Public Service

August 9, 1999

Mr. David P. Boergers, Secretary
Federal Energy Regulatory Commission
Attention: Director, Office of Hydropower Licensing
Mail Code: DLC, HL-11.2
888 First Street, N.E.
Washington, DC 20426

Dear Secretary Boergers: 029
2433
Project No. 2443 – Grand Rapids

Enclosed is the original and eight copies of the water quality monitoring data for the Grand Rapids Hydroelectric Project (FERC Project No. 2433) as per the Water Quality Monitoring Plan – Article 407 issued April 7, 1999 for the period of 7/5/99 - 8/2/99.

Documentation of Agency Consultation is included with this submittal.

The Water Quality Monitoring Plan (WQMP) specifies that the monitoring equipment be sited directly in front of the intake (upstream) and in the tailrace (downstream). The WQMP requires that DO concentrations downstream of the project powerhouse must not be less than 5.0 mg/L at any time. No DO concentrations of less than 5 mg/L were observed in this data submittal for the downstream location.

The dissolved oxygen data collected in the tailrace for the period of 7/5/99 to 7/15/99, is inconsistent with data collected before and after that monitoring period. The dissolved oxygen data for this time period appears to be inaccurate. A calibration malfunction is suspected.

For the period of 7/23/99 to 8/2/99 the datasonde malfunctioned, therefore no data was collected. No data was collected due to excessive vibrations within the deployment tube. Wisconsin Public Service Corporation is making attempts to correct the problem by stabilizing the equipment within the deployment tube by the use of foam padding.

99081203040-3

If you have any questions regarding the data, please contact Shirley Scharff at (920) 433-1396.

Sincerely,

Charles A. Schrock
Senior Vice President - Energy Supply
Telephone: (920) 433-5515

vav

Enclosure

cc: Mr. Jim Fossum - USF&WS
       Mr. Tom Thuemler - WDNR
       Mr. Chris Freiberger - MDNR
       Mr. Bruce Crocker - WPSC - CRI HYDRO
       Mr. Shawn Puzen - WPSC - A2

AGENCY DOCUMENTATION

August 9, 1999

Mr. Chris Freiberger
Michigan Department of Natural Resources
Stevens T. Mason Building
P. O. Box 30028
Lansing, MI 48909-7528

Dear Chris:

<u>Project No. 2443 – Grand Rapids Water Quality Monitoring</u>

Enclosed is the water quality monitoring data for the Grand Rapids Hydroelectric Project (FERC Project No. 2433) as per the Water Quality Monitoring Plan – Article 407 issued April 7, 1999 for the period of 7/5/99 – 8/2/99.

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If you have any questions regarding the data, please do not hesitate to contact me at your earliest convenience.

Sincerely,

Shawn Puzen (vav)

Shawn C. Puzen
Environmental Analyst
Telephone: (920) 433-1094

vav

Enclosure

cc: Mr. Robert Edwards - WPSC - D2
        Mr. Ronald Schmidt - WPSC - D2
        Mr. Shawn Puzen - WPSC - A2

August 9, 1999

Mr. Jim Fossum
U. S. Fish & Wildlife Service
1015 Challenger Ct.
Green Bay, WI 54311

Dear Jim:

Project No. 2443 – Grand Rapids Water Quality Monitoring

Enclosed is the water quality monitoring data for the Grand Rapids Hydroelectric Project (FERC Project No. 2433) as per the Water Quality Monitoring Plan – Article 407 issued April 7, 1999 for the period of 7/5/99 – 8/2/99.

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Sincerely,

Shawn Puzen (vAv)

Shawn C. Puzen
Environmental Analyst
Telephone: (920) 433-1094

vav

Enclosure

cc: Mr. Robert Edwards - WPSC - D2
       Mr. Ronald Schmidt - WPSC - D2
       Mr. Shawn Puzen - WPSC - A2

Public Service

Wisconsin Public Service Corporation
(a subsidiary of WPS Resources Corporation)
700 North Adams Street
P.O. Box 19002
Green Bay, WI 54307-9002

August 9, 1999

Mr. Tom Thuemler
Department of Natural Resources
101 N. Ogden Road
Peshtigo, WI 54157

Dear Tom:

<u>Project No. 2443 – Grand Rapids Water Quality Monitoring</u>

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If you have any questions regarding the data, please do not hesitate to contact me at your earliest convenience.

Sincerely,

Shawn Puzen
(vav)

Shawn C. Puzen
Environmental Analyst
Telephone: (920) 433-1094

vav

Enclosure

cc: Mr. Robert Edwards - WPSC - D2
        Mr. Ronald Schmidt - WPSC - D2
        Mr. Shawn Puzen - WPSC - A2

Log File Name : grand upstream start 70599
Setup Date (MMDDYY) : 070599
Setup Time (HHMMSS) : 115906
Starting Date (MMDDYY) : 070599
Starting Time (HHMMSS) : 130000
Stopping Date (MMDDYY) : 072099
Stopping Time (HHMMSS) : 130000
Interval (HHMMSS) : 010000
Warmup : Enable

