 0.699 \, \mu g/L \times \frac{0.1L}{0.5g} = 0.1398 \, \mu g/g$

enon umber	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
10409	MOSTARDI	Unit 3 Inlet-R1	Mercury -	PV	-0.010	-0.010	0.106	101.	0.106	101.	00/03/29	MNP1	00/03/29	MG02	64.	20.	
10410	MOSTARDI	Unit 3 Inlet-R2	Mercury -	PV	-0.010						00/03/29	MNP1	00/03/29	MG02	64.	20.	
10411	MOSTARDI	Unit 3 Inlet-R3	Mercury -	PV	-0.010						00/03/29	MNP1	00/03/29	MG02	63.	20.	
10627	MOSTARDI	Unit 1 Inlet-R1	Mercury -	PV	0.020						00/03/29	MNP1	00/03/29	MG02	36.	19.	
10628	MOSTARDI	Unit 1 Inlet-R2	Mercury -	PV	0.017						00/03/29	MNP1	00/03/29	MG02	36.	19.	
10629	MOSTARDI	Unit 1 Inlet-R3	Mercury -	PV	-0.010						00/03/29	MNP1	00/03/29	MG02	35.	19.	
10641	MOSTARDI	Unit 1 Inlet-R1	Mercury -	PV	-0.010						00/03/29	MNP1	00/03/29	MG02	50.	19.	
10642	MOSTARDI	Unit 1 Inlet-R2	Mercury -	PV	-0.010						00/03/29	MNP1	00/03/29	MG02	50.	19.	
10643	MOSTARDI	Unit 1 Inlet-R3	Mercury -	PV	-0.010						00/03/29	MNP1	00/03/29	MG02	49.	19.	
L0329	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.101	101.	0.099	99.	00/03/29	MNP1	00/03/29	MG02	$$$	$$$	

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

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00043

LDC AUTOSAMPLER RUN LOG (MERCURY) 00044 1/2

Date: 00.03.29 WA Run Code: MG03 Matrix: MP

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			BL0329	MNF1		
13			"			
14			BL0329 S			
15			"			
16			BL0329 S			
17			"			
18			10624			
19			"			
20			10624 D			
21			"			
22			10624 S			
23			"			
24			10624 DS			
25			"			
26			10617			
27			"			
28			10618			
29			"			
30			10619			
31			"			
32			CCV			
33			B			
34			D4			
35			10625			
36			"			
37			10626			
38			"			
39			10631			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			10632			
42			"			
43			10633			
44			"			
45			10638			
46			"			
47			10630			
48			"			
49			10639			
50			"			
51			10640			
52			"			
53			BL0329	MNB1		
54			"			
55			CCV			
56			B			
57			D4			
58			BL0329 S			
59			"			
60			BL0329 DS			
61			"			
62			10641			
63			"			
64			10641 D			
65			"			
66			10641 S			
67			"			
68			10641 DS			
69			"			
70			10642			
71			"			
72			10643			
73			"			
74		1/4	10627			
75		↓	"			
76			10628			
77			"			
78			CCV			
79			B			
80			D4			

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

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

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

00045

LDC AUTOSAMPLER RUN LOG (MERCURY)

2/2

Date: 00-03-29 (WA) Run Code: MG02 Matrix: IMP

Analyst: MG Units: ug (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			10629			
22			"			
23			BL0329	MNP1		
24			"			
25			BL0329 S			
26			"			
27			BL0329 DS			
28			"			
29			10409			
30			"			
31			10409 D			
32			"			
33			10409 S			
34			"			
35			10409 DS			
36			"			
37			10416			
38			"			
39			10411			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			CCV			
42			B			
43			D4			
44			10627			
45			"			
46			10628			
47			"			
48			10629			
49			"			
50			10641			
51			"			
52			10642			
53			"			
54			10643			
55			"			
56			NIST 1633b			
57			"			
58			CCV			
59			B			
60			D4			
61						
62						
63						
64						
65						
66						
67						
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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

DG7470HG, DGHGLEACH, DG29*

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
8	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
- [ ] Reagents added
- [ ] Samples spiked
- [x] Bath at 85 degrees C
- [x] Samples digested
- [ ] Hydroxylamine HCl added
- [x] Samples shaken and bulked
- [x] Rack order checked

1-41X ATTACHED WITH HF + AQUA REGIA

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	MNP1	20 ml	30 ml	1 X	1.5 ppb = 600 ul of MES-ZENO 30/QCA (Ref Std)
	10	BL 03 29	"	"	"	"	(Processed Blank)
	11	BL 03 29 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	12	BL 03 29 DS					(Duplicate Blank Spike)
1	13	10627	"	"	"	"	FINAL VOL 100 ml
1	14	000329 MN D	"	"	"	"	(Duplicate sample)
1	15	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	16	DS	"	"	"	"	(Duplicate Spiked sample)
2	17	10628	"	"	"	"	100
3	18	29	"	"	"	"	↓
4	19	41	"	"	"	"	
5	20	42	"	"	"	"	
6	21	43	"	"	"	"	
7	22	10409	"	"	"	"	100
8	23	10	"	"	"	"	100
9	23	11	"	"	"	"	100
10	24		"	"	"	"	↓ FRONT 1/2 RINSE
	25	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)
	26	BL		20 ml	30 ml	"	(Processed Blank)
	27	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	28	BL DS					(Duplicate Blank Spike)
1	29		"	"	"	"	
1	30	D	"	"	"	"	(Duplicate sample)
1	31	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	32	DS	"	"	"	"	(Duplicate Spiked sample)
2	33		"	"	"	"	
3	34		"	"	"	"	
4	35		"	"	"	"	
5	36		"	"	"	"	
6	37		"	"	"	"	
7	38		"	"	"	"	
8	39		"	"	"	"	
9	40		"	"	"	"	
10	41		"	"	"	"	
	42	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Comments ONTARIO HYDRO HF + AQUA REGIA DIGEST 8HRS @ 85°C

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

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

DG29HGI, DG29HGF, DG101AA1, DG101AA2

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

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
8	Standard 6	1.67	1000 ul of 0.05 ppm IV working standard	2.5

MATRIX MATCHED WITH HF + AQUA REGIA

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 shaken and bulked
- ✓ Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	MNF1	20 ml	30 ml	1 X	1.5 ppb = 600 ul of MES-ZENO 30/QCA (Ref Std)
	10	BL 0329	"	"	"	"	(Processed Blank)
	11	BL 0329 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	12	BL 0329 DS					(Duplicate Blank Spike)
1	13	10624	"	"	"	"	FINALVOL 700
1	14	10624 D	"	"	"	"	(Duplicate sample)
1	15	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	16	DS	"	"	"	"	(Duplicate Spiked sample)
2	17	10617 MB	"	"	"	"	100
3	18	18	"	"	"	"	600
4	19	19	"	"	"	"	600
5	20	25	"	"	"	"	700
6	21	26	"	"	"	"	700
7	22	31	"	"	"	"	600
8	23	32	"	"	"	"	600
9	23	33	"	"	"	"	600
10	24	34	"	"	"	"	1400
	25	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)
	26	BL 0329	MNF2	20 ml	30 ml	"	(Processed Blank)
	27	BL 0329 00D329MNS	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	28	BL 0329 DS					(Duplicate Blank Spike)
1	29	10630 MB	"	"	"	"	100
1	30	D	"	"	"	"	(Duplicate sample)
1	31	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	32	DS	"	"	"	"	(Duplicate Spiked sample)
2	33	10639	"	"	"	"	600
3	34	40	"	"	"	"	600
4	35		"	"	"	"	
5	36		"	"	"	"	
6	37		"	"	"	"	
7	38		"	"	"	"	
8	39		"	"	"	"	
9	40		"	"	"	"	
10	41		"	"	"	"	
	42	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Comments ONTARIO HYDRO HF + AQUA REGIA DIGEST 8 HRS @ 85°C

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

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

DG29HGI, DG29HGF, DG101AA1, DG101AA2

Philip Analytical Services-Burlington

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	43	BL		"	"	"	(Processed Blank)
	44	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	45	BL DS					(Duplicate Blank Spike)
1	46		"	"	"	"	
1	47	D	"	"	"	"	(Duplicate sample)
1	48	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	49	DS	"	"	"	"	(Duplicate Spiked sample)
2	50		"	"	"	"	
3	51		"	"	"	"	
4	52		"	"	"	"	
5	53		"	"	"	"	
6	54		"	"	"	"	
7	55		"	"	"	"	
8	56		"	"	"	"	
9	57		"	"	"	"	
10	58		"	"	"	"	
	57	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Procedure/Methodology:

1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO_3
2 Prepare 0.05 ppm Working standard daily by pipetting 200 ul., of 25 ppm Intermediate to 100 ml final volume of 2% HNO_3
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 Include one External Reference Material sample per run
7 Incude one Organic Mercury Control Standard per run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 6% $KMnO_4$, purple **colour must remain for at least 15 minutes**
12 Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$), to each tube
13 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
14 Remove tubes and allow to cool to room temperature
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless
17 Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	N HG020019	
Intermediate Cal Standard	Internal		
Stock Reference Standard	High Purity	836319	00FEB
External Reference Material	SPEX		
Organic Mercury Control Standard	Aldrich		
6% potassium permanganate	Internal		
5% potassium persulphate	Internal		
20% hydroxylamine hydrochloride	Internal		
HNO_3	Anachemia		
~~H_2SO_4~~ HF	Anachemia	MN ~~50~~ 519070	000529
Bath Temps: 1 1 85 °C	Time ON:	Time OFF:	
Prepared By: M Shipman	Date: 00 03 29	Checked by: M Shipman	

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	43	BL 0329	MNB1	"	"	"	(Processed Blank)
	44	BL 0329 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	45	BL 0329 DS					(Duplicate Blank Spike)
1	46	10627	"	"	"	"	100
1	47	D	"	"	"	"	(Duplicate sample)
1	48	000329 MN S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	49	DS	"	"	"	"	(Duplicate Spiked sample)
2	50	10628	"	"	"	"	100
3	51	29	"	"	"	"	
4	52	41	"	"	"	"	DUP + POST SPIKE
5	53	42	"	"	"	"	
6	54	43	"	"	"	"	
7	55		"	"	"	"	
8	56		"	"	"	"	
9	57		"	"	"	"	
10	58		"	"	"	"	* .500g SUB SAMPLE *
	57	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Procedure/Methodology:

1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO_3
2 Prepare 0.05 ppm Working standard daily by pipetting 200 ul., of 25 ppm Intermediate to 100 ml final volume of 2% HNO_3
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 Include one External Reference Material sample per run
7 Incude one Organic Mercury Control Standard per run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 6% $KMnO_4$, purple colour must remain for at least 15 minutes
12 Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$), to each tube
13 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
14 Remove tubes and allow to cool to room temperature
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless
17 Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	N HG02019	00 04 01
Intermediate Cal Standard	Internal	00 03 09 A	00 04 09
Stock Reference Standard	High Purity	836309	00 FEB
External Reference Material	SPEX		
Organic Mercury Control Standard	Aldrich		
6% potassium permanganate	Internal		
5% potassium persulphate	Internal		
20% hydroxylamine hydrochloride	Internal		
HNO_3	Anachemia		
~~H_2SO_4~~ HF	Anachemia	519070	00 05 29
Bath Temps: 1 185°C	Time ON:	Time OFF:	
Prepared By: M Nisperos	Date: 00 03 29	Checked by: M Nisperos	

Philip Analytical Services-Burlington

00050

RUN DATE: 03-29-2000 CHART DATE: 03-30-2000
CHART SPEED: 30
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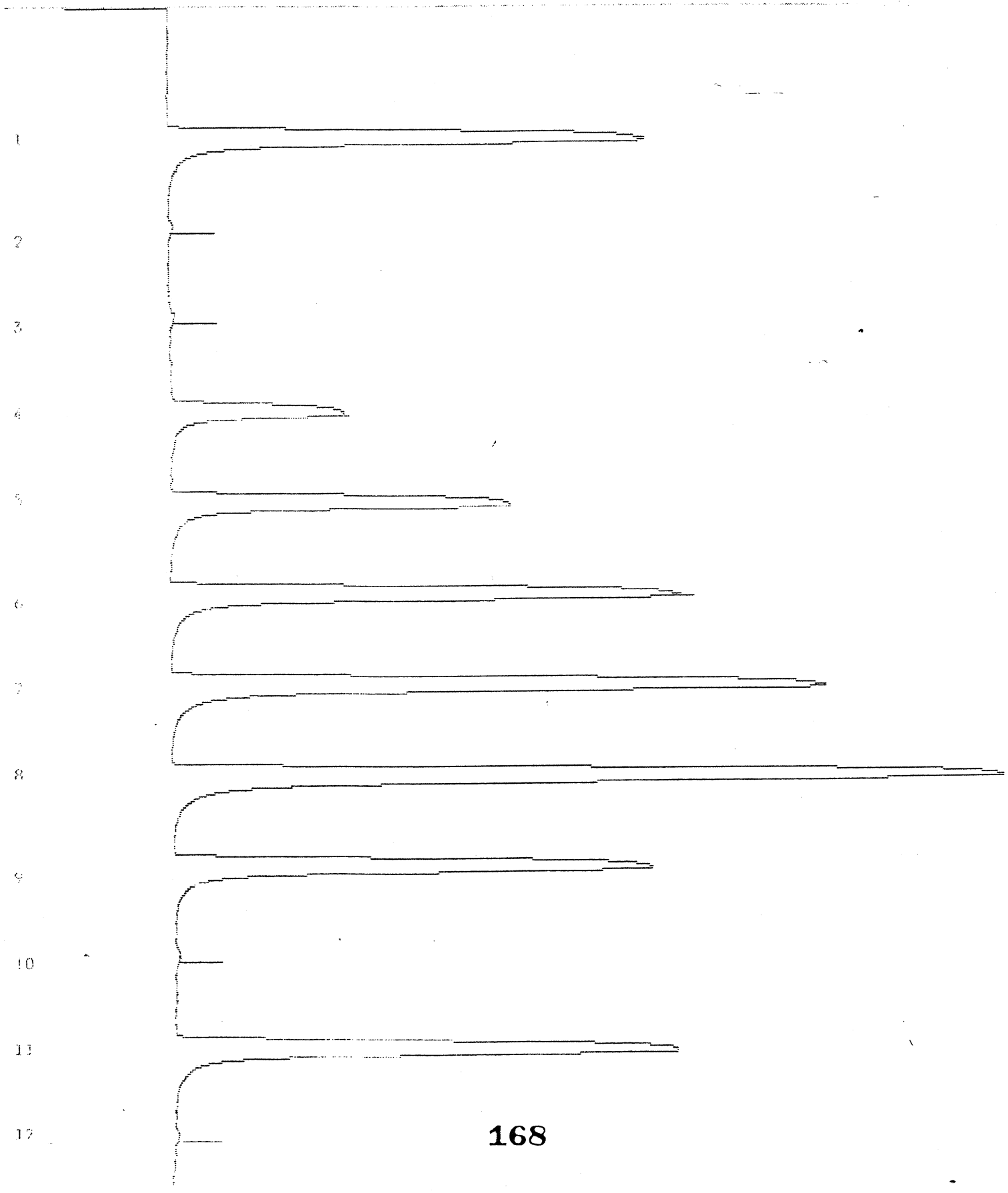

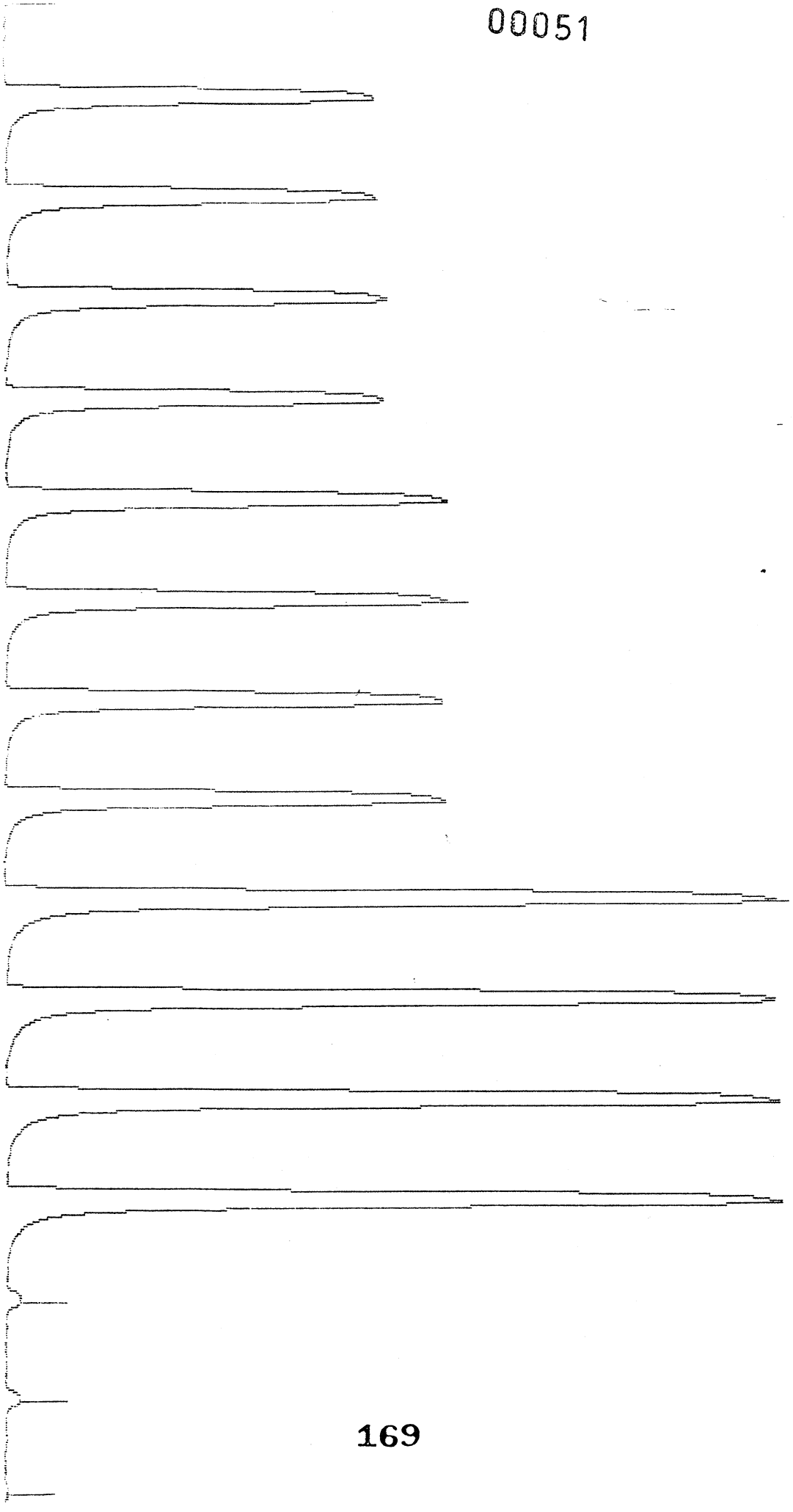

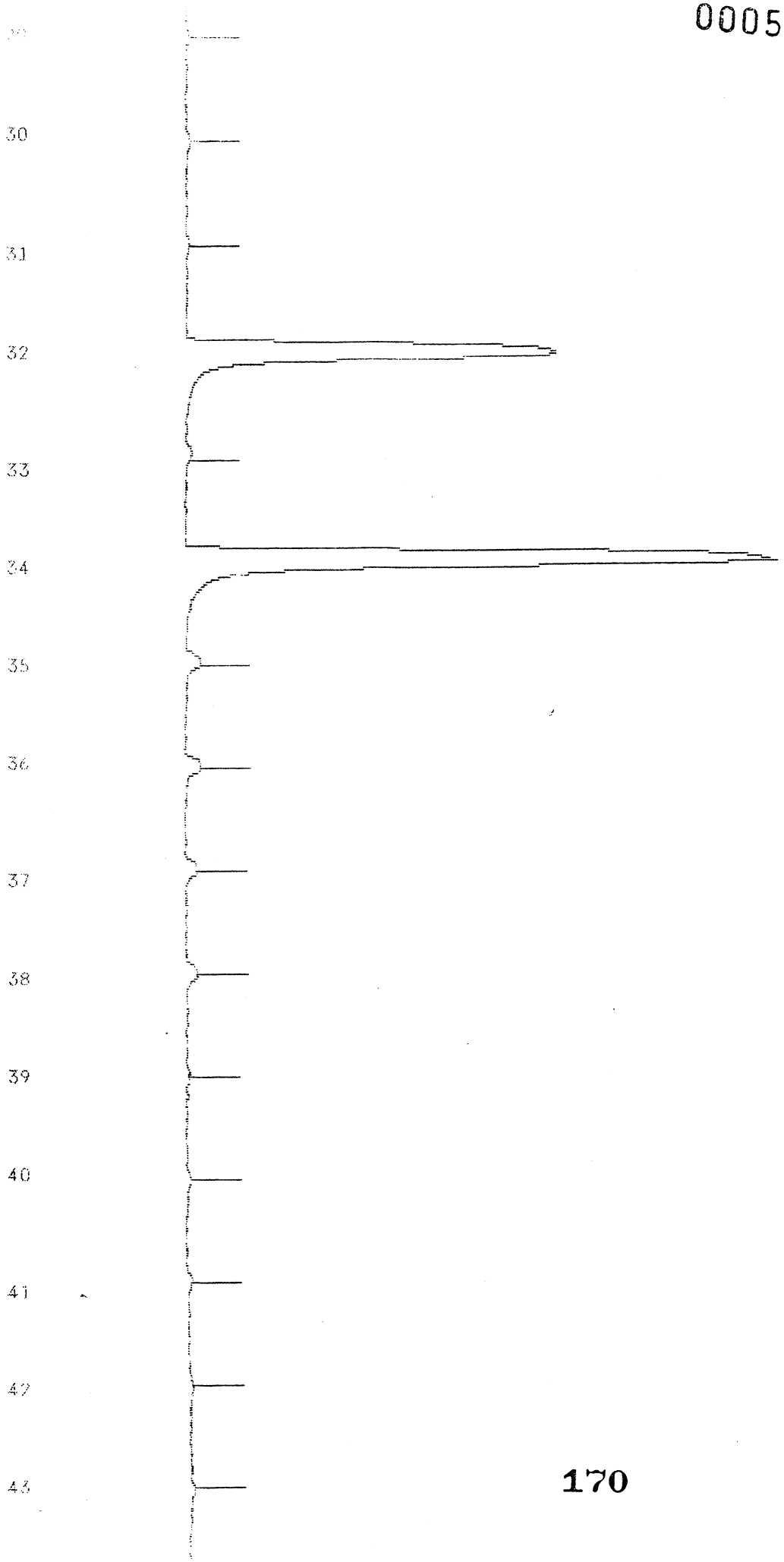
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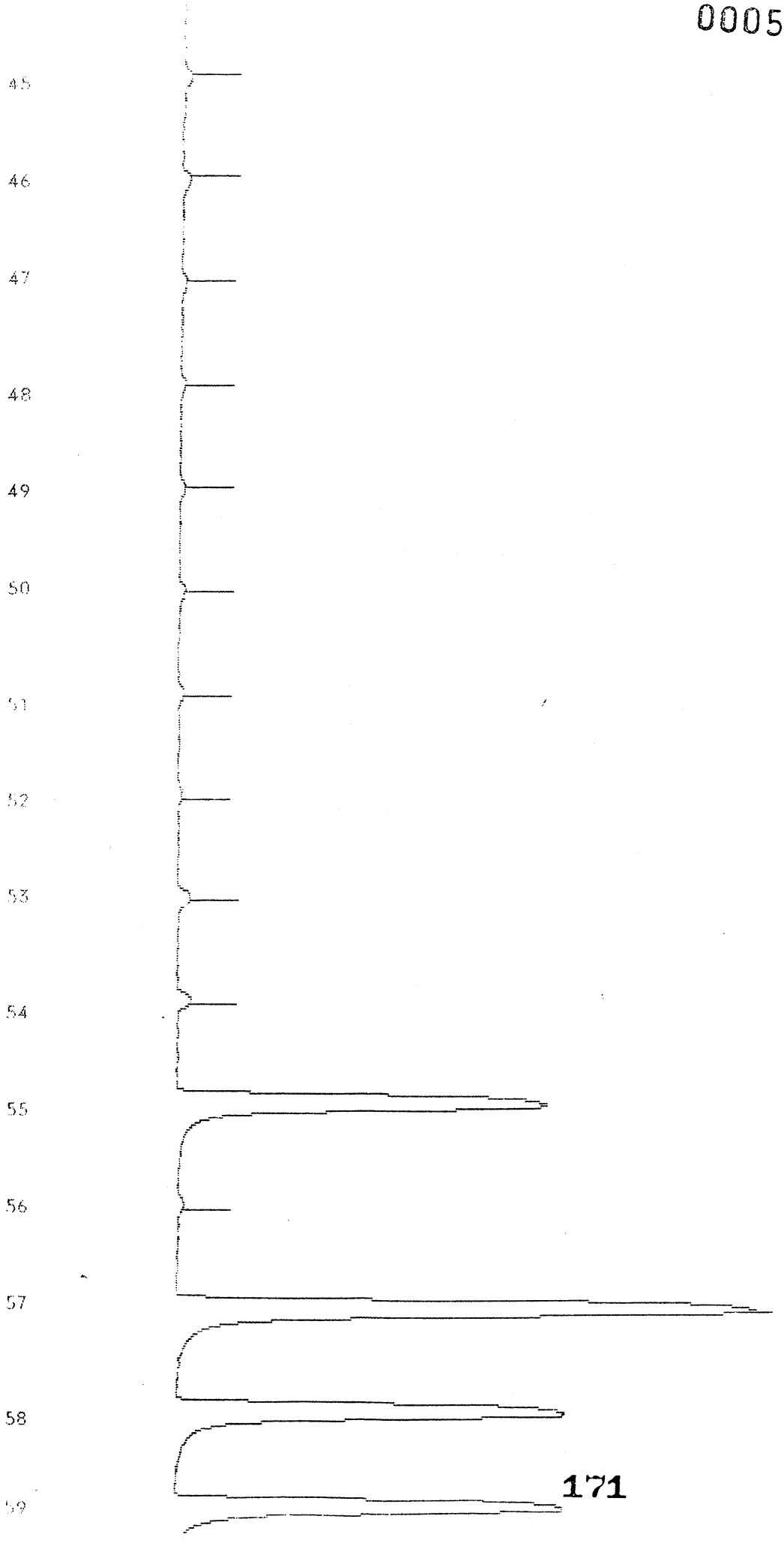
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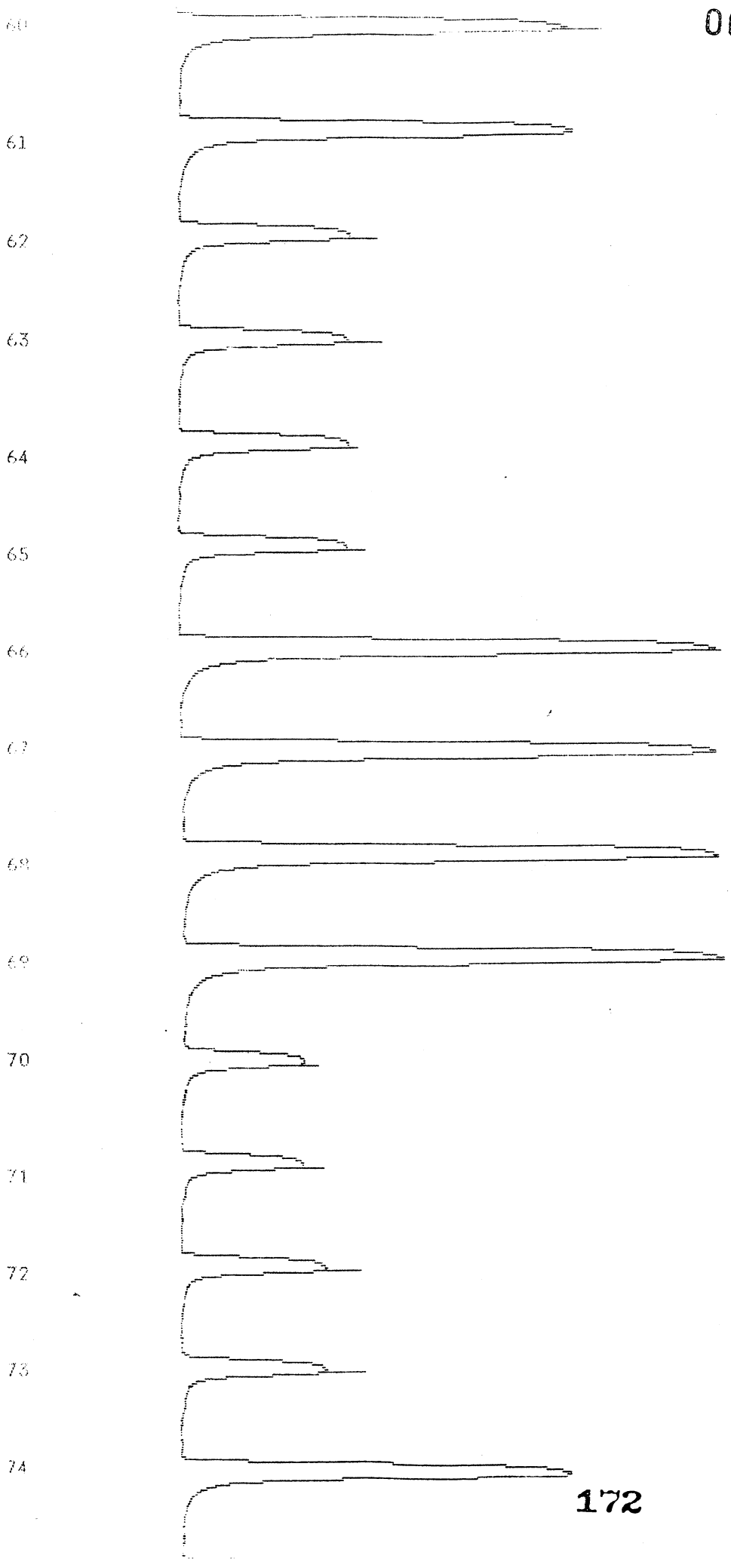
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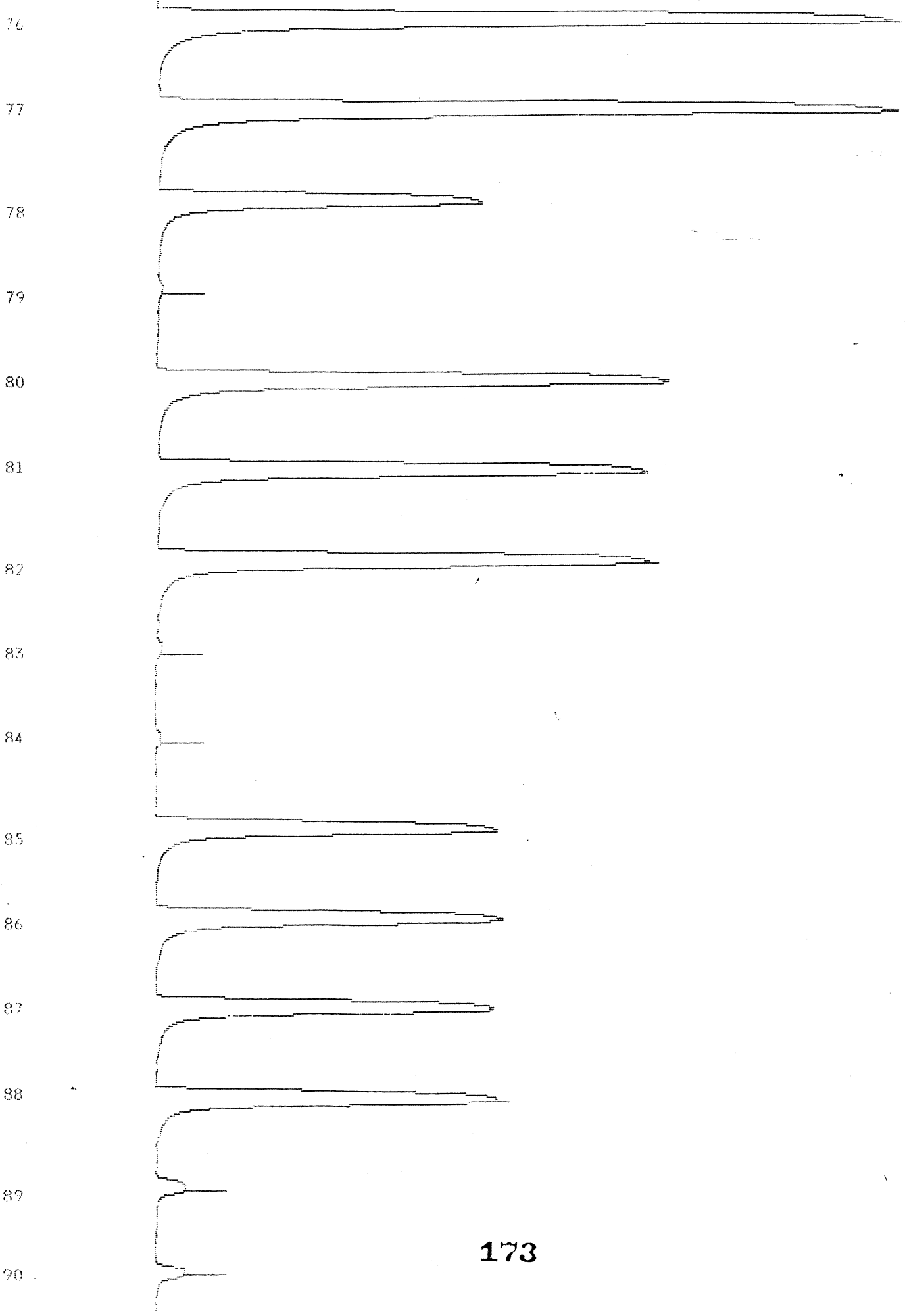
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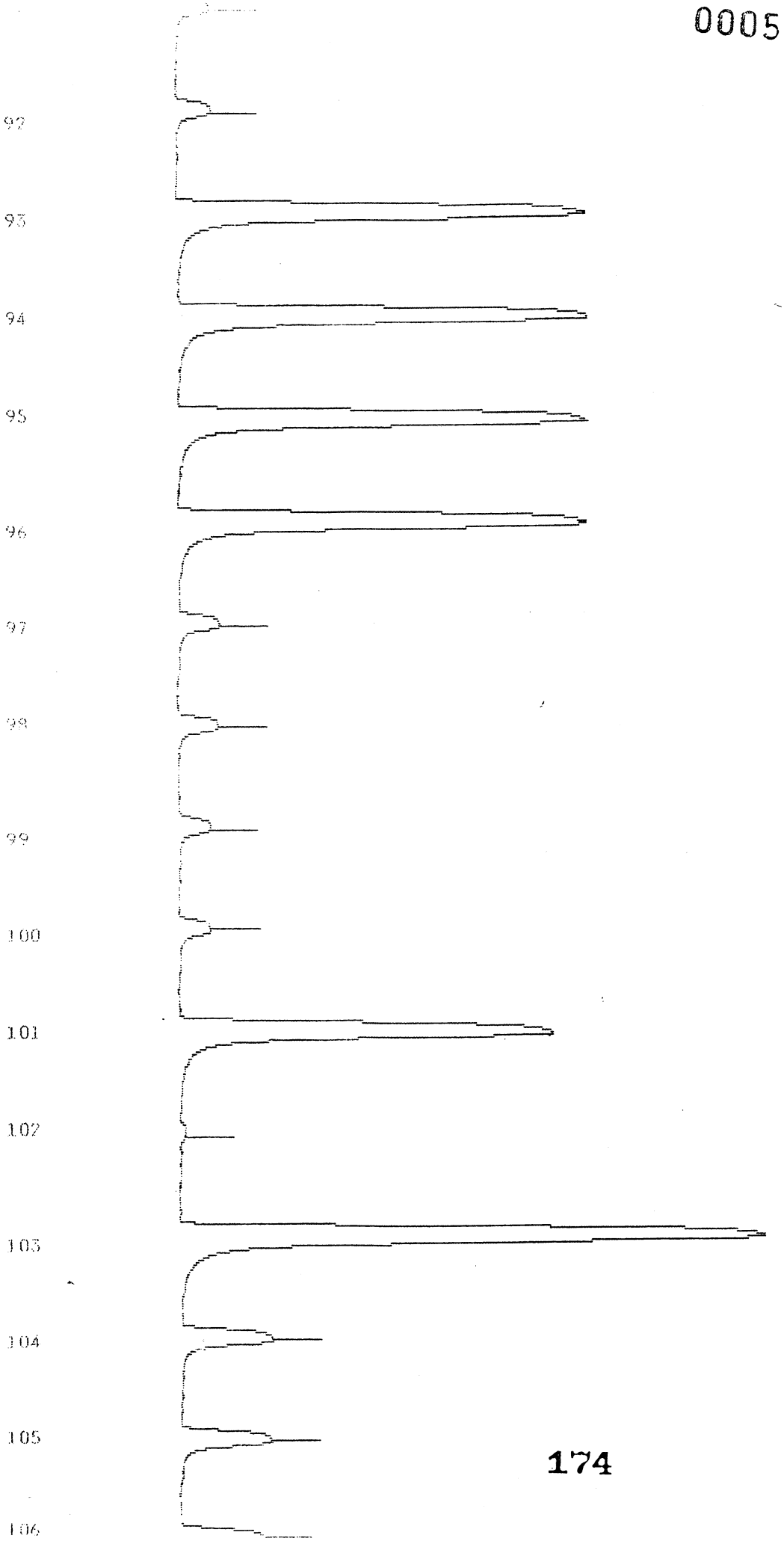
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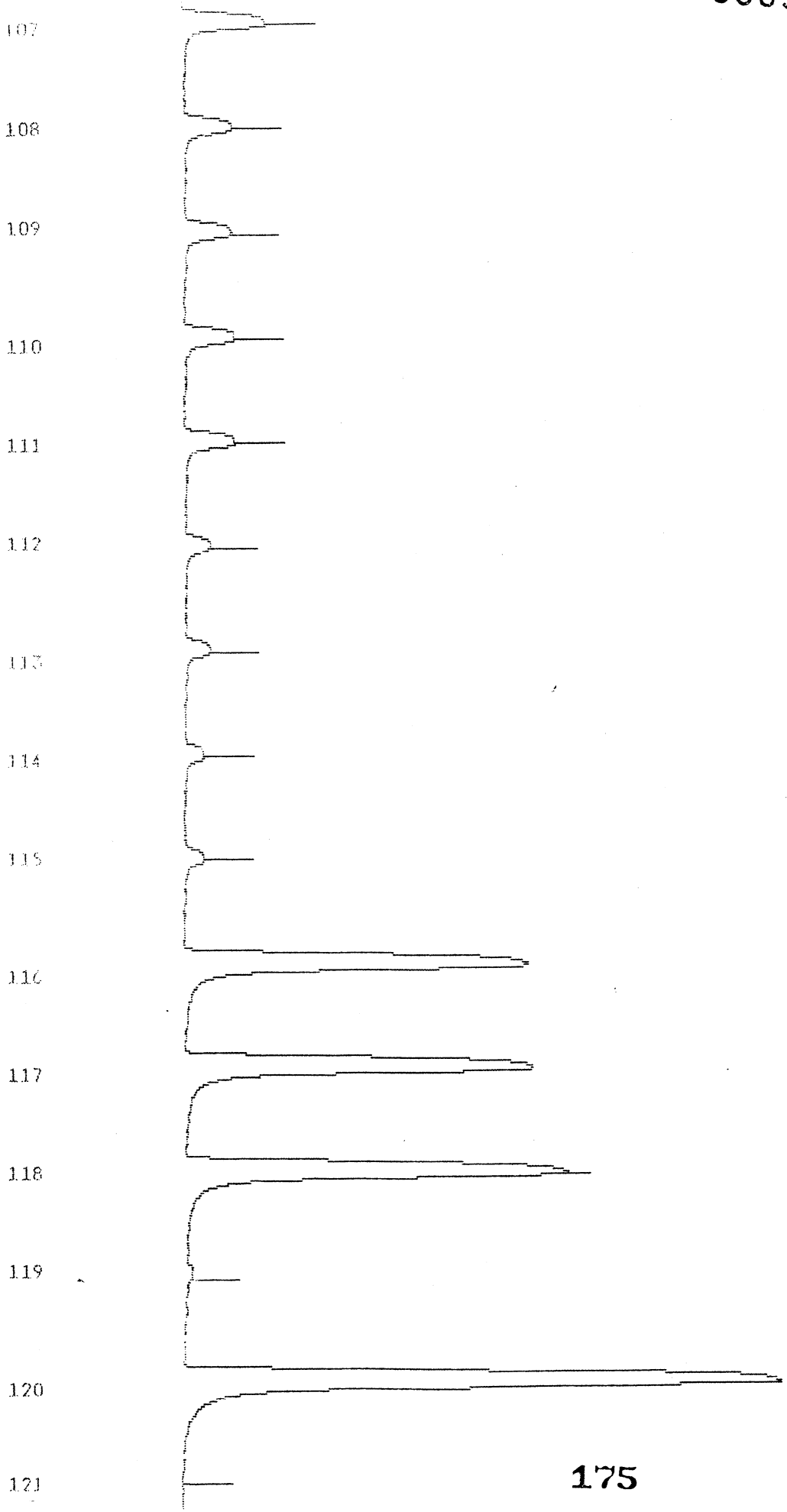
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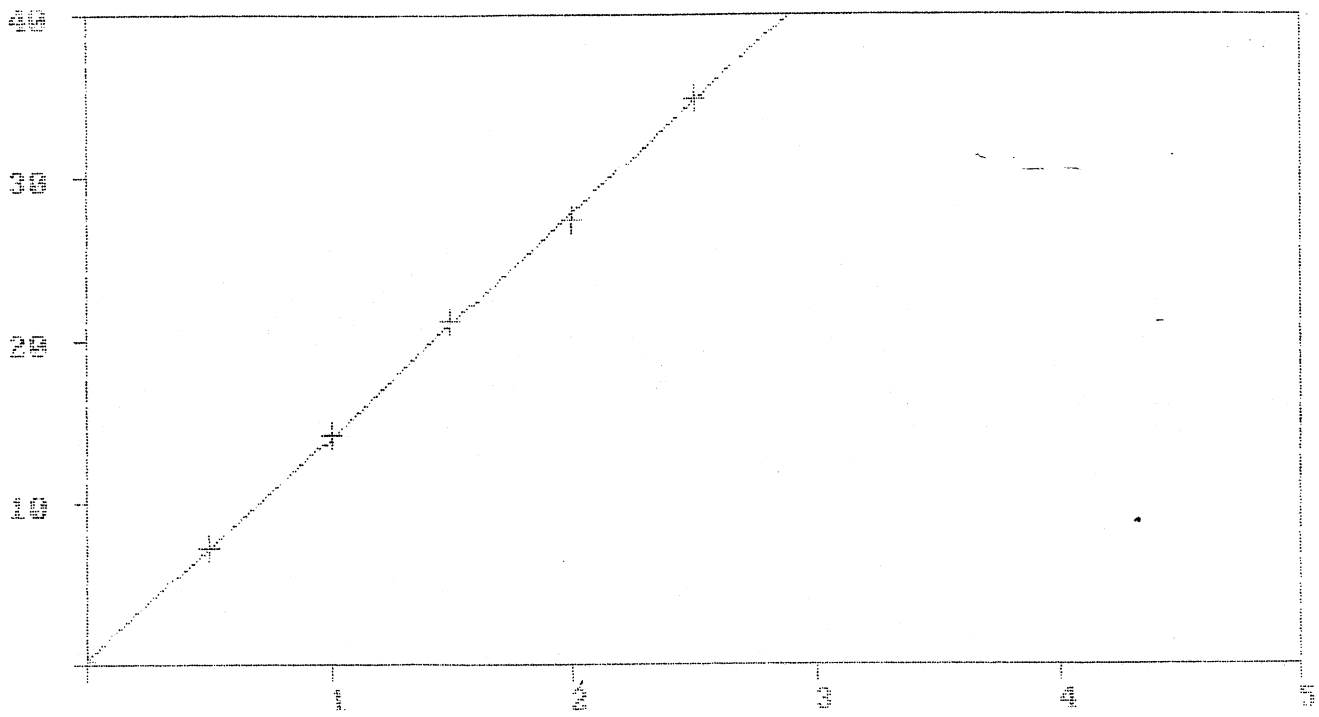
CHANNEL NAME: LDC
RUN NAME: 000329WA