==> Follow Variable and Calibration Change(s) <==

Date MMDDYY	Time HHMMSS	Temp degC	pH units	SpCond mS/cm	DO %Sat	DO mg/l	Batt volts
70599	130000	25.17	7.73	0.245	90.2	7.2	14.2 &
70599	140000	25.18	7.75	0.244	90.3	7.21	14.2 &
70599	150000	25.29	7.76	0.244	91.2	7.26	14.2 &
70599	160000	25.36	7.78	0.244	92.3	7.34	14.2 &
70599	170000	25.48	7.78	0.243	92.3	7.32	14.2 &
70599	180000	25.44	7.77	0.243	92.4	7.34	14.1 &
70599	190000	25.38	7.8	0.242	90.7	7.21	14.1 &
70599	200000	25.32	7.75	0.242	89.6	7.13	14.2 &
70599	210000	25.18	7.73	0.24	87.4	6.97	14.2 &
70599	220000	25.01	7.73	0.238	86.1	6.9	14.2 &
70599	230000	24.87	7.72	0.237	84.7	6.8	14.2 &
70699	0	24.77	7.69	0.236	83.6	6.72	14.1 &
70699	10000	24.68	7.64	0.235	82.6	6.65	14.2 &
70699	20000	24.61	7.64	0.234	81.5	6.58	14.2 &
70699	30000	24.53	7.62	0.233	80.7	6.52	14.2 &
70699	40000	24.44	7.61	0.232	80.1	6.48	14.1 &
70699	50000	24.32	7.61	0.231	79.5	6.45	14.1 &
70699	60000	24.19	7.6	0.232	78.3	6.37	14.1 &
70699	70000	24.11	7.61	0.23	79.4	6.46	14.1 &
70699	80000	24.09	7.61	0.23	79.7	6.49	14.1 &
70699	90000	24.14	7.63	0.23	79.1	6.44	14.1 &
70699	100000	24.25	7.66	0.229	83.8	6.8	14.1 &
70699	110000	24.4	7.68	0.23	86.3	6.99	14.2 &
70699	120000	24.59	7.72	0.229	86.5	6.97	14.1 &
70699	130000	24.78	7.76	0.228	88.4	7.1	14.1 &
70699	140000	24.97	7.78	0.227	90.7	7.27	14.1 &
70699	150000	25.11	7.82	0.227	91.3	7.29	14.1 &
70699	160000	25.24	7.84	0.227	92.7	7.39	14.1 &
70699	170000	25.29	7.84	0.227	94.4	7.52	14.1 &
70699	180000	25.23	7.84	0.226	93.6	7.46	14.1 &
70699	190000	25.12	7.82	0.225	92.3	7.37	14 &
70699	200000	24.92	7.77	0.225	90.7	7.27	14.1 &
70699	210000	24.78	7.72	0.225	88.7	7.13	14.1 &
70699	220000	24.62	7.69	0.225	86.4	6.96	14.1 &
70699	230000	24.48	7.67	0.225	84.1	6.8	14.1 &
70799	0	24.34	7.65	0.224	83.1	6.73	14 &
70799	10000	24.22	7.62	0.223	81.9	6.65	14 &
70799	20000	24.12	7.61	0.222	81.1	6.6	14 &
70799	30000	24.01	7.61	0.222	80.8	6.59	14 &
70799	40000	23.91	7.61	0.222	79.7	6.51	14 &
70799	50000	23.8	7.59	0.22	77.8	6.37	14 &
70799	60000	23.69	7.59	0.219	79.3	6.5	14 &
70799	70000	23.6	7.58	0.22	79.1	6.5	14 &

70799	80000	23.58	7.6	0.219	79.7	6.55	14 &
70799	90000	23.64	7.63	0.22	80.6	6.62	14 &
70799	100000	23.76	7.67	0.219	83.5	6.84	14 &
70799	110000	23.93	7.68	0.219	85.1	6.95	14 &
70799	120000	24.1	7.72	0.219	86.9	7.08	14 &
70799	130000	24.26	7.76	0.219	88.3	7.17	14 &
70799	140000	24.48	7.79	0.22	91	7.36	14 &
70799	150000	24.55	7.81	0.219	92.1	7.44	14 &
70799	160000	24.61	7.83	0.219	93.3	7.53	14 &
70799	170000	24.64	7.84	0.218	94.2	7.59	14 &
70799	180000	24.68	7.84	0.219	93.5	7.53	14 &
70799	190000	24.59	7.82	0.218	93.1	7.51	13.9 &
70799	200000	24.42	7.78	0.218	90.6	7.33	14 &
70799	210000	24.24	7.74	0.217	88.2	7.16	14 &
70799	220000	24.07	7.7	0.217	86	7.01	14 &
70799	230000	23.89	7.66	0.217	83.5	6.83	14 &
70899	0	23.76	7.67	0.217	82.5	6.76	13.9 &
70899	10000	23.63	7.64	0.216	81.6	6.7	13.9 &
70899	20000	23.53	7.62	0.215	81	6.66	13.9 &
70899	30000	23.41	7.62	0.215	80	6.6	13.9 &
70899	40000	23.31	7.61	0.214	79.4	6.56	13.9 &
70899	50000	23.2	7.6	0.213	78.3	6.48	13.9 &
70899	60000	23.1	7.6	0.214	78.5	6.51	13.9 &
70899	70000	23.05	7.61	0.213	78.3	6.5	13.9 &
70899	80000	23.04	7.61	0.213	79.1	6.57	13.9 &
70899	90000	23.09	7.62	0.213	80.4	6.67	13.9 &
70899	100000	23.19	7.64	0.212	81.6	6.76	13.9 &
70899	110000	23.24	7.63	0.212	82.1	6.79	13.9 &
70899	120000	23.22	7.67	0.212	82.2	6.8	13.8 &
70899	130000	23.14	7.68	0.212	82.6	6.84	13.9 &
70899	140000	23.04	7.69	0.211	81.5	6.77	13.9 &
70899	150000	22.91	7.73	0.211	80.7	6.72	13.9 &
70899	160000	22.73	7.71	0.21	80.5	6.72	13.9 &
70899	170000	22.5	7.7	0.209	81	6.79	13.9 &
70899	180000	22.23	7.68	0.207	80	6.75	13.9 &
70899	190000	21.97	7.68	0.207	79.6	6.75	13.9 &
70899	200000	21.77	7.7	0.206	79.7	6.78	13.8 &
70899	210000	21.59	7.67	0.204	80.4	6.86	13.8 &
70899	220000	21.47	7.69	0.204	79.3	6.79	13.8 &
70899	230000	21.39	7.68	0.204	79.9	6.85	13.8 &
70999	0	21.33	7.68	0.205	78.7	6.76	13.8 &
70999	10000	21.29	7.69	0.204	79.4	6.82	13.8 &
70999	20000	21.25	7.66	0.205	78.7	6.76	13.8 &
70999	30000	21.23	7.63	0.205	78.4	6.74	13.8 &
70999	40000	21.22	7.62	0.205	78.3	6.74	13.8 &
70999	50000	21.22	7.64	0.205	78.1	6.71	13.7 &
70999	60000	21.21	7.63	0.205	77	6.63	13.8 &
70999	70000	21.22	7.61	0.205	77.3	6.65	13.8 &
70999	80000	21.23	7.6	0.205	76.5	6.58	13.8 &
70999	90000	21.24	7.58	0.206	76.9	6.61	13.8 &
70999	100000	21.32	7.6	0.206	77.9	6.69	13.7 &
70999	110000	21.34	7.61	0.206	78.2	6.71	13.7 &
70999	120000	21.38	7.63	0.206	78.1	6.7	13.8 &
70999	130000	21.6	7.62	0.206	80.1	6.84	13.8 &
70999	140000	21.82	7.67	0.207	81.9	6.96	13.8 &
70999	150000	22.05	7.68	0.208	83.5	7.07	13.8 &
70999	160000	22.19	7.69	0.208	84.4	7.12	13.7 &
70999	170000	22.2	7.69	0.208	84.8	7.16	13.7 &