DATA TYPE: FIA
CALIBRATION ORDER: 1
INTERCEPT = 0.30
SLOPE = 13.7408

CORRELATION: .9998737

ANNEL NAME: LDC
N DATE: 03-29-2000
MPLE TABLE NAME: 000329WA
THOD NAME: HG-W-20

µg/L

P#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	CONCENTRATION	EF
	PRIMER	1	1	20.0	1.432	s
	DUMMY	1	1	0.2	-0.009	I
	S1: 0	1	1	0.2	-0.007	I
	S2: .5	1	1	7.2	0.501	
	S3: 1	1	1	14.2	1.009	
	S4: 1.5	1	1	21.1	1.516	
	S5: 2	1	1	27.4	1.974	
	S6: 2.5	1	1	34.7	2.507	
	ICV	1	1	19.8	1.421	95%
0	B	1	1	0.0	-0.022	b
1	04	1	1	21.1	1.516	d
2	BL0329-MNF1 10617,10630	1	1	0.0	-0.022	I
3	BL0329-MNF1	1	1	0.0	-0.022	I
4	BL0329S	1	1	14.2	1.009	101%
5	BL0329S	1	1	14.1	1.002	
6	BL0329DS	1	1	14.6	1.039	103%
7	BL0329DS	1	1	14.5	1.034	
8	10624	1	1	16.8	1.205	
9	10624	1	1	16.9	1.206	

Total µg
<0.01
0.101
0.104
0.844
176

Xenon 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
)10387	MOSTARDI	MB R456	Mercury -	PV	-0.030	-99999.0	0.306	101.	0.308	103.	00/03/30	1BMN	00/03/30	MG02	65.	21.	
)10394	MOSTARDI	Reagent Blank 01/25	Mercury -	PV	-0.030						00/03/30	1BMN	00/03/30	MG02	65.	21.	
)10395	MOSTARDI	Reagent Blank 01/26	Mercury -	PV	-0.030						00/03/30	1BMN	00/03/30	MG02	64.	21.	
)10396	MOSTARDI	Reagent Blank 01/27	Mercury -	PV	-0.030						00/03/30	1BMN	00/03/30	MG02	63.	21.	
)10397	MOSTARDI	Reagent Blank 01/28	Mercury -	PV	-0.030						00/03/30	1BMN	00/03/30	MG02	62.	21.	
)10398	MOSTARDI	Unit 1/2 Stack-FB	Mercury -	PV	-0.100						00/03/30	1BMN	00/03/30	MG02	63.	21.	
)10399	MOSTARDI	Unit 3 Stack-FB	Mercury -	PV	-0.100						00/03/30	1BMN	00/03/30	MG02	65.	21.	
)10400	MOSTARDI	Unit 1 Inlet-FB	Mercury -	PV	-0.100						00/03/30	1BMN	00/03/30	MG02	63.	21.	
)10401	MOSTARDI	Unit 2 Inlet-FB	Mercury -	PV	-0.100						00/03/30	1BMN	00/03/30	MG02	63.	21.	
)10402	MOSTARDI	Unit 3 Inlet-FB	Mercury -	PV	-0.100						00/03/30	1BMN	00/03/30	MG02	65.	21.	
)10403	MOSTARDI	Unit 3 Stack-R1	Mercury -	PV	12.387	12.330	21.712	93.	21.816	95.	00/03/30	1BMN	00/03/30	MG02	65.	21.	*PDS*
BL0330	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.306	101.	0.308	103.	00/03/30	1BMN	00/03/30	MG02	$$$	$$$	
010404	MOSTARDI	Unit 3 Stack-R2	Mercury -	PV	16.553						00/03/30	2BMN	00/03/30	MG02	65.	21.	
010405	MOSTARDI	Unit 3 Stack-R3	Mercury -	PV	14.494						00/03/30	2BMN	00/03/30	MG02	64.	21.	
010406	MOSTARDI	Unit 1/2 Stack-R1	Mercury -	PV	16.969	17.026	36.092	95.	36.242	96.	00/03/30	2BMN	00/03/30	MG02	63.	21.	*PDS*
010407	MOSTARDI	Unit 1/2 Stack-R2	Mercury -	PV	16.856						00/03/30	2BMN	00/03/30	MG02	63.	21.	
010408	MOSTARDI	Unit 1/2 Stack-R3	Mercury -	PV	16.289						00/03/30	2BMN	00/03/30	MG02	62.	21.	
010409	MOSTARDI	Unit 3 Inlet-R1	Mercury -	PV	20.219						00/03/30	2BMN	00/03/30	MG02	65.	21.	
010410	MOSTARDI	Unit 3 Inlet-R2	Mercury -	PV	20.144						00/03/30	2BMN	00/03/30	MG02	65.	21.	
010411	MOSTARDI	Unit 3 Inlet-R3	Mercury -	PV	17.895						00/03/30	2BMN	00/03/30	MG02	64.	21.	
010412	MOSTARDI	Unit 1 Inlet-R1	Mercury -	PV	4.788						00/03/30	2BMN	00/03/30	MG02	63.	21.	
010413	MOSTARDI	Unit 1 Inlet-R2	Mercury -	PV	8.878						00/03/30	2BMN	00/03/30	MG02	63.	21.	
BL0330	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.310	103.	0.307	102.	00/03/30	2BMN	00/03/30	MG02	$$$	$$$	
010415	MOSTARDI	Unit 2 Inlet-R1	Mercury -	PV	1.866	1.854	3.729	93.	3.719	93.	00/03/30	3BMN	00/03/30	MG02	63.	21.	*PDS*
010416	MOSTARDI	Unit 2 Inlet-R2	Mercury -	PV	1.368						00/03/30	3BMN	00/03/30	MG02	63.	21.	
010617	MOSTARDI	MB R456	Mercury -	PV	-0.030	-99999.0	0.307	102.	0.309	103.	00/03/30	3BMN	00/03/30	MG02	37.	20.	
010620	MOSTARDI	Reagent Blank 02/22	Mercury -	PV	-0.030						00/03/30	3BMN	00/03/30	MG02	37.	20.	
010621	MOSTARDI	Reagent Blank 02/23	Mercury -	PV	-0.030						00/03/30	3BMN	00/03/30	MG02	36.	20.	
010622	MOSTARDI	Unit 1 Outlet-FB	Mercury -	PV	-0.100						00/03/30	3BMN	00/03/30	MG02	37.	20.	
010623	MOSTARDI	Unit 1 Inlet-FB	Mercury -	PV	-0.100						00/03/30	3BMN	00/03/30	MG02	37.	20.	
010624	MOSTARDI	Unit 1 Outlet-R1	Mercury -	PV	13.624						00/03/30	3BMN	00/03/30	MG02	37.	20.	
010625	MOSTARDI	Unit 1 Outlet-R2	Mercury -	PV	13.681						00/03/30	3BMN	00/03/30	MG02	37.	20.	
BL0330	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.307	102.	0.309	103.	00/03/30	3BMN	00/03/30	MG02	$$$	$$$	
010627	MOSTARDI	Unit 1 Inlet-R1	Mercury -	PV	11.414	11.433	20.824	94.	20.900	95.	00/03/30	4BMN	00/03/30	MG02	37.	20.	*PDS*
010629	MOSTARDI	Unit 1 Inlet-R3	Mercury -	PV	7.011						00/03/30	4BMN	00/03/30	MG02	36.	20.	
010630	MOSTARDI	MB R456	Mercury -	PV	-0.030	-99999.0	0.313	104.	0.306	102.	00/03/30	4BMN	00/03/30	MG02	51.	20.	
010634	MOSTARDI	Reagent Blank 02/08	Mercury -	PV	-0.030						00/03/30	4BMN	00/03/30	MG02	51.	20.	
010635	MOSTARDI	Reagent Blank 02/09	Mercury -	PV	-0.030						00/03/30	4BMN	00/03/30	MG02	50.	20.	
010636	MOSTARDI	Unit 1 Outlet-FB	Mercury -	PV	-0.100						00/03/30	4BMN	00/03/30	MG02	51.	20.	
010637	MOSTARDI	Unit 1 Inlet-FB	Mercury -	PV	-0.100						00/03/30	4BMN	00/03/30	MG02	51.	20.	
010638	MOSTARDI	Unit 1 Outlet-R1	Mercury -	PV	4.702						00/03/30	4BMN	00/03/30	MG02	51.	20.	
010639	MOSTARDI	Unit 1 Outlet-R2	Mercury -	PV	3.715						00/03/30	4BMN	00/03/30	MG02	51.	20.	
BL0330	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.313	104.	0.306	102.	00/03/30	4BMN	00/03/30	MG02	$$$	$$$	
010640	MOSTARDI	Unit 1 Outlet-R3	Mercury -	PV	3.946						00/03/30	5BMN	00/03/30	MG02	50.	20.	
010641	MOSTARDI	Unit 1 Inlet-R1	Mercury -	PV	5.423	5.395	10.157	95.	10.096	93.	00/03/30	5BMN	00/03/30	MG02	51.	20.	*PDS*
010642	MOSTARDI	Unit 1 Inlet-R2	Mercury -	PV	3.353						00/03/30	5BMN	00/03/30	MG02	51.	20.	
010643	MOSTARDI	Unit 1 Inlet-R3	Mercury -	PV	3.519						00/03/30	5BMN	00/03/30	MG02	50.	20.	
BL0330	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.299	100.	0.302	102.	00/03/30	5BMN	00/03/30	MG02	$$$	$$$	

00061

Xenon 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

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

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
)10387	MOSTARDI	MB R456	Mercury -	PV	-0.010	-99999.0	0.098	98.	0.097	97.	00/03/30	6BHY	00/03/30	MG02	65.	21.	*BLKIMP*
)10394	MOSTARDI	Reagent Blank 01/25	Mercury -	PV	-0.010						00/03/30	6BHY	00/03/30	MG02	65.	21.	
)10617	MOSTARDI	MB R456	Mercury -	PV	-0.010	-99999.0	0.098	98.	0.097	97.	00/03/30	6BHY	00/03/30	MG02	37.	20.	*BLKIMP*
)10620	MOSTARDI	Reagent Blank 02/22	Mercury -	PV	-0.010						00/03/30	6BHY	00/03/30	MG02	37.	20.	
)10630	MOSTARDI	MB R456	Mercury -	PV	-0.010	-99999.0	0.098	98.	0.097	97.	00/03/30	6BHY	00/03/30	MG02	51.	20.	*BLKIMP*
)10634	MOSTARDI	Reagent Blank 02/08	Mercury -	PV	-0.010						00/03/30	6BHY	00/03/30	MG02	51.	20.	
3L0330	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.098	98.	0.097	97.	00/03/30	6BHY	00/03/30	MG02	$$$	$$$	*BLKIMP*

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

181

00063

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
010394	MOSTARDI	Reagent Blank 01/25	Mercury -	PV	-0.010						00/03/30	6BHY	00/03/30	MG02	65.	21.	
010620	MOSTARDI	Reagent Blank 02/22	Mercury -	PV	-0.010						00/03/30	6BHY	00/03/30	MG02	37.	20.	
010634	MOSTARDI	Reagent Blank 02/08	Mercury -	PV	-0.010						00/03/30	6BHY	00/03/30	MG02	51.	20.	

3 Tests for OHHNO3 with an MDL of 0.010 ug Validated By CMB Control Chart Updated N/A IO Requirements met N/A

182

00064

LDC AUTOSAMPLER RUN LOG (MERCURY) 00065 3

Date: 20.03.30 WA Run Code: MG02 Matrix: IMP

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			BL0330	1BMN		
13			"			
14			BL0330S			
15			"			
16			BL0330 DS			
17			"			
18		1/10	10403			
19			"			
20			10403 D			
21			"			
22			10403 S			
23			"			
24			10403 DS			
25			"			
26			10394			
27			"			
28			10395			
29			"	10396 "		
30			10397			
31			"			
32			CCV			
33			B			
34			D4			
35			10398			
36			"			
37			10399			
38			"			
39			10400			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			10401			
42			"			
43			10402			
44			"			
45			BL0330	2BMN		
46			"			
47			BL0330S			
48			"			
49			BL0330 DS			
50			"			
51		1/20	10406			
52			"			
53			10406 D			
54			"			
55			CCV			
56			B			
57			D4			
58		1/20	10406 S			
59			"			
60			10406 DS			
61			"			
62		1/20	10404			
63			"			
64			10405			
65			"			
66			10407			
67			"			
68			10408			
69			"			
70			10409			
71			"			
72			10410			
73			"			
74			~~10411~~ 10411 MS			
75			"			
76		1/4	10412			
77			"			
78			CCV			
79			B			
80			D4			

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

00066

2/3

Date: 00.03.30 wA Run Code: M602 Matrix: IMP.

Analyst: MG Units: ug (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						
81 X 21		1/4	10413			
22		↓	"			
23			BL0330	3BMN		
24			"			
25			BL0330 S			
26			"			
27			BL0330 DS			
28			"			
29		1/2	10415			
30			"			
31			10415 D			
32			"			
33			10415 S			
34			"			
35			10415 DS			
36			"			
37	MP		10414	1x		
38			"			
39		1/2	10416			
40		↓	"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			CCV			
42			B			
43			D4			
44		1/20	10417			
45		↓	"			
46			10620			
47			"			
48			10621			
49			"			
50			10622			
51			"			
52			10623			
53			"			
54		1/20	10624			
55		↓	"			
56		1/8	10625			
57		↓	"			
58			BL0330	ABMN		
59			"			
60			BL0330 S			
61			"			
62			BL0330 DS			
63			"			
64			CCV			
65			B			
66			D4			
67		1/10	10627			
68			"			
69			10627 D			
70			"			
71			10627 S			
72			"			
73			10627 DS			
74		↓	"			
75			10626			
76			"			
77		1/4	10628			
78			"			
79			10629			
80			"			

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

00067

3/3

Date: 00.03.30 WA Run Code: MG02 Matrix: WP

Analyst: MG Units: ug (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						
141 21			10634			
22			"			
23			10635			
24			"			
25			10636			
26			"			
27			CCV			
28			B			
29			D4			
30			10637			
31			"			
32		1/4	10638			
33		↓	"			
34			10639			
35		↓	"			
36			BL0330	5BMN		
37			"			
38			BL0330 S			
39			"			
40			BL0330 DS			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			BL0330 DS			
42		1/5	10641			
43		↓	"			
44			10641 D			
45			"			
46			10641 S			
47			"			
48			10641 DS			
49		↓	"			
50			CCV			
51			B			
52			D4			
53		1/4	10640			
54		↓	"			
55			10642			
56			"			
57			10643			
58		↓	"			
59			BL0330	6BHY		
60			"			
61			BL0330 S			
62			"			
63			BL0330 DS			
64			"			
65			10620			
66			"			
67			10634			
68			"			
69			10394			
70			"			
71			10620	0.1N HNO_3		
72			"	↓		
73			10634			
74			"			
75			10394			
76			"	↓		
77			CCV			
78			B			
79			D4			
80						

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

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

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

00068

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

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
8	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
- N/A Bath at 95 degrees C
- N/A Samples digested
- ✓ Hydroxylamine HCl added
- ✓ Samples shaken and bulked
- ✓ Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	48MN	20 ml	30 ml	1 X	1.5 ppb = 600 ul of MES-ZENO 30/QCA (Ref Std)
	10	BL 0330	"	"	"	"	(Processed Blank) 10630 M.B.
	11	BL 0330 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	12	BL 0330 DS					(Duplicate Blank Spike)
1	13	10627	"	"	"	"	FV=1000ml
1	14	D	"	"	"	"	(Duplicate sample)
1	15	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	16	DS	"	"	"	"	(Duplicate Spiked sample)
2	17	10626	"	"	"	"	FV=1000ml
3	18	628	"	"	"	"	↓
4	19	629	"	"	"	"	↓
5	20	10634	"	"	"	"	FV=50ml
6	21	35	"	"	"	"	FV=50ml
7	22	36	"	"	"	"	FV=1000ml
8	23	37	"	"	"	"	↓
9	23	38	"	"	"	"	↓
10	24	39	"	"	"	"	↓
	25	CCV (Cont. Calib. Verif.)	-	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)
	26	BL 0330	56MN	20 ml	30 ml	"	(Processed Blank)
	27	BL 0330 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	28	BL 0330 DS				-	(Duplicate Blank Spike)
1	29	10641	"	"	"	"	FV=1000ml
1	30	D	"	"	"	"	(Duplicate sample)
1	31	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	32	DS	"	"	"	"	(Duplicate Spiked sample)
2	33	10640	"	"	"	"	↓
3	34	42	"	"	"	"	↓
4	35	43	"	"	"	"	↓
5	36		"	"	"	"	
6	37		"	"	"	"	
7	38		"	"	"	"	
8	39		"	"	"	"	
9	40		"	"	"	"	
10	41		"	"	"	"	
	42	CCV (Cont. Calib. Verif.)	-	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Comments

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

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

DG29HGI, DG29HGF, DG101AA1, DG101AA2

Effective 000216

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

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
8	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 shaken and bulked
- ✓ 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 MES-ZENO 30/QCA (Ref Std)
	10	BL 0330	"	"	"	"	(Processed Blank) 10387-MB
	11	BL 0330 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	12	BL 0330 DS					(Duplicate Blank Spike)
1	13	10403	"	"	"	"	FV=1000ml
1	14	D	"	"	"	"	(Duplicate sample)
1	15	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	16	DS	"	"	"	"	(Duplicate Spiked sample)
2	17	10394	"	"	"	"	FV=50ml
3	18	95	"	"	"	"	
4	19	96	"	"	"	"	
5	20	97	"	"	"	"	
6	21	98	"	"	"	"	FV=1000ml
7	22	99	"	"	"	"	
8	23	10400	"	"	"	"	
9	23	401	"	"	"	"	
10	24	402	"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	-	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)
	26	BL 0330	2BMN	20 ml	30 ml	"	(Processed Blank)
	27	BL 0330 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	28	BL 0330 DS					(Duplicate Blank Spike)
1	29	10406	"	"	"	"	FV=1000ml
1	30	D	"	"	"	"	(Duplicate sample)
1	31	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	32	DS	"	"	"	"	(Duplicate Spiked sample)
2	33	10404	"	"	"	"	
3	34	405	"	"	"	"	
4	35	407	"	"	"	"	
5	36	408	"	"	"	"	
6	37	409	"	"	"	"	
7	38	410	"	"	"	"	
8	39	411	"	"	"	"	
9	40	412	"	"	"	"	
10	41	413	"	"	"	"	
	42	CCV (Cont. Calib. Verif.)	-	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Comments

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

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

DG29HGI, DG29HGF, DG101AA1, DG101AA2

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

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
8	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 shaken and bulked
- ✓ Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	6BHY	20 ml	30 ml	1 X	1.5 ppb = 600 ul of MES-ZENO 30/QCA (Ref Std)
	10	BL 0330	"	"	"	"	(Processed Blank) 10617MB, 10630, 10387
	11	BL 0330 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	12	BL 0330 DS					(Duplicate Blank Spike)
1	13	10620	"	"	"	"	FV= 115ml
1	14	D	"	"	"	"	(Duplicate sample)
1	15	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	16	DS	"	"	"	"	(Duplicate Spiked sample)
2	17	10634	"	"	"	"	FV=115ml
3	18	10394	"	"	"	"	FV=115ml
4	19	10620(0.1N HNO_3)	"	"	"	"	FV=55ml
5	20	10634(0.1N HNO_3)	"	"	"	"	FV=50ml
4B 03.30 6	21	~~106~~ 10394(0.1N HNO_3)	"	"	"	"	FV=50ml
7	22		"	"	"	"	
8	23		"	"	"	"	
9	23		"	"	"	"	
10	24		"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)
	26	BL		20 ml	30 ml	"	(Processed Blank)
	27	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	28	BL DS					(Duplicate Blank Spike)
1	29		"	"	"	"	
1	30	D	"	"	"	"	(Duplicate sample)
1	31	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	32	DS	"	"	"	"	(Duplicate Spiked sample)
2	33		"	"	"	"	
3	34		"	"	"	"	
4	35		"	"	"	"	
5	36		"	"	"	"	
6	37		"	"	"	"	
7	38		"	"	"	"	
8	39		"	"	"	"	
9	40		"	"	"	"	
10	41		"	"	"	"	
	42	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Comments

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

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

DG29HGI, DG29HGF, DG101AA1, DG101AA2

00071

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	43	BL 0330	38MN	"	"	"	(Processed Blank) 10617MB.
	44	BL 0330 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	45	BL 0330 DS					(Duplicate Blank Spike)
1	46	10415	"	"	"	"	FV=1000ml
1	47	D	"	"	"	"	(Duplicate sample)
1	48	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	49	DS	"	"	"	"	(Duplicate Spiked sample)
2	50	10414	"	"	"	"	↓
3	51	416	"	"	"	"	↓
4	52	417	"	"	"	"	↓
5	53	10620	"	"	"	"	FV=50ml
6	54	621	"	"	"	"	FV=47ml
7	55	10622	"	"	"	"	FV=1000ml
8	56	23	"	"	"	"	↓
9	57	24	"	"	"	"	↓
10	58	25	"	"	"	"	↓
	57	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Procedure/Methodology:

1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO_3
2 Prepare 0.05 ppm Working standard daily by pipetting 200 ul., of 25 ppm Intermediate to 100 ml final volume of 2% HNO_3
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 Include one External Reference Material sample per run
7 Incude one Organic Mercury Control Standard per run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 6% $KMnO_4$, purple colour must remain for at least 15 minutes
12 Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$), to each tube
13 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
14 Remove tubes and allow to cool to room temperature
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless
17 Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	N-HG-2019	00/04/01
Intermediate Cal Standard	Internal	00/03/09 A	00/04/09
Stock Reference Standard	High Purity	836309	00 Feb.
External Reference Material	SPEX		
Organic Mercury Control Standard	Aldrich		
6% potassium permanganate	Internal AB 00.03.30	00/03/10 B C	00/05/10
5% potassium persulphate	Internal	00/02/15 B	00/04/15
20% hydroxylamine hydrochloride	Internal	00/03/10 A	00/05/10
HNO_3	Anachemia	1100010	00/05/13
H_2SO_4	Anachemia	319020	00/04/21
Bath Temps: 1 1 C	Time ON:	Time OFF:	
Prepared By: AB	Date: 00 03 30	Checked by: MB	

00072

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	43	BL		"	"	"	(Processed Blank)
	44	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	45	BL DS					(Duplicate Blank Spike)
1	46		"	"	"	"	
1	47	D	"	"	"	"	(Duplicate sample)
1	48	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	49	DS	"	"	"	"	(Duplicate Spiked sample)
2	50		"	"	"	"	
3	51		"	"	"	"	
4	52		"	"	"	"	
5	53		"	"	"	"	
6	54		"	"	"	"	
7	55		"	"	"	"	
8	56		"	"	"	"	
9	57		"	"	"	"	
10	58		"	"	"	"	
	57	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Procedure/Methodology:

1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO_3
2 Prepare 0.05 ppm Working standard daily by pipetting 200 ul., of 25 ppm Intermediate to 100 ml final volume of 2% HNO_3
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 Include one External Reference Material sample per run
7 Incude one Organic Mercury Control Standard per run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 6% $KMnO_4$, purple colour must remain for at least 15 minutes
12 Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$), to each tube
13 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
14 Remove tubes and allow to cool to room temperature
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless
17 Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	N-HG-02019	00/04/01
Intermediate Cal Standard	Internal	00/03/09A	00/04/09
Stock Reference Standard	High Purity	836309	00 Feb
External Reference Material	SPEX		
Organic Mercury Control Standard	Aldrich		
6% potassium permanganate	Internal AB 00-03-30	00/03/10 B-C	00/05/10
5% potassium persulphate	Internal	00/02/15 B	00/04/15
20% hydroxylamine hydrochloride	Internal	00/03/10 A	00/05/10
HNO_3	Anachemia	1100010	00/05/13
H_2SO_4	Anachemia	319020	00/04/21
Bath Temps: 1 1 C	Time ON:	Time OFF:	
Prepared By: AB	Date: 00-03-30	Checked by: CMB	

RUN DATE: 03-30-2000 CHART DATE: 03-31-2000
CHART SPEED: 30
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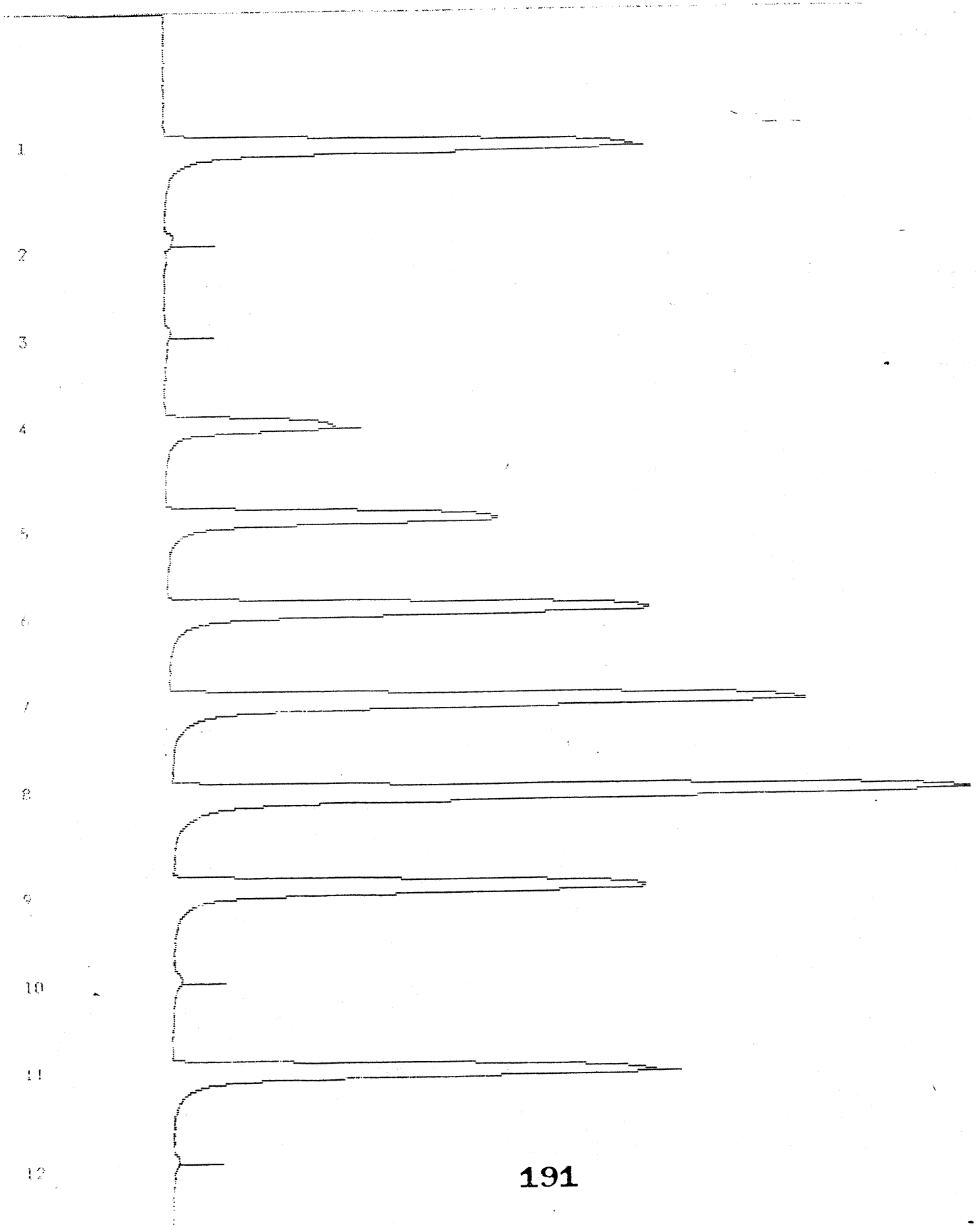