70999	180000	22.13	7.69	0.209	83.9	7.09	13.7 &
70999	190000	21.97	7.69	0.208	83.3	7.06	13.7 &
70999	200000	21.79	7.68	0.209	82.5	7.02	13.8 &
70999	210000	21.65	7.65	0.209	80.6	6.88	13.7 &
70999	220000	21.48	7.62	0.211	78.7	6.73	13.8 &
70999	230000	21.36	7.61	0.21	78.8	6.76	13.7 &
71099	0	21.25	7.6	0.21	77.8	6.69	13.7 &
71099	10000	21.13	7.58	0.211	78.3	6.74	13.7 &
71099	20000	21.01	7.59	0.21	77.2	6.67	13.7 &
71099	30000	20.87	7.57	0.211	76.3	6.61	13.7 &
71099	40000	20.77	7.58	0.21	76.7	6.66	13.7 &
71099	50000	20.64	7.57	0.21	76.6	6.66	13.7 &
71099	60000	20.53	7.58	0.21	75.8	6.61	13.7 &
71099	70000	20.44	7.58	0.209	77.3	6.75	13.7 &
71099	80000	20.43	7.58	0.208	77.4	6.77	13.7 &
71099	90000	20.5	7.59	0.209	78.3	6.83	13.6 &
71099	100000	20.67	7.6	0.209	78.3	6.8	13.6 &
71099	110000	20.87	7.63	0.208	81	7.01	13.7 &
71099	120000	21.07	7.64	0.209	83.2	7.18	13.7 &
71099	130000	21.22	7.64	0.208	84.5	7.27	13.7 &
71099	140000	21.37	7.69	0.209	85.6	7.34	13.7 &
71099	150000	21.5	7.66	0.21	85.8	7.34	13.6 &
71099	160000	21.64	7.68	0.21	87.4	7.46	13.6 &
71099	170000	21.74	7.69	0.21	87	7.41	13.6 &
71099	180000	21.8	7.68	0.211	87.8	7.47	13.6 &
71099	190000	21.68	7.68	0.211	87.3	7.44	13.7 &
71099	200000	21.48	7.66	0.21	86.2	7.38	13.7 &
71099	210000	21.25	7.64	0.209	85	7.31	13.6 &
71099	220000	21.08	7.61	0.211	83	7.16	13.6 &
71099	230000	20.94	7.6	0.211	82.2	7.11	13.6 &
71199	0	20.8	7.6	0.211	81.7	7.08	13.6 &
71199	10000	20.69	7.59	0.212	81.3	7.07	13.6 &
71199	20000	20.56	7.58	0.214	80.5	7.02	13.6 &
71199	30000	20.46	7.58	0.213	81.1	7.08	13.6 &
71199	40000	20.35	7.58	0.213	80.1	7.01	13.5 &
71199	50000	20.25	7.57	0.212	80.2	7.03	13.6 &
71199	60000	20.13	7.57	0.213	79.1	6.95	13.6 &
71199	70000	20.06	7.57	0.213	78.9	6.95	13.6 &
71199	80000	20.08	7.58	0.212	81.2	7.14	13.6 &
71199	90000	20.18	7.58	0.212	81.6	7.17	13.5 &
71199	100000	20.34	7.59	0.212	82.5	7.22	13.5 &
71199	110000	20.59	7.61	0.211	83.8	7.3	13.6 &
71199	120000	20.9	7.63	0.21	84.9	7.35	13.6 &
71199	130000	21.23	7.66	0.209	85.9	7.39	13.6 &
71199	140000	21.4	7.64	0.209	87.1	7.46	13.6 &
71199	150000	21.6	7.65	0.208	87.7	7.48	13.7 &
71199	160000	21.8	7.66	0.208	88.3	7.51	13.5 &
71199	170000	21.96	7.69	0.21	88.1	7.47	13.5 &
71199	180000	21.95	7.66	0.208	88.6	7.51	13.5 &
71199	190000	21.92	7.64	0.208	87	7.38	13.5 &
71199	200000	21.76	7.63	0.209	86.1	7.33	13.6 &
71199	210000	21.55	7.61	0.208	85.1	7.27	13.6 &
71199	220000	21.37	7.59	0.207	83.3	7.14	13.6 &
71199	230000	21.22	7.58	0.207	81.9	7.04	13.6 &
71299	0	21.12	7.57	0.207	80.1	6.9	13.5 &
71299	10000	21.01	7.57	0.206	80.5	6.95	13.5 &
71299	20000	20.95	7.56	0.207	79.5	6.88	13.5 &
71299	30000	20.89	7.56	0.205	80.1	6.93	13.6 &