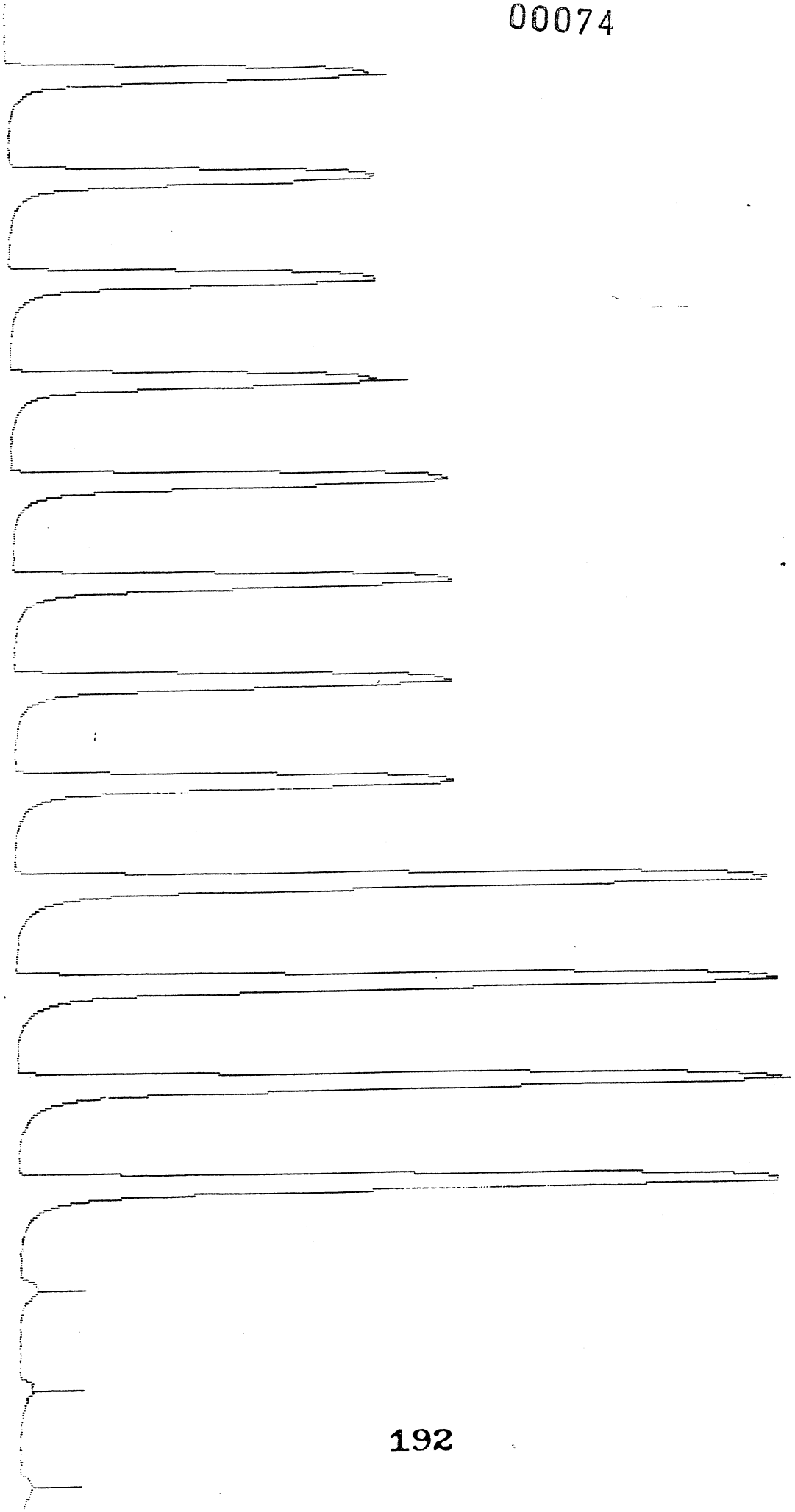

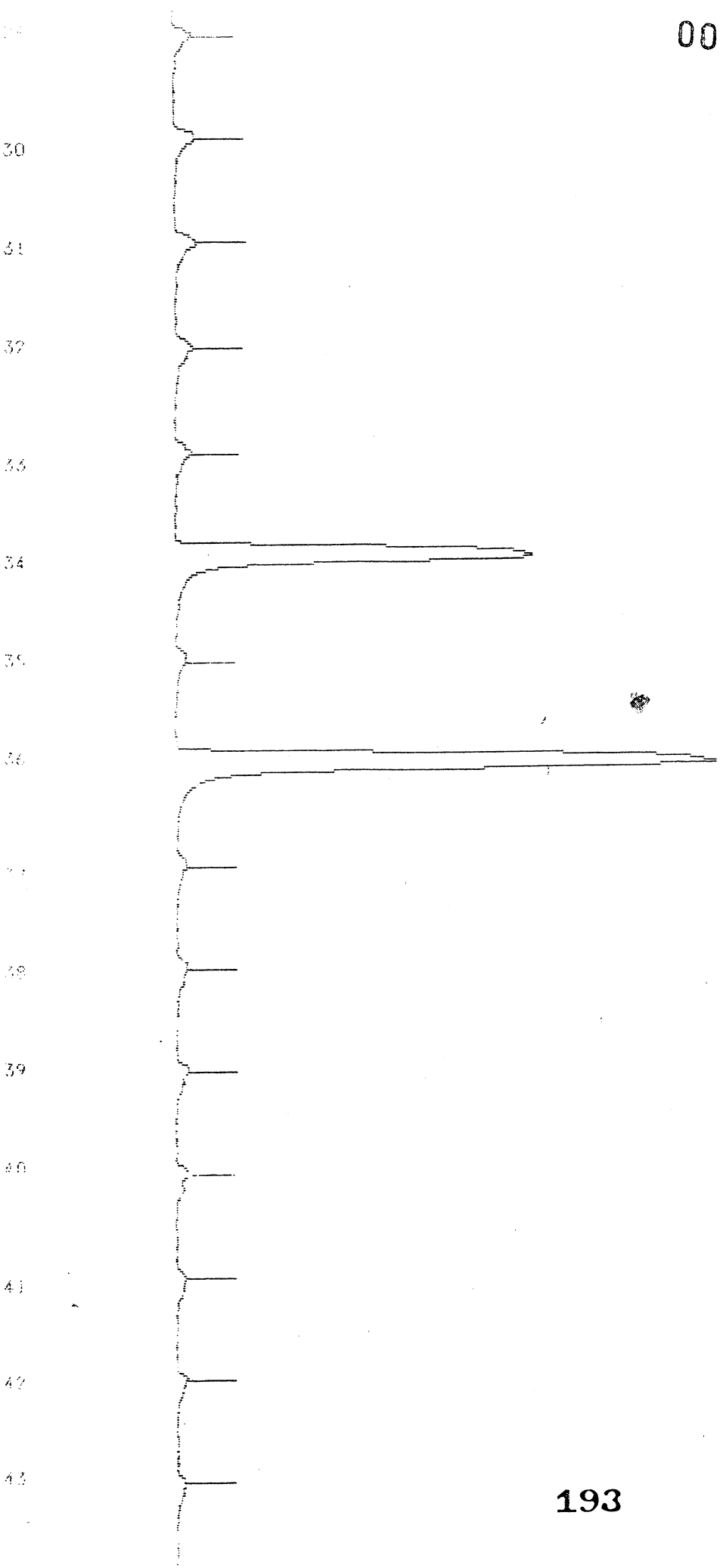
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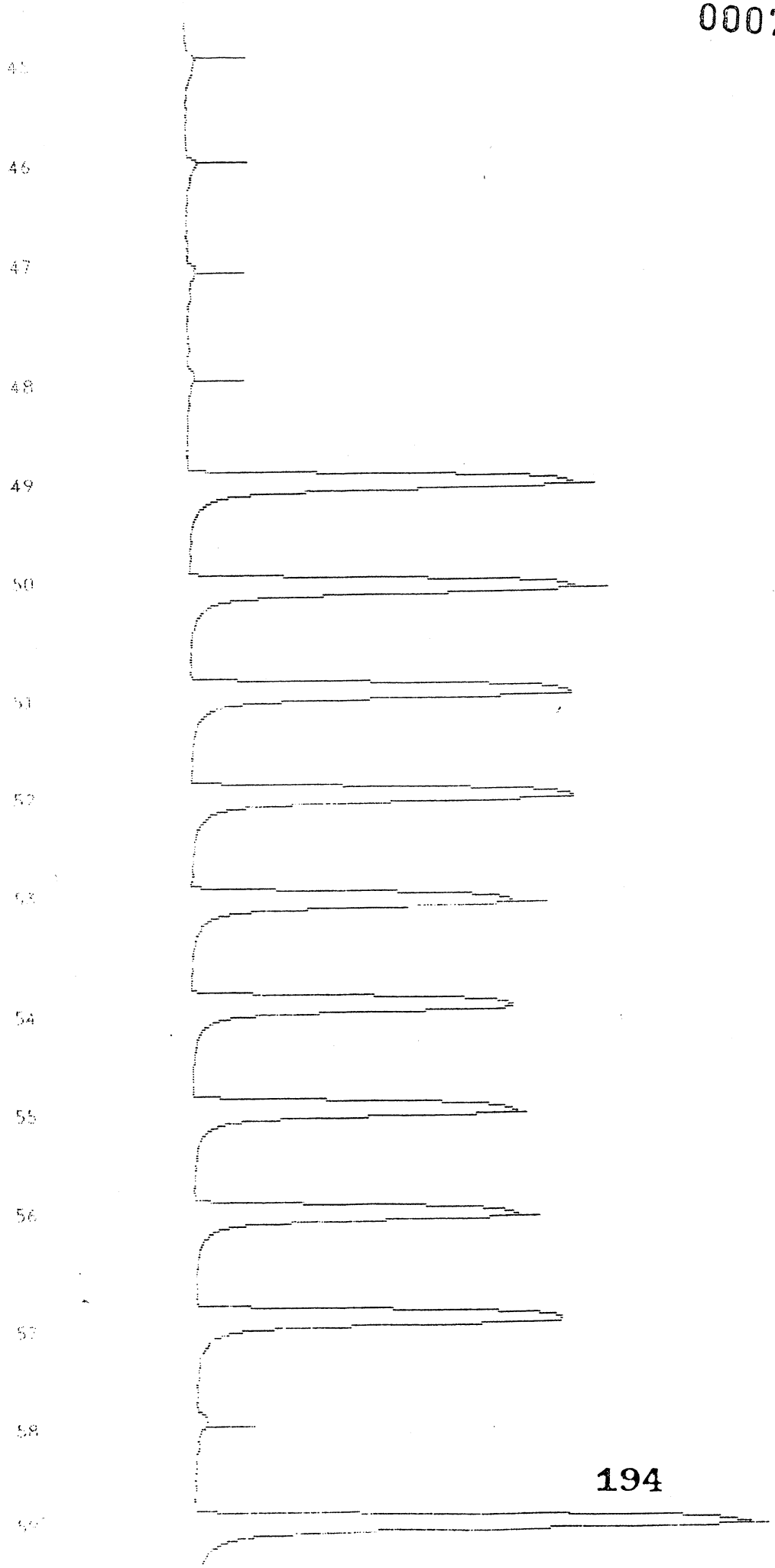

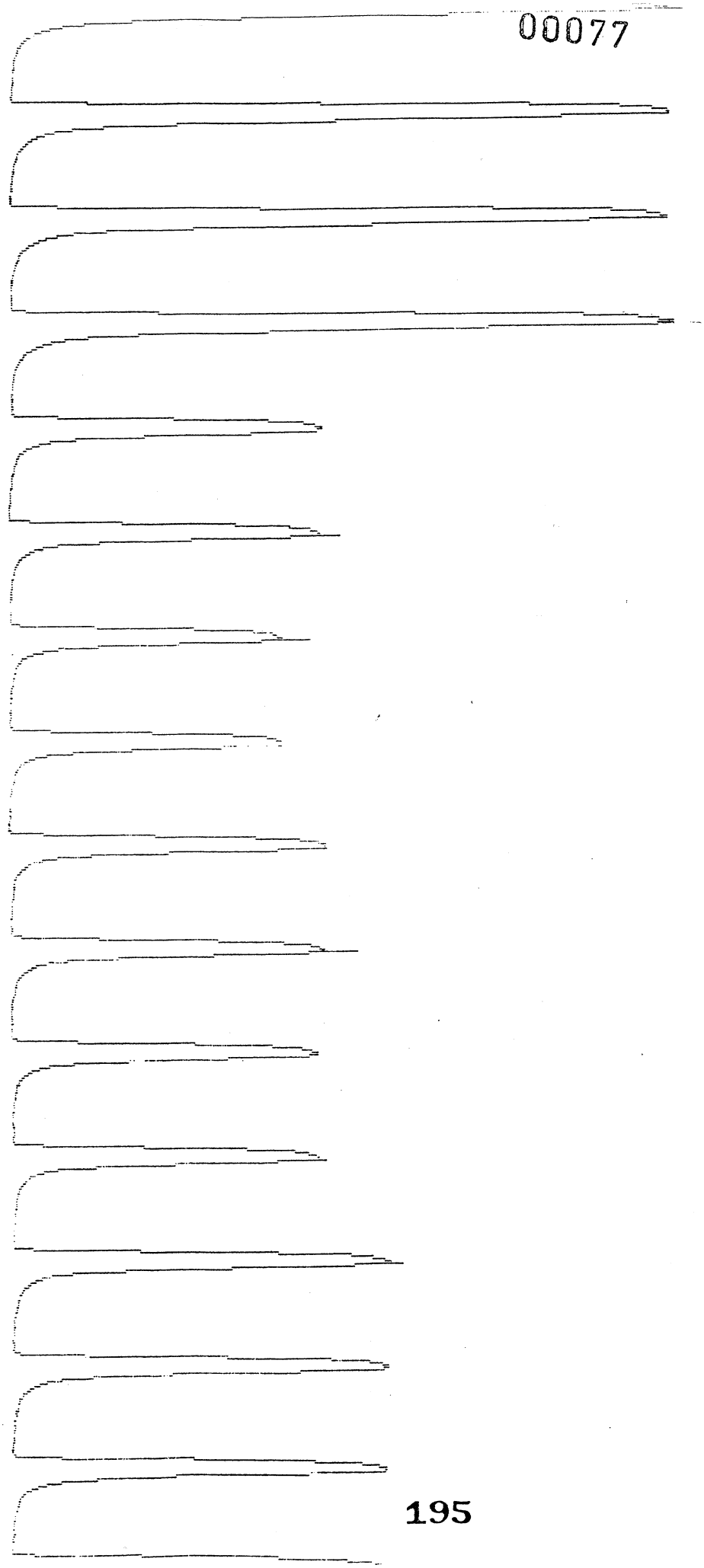

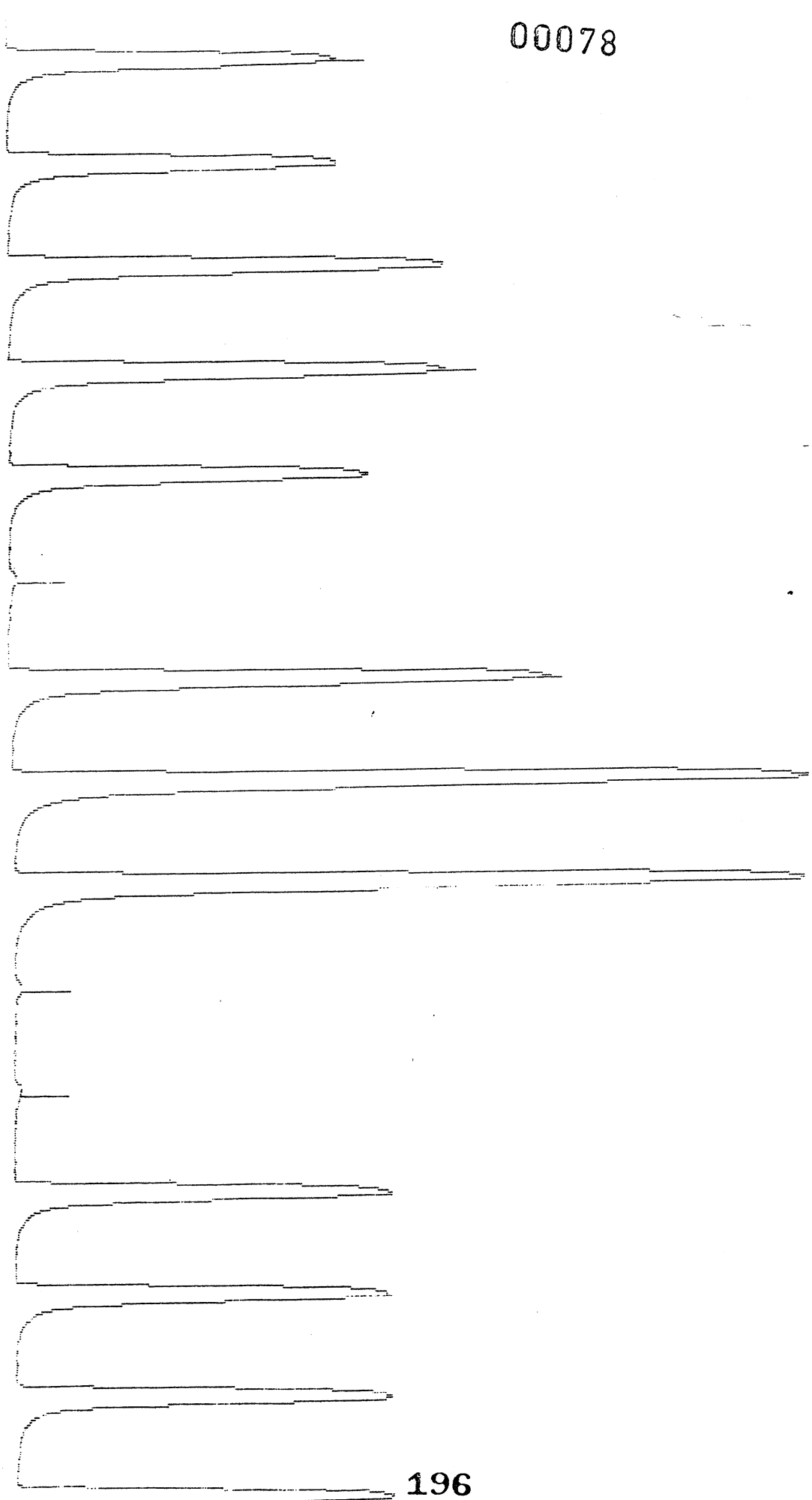

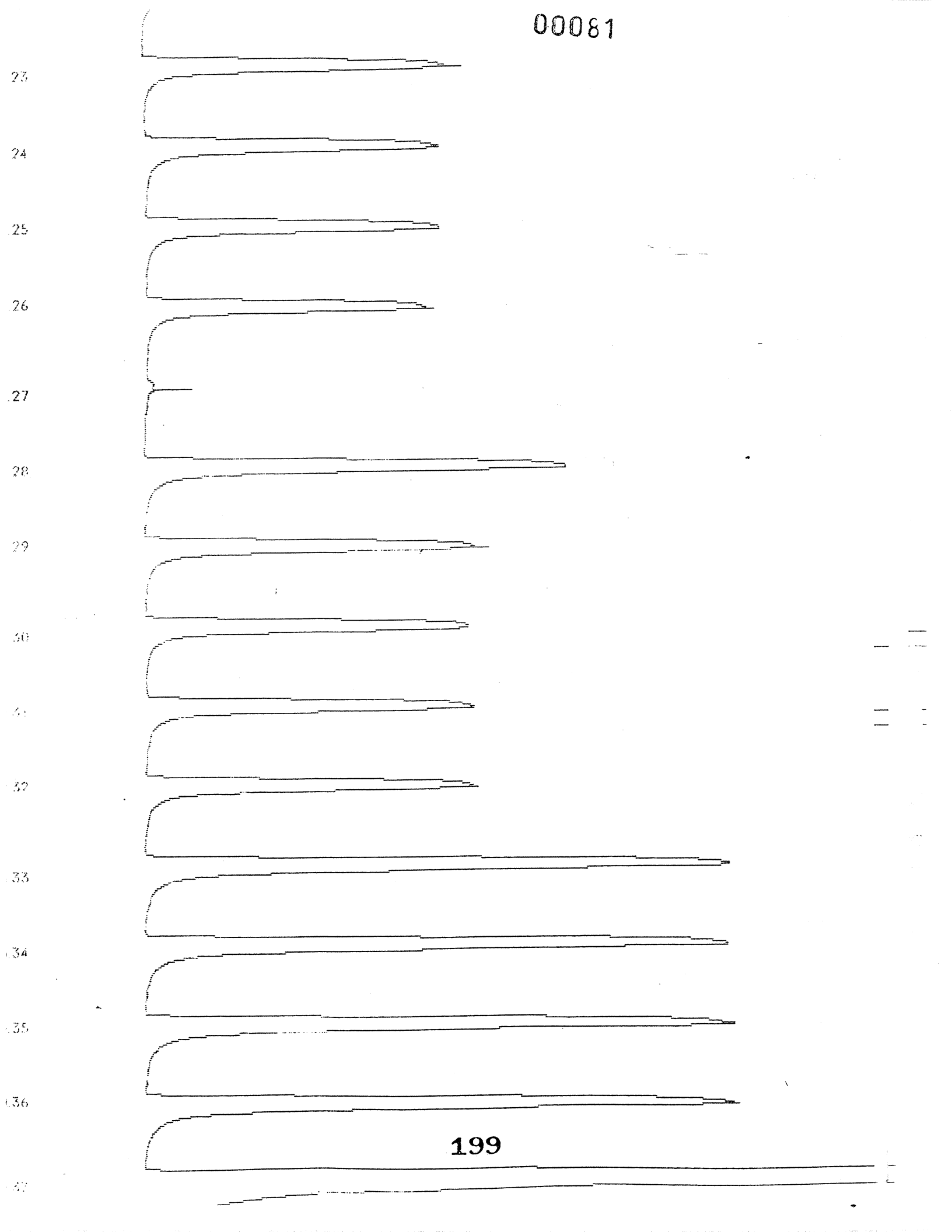

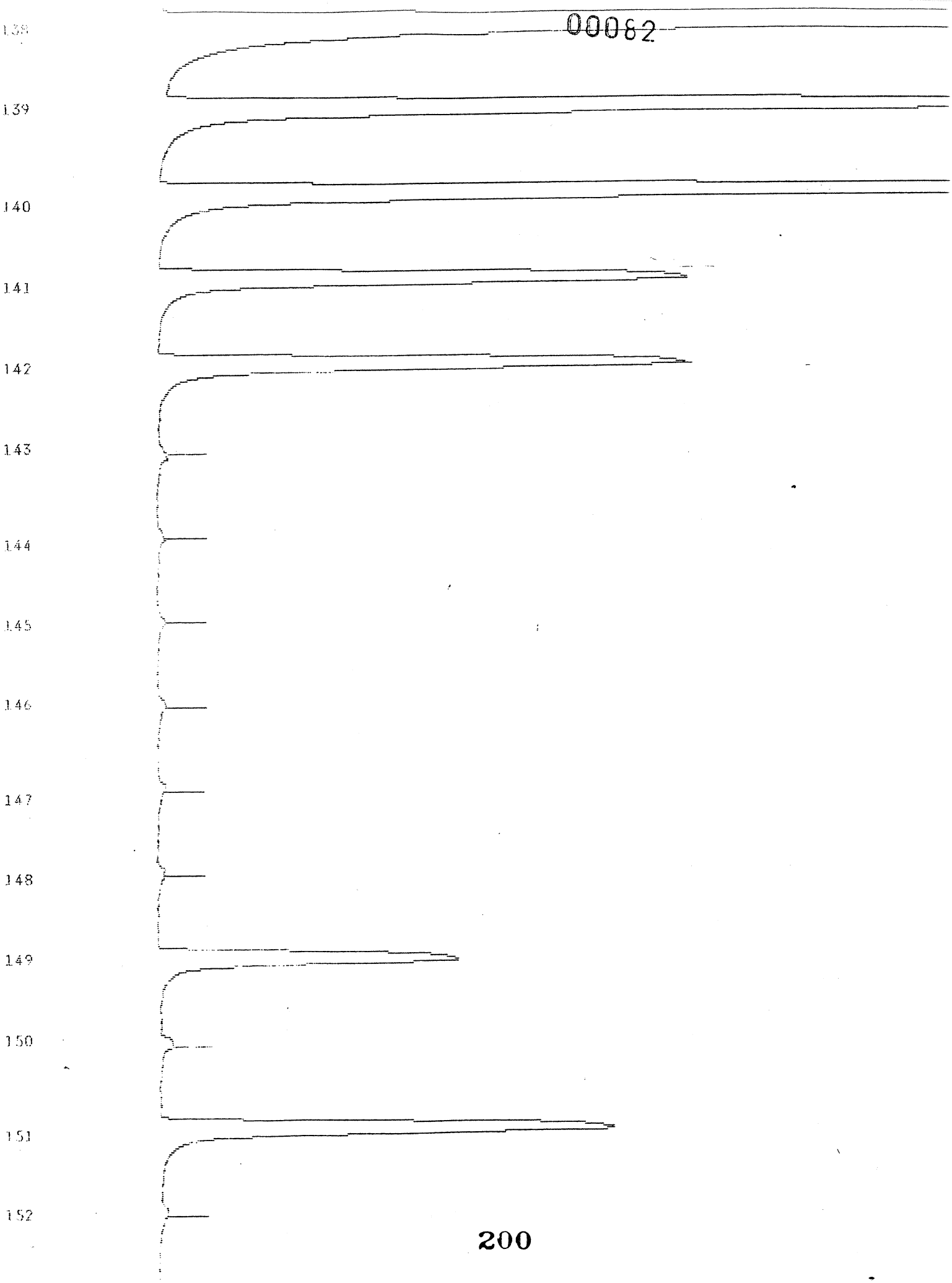
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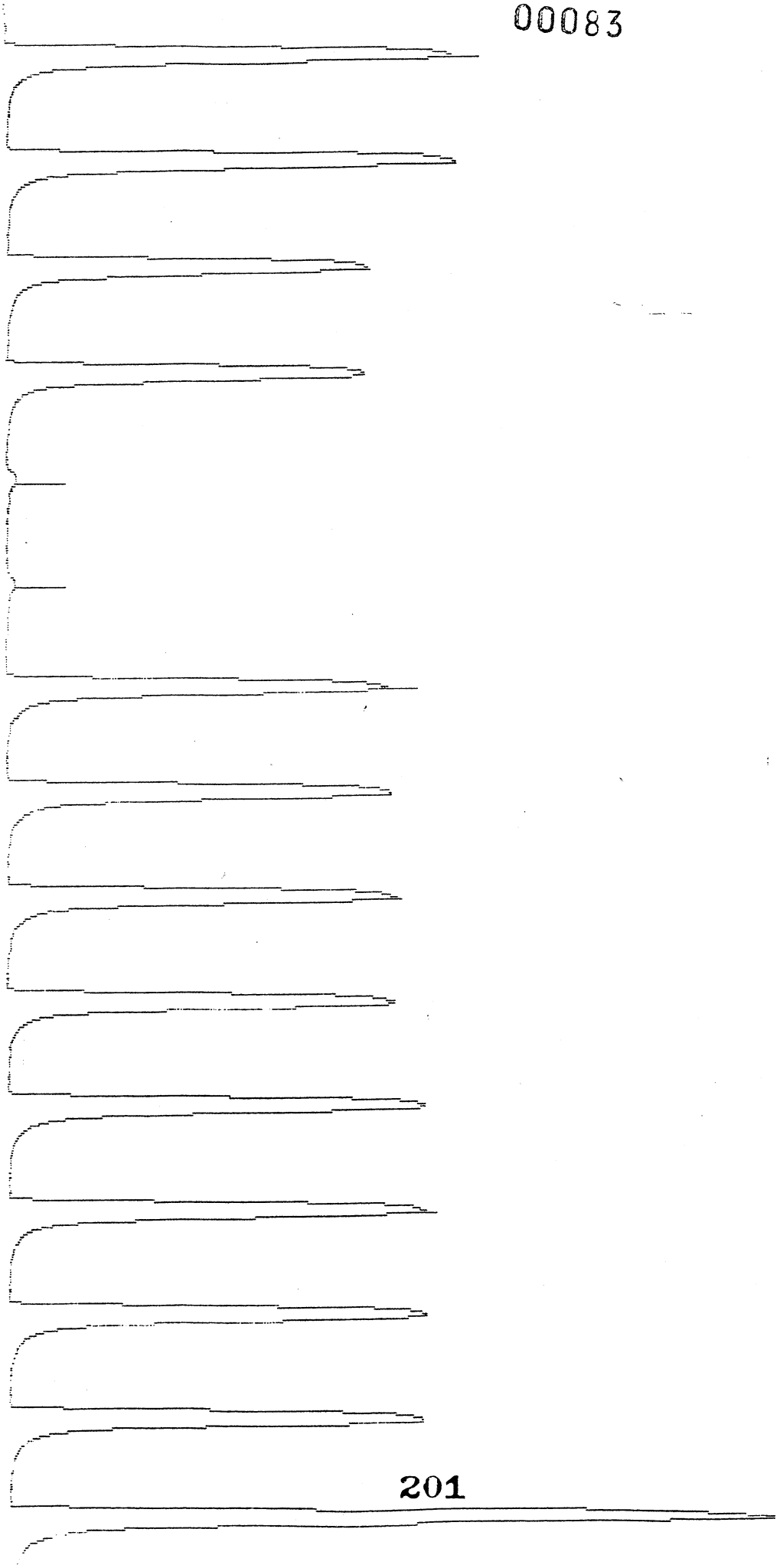
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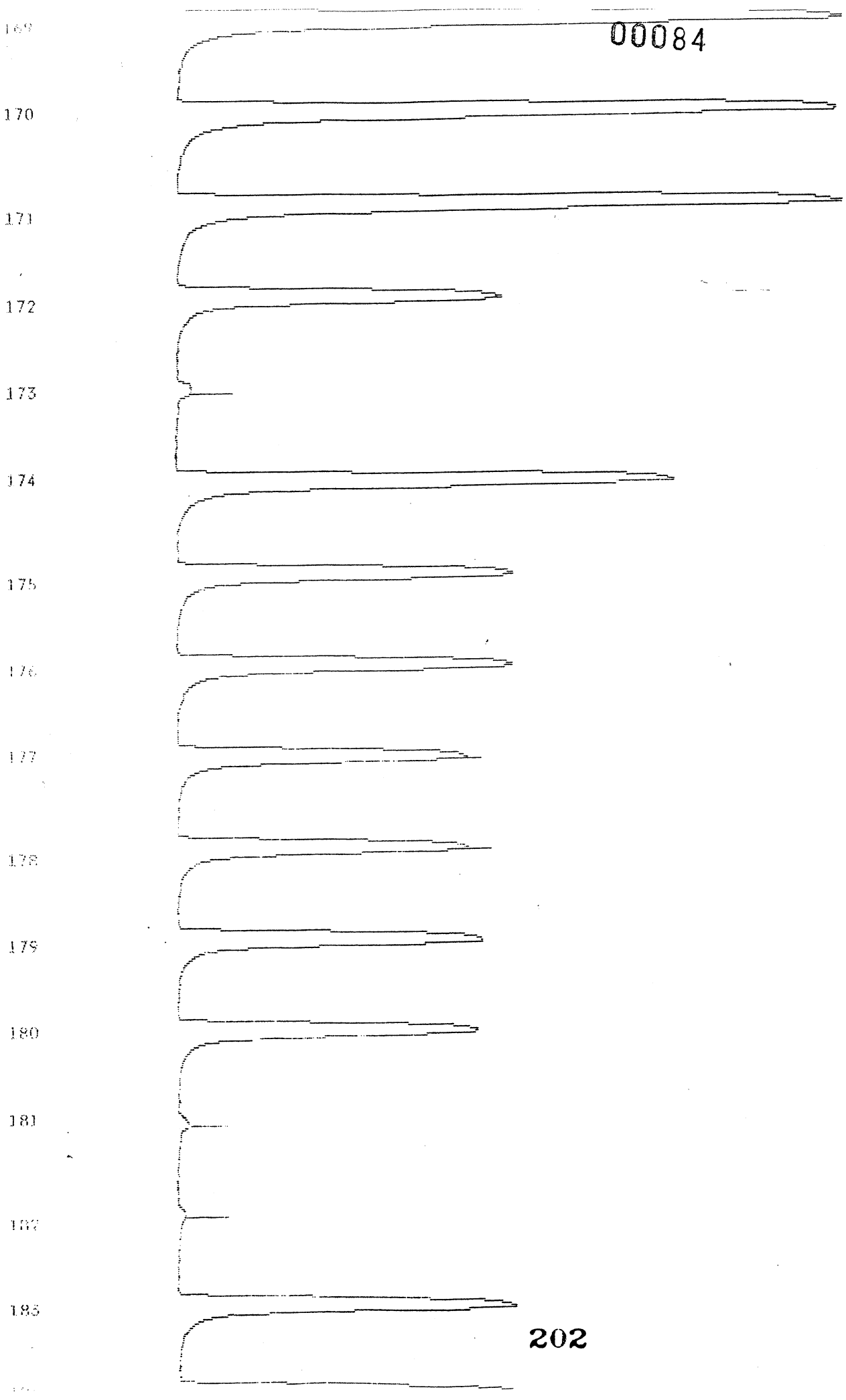
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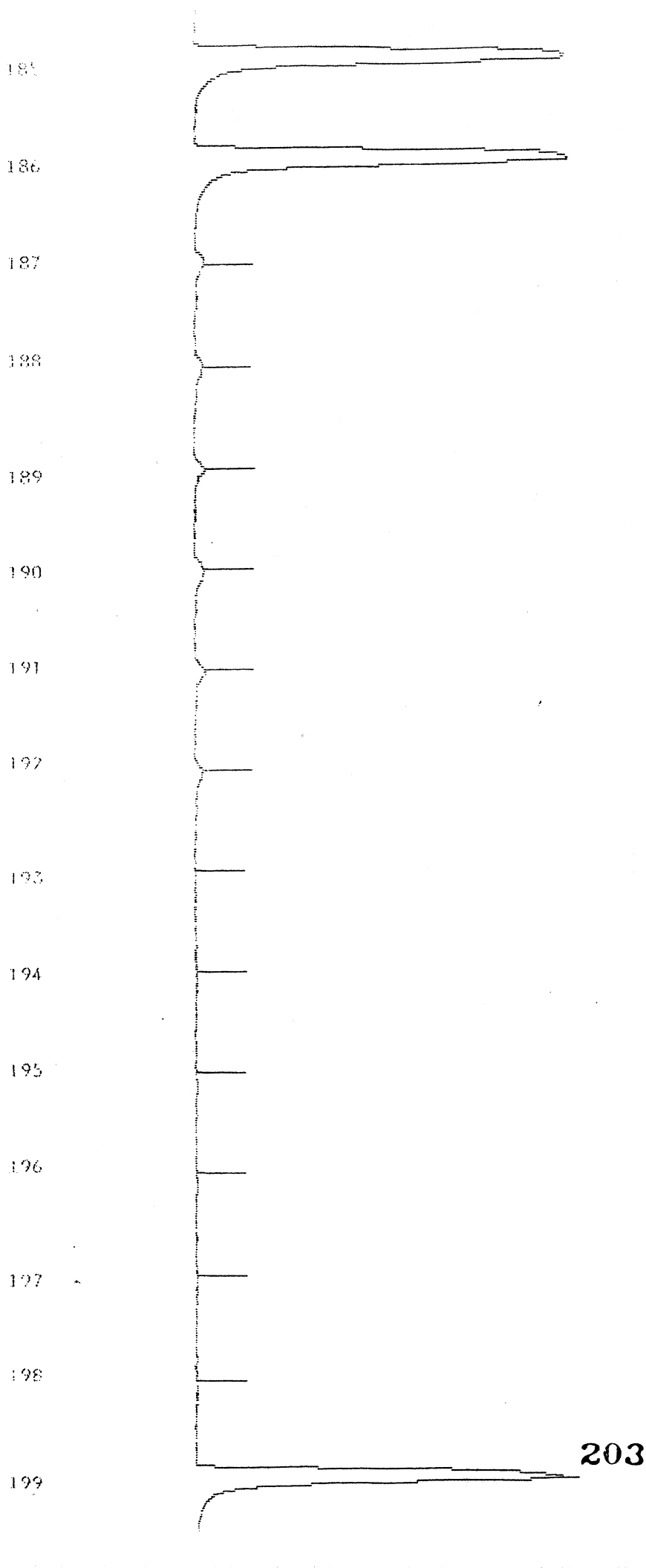
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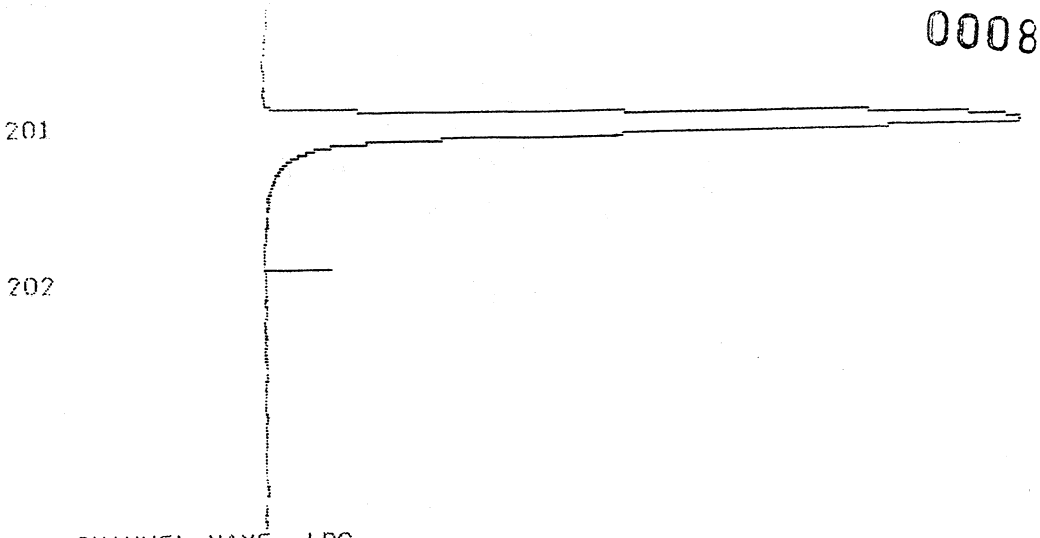
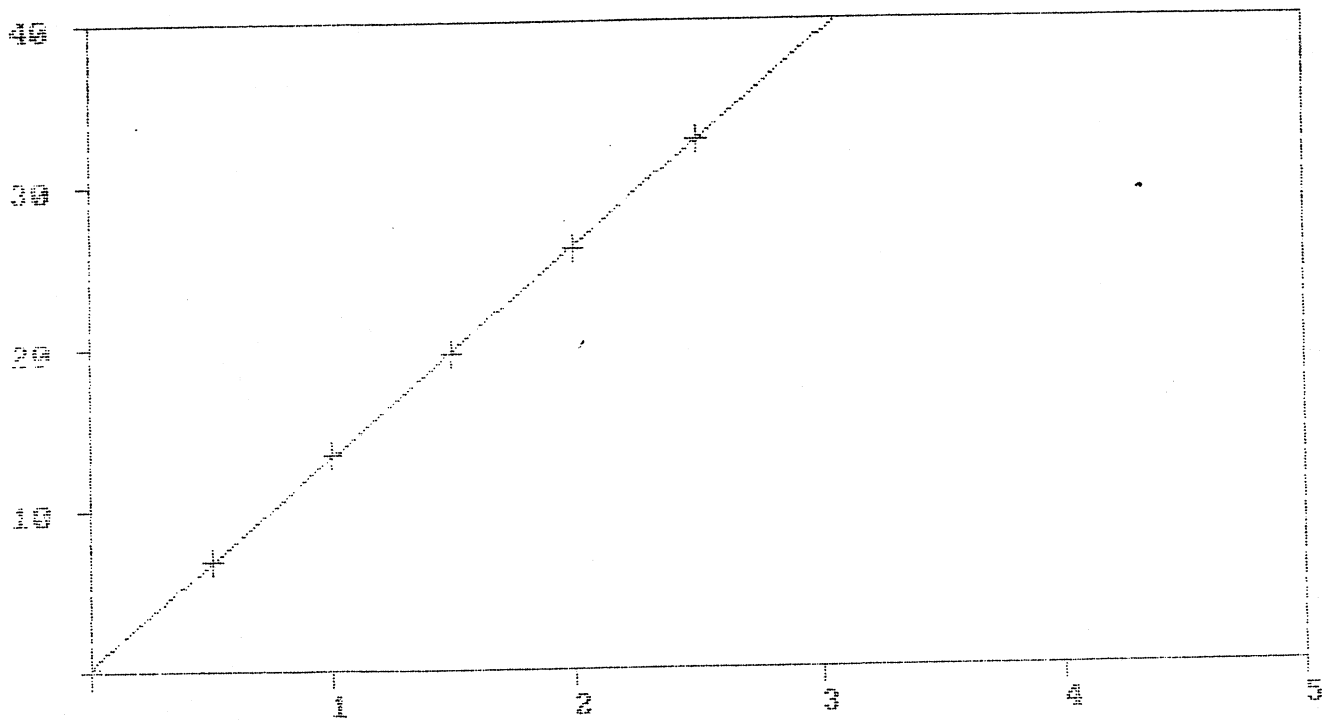


CHANNEL NAME: LDC
RUN NAME: 000330WA



DATA TYPE: FIA
INTERCEPT = 0.29

CALIBRATION ORDER: 1
SLOPE = 12.92308

CORRELATION: .9998918

CHANNEL NAME: LDC
RUN DATE: 03-30-2000
SAMPLE TABLE NAME: 000330WA
METHOD NAME: HG-W-20

µg/L

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	CONCENTRATION	EF
1	PRIMER	1	1	19.2	1.466	S
2	DUMMY	1	1	0.2	-0.008	I
3	S1: 0	1	1	0.1	-0.011	I
4	S2: .5	1	1	6.8	0.506	
5	S3: 1	1	1	13.5	1.020	
6	S4: 1.5	1	1	19.6	1.493	
7	S5: 2	1	1	25.9	1.984	
8	S6: 2.5	1	1	32.7	2.508	
9	[illegible]	1	1	19.1	1.457	971