71299	40000	20.82	7.55	0.206	79	6.85	13.5 &
71299	50000	20.79	7.54	0.204	79	6.85	13.5 &
71299	60000	20.72	7.54	0.205	78.3	6.8	13.5 &
71299	70000	20.71	7.55	0.203	78.6	6.83	13.5 &
71299	80000	20.74	7.55	0.203	76.7	6.66	13.5 &
71299	90000	20.87	7.56	0.201	79.9	6.92	13.5 &
71299	100000	21.07	7.59	0.203	80.5	6.94	13.5 &
71299	110000	21.32	7.58	0.202	82	7.04	13.5 &
71299	120000	21.53	7.58	0.201	81.9	7	13.5 &
71299	130000	21.78	7.6	0.201	83.1	7.07	13.5 &
71299	140000	21.87	7.61	0.201	84.2	7.15	13.5 &
71299	150000	21.97	7.6	0.2	83.9	7.12	13.5 &
71299	160000	22.16	7.62	0.201	84.3	7.12	13.5 &
71299	170000	22.28	7.62	0.2	85.8	7.23	13.5 &
71299	180000	22.28	7.63	0.2	84.6	7.13	13.5 &
71299	190000	22.22	7.62	0.201	85	7.17	13.5 &
71299	200000	22.09	7.6	0.201	83	7.02	13.5 &
71299	210000	21.91	7.58	0.2	81.2	6.89	13.5 &
71299	220000	21.79	7.56	0.2	80.2	6.82	13.5 &
71299	230000	21.64	7.55	0.2	79.6	6.79	13.5 &
71399	0	21.5	7.54	0.199	77.9	6.67	13.5 &
71399	10000	21.41	7.53	0.199	77.2	6.61	13.5 &
71399	20000	21.34	7.55	0.2	76.7	6.58	13.5 &
71399	30000	21.28	7.54	0.2	76.2	6.55	13.5 &
71399	40000	21.21	7.54	0.199	76.2	6.56	13.5 &
71399	50000	21.16	7.54	0.198	77	6.63	13.5 &
71399	60000	21.11	7.54	0.198	76.6	6.6	13.4 &
71399	70000	21.07	7.53	0.197	76.4	6.59	13.4 &
71399	80000	21.1	7.56	0.197	77.2	6.66	13.4 &
71399	90000	21.23	7.57	0.197	78.6	6.76	13.4 &
71399	100000	21.44	7.58	0.198	79.6	6.82	13.4 &
71399	110000	21.6	7.61	0.197	79.7	6.81	13.4 &
71399	120000	21.78	7.64	0.197	82.3	7	13.4 &
71399	130000	21.91	7.65	0.198	83.1	7.05	13.4 &
71399	140000	21.9	7.69	0.197	83.4	7.08	13.4 &
71399	150000	21.91	7.67	0.198	83.6	7.1	13.4 &
71399	160000	21.87	7.67	0.198	82.8	7.04	13.4 &
71399	170000	21.95	7.67	0.199	83.5	7.09	13.4 &
71399	180000	21.89	7.66	0.199	83.7	7.11	13.3 &
71399	190000	21.87	7.66	0.2	82.9	7.04	13.4 &
71399	200000	21.79	7.65	0.2	81.3	6.92	13.4 &
71399	210000	21.7	7.63	0.2	79.9	6.81	13.4 &
71399	220000	21.59	7.61	0.201	78.7	6.72	13.4 &
71399	230000	21.53	7.61	0.201	78.5	6.71	13.4 &
71499	0	21.46	7.59	0.202	77.6	6.64	13.4 &
71499	10000	21.41	7.57	0.202	76	6.51	13.4 &
71499	20000	21.37	7.58	0.202	76.3	6.54	13.3 &
71499	30000	21.34	7.57	0.202	75.7	6.5	13.3 &
71499	40000	21.29	7.56	0.203	76	6.53	13.4 &
71499	50000	21.3	7.56	0.202	75.8	6.51	13.4 &
71499	60000	21.27	7.56	0.204	74.4	6.39	13.4 &
71499	70000	21.3	7.57	0.203	74.3	6.38	13.4 &
71499	80000	21.33	7.6	0.202	74.9	6.43	13.3 &
71499	90000	21.3	7.65	0.202	74.8	6.42	13.3 &
71499	100000	21.4	7.6	0.201	75.8	6.5	13.3 &
71499	110000	21.51	7.62	0.202	76.4	6.53	13.3 &
71499	120000	21.62	7.64	0.201	77.6	6.63	13.4 &
71499	130000	21.66	7.66	0.2	78.6	6.7	13.4 &

71499	140000	21.62	7.68	0.199	77.2	6.59	13.4 &
71499	150000	21.76	7.65	0.199	78.1	6.65	13.3 &
71499	160000	21.92	7.68	0.2	79.2	6.72	13.3 &
71499	170000	21.9	7.64	0.2	78.8	6.69	13.3 &
71499	180000	21.87	7.64	0.2	77.2	6.56	13.3 &
71499	190000	21.88	7.63	0.2	77.1	6.55	13.3 &
71499	200000	21.83	7.63	0.2	76.6	6.51	13.3 &
71499	210000	21.77	7.61	0.201	75.4	6.42	13.3 &
71499	220000	21.67	7.61	0.2	75	6.4	13.3 &
71499	230000	21.6	7.59	0.201	74.7	6.38	13.3 &
71599	0	21.53	7.59	0.201	73.5	6.29	13.4 &
71599	10000	21.48	7.6	0.201	72.8	6.23	13.3 &
71599	20000	21.45	7.6	0.202	73.2	6.27	13.3 &
71599	30000	21.4	7.59	0.202	72.5	6.21	13.3 &
71599	40000	21.37	7.59	0.202	72.9	6.26	13.3 &
71599	50000	21.33	7.57	0.202	70.9	6.08	13.2 &
71599	60000	21.31	7.57	0.203	71.9	6.17	13.3 &
71599	70000	21.33	7.56	0.203	70.5	6.05	13.3 &
71599	80000	21.42	7.57	0.203	71.1	6.09	13.3 &
71599	90000	21.62	7.57	0.203	73	6.23	13.3 &
71599	100000	21.89	7.6	0.203	74.7	6.34	13.3 &
71599	110000	22.21	7.62	0.204	75.4	6.36	13.3 &
71599	120000	22.58	7.63	0.204	76.7	6.43	13.3 &
71599	130000	22.94	7.66	0.204	77	6.41	13.3 &
71599	140000	23.28	7.66	0.203	78.5	6.49	13.3 &

Recovery finished at 071599 144318

Log File Name : grand rapids upstream 7/15
Setup Date (MMDDYY) : 071599
Setup Time (HHMMSS) : 142704
Starting Date (MMDDYY) : 071599
Starting Time (HHMMSS) : 150000
Stopping Date (MMDDYY) : 072499
Stopping Time (HHMMSS) : 230000
Interval (HHMMSS) : 010000
Warmup : Enable

==> Follow Variable and Calibration Change(s) <==

Date MMDDYY	Time HHMMSS	Temp degC	pH units	SpCond mS/cm	DO %Sat	DO mg/l	Batt volts	
71599	150000	23.72	7.55	0.203	85.4	7.01	15	&
71599	160000	23.91	7.61	0.203	85.7	7.01	15	&
71599	170000	24.01	7.58	0.203	84.9	6.94	15	&
71599	180000	24.16	7.55	0.203	84.1	6.85	15	&
71599	190000	24.18	7.56	0.203	83.9	6.83	15	&
71599	200000	24.09	7.55	0.203	83.4	6.8	14.9	&
71599	210000	23.98	7.54	0.203	81.3	6.64	15	&
71599	220000	23.87	7.53	0.202	80.5	6.59	14.9	&
71599	230000	23.76	7.51	0.202	79.3	6.51	15	&
71699	0	23.65	7.49	0.202	78.5	6.45	14.9	&
71699	10000	23.58	7.49	0.201	77.7	6.4	14.9	&
71699	20000	23.52	7.48	0.2	77	6.35	14.9	&
71699	30000	23.47	7.49	0.2	76.7	6.33	14.9	&
71699	40000	23.45	7.47	0.2	76.5	6.32	14.9	&
71699	50000	23.42	7.47	0.199	76.7	6.33	14.8	&
71699	60000	23.4	7.48	0.198	76.5	6.32	14.9	&
71699	70000	23.36	7.47	0.199	76.8	6.35	14.8	&
71699	80000	23.36	7.48	0.199	76.9	6.36	14.8	&
71699	90000	23.45	7.5	0.199	78	6.44	14.8	&
71699	100000	23.6	7.52	0.197	79.5	6.54	14.8	&
71699	110000	23.83	7.55	0.196	80.7	6.62	14.8	&
71699	120000	24.07	7.58	0.196	82	6.69	14.8	&
71699	130000	24.4	7.59	0.195	83.7	6.79	14.8	&
71699	140000	24.62	7.58	0.195	84	6.78	14.8	&
71699	150000	24.75	7.59	0.195	85.2	6.86	14.7	&
71699	160000	24.9	7.6	0.195	85.2	6.85	14.6	&
71699	170000	24.93	7.59	0.193	85.1	6.83	14.7	&
71699	180000	24.88	7.56	0.192	83.7	6.73	14.7	&
71699	190000	24.66	7.54	0.19	82.7	6.67	14.7	&
71699	200000	24.62	7.54	0.189	82.6	6.67	14.7	&
71699	210000	24.53	7.51	0.187	82	6.64	14.7	&
71699	220000	24.42	7.51	0.185	80.8	6.55	14.7	&
71699	230000	24.31	7.5	0.184	80.1	6.51	14.7	&
71799	0	24.22	7.49	0.181	80	6.51	14.7	&
71799	10000	24.12	7.48	0.18	78.8	6.43	14.7	&
71799	20000	24.03	7.47	0.176	79.1	6.46	14.8	&
71799	30000	23.98	7.45	0.173	78.4	6.4	14.7	&
71799	40000	23.87	7.44	0.172	78.2	6.4	14.7	&
71799	50000	23.78	7.43	0.169	77.5	6.36	14.6	&
71799	60000	23.67	7.43	0.167	74.8	6.15	14.6	&
71799	70000	23.58	7.41	0.166	76.7	6.32	14.6	&
71799	80000	23.54	7.4	0.165	77	6.34	14.6	&
71799	90000	23.6	7.41	0.165	76.8	6.32	14.6	&