204

12	BL0330-1BMN	10387	1	1	0.0	<0.0387	-0.023	I
13	BL0330-1BMN		1	1	0.0		-0.023	I
14	BL0330S		1	1	13.4	0.306	1.013	101%
15	BL0330S		1	1	13.5		1.024	
16	BL0330DS		1	1	13.6	0.308	1.026	103%
17	BL0330DS		1	1	13.6		1.028	
18	10403		10	1	16.3	12.387	12.358	
19	10403		10	1	16.3		12.415	
20	10403D		10	1	16.2	12.330	12.302	
21	10403D		10	1	16.3		12.358	
22	10403S		10	1	28.2	21.712	21.599	93%
23	10403S		10	1	28.5		21.825	
24	10403DS		10	1	28.5	21.816	21.825	95%
25	10403DS		10	1	28.5		21.806	
26	10394		1	1	0.3	<0.03	-0.002	I
27	10394		1	1	0.2		-0.009	I
28	10395		1	1	0.1	<0.03	-0.011	I
29	10395		1	1	0.4		0.006	I
30	10396		1	1	0.4	<0.03	0.008	I
31	10396		1	1	0.4		0.011	s
32	10397		1	1	0.3	<0.03	0.004	I
33	10397		1	1	0.3		0.004	I
34	CCV		1	1	12.9		0.979	97%
35	B		1	1	0.0		-0.023	b
36	D4		1	1	19.6		1.493	d
37	10398		1	1	0.0	<0.100	-0.023	I
38	10398		1	1	0.0		-0.019	I
39	10399		1	1	0.1	<0.100	-0.015	I
40	10399		1	1	0.1		-0.017	I
41	10400		1	1	0.0	<0.100	-0.023	I
42	10400		1	1	0.1		-0.015	I
43	10401		1	1	0.0	<0.100	-0.023	I
44	10401		1	1	0.0		-0.023	I
45	10402		1	1	0.0	<0.100	-0.019	I
46	10402		1	1	0.0		-0.021	s
47	BL0330-2BMN		1	1	0.0	<0.03	-0.023	I
48	BL0330-2BMN		1	1	0.0		-0.023	I
49	BL0330S		1	1	13.6	0.310	1.030	103%
50	BL0330S		1	1	13.7		1.034	
51	BL0330DS		1	1	13.6	0.307	1.026	102%
52	BL0330DS		1	1	13.5		1.020	
53	10406		20	1	11.3	16.969	17.007	
54	10406		20	1	11.2		16.931	
55	10406D		20	1	11.4	17.026	17.120	
56	10406D		20	1	11.2		16.931	
57	CCV		1	1	12.9		0.977	97%
58	B		1	1	0.0		-0.023	b
59	D4		1	1	19.6		1.493	d
60	10406S		20	1	23.5	36.092	35.941	95%
61	10406S		20	1	23.7		36.243	s
62	10406DS		20	1	23.5	36.242	35.979	96%
63	10406DS		20	1	23.9		36.508	
64	10404		20	1	11.0	16.553	16.591	
65	10404		20	1	11.0		16.515	
66	10405		20	1	9.6	14.494	14.399	
67	10405		20	1	9.7		14.588	
68	10407		20	1	11.2	16.856	16.931	
69	10407		20	1	11.1		16.780	
70	10408		20	1	10.8	16.289	16.289	
71	10408		20	1	10.8		16.289	
72	10409		20	1	13.4	20.219	20.219	
73	10409		20	1	13.4		20.219	
74	10410		20	1	13.3	20.144	20.144	
75	10410		20	1	13.4		20.144	

78	10412	4	1	15.7	4.008	4.769		
79	10412	4	1	15.8	4.008	4.807		
80	CCV	1	1	12.9		0.977	97%	
81	B	1	1	0.0		-0.023	b	
82	D4	1	1	19.6		1.493	d	
83	10413	4	1	29.2	8.878	8.934		
84	10413	4	1	28.8		8.821		
85	BL0330-3BMN 10617	1	1	0.0	<0.03	-0.023	I	
86	BL0330-3BMN	1	1	0.0		-0.023	I	
87	BL0330S	1	1	13.6	0.307	1.032	102%	
88	BL0330S	1	1	13.4		1.011		
89	BL0330DS	1	1	13.6	0.309	1.030	103%	
90	BL0330DS	1	1	13.6		1.030		
91	10415	2	1	12.3	1.866	1.856	s	
92	10415	2	1	12.4		1.875		
93	10415D	2	1	12.3	1.854	1.852		
94	10415D	2	1	12.3		1.856		
95	10415S	2	1	24.4	3.729	3.734	93%	
96	10415S	2	1	24.3		3.723		
97	10415DS	2	1	24.2	3.719	3.704	93%	
98	10415DS	2	1	24.4		3.734		
99	10414 VOID mb	1	1	92.6	OFF SCALE	7.139	R	RERUN ON 03/31 MK
100	10414	1	1	92.0	OFF SCALE	7.096	R	RERUN ON 03/31 MK
101	10416	2	1	9.1	1.368	1.368		
102	10416	2	1	9.1		1.368		
103	CCV	1	1	13.0		0.981	98%	
104	B	1	1	0.0		-0.023	b	
105	D4	1	1	19.6		1.493	d	
106	10417 VOID mb	20	1	1.5	TOO LOW	1.814	s	RERUN ON 1X DIL. MB
107	10417	20	1	1.4	TOO LOW	1.738	s	RERUN ON 1X DIL. MB
108	10620	1	1	1.3	<0.03	0.077		
109	10620	1	1	1.2		0.070		
110	10621	1	1	0.5	<0.03	0.017		
111	10621	1	1	0.7		0.034		
112	10622	1	1	0.0	<0.100	-0.021	I	
113	10622	1	1	0.0		-0.021	I	
114	10623	1	1	0.0	<0.100	-0.023	I	
115	10623	1	1	0.1		-0.013	I	
116	10624	20	1	9.0	13.624	13.454		
117	10624	20	1	9.2		13.794		
118	10625	8	1	22.4	13.681	13.681		
119	10625	8	1	22.4		13.681		
120	BL0330-4BMN 10630	1	1	0.0	<0.03	-0.023	I	
121	BL0330-4BMN	1	1	0.0		-0.023	s	
122	BL0330S	1	1	13.7	0.313	1.036	104%	
123	BL0330S	1	1	13.9		1.051		
124	BL0330DS	1	1	13.5	0.306	1.020	102	
125	BL0330DS	1	1	13.5		1.020		
126	CCV	1	1	12.8		0.971	97%	
127	B	1	1	0.0		-0.023	b	
128	D4	1	1	19.6		1.493	d	
129	10627	10	1	15.2	11.414	11.508		
130	10627	10	1	14.9		11.319		
131	10627D	10	1	15.1	11.433	11.489		
132	10627D	10	1	15.0		11.376		
133	10627S	10	1	27.3	20.824	20.862	94%	
134	10627S	10	1	27.2		20.786		
135	10627DS	10	1	27.4	20.900	20.956	95%	
136	10627DS	10	1	27.2		20.843	s	
137	10626	1	1	93.7	OFF SCALE Dil: 2	7.230	R	RERUN ON 03/31 MK
138	10626 VOID mb	1	1	93.3	OFF SCALE Dil: 2		O	RERUN ON 03/31 MK
139	10628	4	1	206	OFF SCALE	14.097	R	
140	10628	4	1	45.3	OFF SCALE	13.915	R	
141								

00089

144	10634	1	1	0.0		-0.023	I	
145	10635	1	1	0.0	<0.03	-0.023	I	
146	10635	1	1	0.0		-0.023	I	
147	10636	1	1	0.0	<0.100	-0.023	I	
148	10636	1	1	0.0		-0.023	I	
149	CCV	1	1	12.7		0.962	96%	
150	B	1	1	0.0		-0.023	b	
151	D4	1	1	19.6		1.493	s	
152	10637	1	1	0.0	<0.100	-0.023	I	
153	10637	1	1	0.0		-0.023	I	
154	10638	4	1	15.4	4.702	4.664		
155	10638	4	1	15.6		4.739		
156	10639	4	1	12.4	3.715	3.734		
157	10639	4	1	12.2		3.696		
158	BL0330-5RMN	1	1	0.0	<0.03	-0.023	I	
159	BL0330-5RMN	1	1	0.0		-0.023	I	
160	BL0330S	1	1	13.1	0.299	0.990	100%	
161	BL0330S	1	1	13.2		1.000		
162	BL0330DS	1	1	13.3	0.302	1.005	101%	
163	BL0330DS	1	1	13.3		1.009		
164	10641	5	1	14.4	5.423	5.442		
165	10641	5	1	14.3		5.404		
166	10641D	5	1	14.2	5.395	5.395	s	
167	10641D	5	1	14.2		5.395		
168	10641S	5	1	26.5	10.157	10.138	95%	
169	10641S	5	1	26.6		10.176		
170	10641DS	5	1	26.3	10.096	10.081	93%	
171	10641DS	5	1	26.4		10.110		
172	CCV	1	1	12.6		0.950	95%	
173	B	1	1	0.0		-0.023	b	
174	D4	1	1	19.6		1.493	d	
175	10640	4	1	13.1	3.946	3.953		
176	10640	4	1	13.0		3.938		
177	10642	4	1	11.2	3.353	3.364		
178	10642	4	1	11.1		3.341		
179	10643	4	1	11.9	3.519	3.583		
180	10643	4	1	11.5		3.454		
181	BL0330-6RHY 10387, 10617,	1	1	0.0	<0.01	-0.023	s	
182	BL0330-6RHY 10633	1	1	0.0		-0.023	I	
183	BL0330S	1	1	12.9	0.098	0.979	98%	
184	BL0330S	1	1	12.9		0.979		
185	BL0330DS	1	1	12.8	0.097	0.967	97%	
186	BL0330DS	1	1	12.8		0.971		
187	10620	1	1	0.0	<0.01	-0.023	I	
188	10620	1	1	0.0		-0.023	I	
189	10634	1	1	0.0	<0.01	-0.023	I	
190	10634	1	1	0.0		-0.023	I	
191	10394	1	1	0.0	<0.01	-0.023	I	
192	10394	1	1	0.0		-0.023	I	
193	10620-0.1NHNO$_3$	1	1	0.0	<0.01	-0.023	I	
194	10620-0.1NHNO$_3$	1	1	0.0		-0.023	I	
195	10634-0.1NHNO$_3$	1	1	0.0	<0.01	-0.023	I	
196	10634-0.1NHNO$_3$	1	1	0.0		-0.023	s	
197	10394-0.1NHNO$_3$	1	1	0.0	<0.01	-0.023	I	
198	10394-0.1NHNO$_3$	1	1	0.0		-0.023	I	
199	CCV	1	1	12.3		0.930	93%	
200	B	1	1	0.0		-0.023	b	
201	D4	1	1	19.6		1.493	d	

INTERCEPT: 0.29 LINEAR COEF: 12.92308
CORRELATION COEF: .9998918

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
010414	MOSTARDI	Unit 1 Inlet-R3	Mercury -	PV	8.174						00/03/30	3BMN	00/03/31	MG01	62.	21.	
010417	MOSTARDI	Unit 2 Inlet-R3	Mercury -	PV	2.254						00/03/30	3BMN	00/03/31	MG01	62.	21.	
BL0330	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.294	97.	0.296	99.	00/03/30	3BMN	00/03/31	MG01	$$$	$$$	
010626	MOSTARDI	Unit 1 Outlet-R3	Mercury -	PV	12.073						00/03/30	4BMN	00/03/31	MG01	36.	20.	
010628	MOSTARDI	Unit 1 Inlet-R2	Mercury -	PV	13.851						00/03/30	4BMN	00/03/31	MG01	37.	20.	

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

208

00090

00091

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.03.31 W Run Code: MG01 Matrix: IMP.

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			~~Std 4 (S4)~~	~~1.5~~		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV	S4		
10			B (Std 1)			
11			D4 (Std 4)			
12			BL0330			
13			"			
14			BL0330S			
15			"			
16			BL0330DS			
17			"			
18		1/4	10414			
19		↓	"			
20			10626			
21		↓	"			
22		1/8	10628			
23		↓	"			
24			10417			
25			"			
26		1/8	10626			
27		↓	"			
28			CCV			
29			B			
30			D4			
31						
32						
33						
34						
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Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
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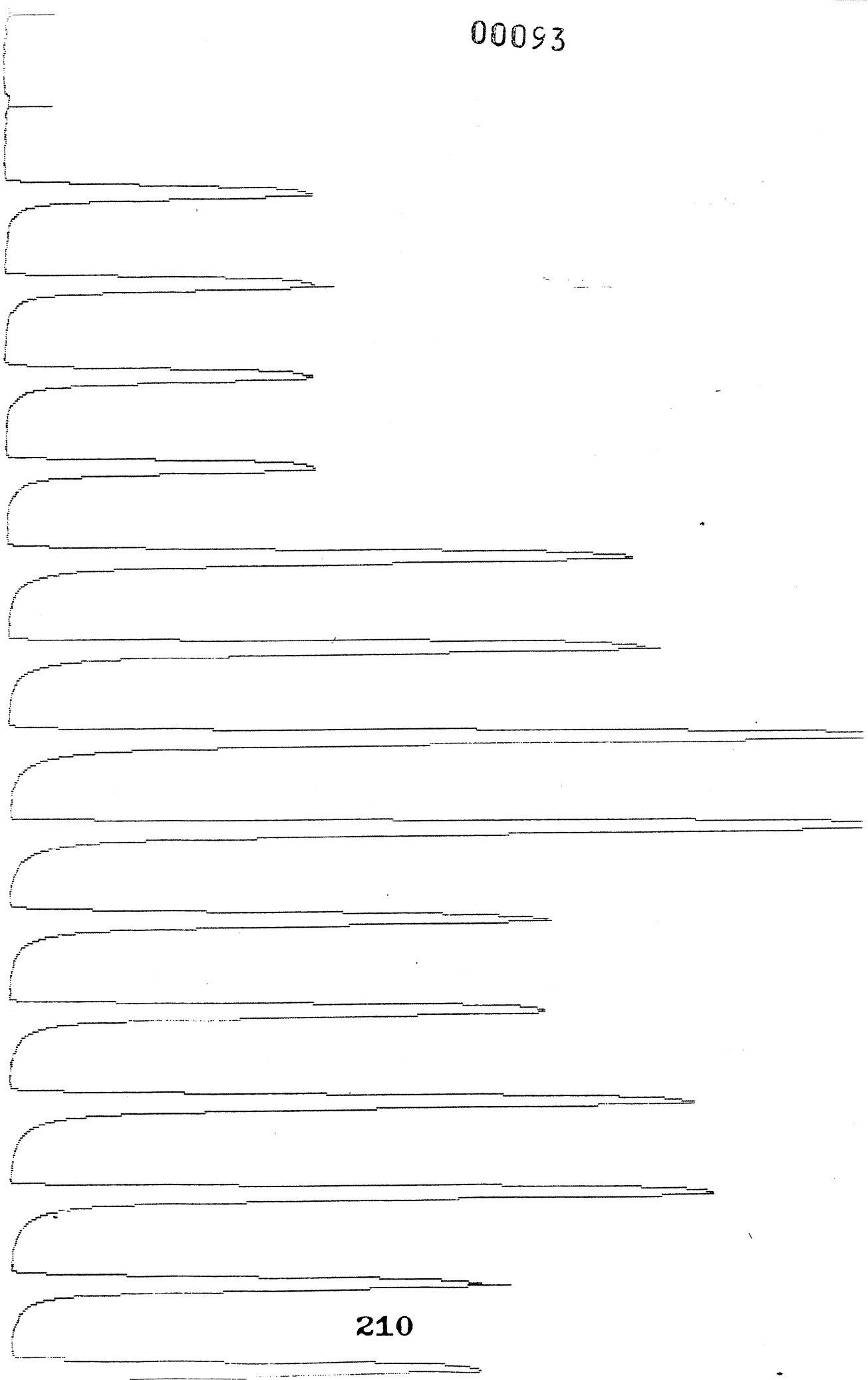
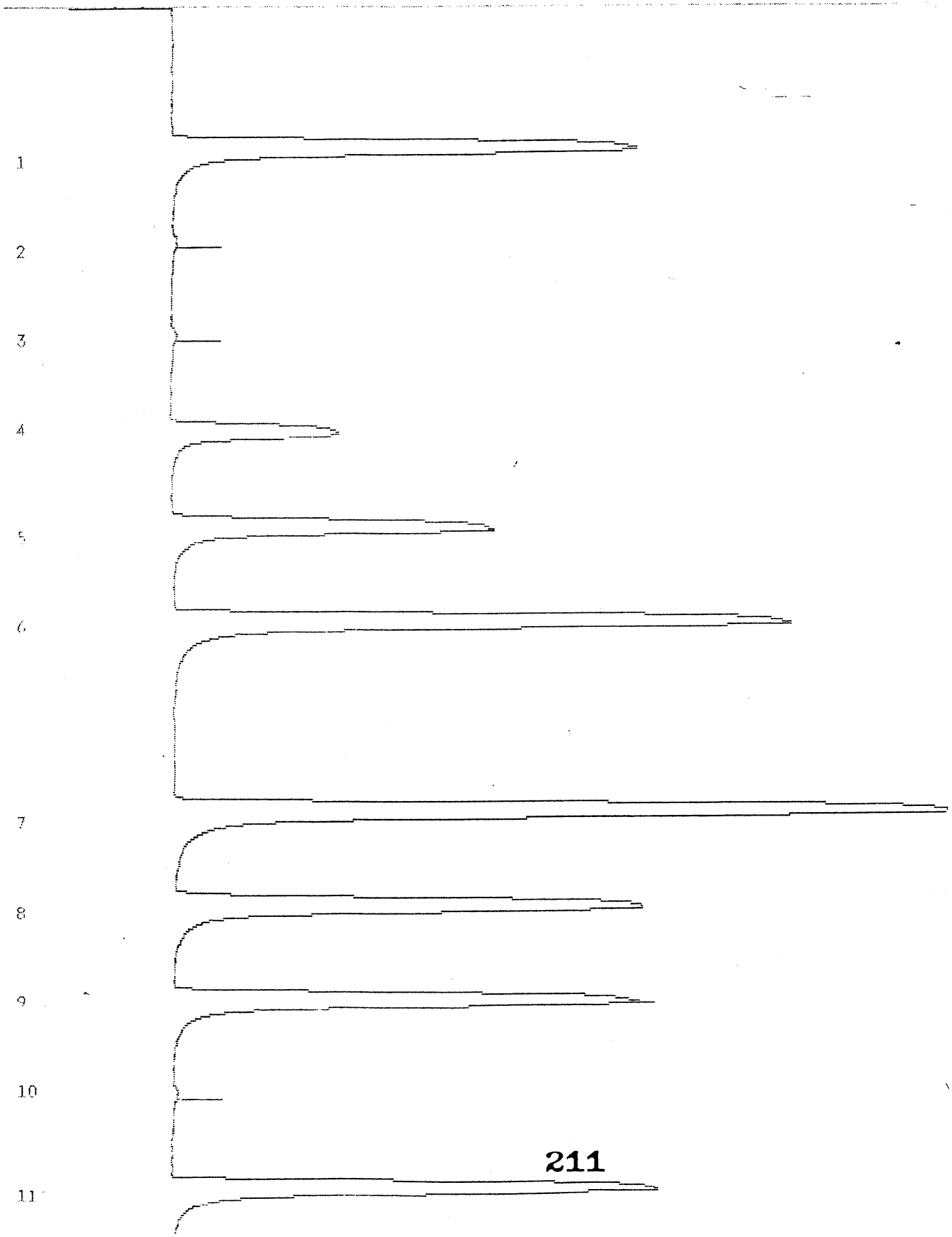
Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

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

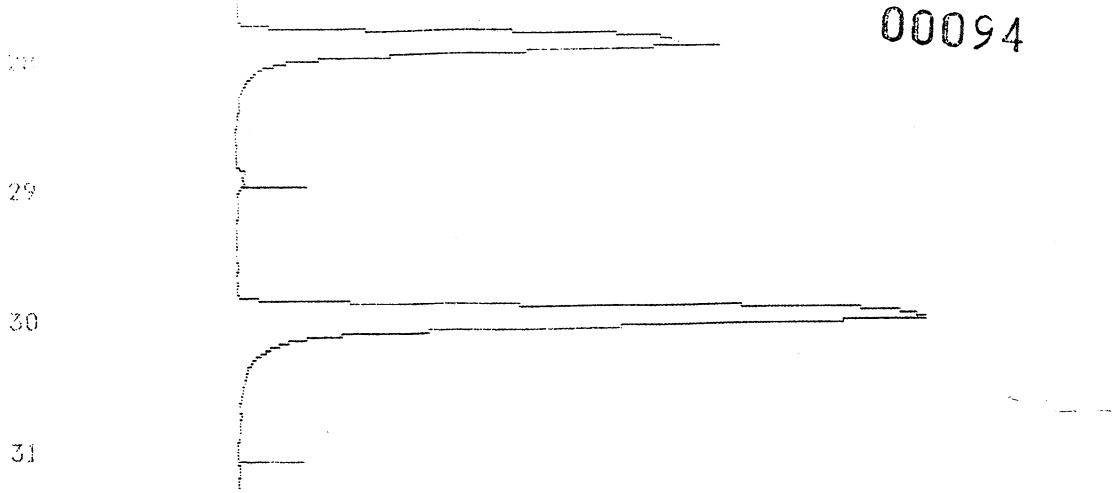
ICV = 1.5 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.



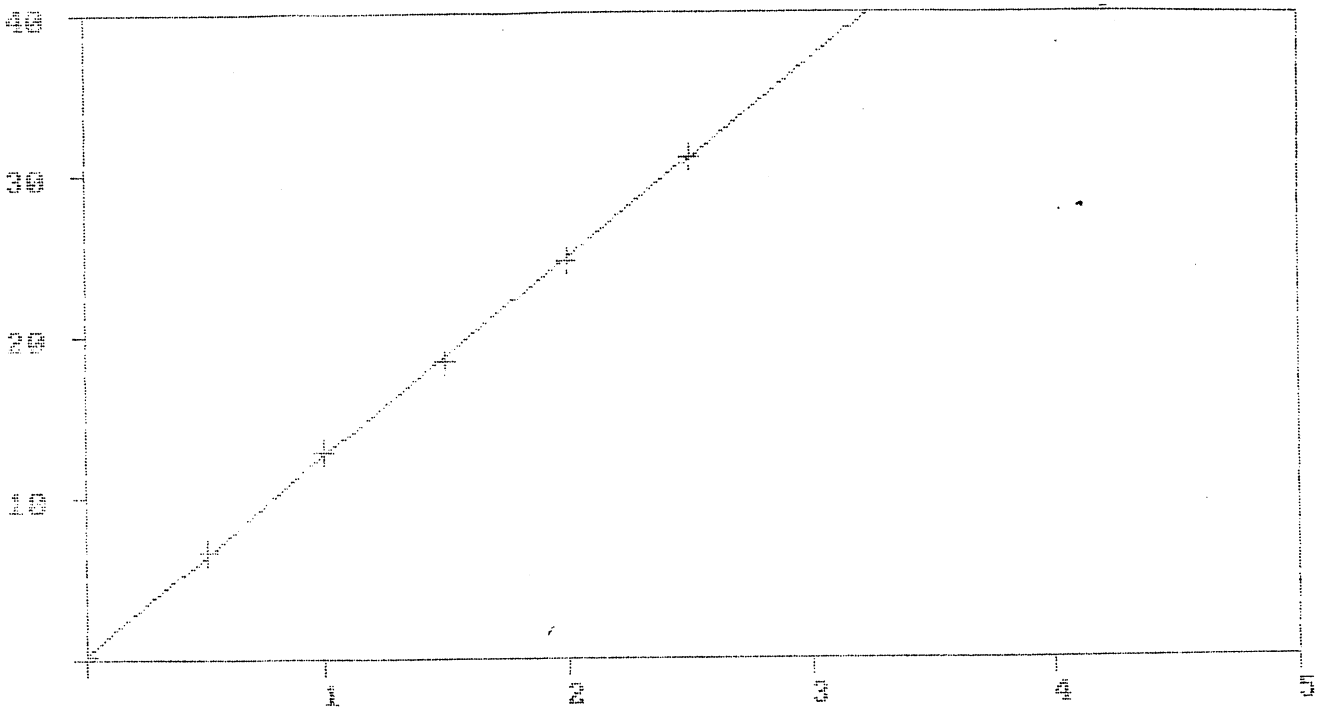
RUN DATE: 03-31-2000 CHART DATE: 03-31-2000
CHART SPEED: 30
DATA FILE NAME: C:\DP4\DATA\000331W.DAT



00094



CHANNEL NAME: LDC
RUN NAME: 000331W



DATA TYPE: FIA
CALIBRATION ORDER: 1
INTERCEPT = 0.30
SLOPE = 12.25048

CORRELATION: .9998123

CHANNEL NAME: LDC
RUN DATE: 03-31-2000
SAMPLE TABLE NAME: 000331W
METHOD NAME: HG-W-20

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	CONCENTRATION	EF
					ug/L	
1	PRIMER	1	1	18.6	1.496	s
2	DUMMY	1	1	0.1	-0.015	I
3	S1: 0	1	1	0.1	-0.013	I
4	S2: .5	1	1	6.6	0.511	
5	S3: 1	1	1	12.8	1.024	
6	S5: 2	1	1	24.6	1.983	
7	S6: 2.5	1	1	31.1	2.513	
8	S4: 1.5	1	1	18.5	1.482	
9	ICV	1	1	18.2	1.462	97%
10	B	1	1	0.0	-0.025	b

212

12	BL0330-50MM	1	1	0.1	00095	-0.025	I
13	BL0330-50MM	1	1	0.0		-0.025	I
14	BL0330S	1	1	12.3	0.294	0.978	97%
15	BL0330S	1	1	12.3		0.980	S
16	BL03300S	1	1	12.4	0.296	0.984	99%
17	BL03300S	1	1	12.4		0.990	
18	10414	4	1	25.2	8.174	8.130	
19	10414	4	1	25.5		8.217	
20	10626 VOID mb	4	1	35.8	] OFF SCALE	11.598	R] RERUN @ END
21	10626	4	1	36.0		11.662	R
22	10628	8	1	21.5	13.851	13.851	
23	10628	8	1	21.5		13.851	
24	10417	1	1	27.6	2.254	2.232	
25	10417	1	1	28.2		2.276	
26	mb 10626	8	1	18.7	12.073	12.033	
27	mb 10626	8	1	18.9		12.113	
28	CCV	1	1	11.8		0.938	93%
29	B	1	1	0.0		-0.025	b
30	04	1	1	18.5		1.482	s
31	B	1	1	0.0		-0.025	b

INTERCEPT: 0.30 LINEAR COEF: 12.25048
CORRELATION COEF: .9998123

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
010415	MOSTARDI	Unit 2 Inlet-R1	Mercury -	PV	1.887	1.880					00/04/11	1MN4	00/04/11	MG03	75.	33.	
010416	MOSTARDI	Unit 2 Inlet-R2	Mercury -	PV	1.262						00/04/11	1MN4	00/04/11	MG03	75.	33.	
010417	MOSTARDI	Unit 2 Inlet-R3	Mercury -	PV	2.241						00/04/11	1MN4	00/04/11	MG03	74.	33.	
BL0411	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.313	104.	0.309	103.	00/04/11	1MN4	00/04/11	MG03	$$$	$$$	

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

214

00096

00097

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.04.11 WA Run Code: MG03 Matrix: IMP

Analyst: MG Units: ug (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			BL0411			
13			"			
14			BL0411 S			
15			"			
16			BL0411 DS			
17			"			
18		1/2	10415			
19		↓	"			
20			10415 D			
21			"			
22			10415 S			
23			"			
24			10415 DS			
25		↓	"			
26			10416			
27			"			
28		1/2	10417			
29		↓	"			
30		1/20	11972			
31		↓	"			
32			CCV			
33			B			
34			D4			
35			11973			
36			"			
37		1/4	11974			
38		↓	"			
39			11975			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			CCV			
42			B			
43			D4			
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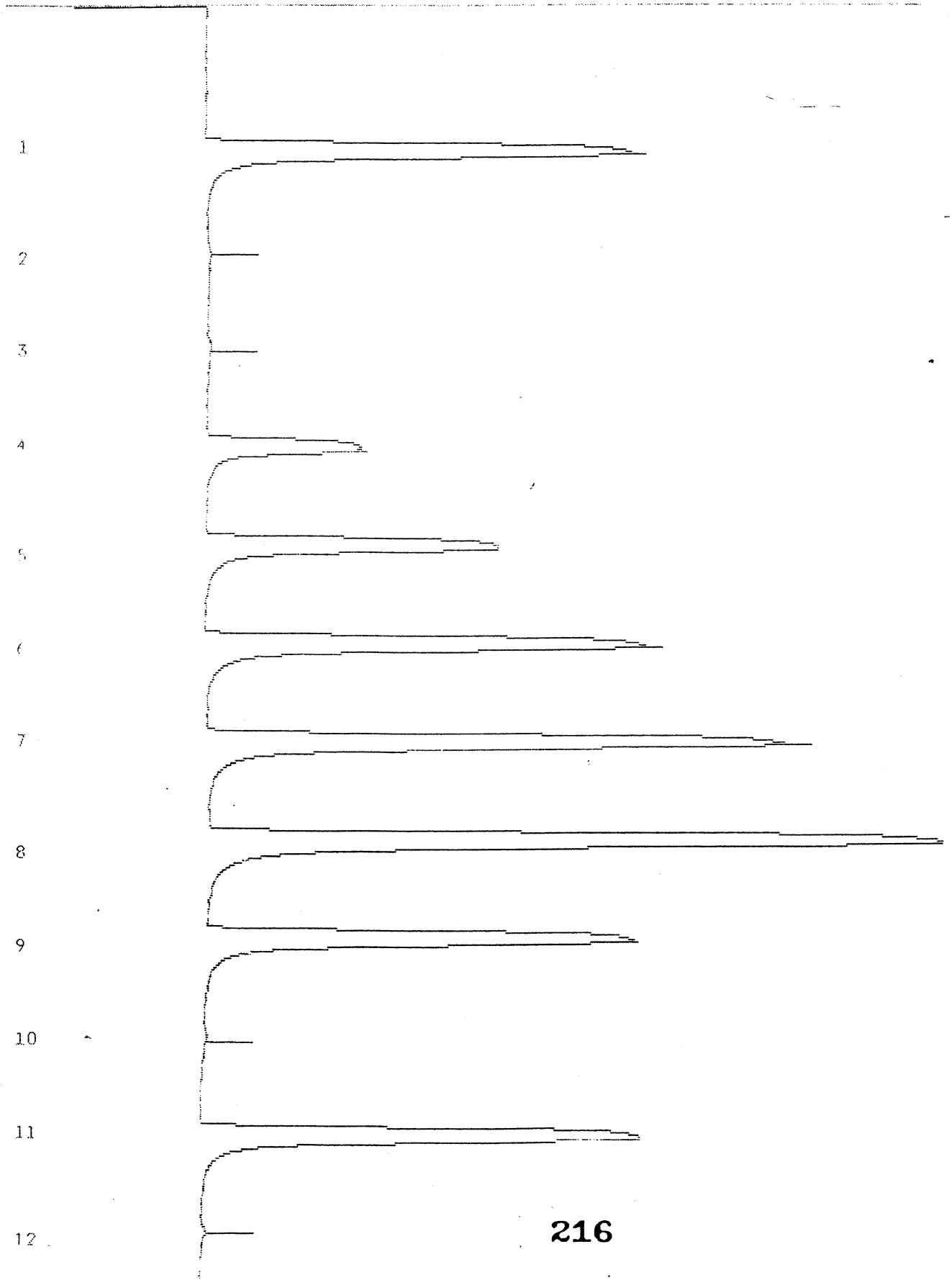
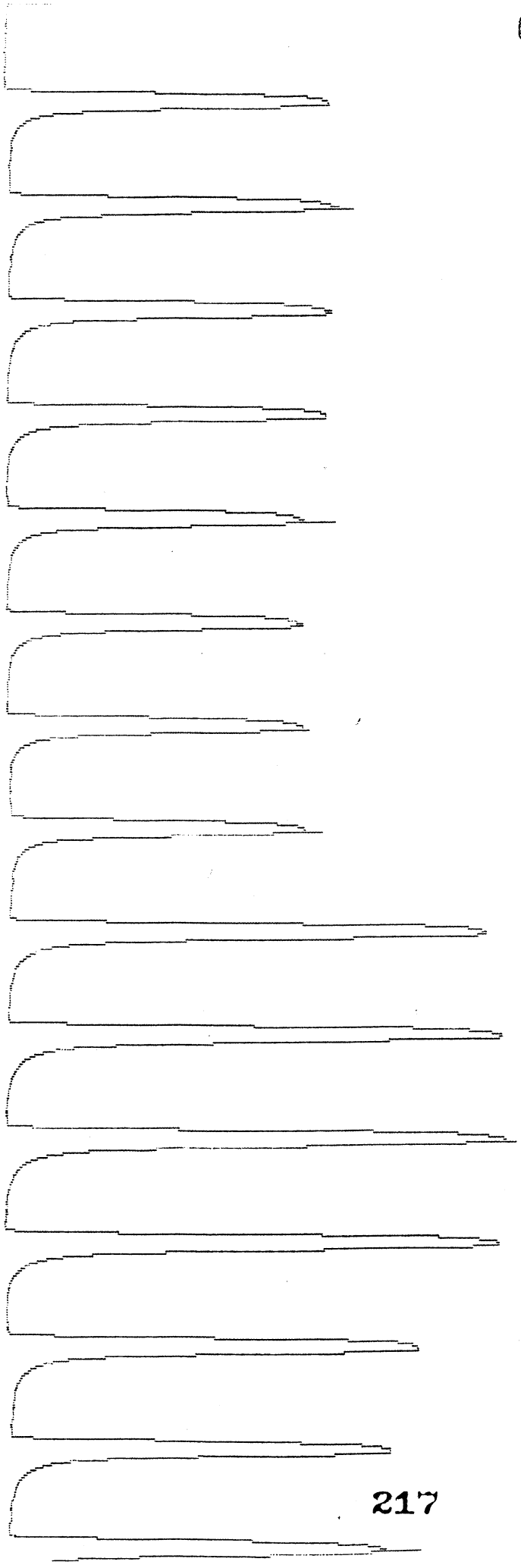
Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

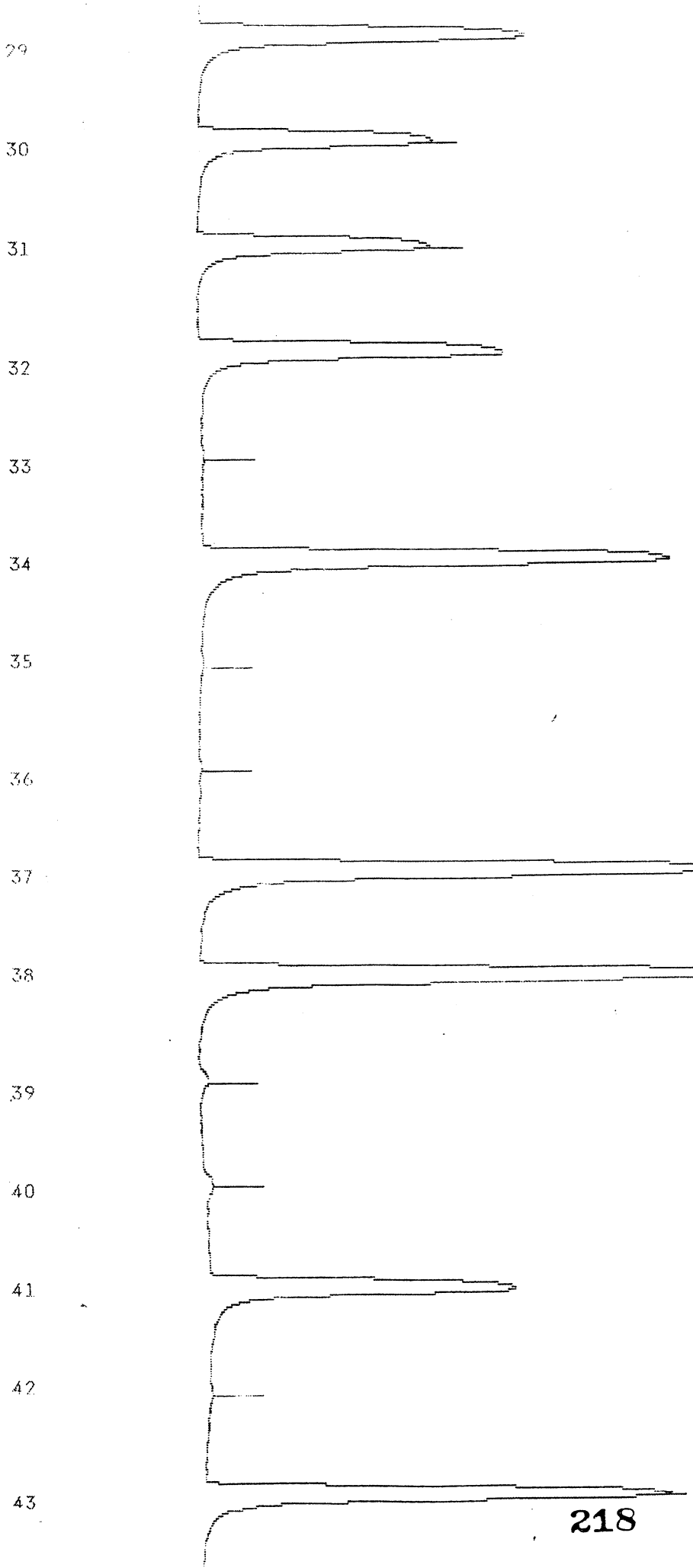
ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