71799	100000	23.76	7.42	0.164	77.5	6.36	14.6 &
71799	110000	23.98	7.43	0.163	78.5	6.42	14.6 &
71799	120000	24.31	7.43	0.167	78.5	6.37	14.6 &
71799	130000	24.56	7.46	0.165	80	6.47	14.6 &
71799	140000	24.84	7.45	0.164	80.6	6.48	14.6 &
71799	150000	25.04	7.45	0.164	81.2	6.5	14.5 &
71799	160000	25.3	7.47	0.165	80.8	6.44	14.6 &
71799	170000	25.34	7.47	0.165	80.7	6.43	14.5 &
71799	180000	25.27	7.46	0.165	80.4	6.42	14.5 &
71799	190000	25.1	7.45	0.167	78.8	6.31	14.5 &
71799	200000	24.88	7.42	0.166	78.7	6.32	14.5 &
71799	210000	24.64	7.41	0.166	77.4	6.25	14.5 &
71799	220000	24.45	7.39	0.165	76.5	6.2	14.6 &
71799	230000	24.34	7.38	0.167	74.8	6.07	14.5 &
71899	0	24.18	7.37	0.166	74.7	6.08	14.5 &
71899	10000	24.09	7.37	0.167	73.7	6.01	14.5 &
71899	20000	24.01	7.38	0.17	73.3	5.99	14.5 &
71899	30000	23.94	7.37	0.171	72.8	5.95	14.5 &
71899	40000	23.85	7.37	0.172	72.3	5.92	14.5 &
71899	50000	23.78	7.36	0.174	71.7	5.88	14.5 &
71899	60000	23.71	7.36	0.175	70.7	5.81	14.5 &
71899	70000	23.65	7.36	0.176	71.2	5.85	14.4 &
71899	80000	23.65	7.37	0.175	71.8	5.9	14.4 &
71899	90000	23.74	7.39	0.173	72.5	5.95	14.5 &
71899	100000	23.87	7.4	0.174	73.9	6.05	14.7 &
71899	110000	24.11	7.44	0.172	75.7	6.17	14.4 &
71899	120000	24.29	7.44	0.172	76.9	6.24	14.4 &
71899	130000	24.55	7.46	0.173	77.9	6.3	14.4 &
71899	140000	24.73	7.47	0.175	78.7	6.34	14.4 &
71899	150000	24.91	7.49	0.175	80.1	6.43	14.4 &
71899	160000	25.06	7.52	0.176	80.6	6.46	14.4 &
71899	170000	25.14	7.52	0.177	80.8	6.46	14.4 &
71899	180000	25.04	7.51	0.179	79.9	6.41	14.4 &
71899	190000	24.84	7.49	0.18	78.9	6.34	14.4 &
71899	200000	24.64	7.48	0.181	77.7	6.27	14.5 &
71899	210000	24.49	7.48	0.182	77.7	6.29	14.4 &
71899	220000	24.42	7.47	0.184	76.8	6.23	14.4 &
71899	230000	24.31	7.47	0.184	75.8	6.16	14.4 &
71999	0	24.25	7.5	0.185	75.2	6.12	14.4 &
71999	10000	24.2	7.49	0.185	74.6	6.07	14.4 &
71999	20000	24.12	7.51	0.185	75	6.11	14.4 &
71999	30000	24.05	7.51	0.186	74.7	6.1	14.3 &
71999	40000	24	7.51	0.188	73.9	6.04	14.4 &
71999	50000	23.92	7.49	0.19	73.6	6.02	14.4 &
71999	60000	23.83	7.47	0.193	69	5.66	14.4 &
71999	70000	23.78	7.47	0.194	71.9	5.9	14.4 &
71999	80000	23.72	7.43	0.195	71.8	5.9	14.3 &
71999	90000	23.69	7.43	0.195	72.2	5.93	14.3 &
71999	100000	23.69	7.45	0.196	72.3	5.94	14.3 &
71999	110000	23.74	7.48	0.196	73.5	6.03	14.3 &
71999	120000	23.81	7.46	0.196	73.4	6.02	14.5 &
71999	130000	23.87	7.46	0.196	74.2	6.08	14.2 &
71999	140000	23.96	7.49	0.198	73.8	6.03	14.3 &
71999	150000	24.16	7.5	0.199	74.3	6.05	14.3 &
71999	160000	24.36	7.52	0.2	74.7	6.06	14.3 &
71999	170000	24.42	7.5	0.199	74.7	6.05	14.3 &
71999	180000	24.38	7.48	0.202	74.2	6.02	14.3 &
71999	190000	24.33	7.47	0.202	73.6	5.98	14.3 &

71999	200000	24.18	7.47	0.2	72.7	5.92	14.3 &
71999	210000	24.05	7.46	0.202	71.7	5.85	14.3 &
71999	220000	23.91	7.46	0.201	70.8	5.79	14.3 &
71999	230000	23.78	7.43	0.202	70	5.74	14.3 &
72099	0	23.67	7.43	0.203	68.9	5.66	14.3 &
72099	10000	23.56	7.43	0.202	68.4	5.63	14.3 &
72099	20000	23.45	7.44	0.203	68.1	5.62	14.3 &
72099	30000	23.38	7.44	0.203	68.2	5.64	14.3 &
72099	40000	23.31	7.42	0.203	67.7	5.6	14.3 &
72099	50000	23.25	7.42	0.202	67.9	5.62	14.2 &
72099	60000	23.2	7.43	0.203	67.7	5.62	14.3 &
72099	70000	23.18	7.42	0.202	67.3	5.58	14.3 &
72099	80000	23.22	7.46	0.202	68.5	5.68	14.3 &
72099	90000	23.42	7.48	0.2	69.9	5.77	14.3 &
72099	100000	23.63	7.5	0.201	71.4	5.87	14.3 &
72099	110000	23.85	7.5	0.201	72.2	5.91	14.2 &
72099	120000	24.05	7.51	0.2	73.1	5.96	14.2 &
72099	130000	24.18	7.54	0.199	74.4	6.06	14.3 &
72099	140000	24.31	7.53	0.2	75.3	6.12	14.3 &
72099	150000	24.29	7.53	0.201	75.2	6.11	14.2 &
72099	160000	24.27	7.56	0.201	75.1	6.1	14.2 &
72099	170000	24.23	7.53	0.201	74.5	6.06	14.2 &
72099	180000	24.09	7.53	0.2	73.7	6.01	14.2 &
72099	190000	24	7.52	0.201	73.4	6	14.2 &
72099	200000	23.87	7.52	0.201	72.8	5.96	14.2 &
72099	210000	23.71	7.49	0.202	71.9	5.91	14.2 &
72099	220000	23.61	7.48	0.202	71.3	5.86	14.2 &
72099	230000	23.51	7.48	0.201	70.4	5.81	14.2 &
72199	0	23.43	7.49	0.201	70.1	5.79	14.2 &
72199	10000	23.36	7.47	0.202	70	5.79	14.3 &
72199	20000	23.31	7.47	0.202	69.8	5.78	14.2 &
72199	30000	23.27	7.47	0.203	69.7	5.77	14.2 &
72199	40000	23.24	7.51	0.203	69.1	5.73	14.2 &
72199	50000	23.24	7.52	0.202	69.4	5.75	14.2 &
72199	60000	23.2	7.53	0.204	69.2	5.74	14.2 &
72199	70000	23.2	7.51	0.203	69.2	5.74	14.2 &
72199	80000	23.22	7.51	0.203	69.7	5.78	14.3 &
72199	90000	23.24	7.5	0.203	69.4	5.75	14.2 &
72199	100000	23.22	7.54	0.204	69.1	5.73	14.2 &
72199	110000	23.22	7.54	0.204	69.1	5.73	14.2 &
72199	120000	23.25	7.55	0.203	69.8	5.78	14.2 &
72199	130000	23.25	7.53	0.204	70.8	5.86	14.2 &
72199	140000	23.29	7.56	0.204	70.4	5.83	14.1 &
72199	150000	23.4	7.57	0.204	70.8	5.85	14.1 &
72199	160000	23.58	7.56	0.203	72.7	5.98	14.1 &
72199	170000	23.63	7.55	0.203	73.5	6.05	14.1 &
72199	180000	23.71	7.56	0.206	73.7	6.05	14.1 &
72199	190000	23.71	7.55	0.205	72.7	5.97	14.2 &
72199	200000	23.6	7.52	0.204	72.7	5.99	14.1 &
72199	210000	23.49	7.53	0.205	71.4	5.89	14.1 &
72199	220000	23.36	7.49	0.205	70	5.79	14.2 &
72199	230000	23.24	7.5	0.206	70.4	5.83	14.1 &
72299	0	23.12	7.47	0.207	68.6	5.7	14.2 &
72299	10000	23	7.47	0.205	68.4	5.7	14.1 &
72299	20000	22.91	7.49	0.206	68.5	5.72	14.2 &
72299	30000	22.82	7.45	0.207	67.5	5.64	14.2 &
72299	40000	22.73	7.48	0.206	67.8	5.67	14.2 &
72299	50000	22.64	7.47	0.208	66.4	5.56	14.1 &

72299	60000	22.55	7.46	0.208	66.3	5.56	14.1 &
72299	70000	22.52	7.46	0.208	67.5	5.67	14.1 &
72299	80000	22.57	7.46	0.209	66.9	5.62	14.1 &
72299	90000	22.73	7.47	0.209	68.8	5.75	14.1 &
72299	100000	23	7.5	0.209	69.1	5.75	14.1 &
72299	110000	23.31	7.55	0.209	70.5	5.83	14.1 &
72299	120000	23.65	7.56	0.21	72	5.92	14.1 &
72299	130000	23.96	7.57	0.21	73.2	5.99	14.3 &
72299	140000	24.31	7.56	0.211	73.8	5.99	14.1 &
72299	150000	24.58	7.66	0.211	75.5	6.1	14.1 &
72299	160000	24.9	7.58	0.213	76.3	6.13	14.1 &
72299	170000	25.08	7.63	0.213	76.8	6.15	14.1 &
72299	180000	25.17	7.6	0.214	76.1	6.08	14.1 &
72299	190000	25.15	7.58	0.213	75.8	6.06	14.1 &
72299	200000	25.08	7.57	0.214	74.2	5.94	14.1 &
72299	210000	24.99	7.54	0.215	72.2	5.79	14.1 &
72299	220000	24.86	7.58	0.214	72.1	5.8	14.1 &
72299	230000	24.71	7.5	0.213	70.5	5.68	14.1 &
72399	0	24.58	7.51	0.214	69.6	5.62	14.1 &
72399	10000	24.47	7.5	0.213	68.7	5.56	14 &
72399	20000	24.38	7.5	0.214	68	5.52	14.1 &
72399	30000	24.31	7.49	0.213	67.8	5.51	14.1 &
72399	40000	24.25	7.48	0.215	67.1	5.46	14 &
72399	50000	24.2	7.49	0.213	67.2	5.47	14.1 &
72399	60000	24.16	7.47	0.214	66.3	5.4	14.1 &
72399	70000	24.14	7.46	0.215	65.5	5.34	14.1 &
72399	80000	24.09	7.55	0.213	67.6	5.51	14.1 &
72399	90000	24.07	7.54	0.214	67.2	5.48	14.1 &
72399	100000	24.05	7.5	0.214	66.9	5.46	14.1 &
72399	110000	24.33	7.54	0.215	68.8	5.59	14.1 &
72399	120000	24.64	7.56	0.216	69.3	5.59	14.1 &
~~72399~~	~~130000~~	~~26.01~~	~~7.34~~	~~0.0006~~	~~100.7~~	~~7.93~~	~~14 &~~
~~72399~~	~~140000~~	~~24.82~~	~~7.01~~	~~0.0134~~	~~94.9~~	~~7.64~~	~~14.1 &~~
~~72399~~	~~150000~~	~~24.6~~	~~6.93~~	~~0.0149~~	~~94.5~~	~~7.64~~	~~14 &~~

equipment removed from river

Recovery finished at 072399 152452

MiniSonde 4a 36466
Log File Name : grand upstream 072399
Setup Date (MMDDYY) : 072399
Setup Time (HHMMSS) : 124635
Starting Date (MMDDYY) : 072399
Starting Time (HHMMSS) : 140000
Stopping Date (MMDDYY) : 080399
Stopping Time (HHMMSS) : 170000
Interval (HHMMSS) : 010000
Sensor warmup (HHMMSS) : 000200
Circltr warmup (HHMMSS) : 000030

Date	Time	Temp	SpCond	DO%	pH	IBatt	DO
MMDDYY	HHMMSS	øC	mS/cm	Sat	Units	Volts	mg/l

Parameter setup or calibration changed at 072399 124759
Power loss from 072399 135755 to 072399 135806
Late probe turn on at 072399 135807
Power loss from 072399 135808 to 072399 135819
Late probe turn on at 072399 135820
Power loss from 072399 135820 to 072399 135831
Late probe turn on at 072399 135832
Power loss from 072399 135833 to 072399 135844

Log File Name : grand tailrace start 70599
Setup Date (MMDDYY) : 070599
Setup Time (HHMMSS) : 114216
Starting Date (MMDDYY) : 070599
Starting Time (HHMMSS) : 120000
Stopping Date (MMDDYY) : 072099
Stopping Time (HHMMSS) : 120000
Interval (HHMMSS) : 010000
Warmup : Enable