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

RUN DATE: 04-11-2000 CHART DATE: 04-11-2000
CHART SPEED: 30
DATA FILE NAME: C:\OPA\DATA\00041WA.DAT



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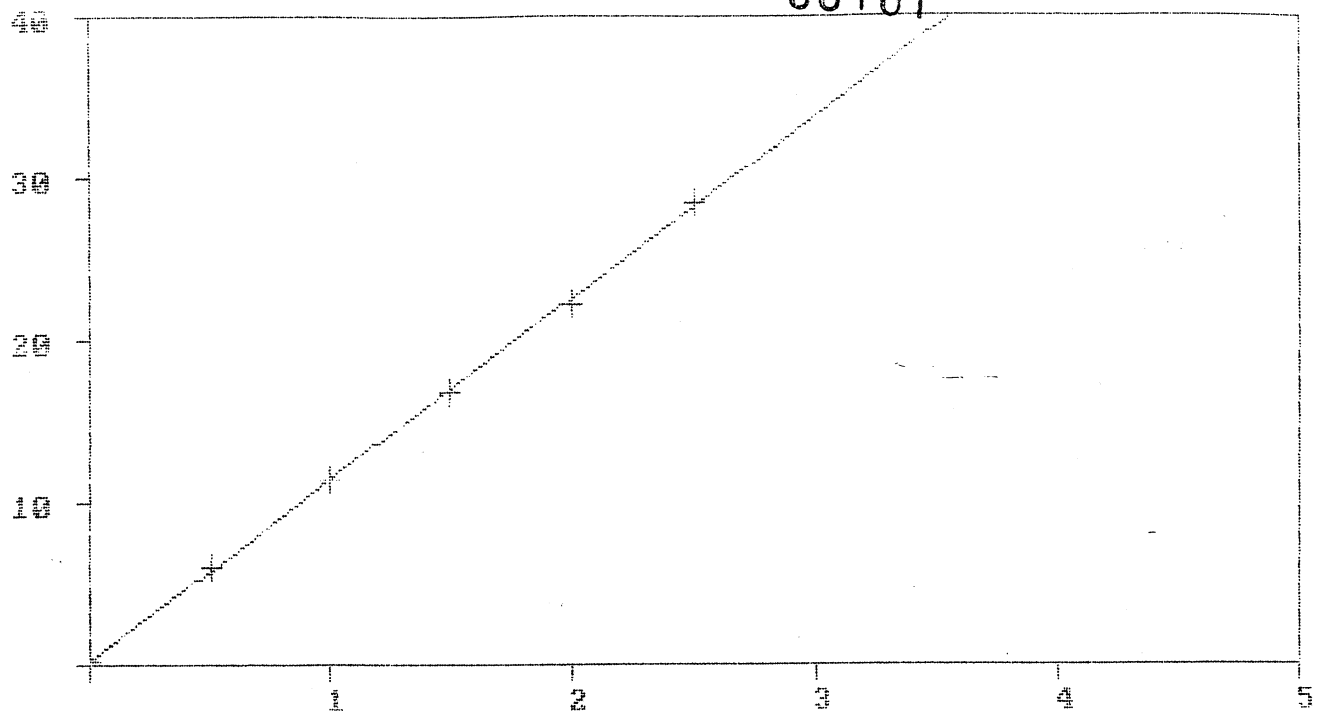
RUN NAME = 000411WC

00101



DATA TYPE: FIA
INTERCEPT = 0.20

CALIBRATION ORDER: 1
SLOPE = 11.16344

CORRELATION: .9998701

CHANNEL NAME: LDC
RUN DATE: 04-11-2000
SAMPLE TABLE NAME: 000411WA
METHOD NAME: HG-W-20

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION µg/L	EF
1	PRIMER	1	1	16.4		1.454	s
2	DUMMY	1	1	0.1		-0.007	I
3	S1: 0	1	1	0.1		-0.007	I
4	S2: .5	1	1	5.9		0.514	
5	S3: 1	1	1	11.4		1.006	
6	S4: 1.5	1	1	16.9		1.494	
7	S5: 2	1	1	22.3		1.977	
8	S6: 2.5	1	1	28.3		2.517	
9	ICV	1	1	16.3		1.439	96%
10	B	1	1	0.0	TMG	-0.018	b
11	D4	1	1	16.9		1.494	d
12	BL0411-1MN4	1	1	0.0	<0.03	-0.014	I
13	BL0411-1MN4	1	1	0.1		-0.011	I
14	BL0411S	1	1	11.7	0.313	1.032	104%
15	BL0411S	1	1	11.9		1.052	
16	BL0411DS	1	1	11.7	0.309	1.034	103%
17	BL0411DS	1	1	11.6		1.023	
18	10415	2	1	10.7	1.887	1.889	
19	10415	2	1	10.7		1.885	
20	10415D	2	1	10.7	1.880	1.880	
21	10415D	2	1	10.7		1.880	
22	10415S	2	1	17.4	3.136	3.075	VOID MB
23	10415S	2	1	18.0		3.197	
24	10415DS	2	1	18.0	3.176	3.193	Void MB
25	10415DS	2	1	17.8		3.158	
26	10416	1	1	14.9		1.314	

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29	10417	2	1	11.8	3.031	
30	11972	20	1	8.4	14.733	
31	11972	20	1	8.4	14.733	m
32	CCV	1	1	11.0	0.971	
33	B	1	1	0.0	-0.018	b
34	D4	1	1	16.9	1.494	d
35	11973	1	1	0.0	-0.018	I
36	11973	1	1	0.0	-0.018	I
37	11974	4	1	19.1	6.762	
38	11974	4	1	19.1	6.762	
39	11975	1	1	0.2	-0.003	I
40	11975	1	1	0.1	-0.007	I
41	CCV	1	1	11.0	0.966	
42	B	1	1	0.0	-0.018	b
43	D4	1	1	16.9	1.494	d

INTERCEPT: 0.20 LINEAR COEF: 11.16344
CORRELATION COEF: .9998701

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
010387	MOSTARDI	MB R456	Mercury -	PV	-0.030	-99999.0	0.331	110.	0.331	110.	00/03/22	1BKC	00/03/22	MG02	57.	13.	
010394	MOSTARDI	Reagent Blank 01/25	Mercury -	PV	-0.050						00/03/22	1BKC	00/03/22	MG02	57.	13.	
010398	MOSTARDI	Unit 1/2 Stack-FB	Mercury -	PV	-0.050						00/03/22	1BKC	00/03/22	MG02	55.	13.	
010399	MOSTARDI	Unit 3 Stack-FB	Mercury -	PV	0.292						00/03/22	1BKC	00/03/22	MG02	57.	13.	
010400	MOSTARDI	Unit 1 Inlet-FB	Mercury -	PV	-0.050						00/03/22	1BKC	00/03/22	MG02	55.	13.	
010401	MOSTARDI	Unit 2 Inlet-FB	Mercury -	PV	-0.050						00/03/22	1BKC	00/03/22	MG02	55.	13.	
010402	MOSTARDI	Unit 3 Inlet-FB	Mercury -	PV	0.132						00/03/22	1BKC	00/03/22	MG02	57.	13.	
010404	MOSTARDI	Unit 3 Stack-R2	Mercury -	PV	0.252						00/03/22	1BKC	00/03/22	MG02	57.	13.	
010405	MOSTARDI	Unit 3 Stack-R3	Mercury -	PV	0.340						00/03/22	1BKC	00/03/22	MG02	56.	13.	
010406	MOSTARDI	Unit 1/2 Stack-R1	Mercury -	PV	1.219						00/03/22	1BKC	00/03/22	MG02	55.	13.	
BL0322	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.331	110.	0.331	110.	00/03/22	1BKC	00/03/22	MG02	$$$	$$$	
010407	MOSTARDI	Unit 1/2 Stack-R2	Mercury -	PV	2.282						00/03/22	2BKC	00/03/22	MG02	55.	13.	
010408	MOSTARDI	Unit 1/2 Stack-R3	Mercury -	PV	0.368						00/03/22	2BKC	00/03/22	MG02	54.	13.	
010409	MOSTARDI	Unit 3 Inlet-R1	Mercury -	PV	0.975	0.976	2.024	105.	2.035	105.	00/03/22	2BKC	00/03/22	MG02	57.	13.	
010410	MOSTARDI	Unit 3 Inlet-R2	Mercury -	PV	0.419						00/03/22	2BKC	00/03/22	MG02	57.	13.	
010411	MOSTARDI	Unit 3 Inlet-R3	Mercury -	PV	0.340						00/03/22	2BKC	00/03/22	MG02	56.	13.	
010412	MOSTARDI	Unit 1 Inlet-R1	Mercury -	PV	2.197						00/03/22	2BKC	00/03/22	MG02	55.	13.	
BL0322	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.313	104.	0.321	107.	00/03/22	2BKC	00/03/22	MG02	$$$	$$$	

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

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00103

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00-03-22(WA) Run Code: MG02 Matrix: MP

Analyst: MG Units: UG (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			BL0322	1BKC		
15			"			
16			BL0322 S			
17			"			
18			BL0322 DS			
19			"			
20			10403			
21			"			
22			10403 D			
23			"			
24			10403 S			
25			"			
26			10403 DS			
27			"			
28			10394			
29			"			
30			10398			
31			"			
32			10399			
33			"			
34			CCV			
35			B			
36			D4			
37			10400			
38			"			
39			10401			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			10402			
42			"			
43			10404			
44			"			
45			10405			
46			"			
47			10406			
48			"			
49		1/5	10406			
50		↓	"			
51			BL0322	2BKC		
52			"			
53			BL0322 S			
54			"			
55			BL0322DS			
56			"			
57			CCV			
58			B			
59			D4			
60			10409			
61			"			
62			10409 D			
63			"			
64			10409 S			
65			"			
66			10409 DS			
67			"			
68			10407			
69			"			
70			10408			
71			"			
72			10410			
73			"			
74			10411			
75			"			
76			10412			
77			"			
78			10276	MS		
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)

00105

Date: 00.03.22(WA) Run Code: MG02 Matrix: IMP

Analyst: MG Units: ug (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						
81			B			
22			D4			
23			10278			
24			"			
25			10278 D			
26			"			
27			10278 S			
28			"			
29			10278 DS			
30			"			
31			10280			
32			"			
33			10282			
34			"			
35			BL0322	INIB		
36			"			
37			BL0322 S			
38			"			
39			BL0322 DS			
40			"			
41	5		9747			
42	↓		"			
43			CCV			
44			B			
45			D4			
46	5		9747 D			
47			"			
48			9747 S			
49			"			
50			9747 DS			
51	↓		"			
52			9745			
53			"			
54			9746			
55			"			
56	4		9748			
57			"			
58			9749			
59	↓		"			
60			CCV			
61			B			
62			D4			
63			BL0322	STA1		
64			BL0322 S			
65			11210			
66			10 D			
67			10 S			
68			12			
69	10		14			
70			16			
71			10911			
72			11027			
73			11435			
74			11325			
75			34			
76			BLK TCLP			
77			11489			
78			CCV			
79			B			
80			D4			

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

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

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

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

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
8	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 shaken and bulked
- ✓ Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	1BKC	20 ml	30 ml	1 X	1.5 ppb = 600 ul of MES-ZENO 30/QCA (Ref Std)
	10	BL 0322	"	"	"	"	(Processed Blank) 10387 MB-
	11	BL 0322 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	12	BL 0322 DS					(Duplicate Blank Spike)
1	13	10403	"	"	"	"	FV=1000ml
1	14	D	"	"	"	"	(Duplicate sample)
1	15	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	16	DS	"	"	"	"	(Duplicate Spiked sample)
2	17	10394	"	"	"	"	FV=50ml
3	18	98	"	"	"	"	FV=500ml
4	19	99	"	"	"	"	=500ml
5	20	10400	"	"	"	"	=500ml
6	21	401	"	"	"	"	=500ml
7	22	402	"	"	"	"	=500ml
8	23	404	"	"	"	"	=1000ml
9	23	405	"	"	"	"	=1000ml
10	24	406	"	"	"	"	=1000ml
	25	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)
	26	BL 0322	2BKC	20 ml	30 ml	"	(Processed Blank)
	27	BL 0322 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	28	BL 0322 DS					(Duplicate Blank Spike)
1	29	10409	"	"	"	"	FV=1000ml
1	30	D	"	"	"	"	(Duplicate sample)
1	31	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	32	DS	"	"	"	"	(Duplicate Spiked sample)
2	33	10407	"	"	"	"	
3	34	408	"	"	"	"	
4	35	410	"	"	"	"	
5	36	411	"	"	"	"	
6	37	412	"	"	"	"	
7	38	10276	"	"	"	"	FV=70
8	39	278	"	"	"	"	
9	40	278 Dup.	"	"	"	"	post spike done!
10	41	280	"	"	"	"	
	42	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

282.

Comments

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

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

DG29HGI, DG29HGF, DG101AA1, DG101AA2

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	43	BL		"	"	"	(Processed Blank)
	44	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	45	BL DS					(Duplicate Blank Spike)
1	46		"	"	"	"	
1	47	D	"	"	"	"	(Duplicate sample)
1	48	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	49	DS	"	"	"	"	(Duplicate Spiked sample)
2	50		"	"	"	"	
3	51		"	"	"	"	
4	52		"	"	"	"	
5	53		"	"	"	"	
6	54		"	"	"	"	
7	55		"	"	"	"	
8	56		"	"	"	"	
9	57		"	"	"	"	
10	58		"	"	"	"	
	57	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

Procedure/Methodology:

1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO_3
2 Prepare 0.05 ppm Working standard daily by pipetting 200 ul., of 25 ppm Intermediate to 100 ml final volume of 2% HNO_3
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 Include one External Reference Material sample per run
7 Incude one Organic Mercury Control Standard per run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 6% $KMnO_4$, purple **colour must remain for at least 15 minutes**
12 Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$), to each tube
13 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
14 Remove tubes and allow to cool to room temperature
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless
17 Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	N HG04019	00/04/01
Intermediate Cal Standard	Internal	00/03/09 A	00/04/09
Stock Reference Standard	High Purity	85b309	00 FEB
External Reference Material	SPEX	CONC 18	00/04/17
Organic Mercury Control Standard	Aldrich	06811 HR	01/02/07
6% potassium permanganate	Internal	00/03/10 B	00/06/10
5% potassium persulphate	Internal	00/02/15 B	00/02/15
20% hydroxylamine hydrochloride	Internal	00/03/10 A	00/05/10
HNO_3	Anachemia	119100	00/05/13
H_2SO_4	Anachemia	319020	00/04/01
Bath Temps: 1 175 C	Time ON: 11:30	Time OFF: 1:30 pm	
Prepared By: M. Pospisil	Date: 00 03 21	Checked by: MP 03/21	

RUN DATE: 03-22-2000 CHART DATE: 03-23-2000
CHART SPEED: 30
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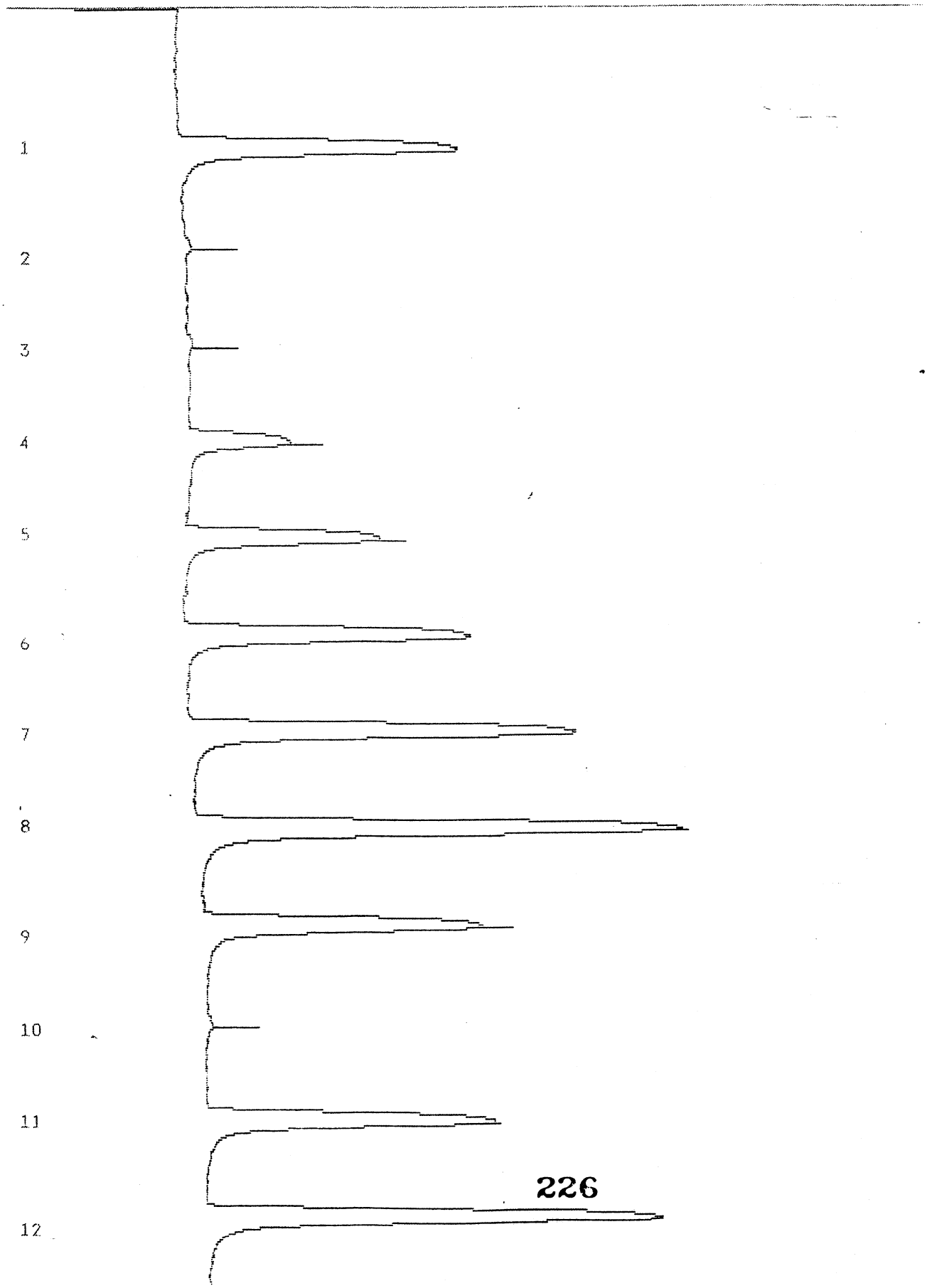

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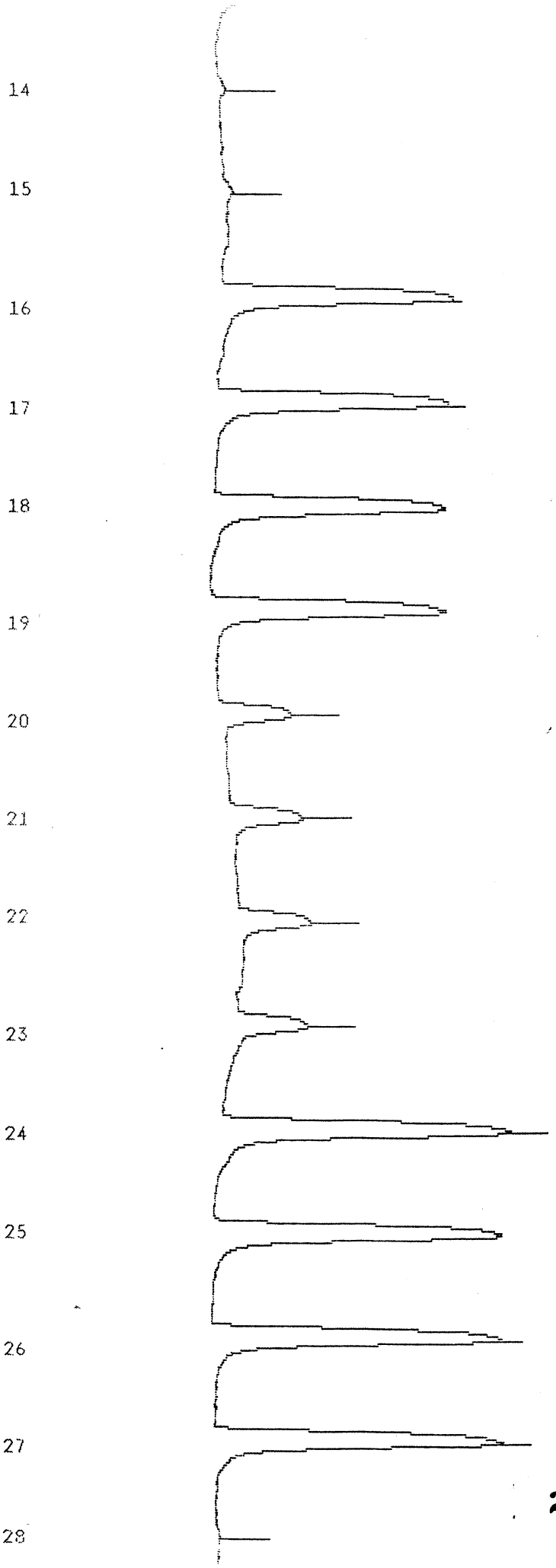
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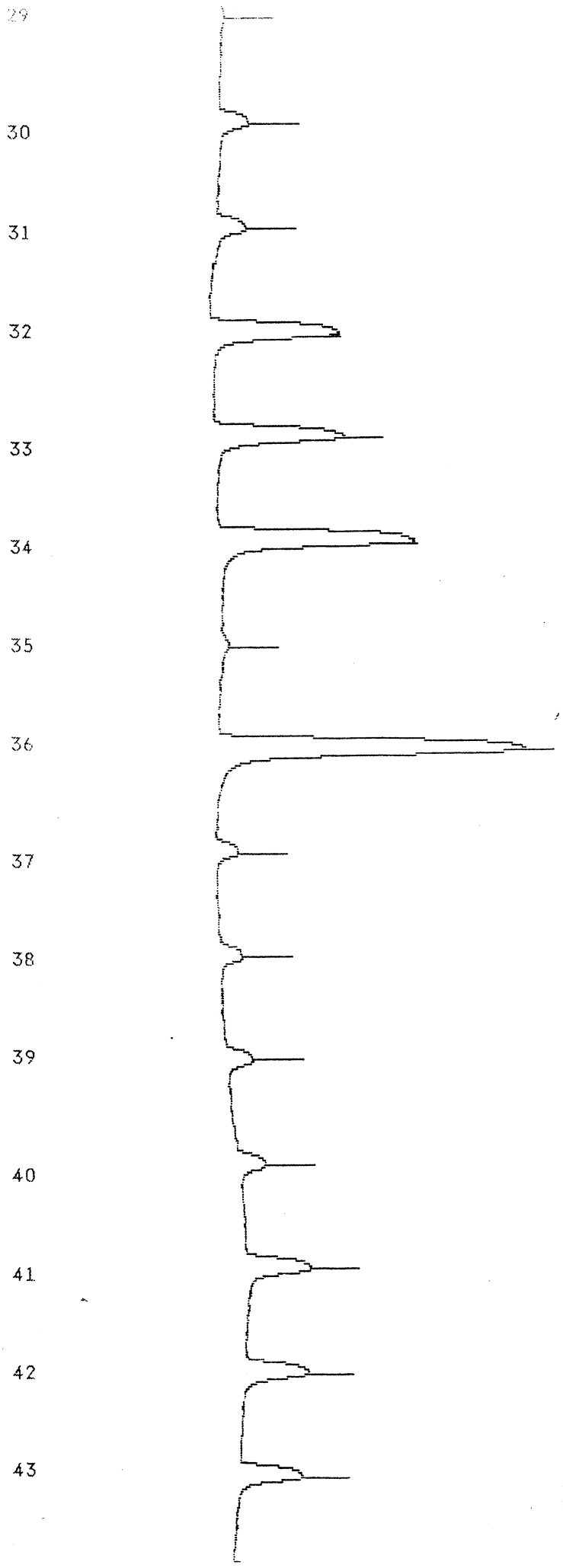
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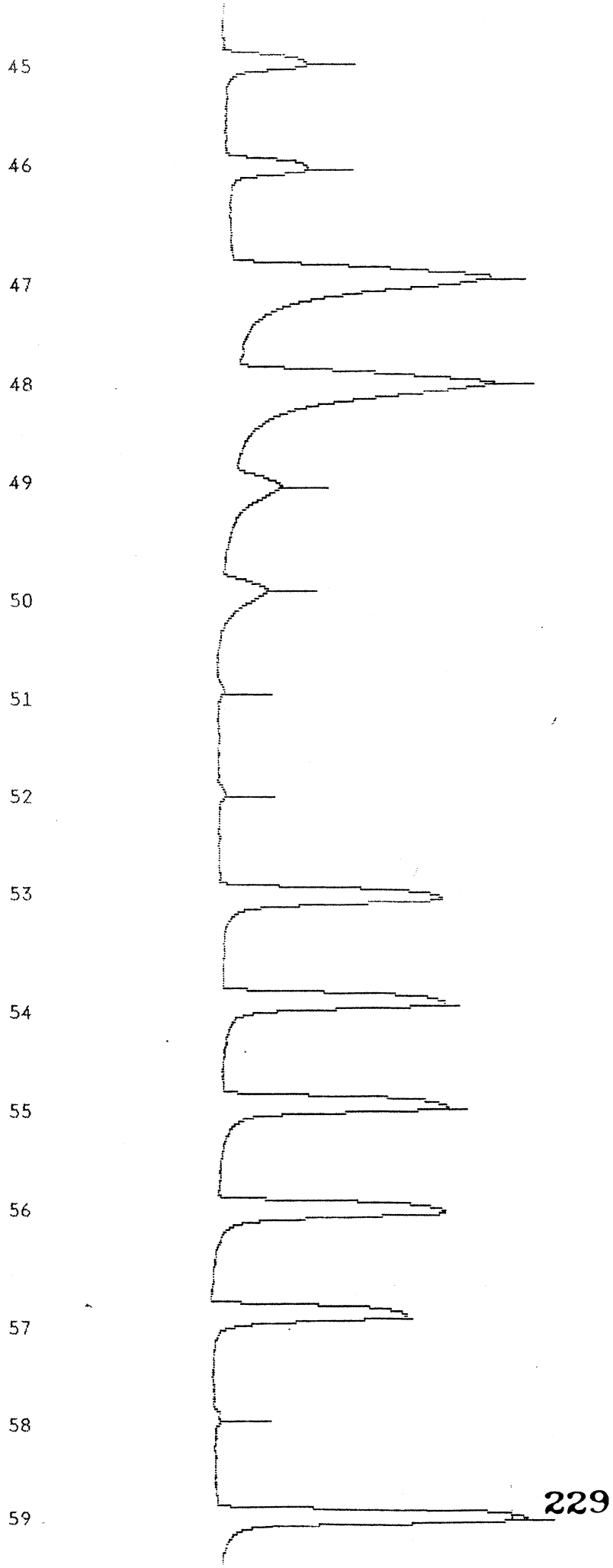
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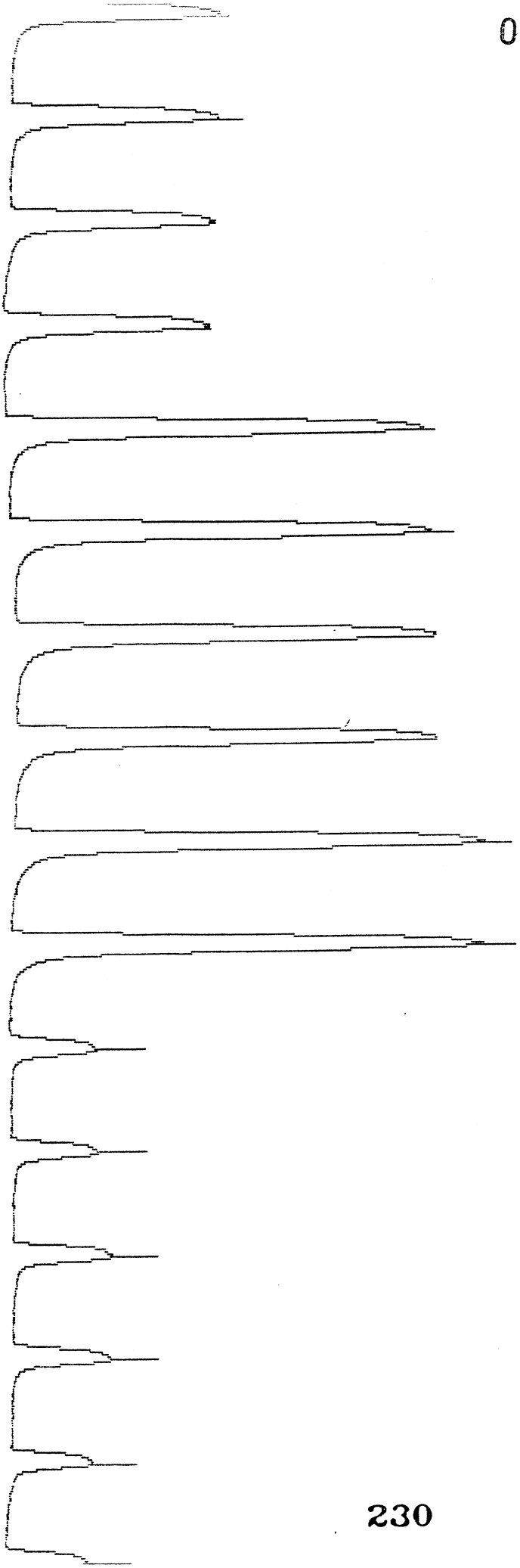
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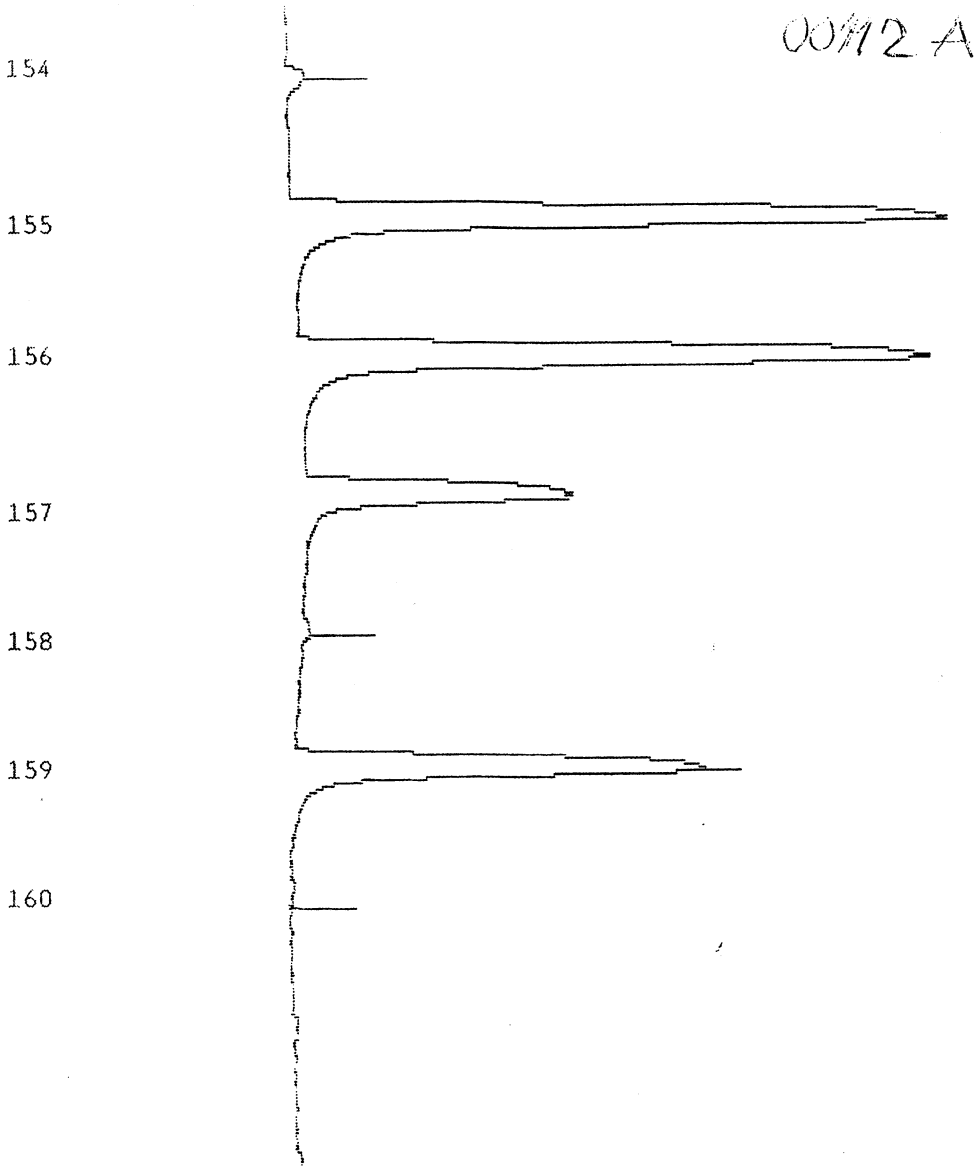

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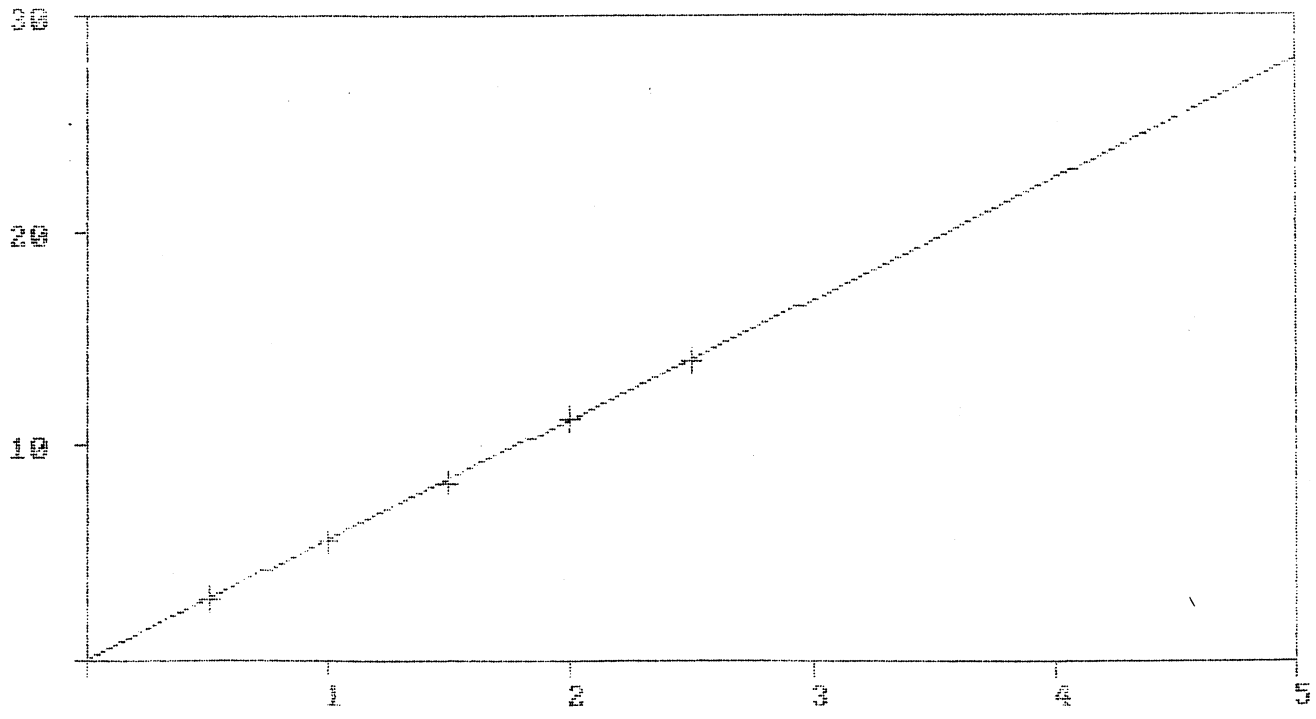
RUN NAME: 000322WA



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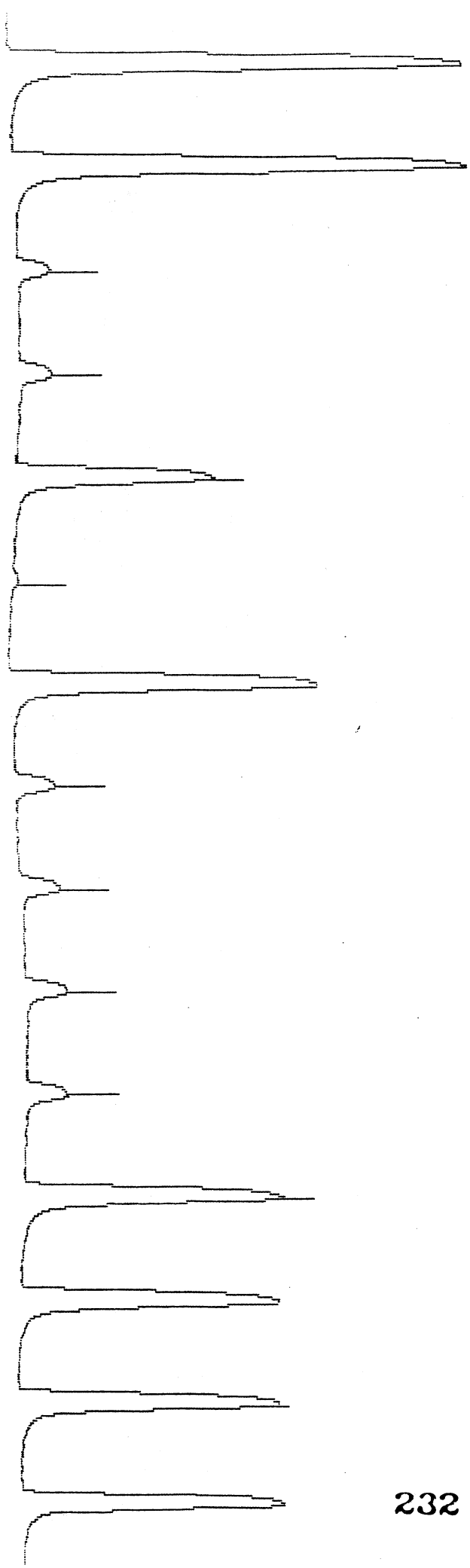
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CHANNEL NAME: LOC
RUN DATE: 03-22-2000
SAMPLE TABLE NAME: 000322WA
METHOD NAME: HGWATER

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION (PPB)	EF	
1	PRIMER	1	1	8.2		1.458	s	
2	DUMMY	1	1	0.1		0.006	I	
3	S1: 0	1	1	0.1		0.001	I	
4	S2: .5	1	1	2.9		0.510		
5	S3: 1	1	1	5.6		0.993		
6	S4: 1.5	1	1	8.3		1.484		
7	S5: 2	1	1	11.2		2.006		
8	S6: 2.5	1	1	14.0		2.506		
9	ICV	1	1	8.0		1.418	95%	
10	B	1	1	0.0		-0.012	b	
11	D4	1	1	8.3		1.484	d	
12	WS 378	1	1	13.1	TMG	2.335	117%	
13	ORG REF	1	1	12.7		2.278	113%	
14	BL0322-1BKC 10387	1	1	0.0	<0.03	-0.012	I	
15	BL0322-1BKC	1	1	0.1		0.006	I	
16	BL0322S	1	1	6.3	0.331	1.111	110%	
17	BL0322S	1	1	6.2		1.094		
18	BL0322DS	1	1	6.2	0.331	1.098	110%	
19	BL0322DS	1	1	6.3		1.111		
20	10403	1	1	1.5	0.263	0.260		REDIGESTED & RERUN ON 03/24 MB
21	10403	1	1	1.5		0.265		
22	10403D	1	1	1.8	0.315	0.313		
23	10403D	1	1	1.8		0.317		
24	10403S	1	1	7.8	1.394	1.392		
25	10403S	1	1	7.8		1.396		
26	10403DS	1	1	7.8	1.379	1.383		
27	10403DS	1	1	7.7		1.374		
28	10394	1	1	0.0	<0.03	-0.012	I	
29	10394	1	1	0.0		-0.012	I	
30	10398	1	1	0.5	<0.05	0.085	I	
31	10398	1	1	0.6		0.102	s	
32	10399	1	1	3.3	0.292	0.580		
33	10399	1	1	3.3		0.589		
34	CCV	1	1	5.3		0.931	93%	
35	B	1	1	0.0		-0.012	b	
36	D4	1	1	8.3		1.484	d	
37	10400	1	1	0.3	<0.05	0.037	I	
38	10400	1	1	0.3		0.050	I	
39	10401	1	1	0.5	<0.05	0.076	I	
40	10401	1	1	0.4		0.058		
41	10402	1	1	1.6	0.132	0.269		
42	10402	1	1	1.5		0.260		
43	10404	1	1	1.4	0.252	0.247		
44	10404	1	1	1.5		0.256		
45	10405	1	1	1.9	0.340	0.335		
46	10405	1	1	2.0		0.344	s	
47	10406	1	1	6.9	1.219	1.230		
48	10406	1	1	6.8		1.208		
49	10406	5	1	1.1		0.906	91%	MB
50	10406	5	1	1.0		0.819	I	
51	BL0322-2BKC	1	1	0.0	<0.03	-0.012	I	
52	BL0322-2BKC	1	1	0.0		-0.012	I	
53	BL0322S	1	1	233 5.8	0.313	1.037	104%	
54	BL0322S	1	1	5.9		1.050		
55	BL0322DS	1	1	6.0		1.072		

00115

58	B	1	1	0.0		[illegible]		
59	D4	1	1	8.3		1.484	d	
60	10409	1	1	5.5	0.975	0.975		
61	10409	1	1	5.5		0.975	s	
62	10409D	1	1	5.5	0.976	0.980		
63	10409D	1	1	5.5		0.971		
64	10409S	1	1	11.3	2.024	2.019	105%	
65	10409S	1	1	11.4		2.028		
66	10409DS	1	1	11.4	2.035	2.028	105%	
67	10409DS	1	1	11.4		2.041		
68	10407	1	1	12.8	2.282	2.282		
69	10407	1	1	12.8		2.282		
70	10408	1	1	2.1	0.368	0.370		
71	10408	1	1	2.1		0.365		
72	10410	1	1	2.4	0.419	0.423		
73	10410	1	1	2.4		0.414		
74	10411	1	1	2.0	0.340	0.344		
75	10411	1	1	1.9		0.335		
76	10412	1	1	12.3	2.197	2.194	s	
77	10412	1	1	12.3		2.199		
78	10276	1	1	0.6	0.105	0.102		
79	10276	1	1	0.7		0.107		
80	CCV	1	1	5.3		0.936	93%	
81	B	1	1	0.0		-0.012	b	
82	D4	1	1	8.3		1.484	d	
83	10278	1	1	0.9	0.138	0.142		
84	10278	1	1	0.8		0.133		
85	10278D	1	1	0.8	0.138	0.133		
86	10278D	1	1	0.9		0.142		
87	10278 PS	1	1	6.9	1.230	1.234	109%	
88	10278 PS	1	1	6.9		1.225		
89	10278 PS	1	1	7.0	1.241	1.238	110%	
90	10278 PS	1	1	7.0		1.243		
91	10280	1	1	0.5	0.07	0.080	s	
92	10280	1	1	0.4		0.067	I	
93	10282	1	1	0.7	0.116	0.111		
94	10282	1	1	0.7		0.120		
95	BL0322-1N18 9745	1	1	0.0	<0.03	-0.012	I	
96	BL0322-1N18	1	1	0.0		-0.012	I	
97	BL0322S	1	1	6.1	0.326	1.089	109%	
98	BL0322S	1	1	6.1		1.085		
99	BL0322DS	1	1	6.2	0.331	1.107	110%	
100	BL0322DS	1	1	6.2		1.102		
101	9747	5	1	4.5	1.196	3.977		
102	9747	5	1	4.5		3.999		
103	CCV	1	1	5.3		0.940	94%	
104	B	1	1	0.0		-0.012	b	
105	D4	1	1	8.3		1.484	d	
106	9747D	5	1	4.3	1.147	3.823	s	
107	9747D	5	1	4.3		3.823		
108	9747S	5	1	10.4	2.772	9.240	107%	
109	9747S	5	1	10.4		9.240		
110	9747DS	5	1	10.3	2.762	9.196	106%	
111	9747DS	5	1	10.3		9.218		
112	9745	1	1	0.0	<0.03	-0.012	I	
113	9745	1	1	0.0		-0.012	I	
114	9746	1	1	0.0	<0.03	-0.012	I	
115	9746	1	1	0.0		-0.012	I	
116	9748	4	1	10.2	2.181	7.251		
117	9748	4	1	10.2		7.287		
118	9749	4	1	14.3	3.052	10.216		
119	9749	4	1	14.2		10.129		
120	CCV	1	1	5.3		0.940	94%	
121	B	1	1	0.0		-0.012	b	

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
010387	MOSTARDI	MB R456	Mercury -	PV	-0.0100	-99999.0	0.0970	97.	0.0970	97.	00/03/17	1NPO	00/03/17	MG02	52.	8.	*BLKIMP*
010394	MOSTARDI	Reagent Blank 01/25	Mercury -	PV	-0.2500						00/03/17	1NPO	00/03/17	MG02	52.	8.	*DDL*
010398	MOSTARDI	Unit 1/2 Stack-FB	Mercury -	PV	-0.2500						00/03/17	1NPO	00/03/17	MG02	50.	8.	*DDL*
010399	MOSTARDI	Unit 3 Stack-FB	Mercury -	PV	-0.2500						00/03/17	1NPO	00/03/17	MG02	52.	8.	*DDL*
010400	MOSTARDI	Unit 1 Inlet-FB	Mercury -	PV	-0.2500						00/03/17	1NPO	00/03/17	MG02	50.	8.	*DDL*
010401	MOSTARDI	Unit 2 Inlet-FB	Mercury -	PV	-0.2500						00/03/17	1NPO	00/03/17	MG02	50.	8.	*DDL*
010402	MOSTARDI	Unit 3 Inlet-FB	Mercury -	PV	-0.2500						00/03/17	1NPO	00/03/17	MG02	52.	8.	*DDL*
010403	MOSTARDI	Unit 3 Stack-R1	Mercury -	PV	-0.2500	-0.2500	2.5250	99.	2.5670	101.	00/03/17	1NPO	00/03/17	MG02	52.	8.	*DDL*
010404	MOSTARDI	Unit 3 Stack-R2	Mercury -	PV	-0.2500						00/03/17	1NPO	00/03/17	MG02	52.	8.	*DDL*
010405	MOSTARDI	Unit 3 Stack-R3	Mercury -	PV	-0.2500						00/03/17	1NPO	00/03/17	MG02	51.	8.	*DDL*
010406	MOSTARDI	Unit 1/2 Stack-R1	Mercury -	PV	-0.2500						00/03/17	1NPO	00/03/17	MG02	50.	8.	*DDL*
BL0317	INTERNAL		Mercury -	PV	-0.0100	-99999.0	0.0970	97.	0.0970	97.	00/03/17	1NPO	00/03/17	MG02	$$$	$$$	*BLKIMP*
010407	MOSTARDI	Unit 1/2 Stack-R2	Mercury -	PV	-0.2500						00/03/17	2NPO	00/03/17	MG02	50.	8.	*DDL*
010408	MOSTARDI	Unit 1/2 Stack-R3	Mercury -	PV	-0.2500						00/03/17	2NPO	00/03/17	MG02	49.	8.	*DDL*
010409	MOSTARDI	Unit 3 Inlet-R1	Mercury -	PV	-0.2500	-0.2500	2.7030	101.	2.7500	103.	00/03/17	2NPO	00/03/17	MG02	52.	8.	*DDL*
010410	MOSTARDI	Unit 3 Inlet-R2	Mercury -	PV	-0.2500						00/03/17	2NPO	00/03/17	MG02	52.	8.	*DDL*
010411	MOSTARDI	Unit 3 Inlet-R3	Mercury -	PV	-0.2500						00/03/17	2NPO	00/03/17	MG02	51.	8.	*DDL*
010412	MOSTARDI	Unit 1 Inlet-R1	Mercury -	PV	-0.2500						00/03/17	2NPO	00/03/17	MG02	50.	8.	*DDL*
010413	MOSTARDI	Unit 1 Inlet-R2	Mercury -	PV	-0.2500						00/03/17	2NPO	00/03/17	MG02	50.	8.	*DDL*
010414	MOSTARDI	Unit 1 Inlet-R3	Mercury -	PV	-0.2500						00/03/17	2NPO	00/03/17	MG02	49.	8.	*DDL*
010415	MOSTARDI	Unit 2 Inlet-R1	Mercury -	PV	-0.2500						00/03/17	2NPO	00/03/17	MG02	50.	8.	*DDL*
010416	MOSTARDI	Unit 2 Inlet-R2	Mercury -	PV	-0.2500						00/03/17	2NPO	00/03/17	MG02	50.	8.	*DDL*
010417	MOSTARDI	Unit 2 Inlet-R3	Mercury -	PV	-0.2500						00/03/17	2NPO	00/03/17	MG02	49.	8.	*DDL*
BL0317	INTERNAL		Mercury -	PV	-0.2500	-99999.0	0.0980	98.	0.0990	99.	00/03/17	2NPO	00/03/17	MG02	$$$	$$$	*BLKIMP*

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

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00116

00117

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.03.17(WA) Run Code: MG02 Matrix: IMP.

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			WS 378			
13			ORG. REF.			
14			BL0317	INPO.		
15			"			
16			BL0317 S			
17			"			
18			BL0317 DS			
19			"			
20	10		10403			
21			"			
22			10403 D			
23			"			
24			10403 S			
25			"			
26			10403 DS			
27			"			
28			10391			
29			"			
30			10398			
31			"			
32			10399			
33			"			
34			CCV			
35			B			
36			D4			
37	10		10400			
38			"			
39			10401			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41	10		10402			
42			"			
43			10404			
44			"			
45			10405			
46			"			
47			10406			
48			"			
49			BL0317	2NPO		
50			"			
51			BL0317 S			
52			"			
53			BL0317 DS			
54			"			
55	10		10409			
56			"			
57			CCV			
58			B			
59			D4			
60	10		10409 D			
61			"			
62			10409 S			
63			"			
64			10409 DS			
65			"			
66			10407			
67			"			
68			10408			
69			"			
70			10410			
71			"			
72			10411			
73			"			
74			10412			
75			"			
76			10413			
77			"			
78			10414			
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.

00118

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.03.17 (WA) Run Code: MG02 Matrix: IMP./WATER

Analyst: MG Units: ug, mg/L (see comments) MDL: 0.01/0.0005

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
81			B			
22			D4			
23	10		10415			
24			"			
25			10416			
26			"			
27			10417			
28			"			
29			CCV			
30			B			
31			D4			
32			BLQ317	STD1		
33			BLQ317 S			
34			10688			
35			88 D			
36			88 S			
37			85			
38			10851			
39			LEACH BLK			
40			10691			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			10694			
42			10872			
43			10858			
44			10855			
45			11198			
46			WS378			
47			ORG. REF			
48			CCV			
49			B			
50			D4			
51						
52						
53						
54						
55						
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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.

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

Revision 1.0
Effective 000216

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

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
8	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 shaken and bulked
- ✓ 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 MES-ZENO 30/QCA (Ref Std)
	10	BL 03 17	"	"	"	"	(Processed Blank)
	11	BL 03 17 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	12	BL 03 17 DS					(Duplicate Blank Spike)
1	13	10403	"	1ml	15ml	10X	=FVPOX 250 mls
1	14	D	"	"	"	"	(Duplicate sample)
1	15	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	16	DS	"	"	"	"	(Duplicate Spiked sample)
2	17	10394	"	"	"	"	
3	18	98	"	"	"	"	
4	19	99	"	"	"	"	
5	20	10400	"	"	"	"	
6	21	401	"	"	"	"	
7	22	402	"	"	"	"	
8	23	~~403~~ 000317 10406	"	"	"	"	
9	23	404	"	"	"	"	
10	24	405	"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)
	26	BL 03 17	2NPO	20 ml	30 ml	"	(Processed Blank)
	27	BL 03 17 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	28	BL 03 17 DS					(Duplicate Blank Spike)
1	29	10409	"	1ml	15ml	10X	=FVPOX 250 mls
1	30	D	"	"	"	"	(Duplicate sample)
1	31	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	32	DS	"	"	"	"	(Duplicate Spiked sample)
2	33	10407	"	"	"	"	
3	34	408	"	"	"	"	
4	35	410	"	"	"	"	
5	36	411	"	"	"	"	
6	37	412	"	"	"	"	
7	38	413	"	"	"	"	
8	39	414	"	"	"	"	
9	40	415	"	"	"	"	
10	41	416	"	"	"	"	
	42	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

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Comments

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

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

DG29HGI, DG29HGF, DG101AA1, DG101AA2

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	43	BL		"	"	"	(Processed Blank)
	44	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	45	BL DS					(Duplicate Blank Spike)
1	46		"	"	"	"	
1	47	D	"	"	"	"	(Duplicate sample)
1	48	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	49	DS	"	"	"	"	(Duplicate Spiked sample)
2	50		"	"	"	"	
3	51		"	"	"	"	
4	52		"	"	"	"	
5	53		"	"	"	"	
6	54		"	"	"	"	
7	55		"	"	"	"	
8	56		"	"	"	"	
9	57		"	"	"	"	
10	58		"	"	"	"	
	57	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref*Std)

Procedure/Methodology:

1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO_3
2 Prepare 0.05 ppm Working standard daily by pipetting 200 ul., of 25 ppm Intermediate to 100 ml final volume of 2% HNO_3
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 Include one External Reference Material sample per run
7 Incude one Organic Mercury Control Standard per run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 6% $KMnO_4$, purple colour must remain for at least 15 minutes
12 Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$), to each tube
13 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
14 Remove tubes and allow to cool to room temperature
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless
17 Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	N H6 02019	00 04 01
Intermediate Cal Standard	Internal	00 03 09 A	00 04 09
Stock Reference Standard	High Purity	836309	00 FEB
External Reference Material	SPEX	CONC 12	00 04 17
Organic Mercury Control Standard	Aldrich	06811 HR	00 02 07
6% potassium permanganate	Internal	00 03 10 A	00 05 10
5% potassium persulphate	Internal	00 02 15 B	00 04 15
20% hydroxylamine hydrochloride	Internal	00 03 10 A	00 05 10
HNO_3	Anachemia	119100	00 05 13
H_2SO_4	Anachemia	219020	00 04 21
Bath Temps: 1 1 95 C	Time ON: 12 PM	Time OFF: 2 PM	
Prepared By: M Mispergo	Date: 000317	Checked by: M Mispergo	

RUN DATE: 03-17-2000 CHART DATE: 03-20-2000
CHART SPEED: 30
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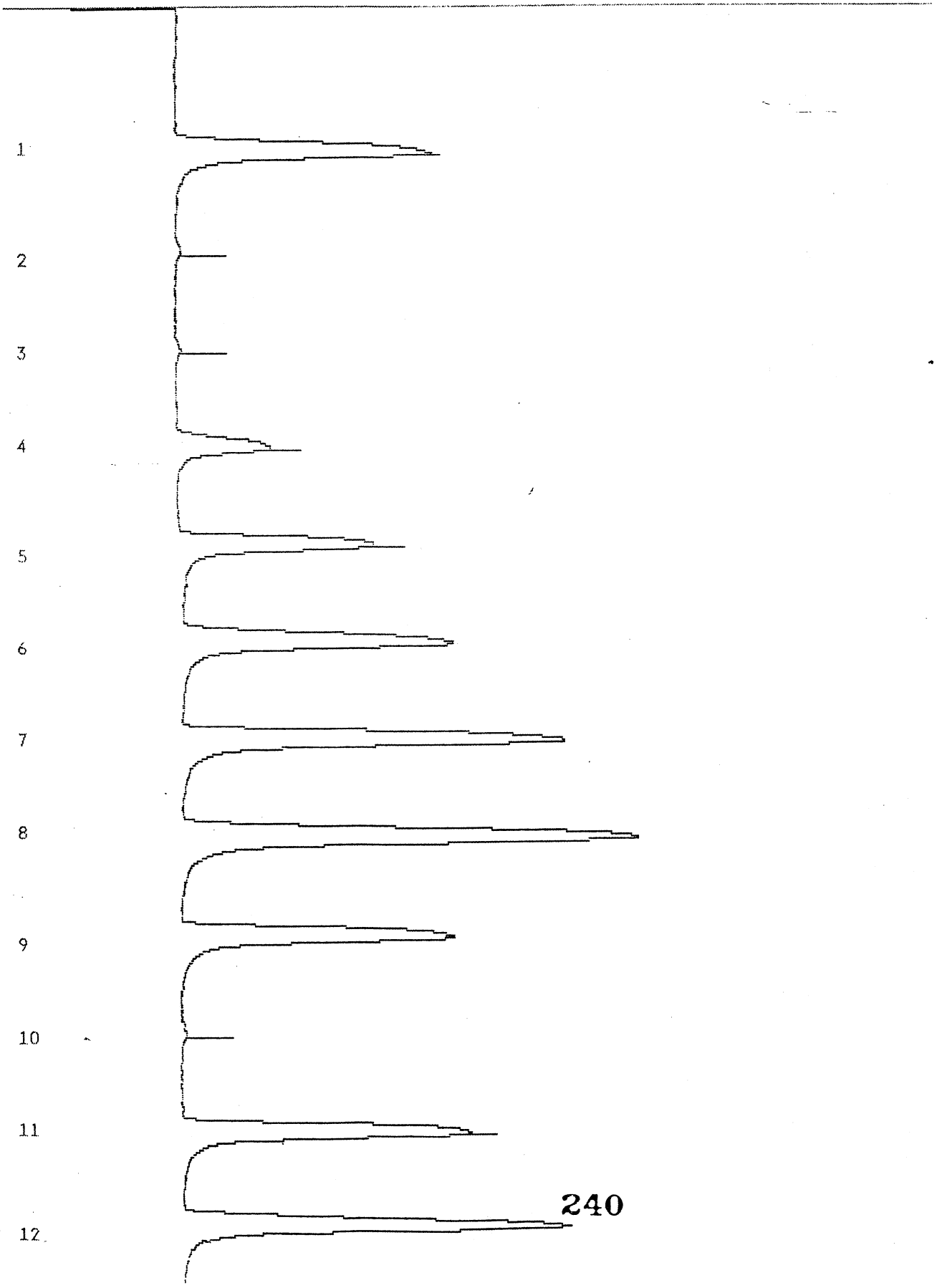

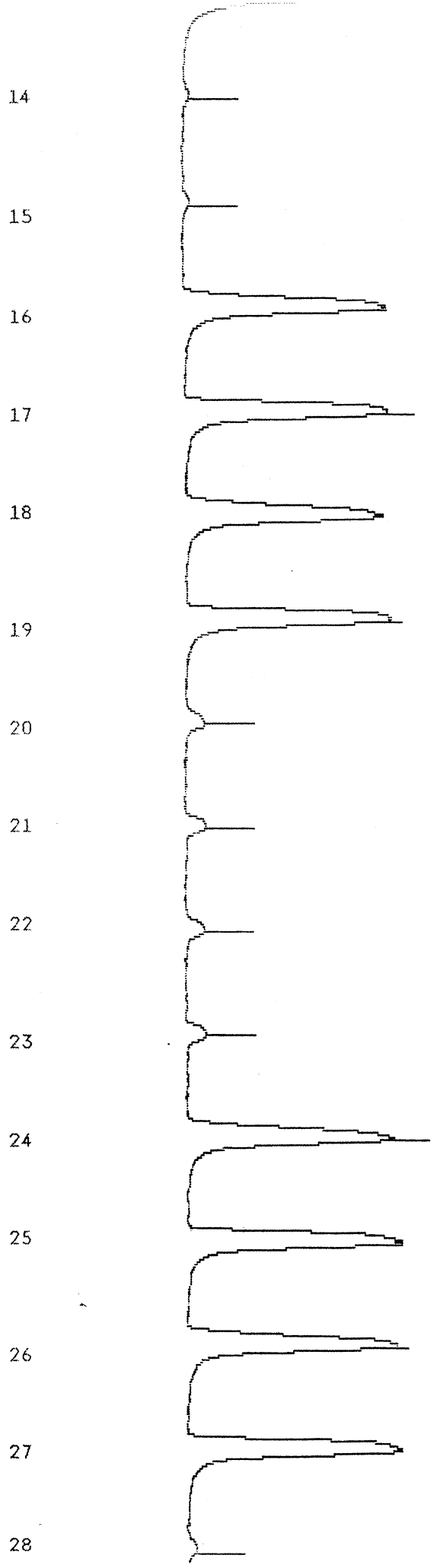
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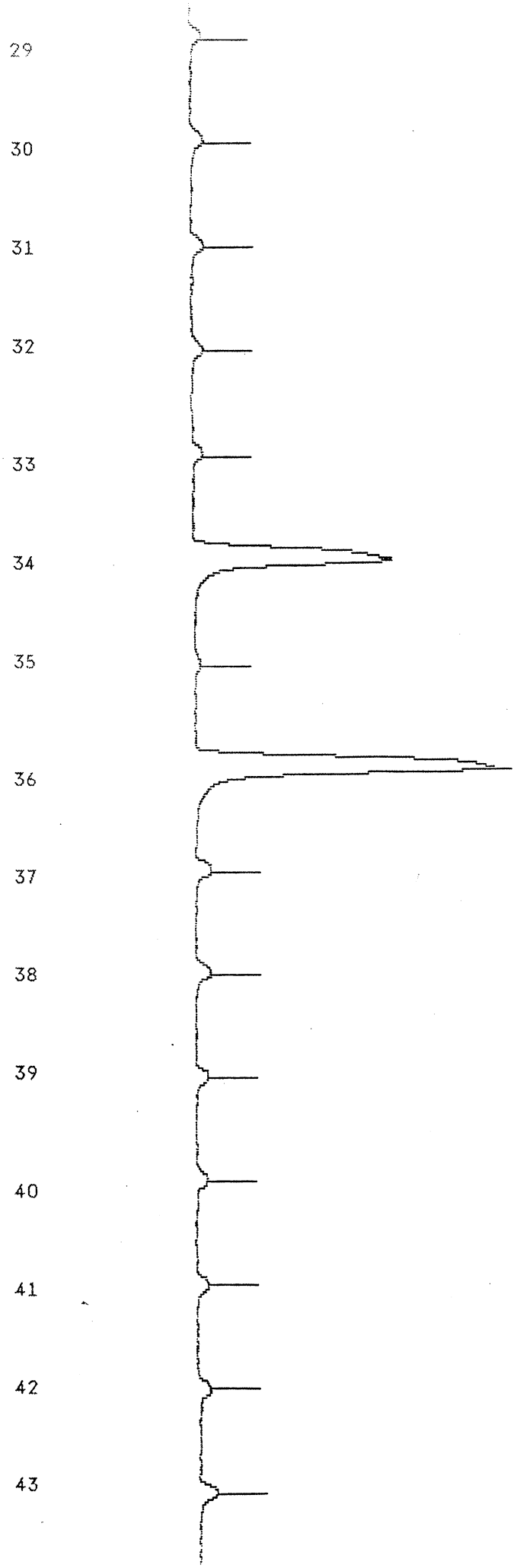
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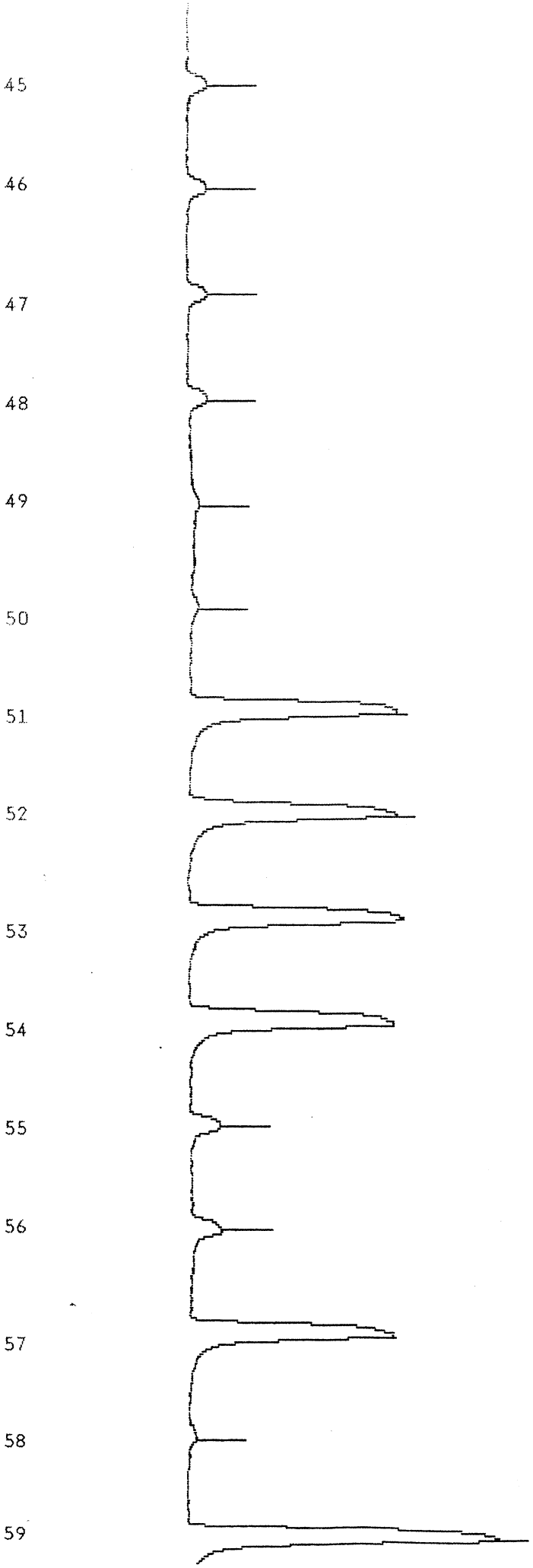
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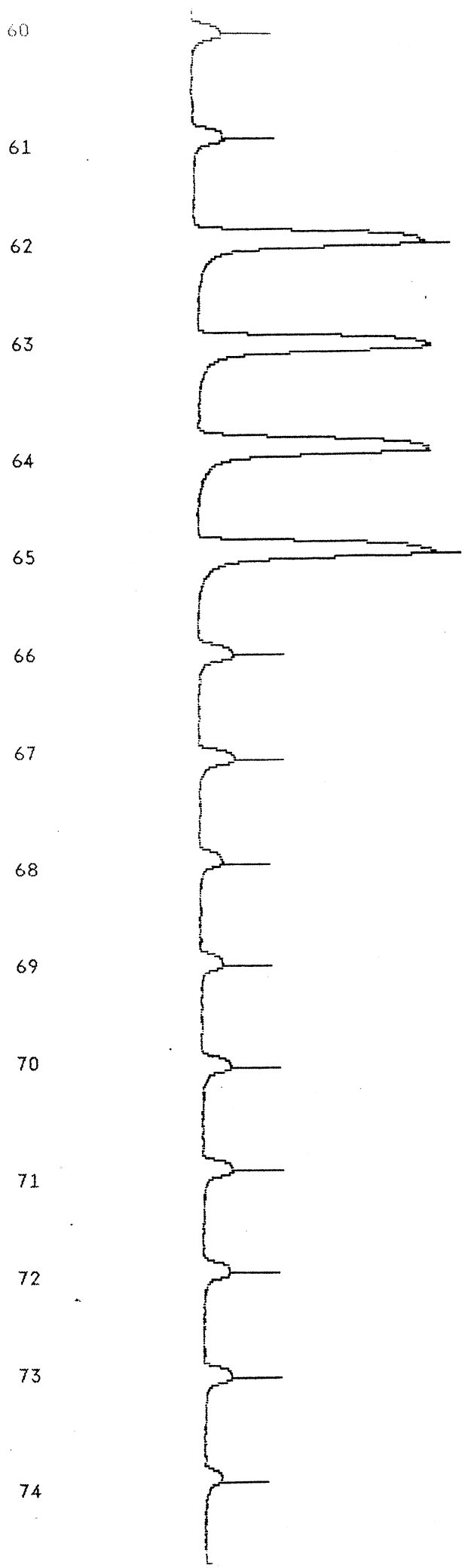
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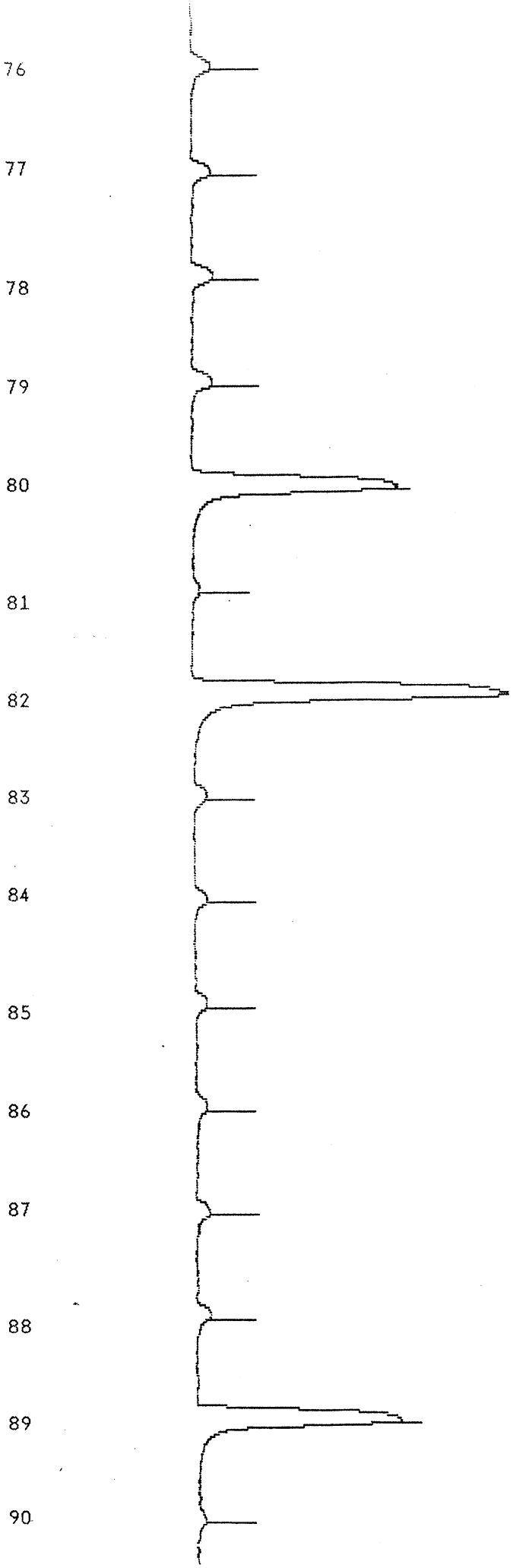
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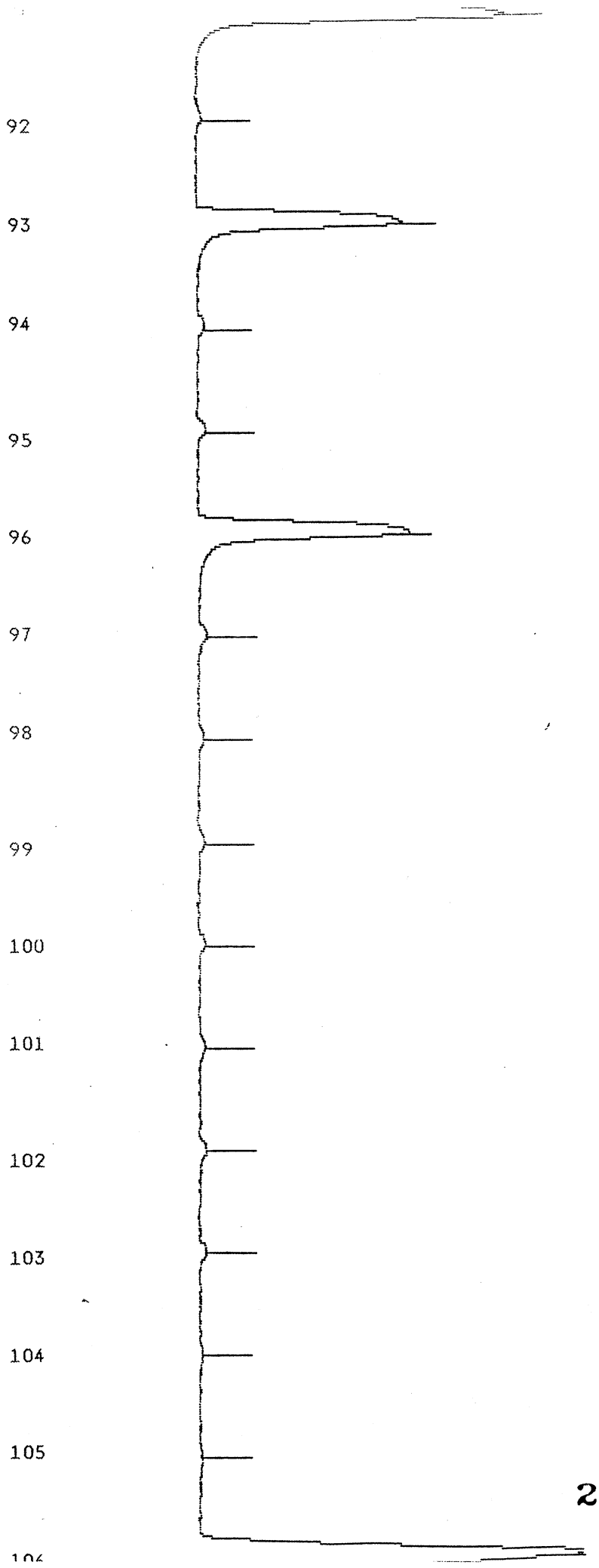
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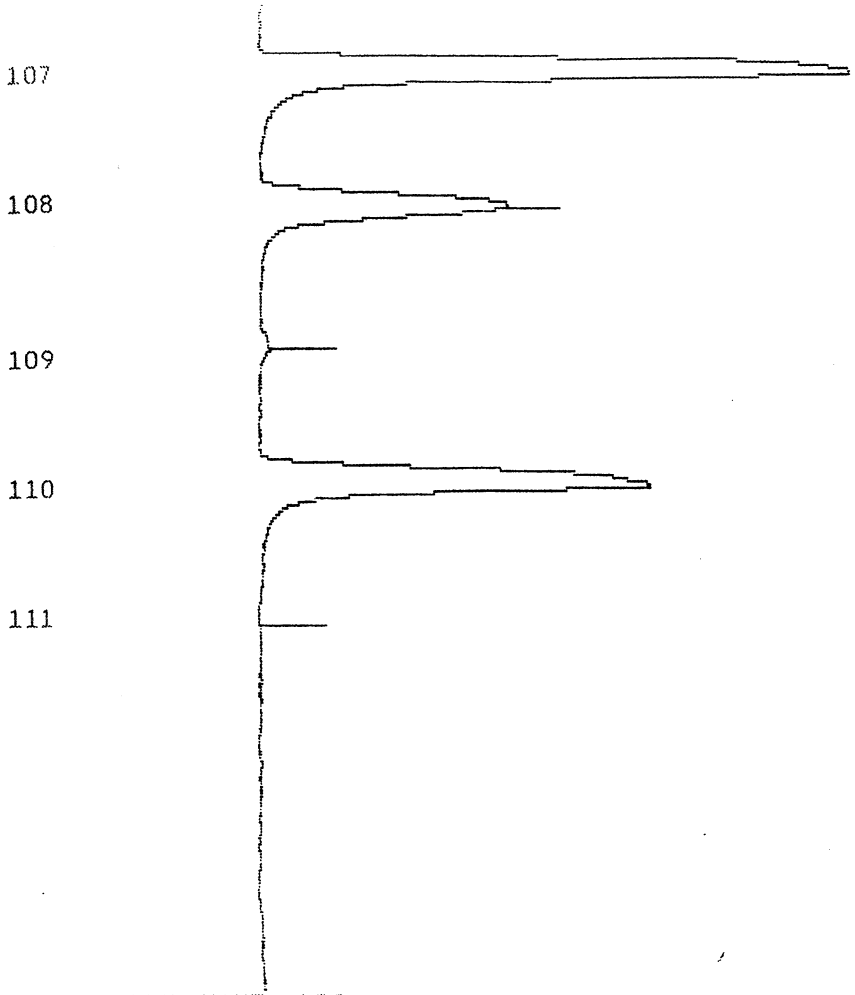
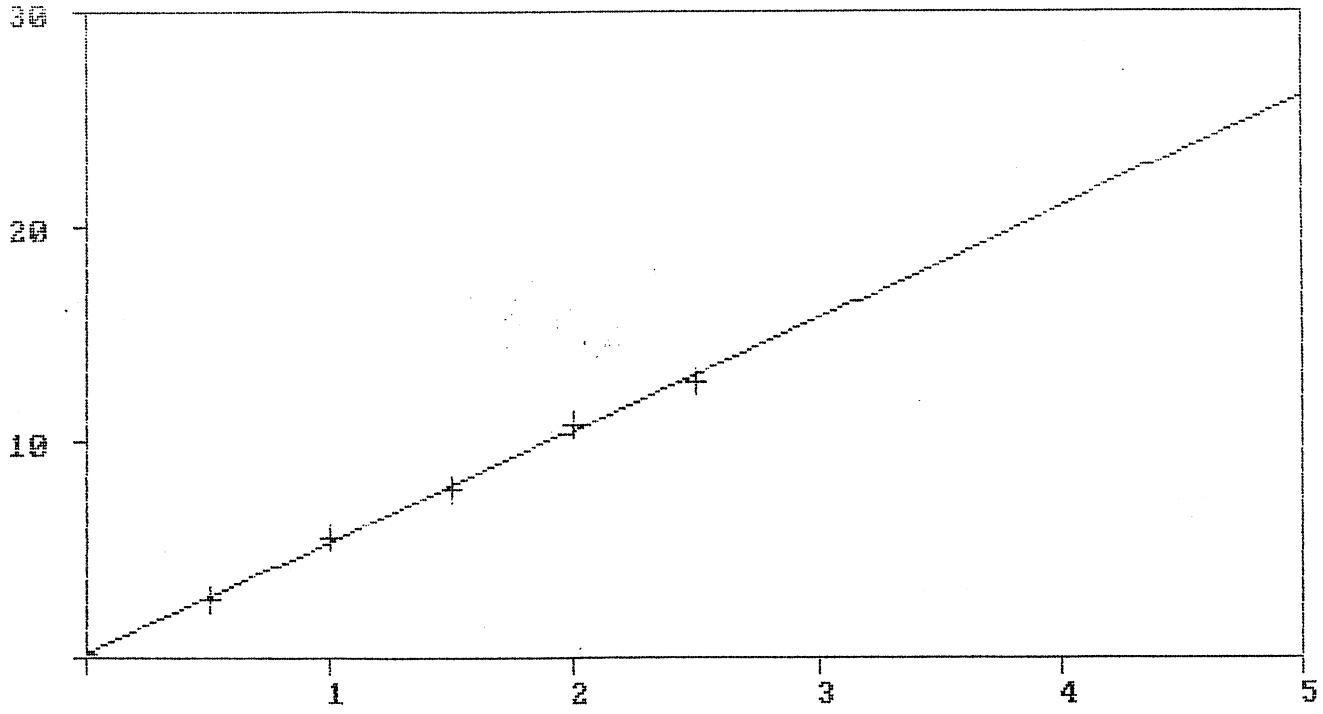


CHANNEL NAME: LDC
RUN NAME: 000317WA



DATA TYPE: FIA CALIBRATION ORDER: 1
INTERCEPT = 0.19 SLOPE = 5.157509

CORRELATION: .9989141

CHANNEL NAME: LDC

SAMPLE TABLE NAME: 000317WA
METHOD NAME: HGWATER

00129 ppb

SP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION	EF
1	PRIMER	1	1	7.5		1.422	s
2	DUMMY	1	1	0.1		-0.013	I
3	S1: 0	1	1	0.1		-0.008	I
4	S2: .5	1	1	2.6		0.475	
5	S3: 1	1	1	5.5		1.039	
6	S4: 1.5	1	1	7.8		1.479	
7	S5: 2	1	1	10.8		2.066	
8	S6: 2.5	1	1	12.8		2.449	
9	ICV	1	1	7.5		1.427	95%
10	B	1	1	0.0		-0.036	b
11	D4	1	1	7.8		1.479	d
12	WS 378	1	1	10.6	TMG	2.028	101%
13	ORG REF	1	1	11.1		2.123	106%
14	BL0317-1NPO 10387	1	1	0.0	<0.01	-0.036	I
15	BL0317-1NPO	1	1	0.0		-0.036	I
16	BL0317S	1	1	5.2	0.097	0.963	97%
17	BL0317S	1	1	5.3		0.982	
18	BL0317DS	1	1	5.1	0.097	0.953	97%
19	BL0317DS	1	1	5.3		0.986	
20	10403	10	1	0.3	<0.250	0.158	I
21	10403	10	1	0.3		0.205	I
22	10403D	10	1	0.3	<0.250	0.205	I
23	10403D	10	1	0.3		0.253	I
24	10403S	10	1	5.3	2.525	9.959	99%
25	10403S	10	1	5.5		10.243	
26	10403DS	10	1	5.4	2.567	10.148	101%
27	10403DS	10	1	5.5		10.385	
28	10394	10	1	0.1	<0.250	-0.221	I
29	10394	10	1	0.2		0.016	I
30	10398	10	1	0.2	<0.250	0.110	I
31	10398	10	1	0.2		0.063	s
32	10399	10	1	0.2	<0.250	-0.032	I
33	10399	10	1	0.1		-0.126	I
34	CCV	1	1	5.2		0.967	97%
35	B	1	1	0.0		-0.036	b
36	D4	1	1	7.8		1.479	d
37	10400	10	1	0.2	<0.250	0.110	I
38	10400	10	1	0.2		0.063	I
39	10401	10	1	0.2	<0.250	-0.032	I
40	10401	10	1	0.1		-0.126	I
41	10402	10	1	0.1	<0.250	-0.126	I
42	10402	10	1	0.1		-0.079	I
43	10404	10	1	0.2	<0.250	0.110	I
44	10404	10	1	0.2		0.110	I
45	10405	10	1	0.2	<0.250	0.110	I
46	10405	10	1	0.3		0.253	s
47	10406	10	1	0.3	<0.250	0.205	I
48	10406	10	1	0.3		0.158	I
49	BL0317-2NPO	1	1	0.0	<0.01	-0.036	I
50	BL0317-2NPO	1	1	0.0		-0.036	I
51	BL0317S	1	1	5.3	0.098	0.982	98%
52	BL0317S	1	1	5.3		0.986	
53	BL0317DS	1	1	5.4	0.099	1.015	99%
54	BL0317DS	1	1	5.2		0.967	
55	10409	10	1	0.5	<0.250	0.631	
56	10409	10	1	0.5		0.631	I
57	CCV	1	1	5.1		0.953	95%
58	B	1	1	0.0		-0.036	b
59	D4	1	1	7.8		1.479	d
60	10409D	10	1	0.5	<0.250	0.537	I

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00132

DC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.03.24 Run Code: MG02 Matrix: MW 1/3

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			BL0324	1BKC		
15			"			
16			BL0324S			
17			"			
18			BL0324DS			
19			"			
20			10415			
21			"			
22			10415D			
23			"			
24			10415S			
25			"			
26			10415DS			
27			"			
28			10413			
29			"			
30		1/2	10414			
31		↓	"			
32			10416			
33			"			
34			CCV			
35			B			
36			D4			
37			10417			
38			"			
39			10420			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			10422			
42			"			
43			10423			
44			"			
45		1/4	10424			
46		↓	"			
47		1/5	10425			
48		↓	"			
49			BL0324	2BKC		
50			"			
51			BL0324S			
52			"			
53			BL0324DS			
54			"			
55		1/2	10627			
56		↓	"			
57			CCV			
58			B			
59			D4			
60		1/2	10627D			
61		↓	"			
62			10627S			
63			"			
64			10627DS			
65			"			
66		1/5	10626			
67		↓	"			
68		1/4	10628			
69		↓	"			
70			10629			
71			"			
72			10634			
73			"			
74			10636			
75			"			
76			10637			
77			"			
78			10638			
79			"			
80			CCV			

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00·0324 Run Code: MG02 Matrix: IMP

Analyst: MG Units: _____ (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						
81 X			B			
22			D4			
23			10639			
24			"			
25			10640			
26			"			
27			BL0324	3BKC		
28			"			
29			BL0324S			
30			"			
31			BL0324DS			
32			"			
33			10642			
34			"			
35			10642 D			
36			"			
37			10642 S			
38			"			
39			10642 DS			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			10641			
42			"			
43			CCV			
44			B			
45			D4			
46			10643			
47			"			
48			10403			
49			"			
50			10403 D			
51			"			
52			10403 S			
53			"			
54			10403 DS			
55			"			
56			10276			
57			"			
58			10278			
59			"			
60			10280			
61			"			
62			10282			
63			"			
64			CCV			
65			B			
66			D4			
67			BL0324	STBL		
68			BL0324S			
69			11461			
70			61D			
71			61S			
72			11258			
73			11474			
74			75			
75			76			
76			77			
77			78			
78			79			
79			11714			
80			15			

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)

00134

3/3

Date: 00.03.24 Run Code: MG02 Matrix: WATER

Analyst: MG Units: _____ (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			10416			
20			"			
21			WS 378			
22			ORG. REF			
23			CCV			
24			B			
25			D4			
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
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77						
78						
79						
80						

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

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

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

Revision 1.0
Effective 000216

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

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
8	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 shaken and bulked
- ✓ Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	1BKC	20 ml	30 ml	1 X	1.5 ppb = 600 ul of MES-ZENO 30/QCA (Ref Std)
	10	BL 0323	"	"	"	"	(Processed Blank) 10617MB.
	11	BL 0323 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	12	BL 0323 DS					(Duplicate Blank Spike)
1	13	10415	"	"	"	"	FV=1000ml
1	14	D	"	"	"	"	(Duplicate sample)
1	15	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	16	DS	"	"	"	"	(Duplicate Spiked sample)
2	17	10413	"	"	"	"	
3	18	14	"	"	"	"	
4	19	16	"	"	"	"	
5	20	17	"	"	"	"	
6	21	10620	"	"	"	"	FV=50ml
7	22	22	"	"	"	"	FV=500ml
8	23	23	"	"	"	"	FV=500ml
9	23	24	"	"	"	"	FV=1000ml
10	24	25	"	"	"	"	FV=1000ml
	25	CCV (Cont. Calib. Verif.)	-	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)
	26	BL 0324	2BKC	20 ml	30 ml	"	(Processed Blank) 10630MB.
	27	BL 0324 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	28	BL 0324 DS					(Duplicate Blank Spike)
1	29	10627	"	"	"	"	FV=1000ml
1	30	D	"	"	"	"	(Duplicate sample)
1	31	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	32	DS	"	"	"	"	(Duplicate Spiked sample)
2	33	10626	"	"	"	"	
3	34	28	"	"	"	"	
4	35	29	"	"	"	"	
5	36	10634	"	"	"	"	FV=50ml
6	37	36	"	"	"	"	FV=500ml
7	38	37	"	"	"	"	FV=500ml
8	39	38	"	"	"	"	FV=1000ml
9	40	39	"	"	"	"	FV=1000ml
10	41	40	"	"	"	"	FV=1000ml
	42	CCV (Cont. Calib. Verif.)	-	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref Std)

10.03.24

10.03.24 AB.

Comments

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

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

DG29HGI, DG29HGF, DG101AA1, DG101AA2

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
AB 00.03.24	43	BL 0323	38KC	"	"	"	(Processed Blank)
	44	BL 0329 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
	45	BL 0329 DS					(Duplicate Blank Spike)
1	46	10642	"	"	"	"	FV= 1000 ml
1	47	D	"	"	"	"	(Duplicate sample)
1	48	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm IV Working Cal Std
1	49	DS	"	"	"	"	(Duplicate Spiked sample)
2	50	10641	"	"	"	"	
3	51	43	"	"	"	"	
4	52	10403	"	"	"	"	Full QC DONE ! 1000 ml
5	53	10276	"	"	"	"	
6	54	78	"	"	"	"	
7	55	80	"	"	"	"	
8	56	82	"	"	"	"	
9	57		"	"	"	"	
10	58		"	"	"	"	
	57	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of MES-ZENO 30/QCA (Ref-Std)

Procedure/Methodology:

1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO_3
2 Prepare 0.05 ppm Working standard daily by pipetting 200 ul., of 25 ppm Intermediate to 100 ml final volume of 2% HNO_3
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 Include one External Reference Material sample per run
7 Incude one Organic Mercury Control Standard per run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 6% $KMnO_4$, purple colour must remain for at least 15 minutes
12 Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$), to each tube
13 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
14 Remove tubes and allow to cool to room temperature
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless
17 Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	N-HG 02019	00/04/01
Intermediate Cal Standard	Internal	00/03/09 A	00/04/09
Stock Reference Standard	High Purity	836309	00 Feb.
External Reference Material	SPEX	CONC-12 [00.03.23]	00.05.23
Organic Mercury Control Standard	Aldrich	06811 HR	01.02.07
6% potassium permanganate	Internal	00.03.10 B	00.05.10
5% potassium persulphate	Internal	00.02.15 B	00/04/15
20% hydroxylamine hydrochloride	Internal	00.03.10 A	00/05/10
HNO_3	Anachemia	119100	00/05/13
H_2SO_4	Anachemia	319020	00/05/13
Bath Temps: 1 195°C	Time ON: 11:30 am	Time OFF: 1:30pm	00/04/21
Prepared By: AB	Date: 00.03.24	Checked by:	

AB 00.03.24

RUN DATE: 03-24-2000 CHART DATE: 03-27-2000
CHART SPEED: 30
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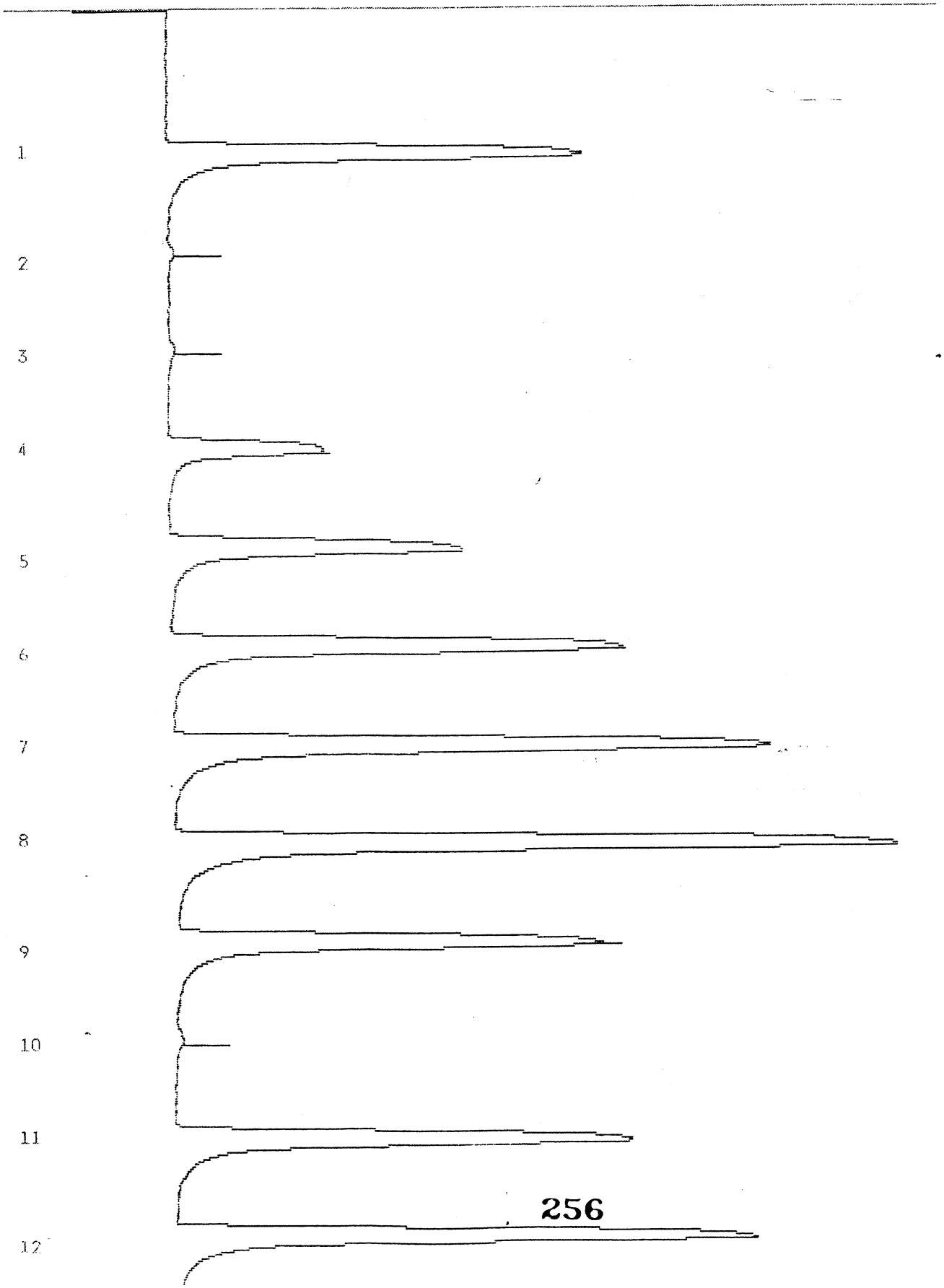

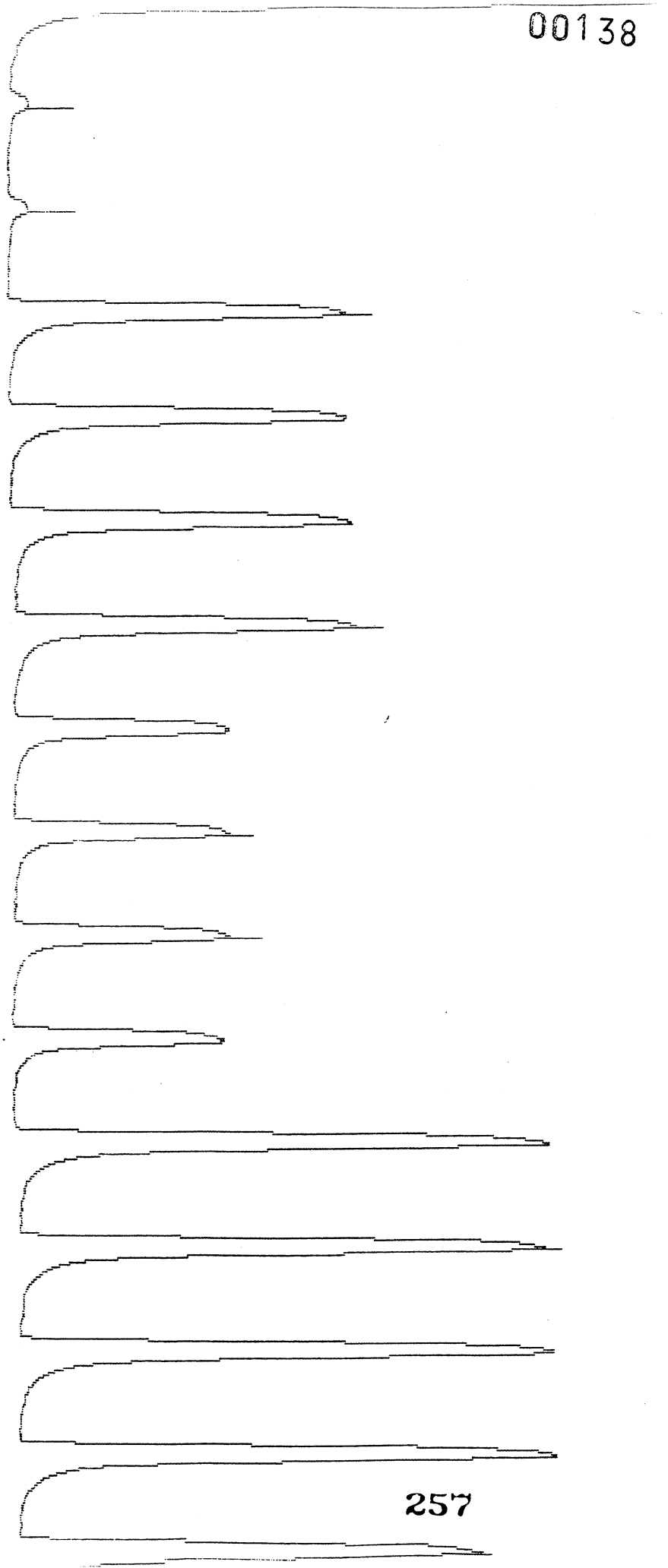

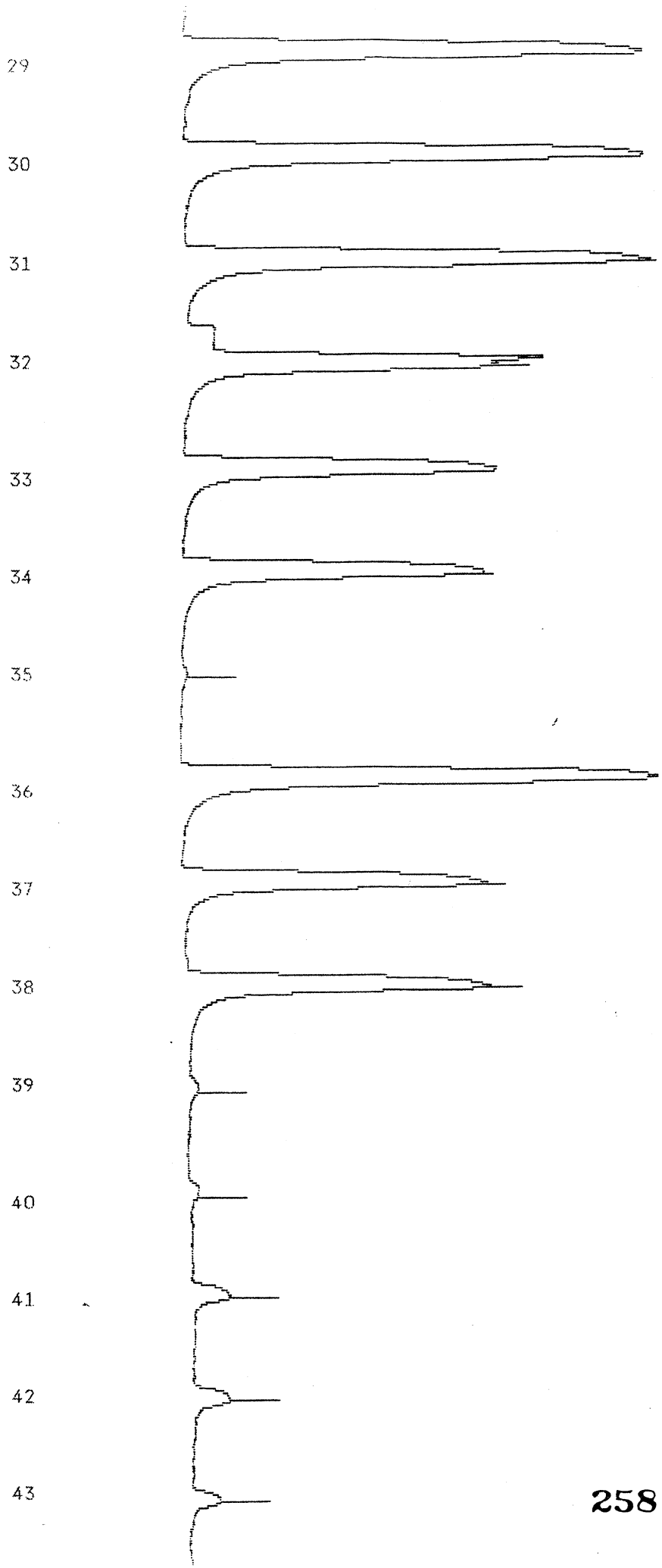
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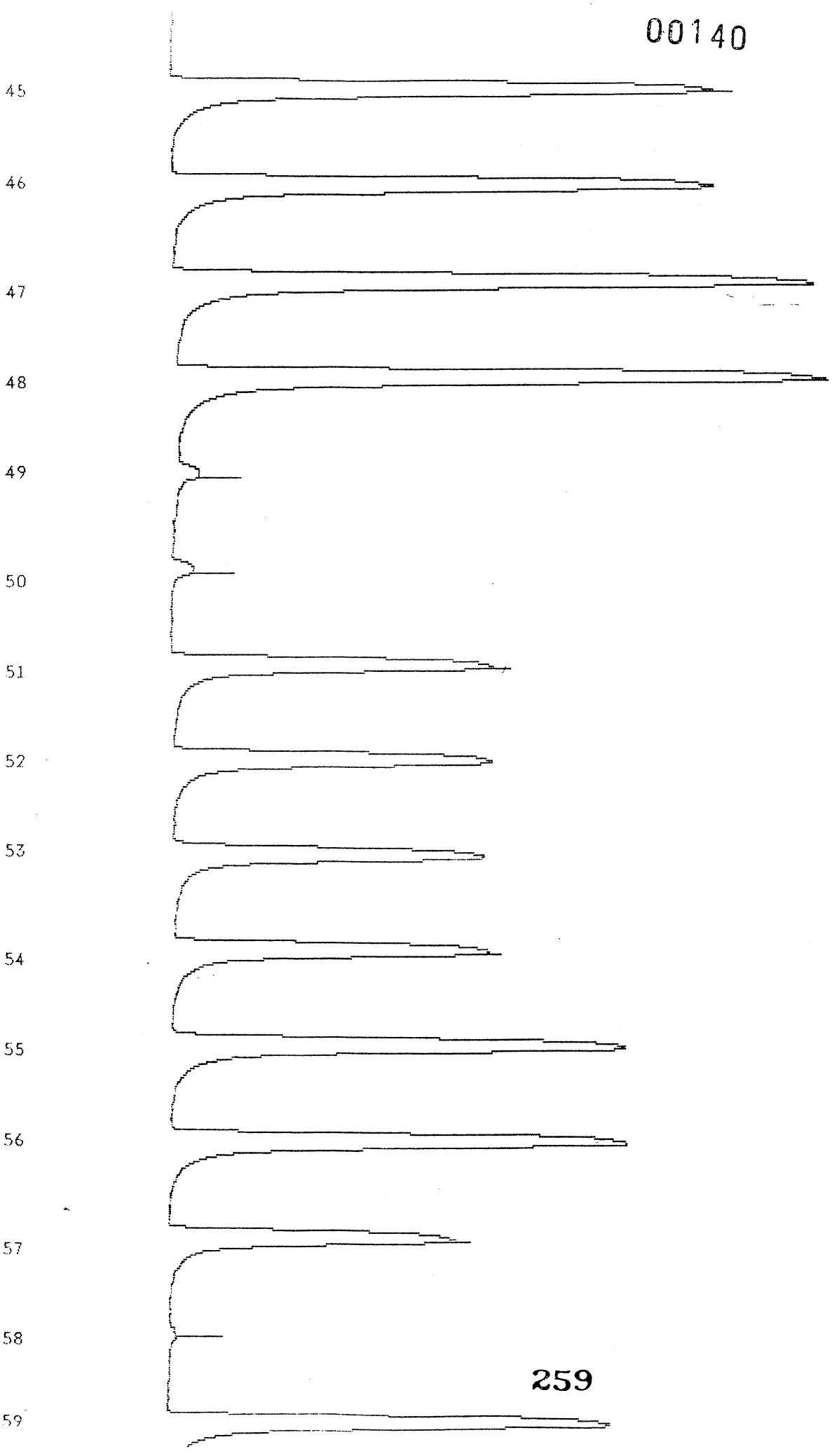
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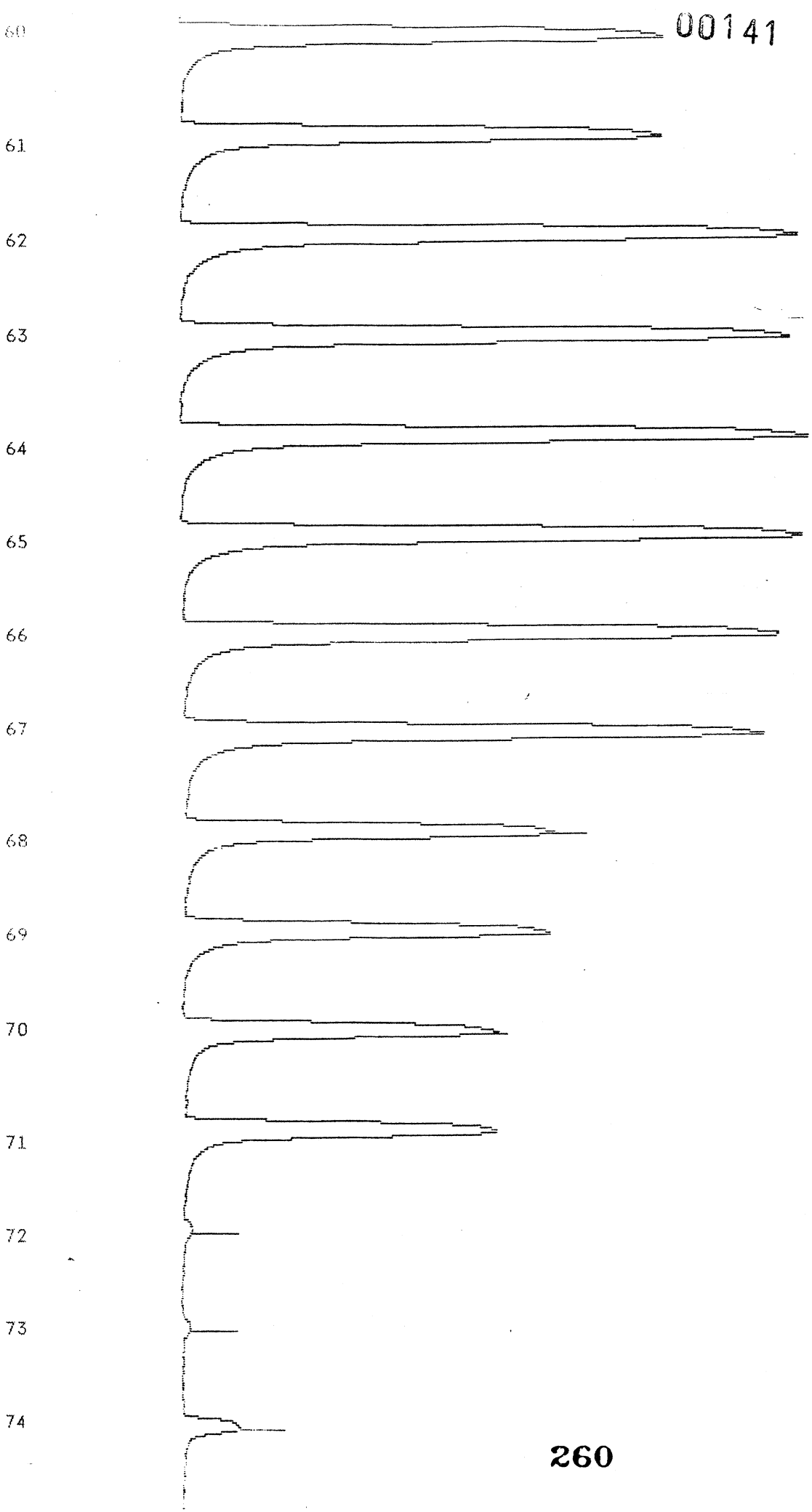
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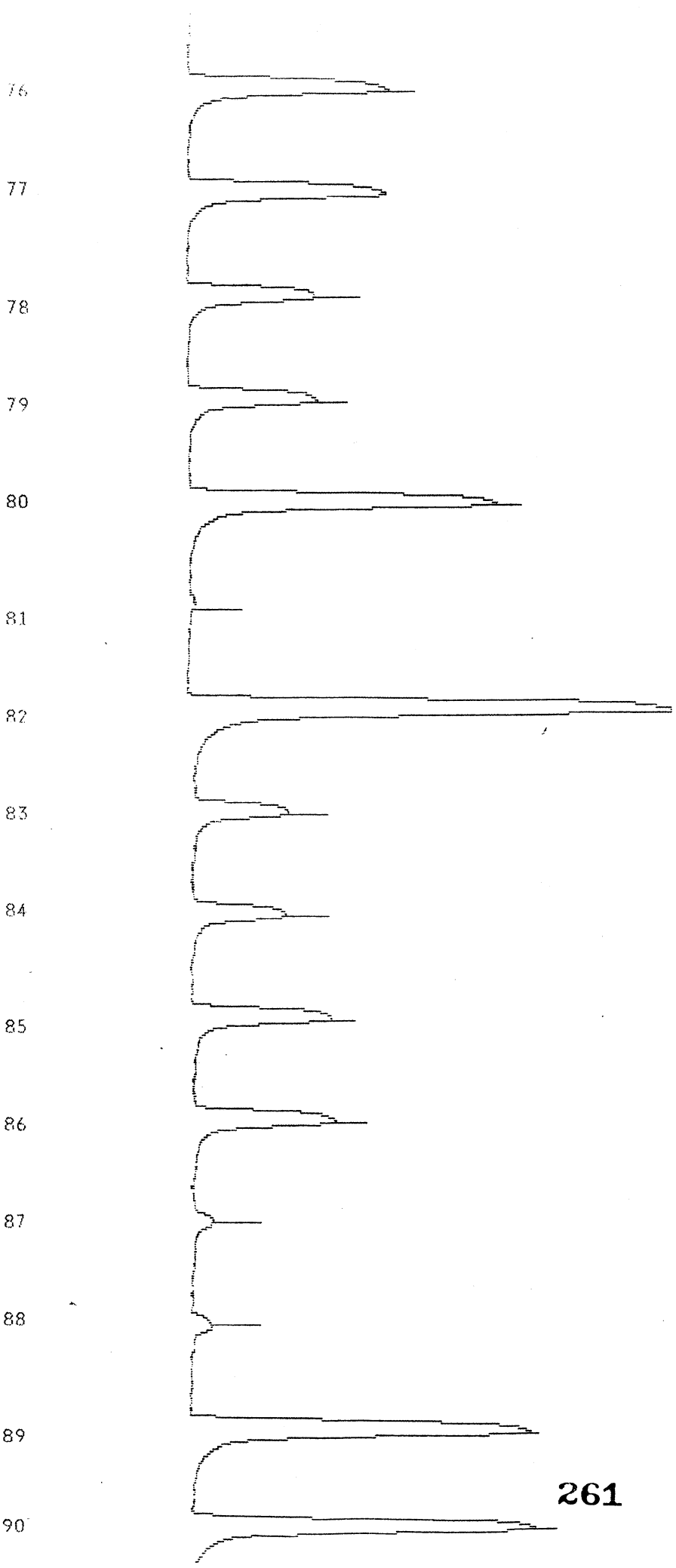
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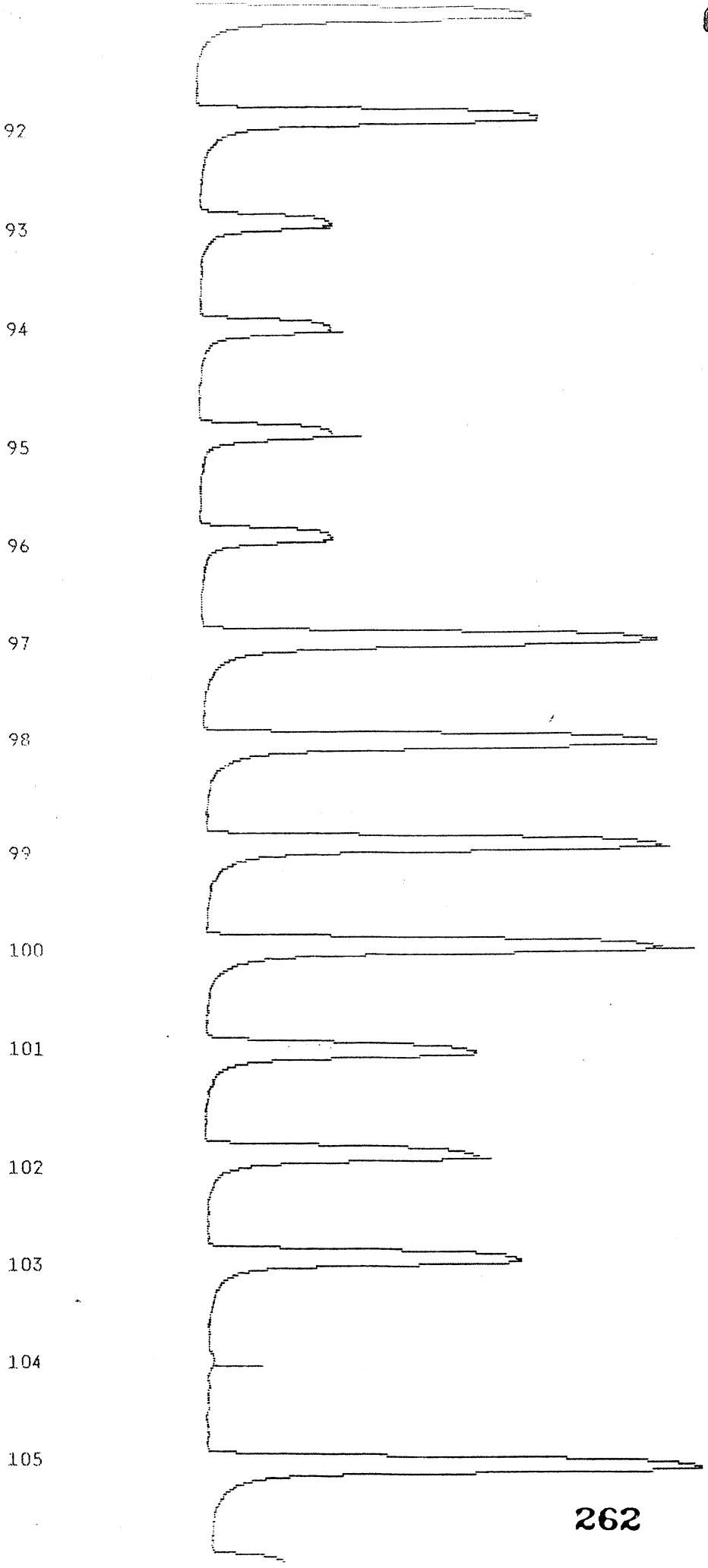
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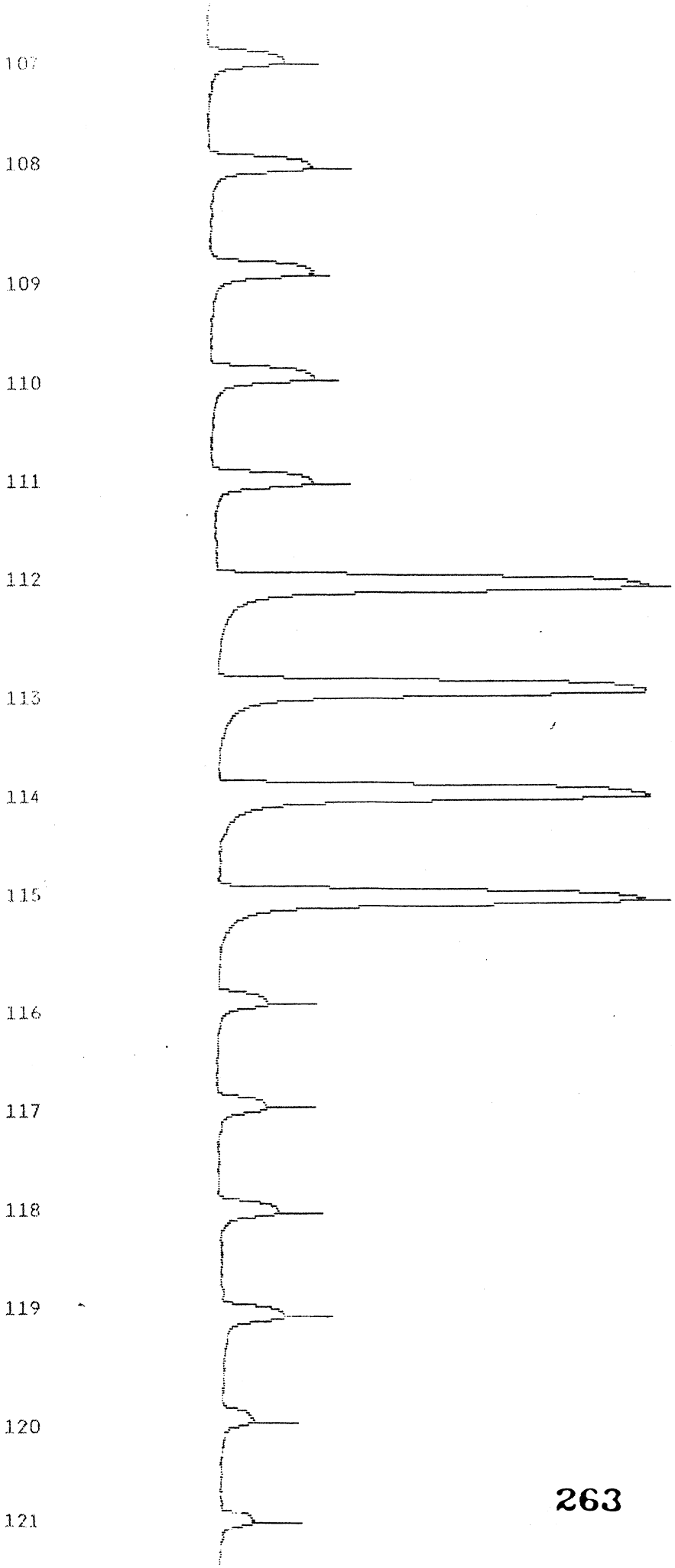
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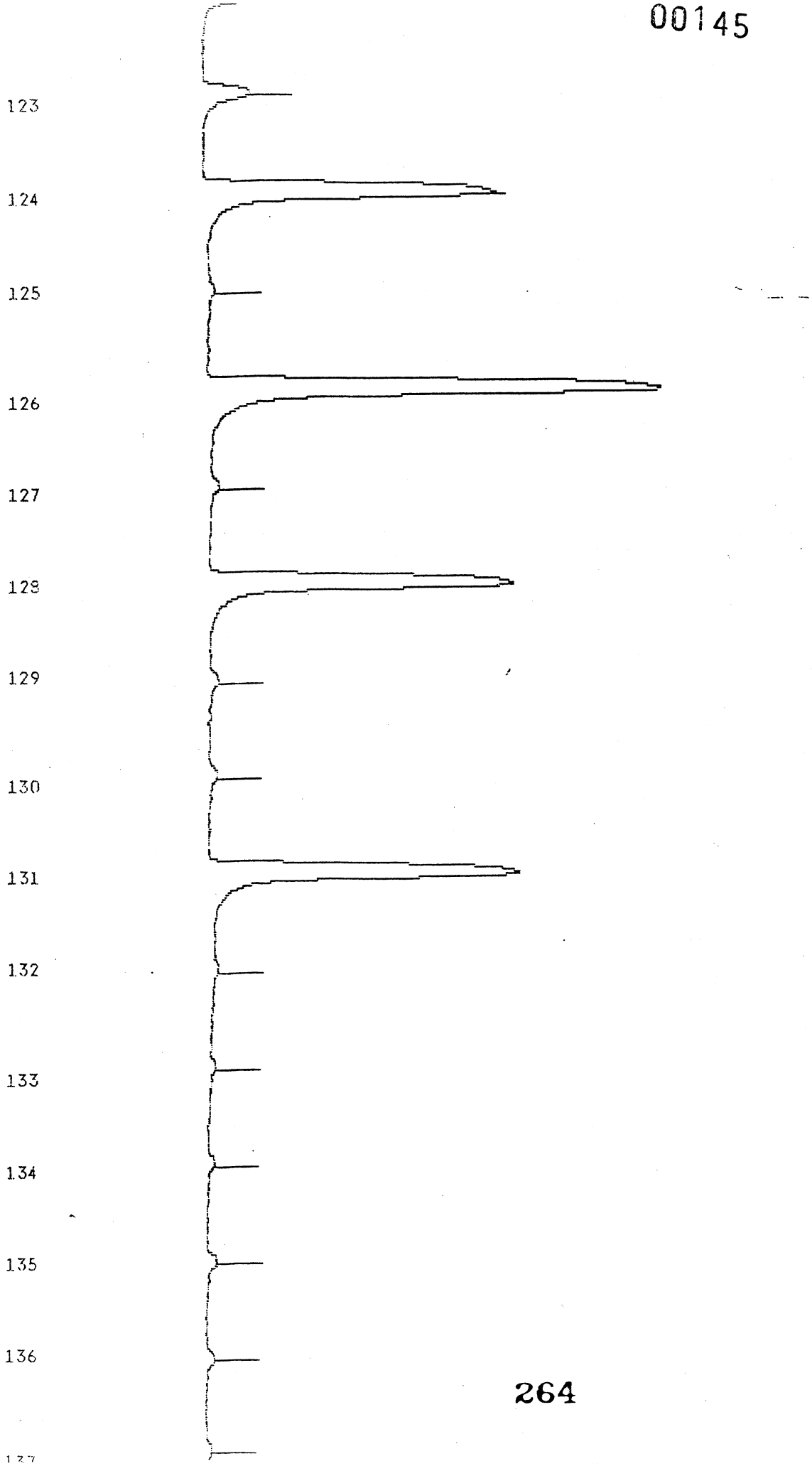
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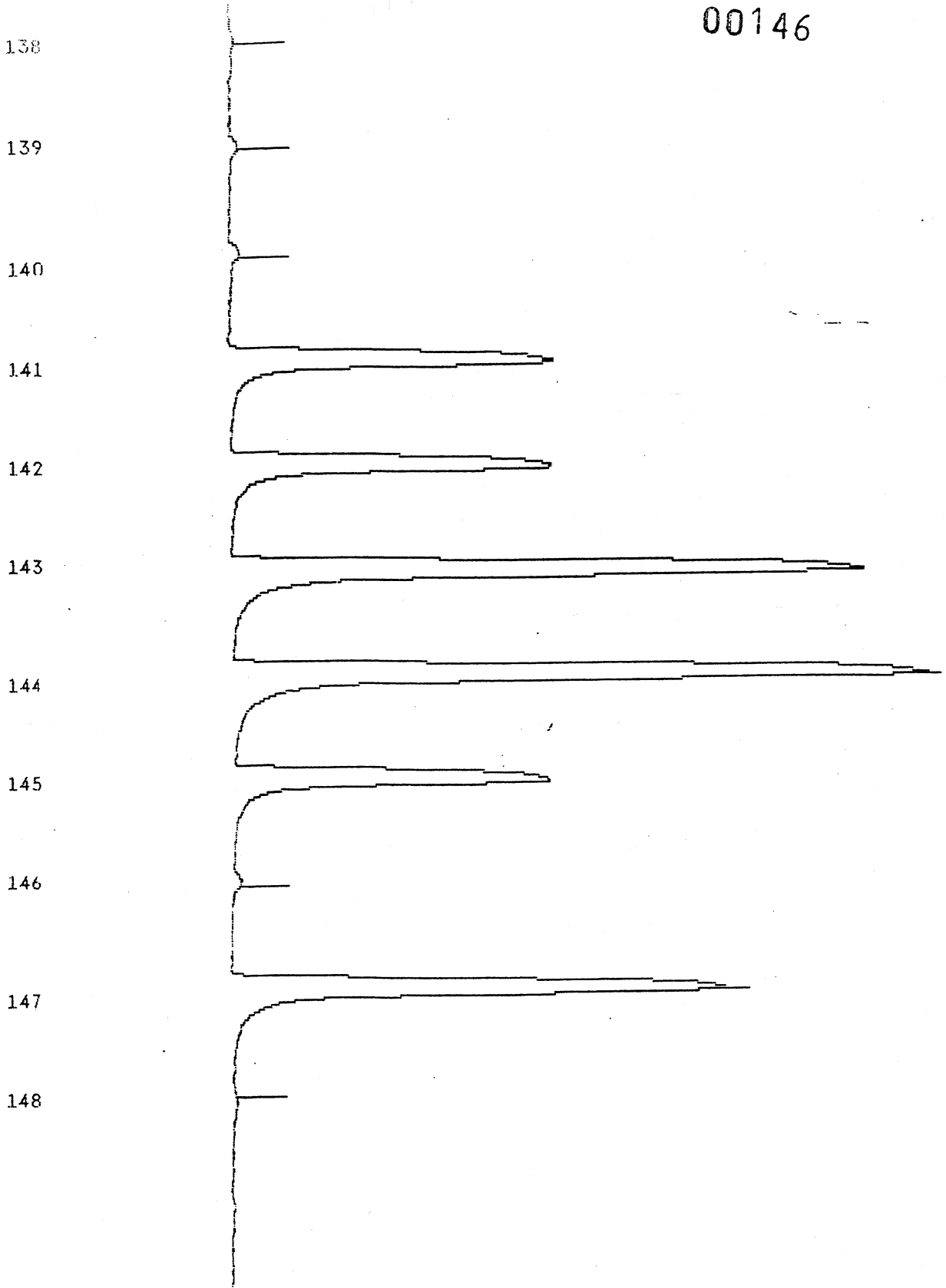
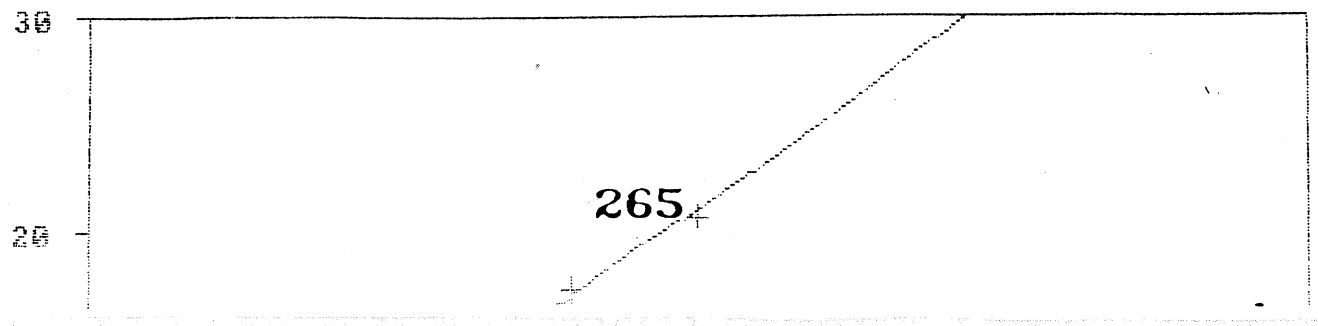
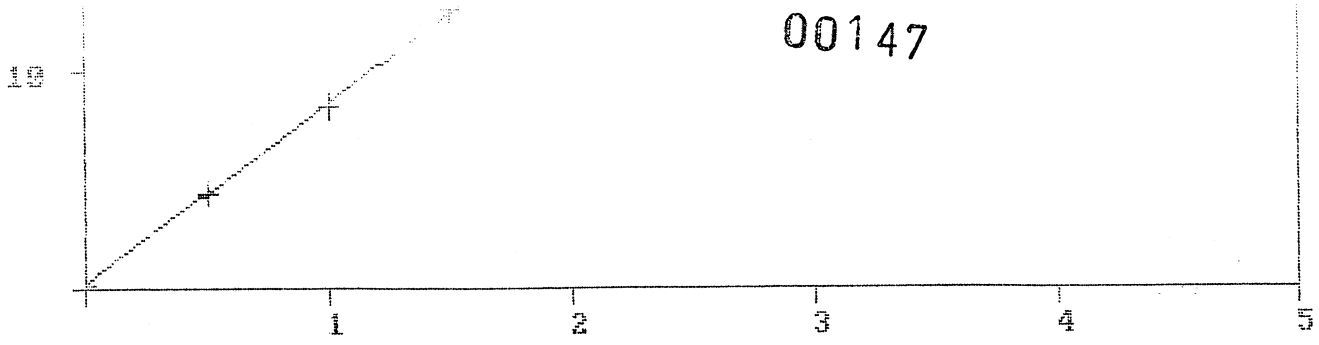


CHANNEL NAME: LDC
RUN NAME: 000324W





DATA TYPE: FIA
CALIBRATION ORDER: 1
INTERCEPT = 0.24
SLOPE = 8.297226

CORRELATION: .9996467

CHANNEL NAME: LDC
RUN DATE: 03-24-2000
SAMPLE TABLE NAME: 000324W
METHOD NAME: HGWATER

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION µg/L	EF
1	PRIMER	1	1	12.1		1.425	s
2	DUMMY	1	1	0.2		-0.009	I
3	S1: 0	1	1	0.1		-0.012	I
4	S2: .5	1	1	4.4		0.500	
5	S3: 1	1	1	8.5		0.992	
6	S4: 1.5	1	1	12.9		1.525	
7	S5: 2	1	1	17.1		2.031	
8	S6: 2.5	1	1	20.7		2.464	
9	ICV	1	1	12.0		1.422	95%
10	B	1	1	0.0		-0.029	b
11	D4	1	1	12.9		1.525	d
12	WS 378	1	1	16.4	TµG	1.951	95%
13	ORG REF	1	1	18.2		2.169	109%
14	BL0324-18KC 10617	1	1	0.3	<0.03	0.009	I
15	BL0324-18KC	1	1	0.3		0.009	I
16	BL0324S	1	1	9.1	0.322	1.066	109%
17	BL0324S	1	1	9.2		1.077	
18	BL0324DS	1	1	9.2	0.324	1.077	106%
19	BL0324DS	1	1	9.2		1.083	
20	10415	1	1	5.7	0.667	0.659	
21	10415	1	1	5.8		0.674	
22	10415D	1	1	5.8	0.663	0.671	
23	10415D	1	1	5.7		0.654	
24	10415S	1	1	14.5	1.699	1.713	103%
25	10415S	1	1	14.2		1.684	
26	104150S	1	1	14.4	1.715	1.707	105%
27	10415DS	1	1	14.5		1.722	
28	10413	1	1	12.6	1.482	1.483	
29	10413	1	1	12.5		1.481	
30	10414	2	1	12.6	2.973	2.967	
31	10414	2	1	12.6		2.979	s
32	10416	1	1	10.3		1.216	] RERUN @ END mb
33	10416	1	1	8.5		0.992	
34	CCV	1	1	8.1		0.951	95%
35	B	1	1	0.0		-0.029	b
36	D4	1	1	12.9		1.525	d
37	10417	1	1	8.2	0.960	0.963	
38	10417	1	1	8.2		0.957	
39	104120	1	1	0.1		-0.018	I

266

42	10422		1	1	0.8	<0.05 0.0148	0.068	
43	10423		1	1	0.5	<0.05	0.063	
44	10423		1	1	0.6		0.038	
45	10424		4	1	15.9	7.559	7.570	
46	10424		4	1	15.9		7.547	s
47	10425		5	1	18.9	11.258	11.214	
48	10425		5	1	19.0		11.302	
49	BL0324-2BKC	10630	1	1	0.4	<0.03	0.024	I
50	BL0324-2BKC		1	1	0.5		0.027	I
51	BL0324S		1	1	9.3	0.328	1.095	109%
52	BL0324S		1	1	9.3		1.092	
53	BL0324DS		1	1	9.1	0.322	1.066	107%
54	BL0324DS		1	1	9.2		1.080	
55	10627		2	1	13.3	3.161	3.149	
56	10627		2	1	13.4		3.173	
57	CCV		1	1	8.4		0.977	97%
58	B		1	1	0.0		-0.029	b
59	D4		1	1	12.9		1.525	d
60	10627D		2	1	13.7	3.220	3.238	
61	10627D		2	1	13.5		3.202	s
62	10627S		2	1	17.3	4.103	4.121	91%
63	10627S		2	1	17.2		4.085	
64	10627DS		2	1	17.7	4.192	4.203	100%
65	10627DS		2	1	17.6		4.180	
66	10626		5	1	16.8	9.824	9.978	
67	10626		5	1	16.3		9.669	
68	10628		4	1	10.3	4.834	4.863	
69	10628		4	1	10.2		4.804	
70	10629		4	1	8.7	4.051	4.086	
71	10629		4	1	8.6		4.015	
72	10634		1	1	0.0	<0.03	-0.029	I
73	10634		1	1	0.0		-0.029	I
74	10636		1	1	1.3	0.063	0.127	
75	10636		1	1	1.3		0.124	
76	10637		1	1	5.3	0.302	0.606	s
77	10637		1	1	5.2		0.601	
78	10638		1	1	3.2	0.356	0.350	
79	10638		1	1	3.2		0.362	
80	CCV		1	1	8.2		0.957	95%
81	B		1	1	0.0		-0.029	b
82	04		1	1	12.9		1.525	d
83	10639		1	1	2.2	0.239	0.241	
84	10639		1	1	2.2		0.236	
85	10640		1	1	3.6	0.409	0.403	
86	10640		1	1	3.7		0.415	
87	BL0324-3BKC		1	1	0.2	<0.03	0.000	I
88	BL0324-3BKC		1	1	0.3		0.009	I
89	BL0324S		1	1	9.0	0.318	1.051	105%
90	BL0324S		1	1	9.1		1.066	
91	BL0324DS		1	1	9.0	0.316	1.054	105%
92	BL0324DS		1	1	9.0		1.051	
93	10642		1	1	3.3	0.370	0.368	
94	10642		1	1	3.3		0.371	
95	10642D		1	1	3.4	0.377	0.377	
96	10642D		1	1	3.4		0.377	
97	10642S		1	1	12.0	1.416	1.413	104%
98	10642S		1	1	12.0		1.419	
99	10642DS		1	1	12.0	1.419	1.413	105%
100	10642DS		1	1	12.1		1.425	
101	10641		1	1	7.1	0.827	0.824	
102	10641		1	1	267 7.1		0.830	
103	CCV		1	1	8.3		0.971	97%
104	B		1	1	0.0		-0.029	b
105	D4		1	1	12.9		1.525	d

108	10403	1	1	2.6	0.289	0.280	
109	10403	1	1	2.6		0.280	
110	10403D	1	1	2.6	0.273	0.283	
111	10403D	1	1	2.4		0.262	
112	10403S	1	1	11.2	1.328	1.322	105%
113	10403S	1	1	11.3		1.333	
114	10403DS	1	1	11.3	1.317	1.330	104%
115	10403DS	1	1	11.1		1.304	
116	10276	1	1	1.0	0.091	0.088	
117	10276	1	1	1.0		0.094	
118	10278	1	1	1.2	0.123	0.115	
119	10278	1	1	1.3		0.130	
120	10280	1	1	0.6	<0.05	0.044	
121	10280	1	1	0.7		0.053	s
122	10282	1	1	1.1	0.093	0.100	
123	10282	1	1	1.0		0.085	
124	CCV	1	1	8.2		0.954	95%
125	B	1	1	0.0		-0.029	b
126	D4	1	1	12.9		1.525	d
127	BL0324-STB1	1	1	0.0		-0.026	I
128	BL0324S	1	1	8.5		0.998	100%
129	11461	1	1	0.0		-0.026	I
130	11461D	1	1	0.0		-0.023	I
131	11461S	1	1	8.6		1.010	101%
132	11258	1	1	0.0		-0.029	I
133	11474	1	1	0.0		-0.029	I
134	11475	1	1	0.0		-0.029	I
135	11476	1	1	0.1		-0.020	I
136	11477	1	1	0.0		-0.023	s
137	11478	1	1	0.0		-0.029	I
138	11479	1	1	0.0		-0.029	I
139	11714	1	1	0.0		-0.029	I
140	11715	1	1	0.1		-0.020	I
141	10416	1	1	8.5	0.991	0.998	
142	10416	1	1	8.4		0.983	
143	WS 378	1	1	16.6		1.975	99%
144	ORG REF	1	1	18.4		2.190	109%
145	CCV	1	1	8.3		0.971	97%
146	B	1	1	0.0		-0.029	b
147	D4	1	1	12.9		1.525	d

INTERCEPT: 0.24 LINEAR COEF: 8.297226
CORRELATION COEF: .9996467

4. SHIPPING/RECEIVING DOCUMENTS

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

Page ___ of ___

US SAMPLE LOG IN SHEET

MOSTARDI PLATT

Lab Name: Philip Analytical Services Corporation, Burlington Laboratory

Received By (Print Name): K. Cruso

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.	125461500341010966	Box
	41792916	18°C
	41298308	18°C
	41831132	18°C
	41174745	18°C
	41670520	18°C
	41601354	18°C
Does Information on Custody Records and Samples Agree?	Yes ✓ No ___	
Date Received at Lab	3-9-00	
Time Received	12:45	

Number of Coolers

Cooler ID:	Temperature
6 Cooler	18°C x 6

Relinquished By: L. Jones

Date: 3-9-00

Logbook No: _____

Logbook Page No. _____

00152

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MOSTARDI-PLATT ASSOCIATES, INC.

Environmental Consultants

Read Instructions on Reverse Side Before Completing Form!

CHAIN-OF-CUSTODY RECORD

Project Number: 000403

Date Results Required:

Client: Northern States Power

TAT(Assessment Only)

Plant/Location: Sherburne Co. Becker, MN

LAB Use Only — PO Number: 23154

Project Supervisor: JRP

LAB Use Only — LIMS Entry:

Sample Number	Date Sampled	Sample Point Identification	# of Conts	Grab/ Comp	Analysis Requested	Sub Lab
001	1/25/00	UNIT 3 STACK, TEST 1 : FILTER	1	ppd	MERCURY By Ontario Hydro Method	10403
002	↓	TEST 2	1	↓		10404
003	1/26/00	TEST 3	1	↓		10405
004	1/25/00	UNIT 3 STACK, TEST 1 : Front ½ Nitric Rinse	1	500cc		10403
005	↓	TEST 2	1	↓		10404
006	1/26/00	TEST 3	1	↓		10405
007	1/25/00	UNIT 3 STACK, TEST 1 : IMPS 1,2,3 (KCl)	2	1L&500		10403
008	↓	TEST 2	2	↓		10404
009	1/26/00	TEST 3	2	↓		10405
010	1/25/00	UNIT 3 STACK, TEST 1 : IMP 4 (HNO_3/H_2O_2)	1	250ml		10403
011	↓	TEST 2	1	↓		10404
012	1/26/00	TEST 3	1	↓		10405
013	1/25/00	UNIT 3 STACK, TEST 1 : IMPS 5,6,7 (H_2SO_4/KMnO4)	1	1LAL		10403
014	↓	TEST 2	1	↓		10404
015	1/26/00	TEST 3	1	↓		10405
016	1/25/00	UNIT 3 INLET, TEST 1 : FILTER	2	500x2	✓	10409

Delivered by:	Date/Time	Processed by:	Date/Time	Received by Laboratory:
ELE	1/28/00 @ 9:00 pm	John Kendall	1/31/99 10:00 am	03/09 12:45

Special Instructions:

MOSTARDI-PLATT ASSOCIATES, INC.
Environmental Consultants

Read Instructions on Reverse Side Before Completing Form!

CHAIN-OF-CUSTODY RECORD

Project Number: 000403	Date Results Required:
Client: Northern States Power	TAT(Assessment Only)
Plant/Location: Sherburne Co. Becker, MN	LAB Use Only — PO Number:
Project Supervisor: JRP	LAB Use Only — LIMS Entry:

	Sample Number	Date Sampled	Sample Point Identification	# of Conts	Grab/ Comp	Analysis Requested	Sub Lab
✓	017	1/25/00	UNIT 3 INLET, TEST 2: FILTER	2	500PK2	MERCURY By Ontario Hydro Method	10410
✓	018	1/26/00	↓ TEST 3 ↓	2	"		10411
✓	019	1/25/00	UNIT 3 INLET, TEST 1: Front 1/2 Metric Rinse	2	100AG-2		10409
✓	020	↓	↓ TEST 2 ↓	2	↓		10410
✓	021	1/26/00	↓ TEST 3 ↓	2	↓		10411
✓	022	1/25/00	UNIT 3 INLET, TEST 1: IMPS 1,2,3 (KCl)	2	1LG-HNO3		10409
✓	023	↓	↓ TEST 2 ↓	2	↓		10410
✓	024	1/26/00	↓ TEST 3 ↓	2	↓		10411
✓	025	1/25/00	UNIT 3 INLET, TEST 1: IMP4 (HNO_3/H_2O_2)	1	250Ag		10409
✓	026	↓	↓ TEST 2 ↓	1	↓		10410
✓	027	1/26/00	↓ TEST 3 ↓	1	↓		10411
✓	028	1/25/00	UNIT 3 INLET, TEST 1: IMPS 5,6,7 ($H_2SO_4/KMnO_4$)	1	1LAG		10409
✓	029	↓	↓ TEST 2 ↓	1	↓		10410
✓	030	1/26/00	↓ TEST 3 ↓	1	↓		10411
✓	031	1/27/00	UNIT 1/2 STACK, TEST 1: FILTER	1	ppd	✓	10406
✓	032	↓	↓ TEST 2 ↓	1	"		10407

Delivered by:	Date/Time	Processed by:	Date/Time	Received by Laboratory:
				1/27/00 13:45

Special Instructions:

MOSTARDI-PLATT ASSOCIATES, INC.
Environmental Consultants

Read Instructions on Reverse Side Before Completing Form!

CHAIN-OF-CUSTODY RECORD

Project Number: 000403
Client: Northern States Power
Plant/Location: Sherburne Co. Becker, MN
Project Supervisor: JRP
Date Results Required:
TAT(Assessment Only)
LAB Use Only
PO Number:
LIMS Entry:

Sample Number	Date Sampled	Sample Point Identification	# of Conts	Grab/ Comp	Analysis Requested	Sub Lab
033	1/28/00	UNIT 1/2 STACK, TEST 3: FILTER	1	Grab	MERCURY By Ontario Hydro Method	10405
034	1/27/00	UNIT 1/2 STACK, TEST 1: Front ½ Nitric Rinse	1	500cc		10406
035	↓	TEST 2	1	↓		10407
036	1/28/00	TEST 3	1	↓		10408
037	1/27/00	UNIT 1/2 STACK, TEST 1: IMPS 1,2,3 (KCl)	2	100, 250cc		10406
038	↓	TEST 2	2	↓		10407
039	1/28/00	TEST 3	2	↓		10408
040	1/27/00	UNIT 1/2 STACK, TEST 1: IMP 4 (HNO_3/H_2O_2)	1	250cc		10406
041	↓	TEST 2	1	↓		10407
042	1/28/00	TEST 3	1	↓		10408
043	1/27/00	UNIT 1/2 STACK, TEST 1: IMPS 5,6,7 (H_2SO_4/$KMnO_4$)	1	1Liter		10406
044	↓	TEST 2	1	↓		10407
045	1/28/00	TEST 3	1	↓		10408
046	1/27/00	UNIT 1 INLET, TEST 1: FILTER	1	500cc		10412
047	↓	TEST 2	1	↓		10413
048	1/28/00	TEST 3	1	↓	↓	10414

Delivered by:	Date/Time	Processed by:	Date/Time	Received by Laboratory:
				K. Caravo

Special Instructions:

MOSTARDI-PLATT ASSOCIATES, INC.
Environmental Consultants

Read Instructions on Reverse Side Before Completing Form!

CHAIN-OF-CUSTODY RECORD

Project Number: 000403	Date Results Required:
Client: Northern States Power	TAT(Assessment Only)
Plant/Location: Sherburne Co. Becker, MN	LAB Use Only — PO Number:
Project Supervisor: JRP	LAB Use Only — LIMS Entry:

	Sample Number	Date Sampled	Sample Point Identification	# of Conts	Grab/ Comp	Analysis Requested	Sub Lab
✓	049	1/27/00	UNIT 1 INLET, TEST 1: Front ½ Nitric Rinse	1	100 Gr	MERCURY By Ontario Hydro Method	4e 10412
✓	050	↓	↓ TEST 2 ↓	1	↓		10413
✓	051	1/28/00	↓ TEST 3 ↓	1	↓		10414
✓	052	1/27/00	UNIT 1 INLET, TEST 1: IMPS 1,2,3 (KCl)	2	1LAG 250		10412
✓	053	↓	↓ TEST 2 ↓	2	↓		10413
✓	054	1/28/00	↓ TEST 3 ↓	2	Cancelled as Run 3 Unit 2		10414
✓	055	1/27/00	UNIT 1 INLET, TEST 1: IMP 4 (HNO_3/H_2O_2)	1	250 AG		10410
✓	056	↓	↓ TEST 2 ↓	1	↓		10413
✓	057	1/28/00	↓ TEST 3 ↓	1	↓		10414
✓	058	1/27/00	UNIT 1 INLET, TEST 1: IMPS 5,6,7 ($H_2SO_4/KMnO_4$)	1	1LAG		10412
✓	059	↓	↓ TEST 2 ↓	1	↓		10413
✓	060	1/28/00	↓ TEST 3 ↓	1	↓		10414
✓	061	1/27/00	UNIT 2 INLET, TEST 1: FILTER	1	300P		10415
✓	062	↓	↓ TEST 2 ↓	1	↓		10416
✓	063	1/28/00	↓ TEST 3 ↓	1	↓		10417
✓	064	1/27/00	UNIT 2 INLET, TEST 1: Front ½ Nitric Rinse	1	100AG	✓	10415

Delivered by:	Date/Time	Processed by:	Date/Time	Received by Laboratory:

Special Instructions:

00156

-5-

MOSTARDI-PLATT ASSOCIATES, INC.

Environmental Consultants

Read Instructions on Reverse Side Before Completing Form!

CHAIN-OF-CUSTODY RECORD

Project Number: 000403	Date Results Required:
Client: Northern States Power	TAT(Assessment Only)
Plant/Location: Sherburne Co. Becker, MN	LAB Use Only — PO Number:
Project Supervisor: JRP	LAB Use Only — LIMS Entry:

Sample Number	Date Sampled	Sample Point Identification	# of Conts	Grab/ Comp	Analysis Requested	Sub Lab
065	1/27/00	UNIT 2 INLET, TEST 2: Front 1/2 Nitric Rinse	1	100AG	MERCURY By Ontario Hydro Method	10416
066	1/28/00	↓ TEST 3 ↓	1	"		10417
067	1/27/00	UNIT 2 INLET, TEST 1: IMPS 1,2,3 (KCl)	2	1LG, 250CG		10415
068	↓	↓ TEST 2 ↓	2	↓		10416
069	1/28/00	↓ TEST 3 ↓	2	↓		10417
070	1/27/00	UNIT 2 INLET, TEST 1: IMP 4 (HNO_3/H_2O_2)	1	250AG		10415
071	↓	↓ TEST 2 ↓	1	↓		10416
072	1/28/00	↓ TEST 3 ↓	1	↓		10417
073	1/27/00	UNIT 2 INLET, TEST 1: IMPS 5,6,7 ($H_2SO_4/KMnO_4$)	1	1LAG		10415
074	↓	↓ TEST 2 ↓	1	↓		10416
075	1/28/00	↓ TEST 3 ↓	1	↓		10417
076	1/25/00	UNIT 3 STACK, FIELD BLANK: IMPS 1,2,3 (KCl)	1	500AG		
077	↓	↓ ↓ IMP 4 (HNO_3/H_2O_2)	1	250AG		10399
078	↓	↓ ↓ IMPS 5,6,7 ($H_2SO_4/KMnO_4$)	1	1LAG		
079	1/25/00	UNIT 3 INLET, FIELD BLANK: IMPS 1,2,3 (KCl)	1	250A	500CG	10402
080	↓	↓ ↓ IMP 4 (HNO_3/H_2O_2)	1	250AG	↓	

Delivered by:	Date/Time	Processed by:	Date/Time	Received by Laboratory:
				[signature]

Special Instructions:

F:\DATA\LAB\CUSTODY.FRM

Revision Date: March 9, 1995

MOSTARDI-PLATT ASSOCIATES, INC.

Environmental Consultants

MB-10387 **Read Instructions on Reverse Side Before Completing Form!**

CHAIN-OF-CUSTODY RECORD

Project Number: 000403	Date Results Required:
Client: Northern States Power	TAT(Assessment Only)
Plant/Location: Sherburne Co. Becker, MN	LAB Use Only — PO Number:
Project Supervisor: JRP	LIMS Entry:

Sample Number	Date Sampled	Sample Point Identification	# of Conts	Grab/ Comp	Analysis Requested	Sub Lab
081	1/25/00	UNIT 3 INLET, FIELD BLANK: IMPS 5,6,7 ($H_2SO_4/KMnO_4$)	1	1LAG	MERCURY By Ontario Hydro Method	10402
082	1/27/00	UNIT 1/2 STACK, FIELD BLANK: IMPS 1,2,3 (KCl)	1	500CG		
083	↓	↓ ↓ IMP 4 (HNO_3/H_2O_2)	1	250AG		10398
084	↓	↓ ↓ IMPS 5,6,7 ($H_2SO_4/KMnO_4$)	1	1LAG		
085	1/27/00	UNIT 1 INLET, FIELD BLANK: IMPS 1,2,3 (KCl)	1	[illegible]	500CG	
086	↓	↓ ↓ IMP 4 (HNO_3/H_2O_2)	1	250AG		10400
087	↓	↓ ↓ IMPS 5,6,7 ($H_2SO_4/KMnO_4$)	1	1LAG		
088	1/27/00	UNIT 2 INLET, FIELD BLANK: IMPS 1,2,3 (KCl)	1	500AG		
089	↓	↓ ↓ IMP 4 (HNO_3/H_2O_2)	1	250AG		10401
090	↓	↓ ↓ IMPS 5,6,7 ($H_2SO_4/KMnO_4$)	1	1LAG		
091	1/25/00	FILTER BLANK, THIMBLE (#092)	1	500P		10388
092	↓	↓ ↓ (#094)	1	↓		10389
093	↓	↓ ↓ (#118)	1	↓		10390
094	1/25/00	FILTER BLANK, M5 11.5cm (#792)	1	PPP		10391
095	↓	↓ ↓ (#806)	1	↓		10392
096	↓	↓ ↓ (#807)	1	↓	↓	10393

Delivered by:	Date/Time	Processed by:	Date/Time	Received by Laboratory:
				[signature]

Special Instructions:

F:\DATA\LAB\CUSTODY.FRM

Revision Date: March 9, 1995

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 630-953-9300 FAX: 630-953-9306

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SGS Member of the SGS Group (Société Générale de Surveillance)

ADDRESS ALL CORRESPONDENCE TO:
16130 VAN DRUNEN RD.
SOUTH HOLLAND, IL 60473
TEL: (708) 331-2900
FAX: (708) 333-3060

February 11, 2000

MOSTARDI-PLATT ASSOCIATES, INC
945 Oaklawn Avenue
Elmhurst, IL 60126
Attn: Frank Jarke

Sample identification by
Mostardi-Platt Assoc., Inc.

Kind of sample reported to us: Coal

MPA Sample No: 000403-105

Sample taken at: ------

Sample taken by: Mostardi-Platt Assoc., Inc.

Date sampled: January 25, 2000

Date received: February 4, 2000

P.O. No. 22996

Analysis Report No. 71-113796

PROXIMATE ANALYSIS	As Received	Dry Basis
% Moisture	26.67	xxxxx
% Ash	8.29	11.31
% Volatile	30.43	41.50
% Fixed Carbon	34.61	47.19
	100.00	100.00
Btu/lb	8631	11770
% Sulfur	0.59	0.81
MAF Btu		13271

ULTIMATE ANALYSIS	As Received	Dry Basis
% Moisture	26.67	xxxxx
% Carbon	50.28	68.57
% Hydrogen	3.37	4.60
% Nitrogen	0.63	0.86
% Sulfur	0.59	0.81
% Ash	8.29	11.31
% Oxygen(diff)	10.17	13.85
	100.00	100.00
CHLORIDE ug/g	62	85

METHODS

Moisture: ASTM D 3302; Ash: ASTM D 3174; Volatile: ASTM D 3175; Fixed Carbon: Calculated Value; ASTM D 3172
Btu/lb: ASTM 5865; Sulfur: ASTM D 4239 (Method C); Carbon, Hydrogen & Nitrogen: ASTM D 5373; Chloride: ASTM D 4208

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

281 Joseph B. Arnold

South Holland Laboratory

MEMBEF ACIL

COMMERCIAL TESTING & ENGINEERING CO.

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P.O. No. 22996

Analysis Report No. 71-113796

	Dry Basis, ug/g	MDL, ug/g
Mercury, Hg	0.08	0.01

	Expected	Observed
SARM 1157	0.05	0.05
NIST 1630A	0.11	0.10

MDL Denotes Method Detection Limit

METHOD
Mercury: ASTM D 3684

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Joseph B. Strusz Jr.

South Holland Laboratory

MEMBER ACIL

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LIST OF PARTICIPANTS

Name	Organization	Project Role
Mr. Richard Karpinske	Northern States Power Company.	Plant Coordinator
Mr. Robert Catron	Northern States Power Company	Plant Coordinator
James R. Platt	Mostardi Platt	Vice President
Jim Tryba	Mostardi Platt	Senior Project Manager
Eric Ehlers	Mostardi Platt	Project Supervisor
John Wendell	Mostardi Platt	Laboratory Chemist
Tom Wenzel	Mostardi Platt	Field Engineer
Kevin Hoffman	Mostardi Platt	Field Engineer
Paul Kotelman	Mostardi Platt	Test Technician
Dan Tuider	Mostardi Platt	Test Technician
Shawn Nelezen	Mostardi Platt	Test Technician
Ron McLeod	Philip Services	Speciated Hg Sample Analysis
Joseph Houser	CTE	Coal Sample Analysis