==> Follow Variable and Calibration Change(s) <==

Date MMDDYY	Time HHMMSS	Temp degC	pH units	SpCond mS/cm	DO %Sat	DO mg/l	Batt volts
70599	120000	24.73	7.47	0.254	100	8.05	13.6 &
70599	130000	24.73	7.63	0.254	105.8	8.51	13.5 &
70599	140000	24.75	7.67	0.253	106.1	8.54	13.3 &
70599	150000	24.77	7.67	0.253	106	8.52	13.5 &
70599	160000	24.88	7.68	0.252	106.5	8.54	13.4 &
70599	170000	24.95	7.69	0.251	106.6	8.54	13.4 &
70599	180000	24.97	7.68	0.251	106.6	8.54	13.5 &
70599	190000	24.97	7.67	0.249	106.1	8.5	13.4 &
70599	200000	24.95	7.66	0.249	106.3	8.51	13.5 &
70599	210000	24.88	7.65	0.248	104.4	8.38	13.4 &
70599	220000	24.8	7.64	0.247	104.3	8.38	13.4 &
70599	230000	24.71	7.64	0.244	105.4	8.49	13.4 &
70699	0	24.67	7.64	0.243	104.5	8.42	13.4 &
70699	10000	24.64	7.63	0.241	105.1	8.47	13.1 &
70699	20000	24.62	7.63	0.24	103.6	8.35	13.3 &
70699	30000	24.58	7.63	0.239	104.4	8.42	13.3 &
70699	40000	24.54	7.62	0.239	103.4	8.35	13.4 &
70699	50000	24.47	7.62	0.238	104.6	8.46	13.4 &
70699	60000	24.38	7.62	0.237	103.7	8.4	· 13.2 &
70699	70000	24.32	7.62	0.237	104.1	8.44	13.4 &
70699	80000	24.29	7.62	0.236	103.6	8.4	13.4 &
70699	90000	24.31	7.63	0.235	104.5	8.47	13.3 &
70699	100000	24.32	7.64	0.234	105.2	8.53	13.2 &
70699	110000	24.38	7.65	0.234	105.4	8.53	13.3 &
70699	120000	24.45	7.65	0.233	105.9	8.57	13.3 &
70699	130000	24.56	7.66	0.233	107.2	8.65	13.3 &
70699	140000	24.69	7.67	0.232	108.6	8.74	13.3 &
70699	150000	24.8	7.68	0.231	109.5	8.8	13.3 &
70699	160000	24.89	7.69	0.231	108.5	8.7	13.3 &
70699	170000	24.91	7.69	0.232	110.2	8.83	13.2 &
70699	180000	24.93	7.69	0.232	110.2	8.83	13.3 &
70699	190000	24.86	7.69	0.231	109.8	8.82	13.2 &
70699	200000	24.75	7.68	0.231	109.9	8.84	13.2 &
70699	210000	24.65	7.66	0.231	107.7	8.68	13.2 &
70699	220000	24.54	7.65	0.23	107.7	8.7	13.2 &
70699	230000	24.45	7.64	0.23	107.2	8.67	13.2 &
70799	0	24.4	7.63	0.229	106.9	8.65	13.2 &
70799	10000	24.36	7.63	0.228	107.1	8.67	13.2 &
70799	20000	24.32	7.62	0.227	106.3	8.62	13.2 &
70799	30000	24.27	7.62	0.226	106.4	8.63	13.2 &
70799	40000	24.2	7.62	0.225	106	8.62	13.2 &
70799	50000	24.07	7.62	0.225	107.2	8.73	13.1 &
70799	60000	23.94	7.62	0.224	107.1	8.74	13.1 &

70799	70000	23.85	7.62	0.224	106.5	8.72	13.1 &
70799	80000	23.78	7.62	0.224	107.3	8.79	13.1 &
70799	90000	23.74	7.63	0.224	107.9	8.84	13 &
70799	100000	23.76	7.64	0.224	107.3	8.79	13.1 &
70799	110000	23.81	7.65	0.224	108.2	8.86	13.1 &
70799	120000	23.89	7.66	0.224	109.1	8.92	13 &
70799	130000	23.98	7.67	0.224	109.5	8.93	13.1 &
70799	140000	24.07	7.68	0.224	110.7	9.02	13.1 &
70799	150000	24.16	7.69	0.224	110.1	8.96	13 &
70799	160000	24.23	7.69	0.224	111.6	9.06	13 &
70799	170000	24.27	7.7	0.224	111.9	9.08	13 &
70799	180000	24.31	7.69	0.223	110.2	8.94	13 &
70799	190000	24.31	7.68	0.223	112.3	9.11	13 &
70799	200000	24.2	7.67	0.222	110.1	8.95	13 &
70799	210000	24.05	7.66	0.222	109.8	8.95	13 &
70799	220000	23.99	7.65	0.222	108.5	8.85	13 &
70799	230000	23.89	7.63	0.221	108.2	8.84	13.1 &
70899	0	23.81	7.63	0.221	107.9	8.83	13.1 &
70899	10000	23.76	7.63	0.22	108.1	8.86	13.1 &
70899	20000	23.69	7.62	0.22	108.5	8.9	13.1 &
70899	30000	23.61	7.62	0.218	107.8	8.86	13 &
70899	40000	23.52	7.62	0.218	107.8	8.87	13 &
70899	50000	23.43	7.62	0.218	107.7	8.88	12.9 &
70899	60000	23.38	7.61	0.217	106.4	8.78	13 &
70899	70000	23.3	7.61	0.217	107.7	8.9	13 &
70899	80000	23.25	7.62	0.217	106.8	8.84	12.9 &
70899	90000	23.25	7.62	0.217	107	8.85	13 &
70899	100000	23.27	7.62	0.217	108.5	8.97	12.9 &
70899	110000	23.25	7.62	0.217	107.6	8.9	13 &
70899	120000	23.16	7.62	0.216	107.8	8.94	12.9 &
70899	130000	23.07	7.62	0.216	107.5	8.92	12.9 &
70899	140000	22.93	7.62	0.215	106.3	8.85	12.9 &
70899	150000	22.78	7.62	0.215	106	8.84	12.9 &
70899	160000	22.59	7.62	0.214	106.3	8.9	12.9 &
70899	170000	22.39	7.62	0.213	106.6	8.96	12.9 &
70899	180000	22.19	7.63	0.212	106.7	9	12.9 &
70899	190000	22	7.63	0.21	107.2	9.08	12.9 &
70899	200000	21.84	7.64	0.209	108	9.18	12.9 &
70899	210000	21.7	7.65	0.207	108.3	9.23	12.9 &
70899	220000	21.57	7.65	0.207	109.3	9.34	12.8 &
70899	230000	21.55	7.65	0.207	107.6	9.2	12.9 &
70999	0	21.55	7.65	0.206	108	9.23	12.8 &
70999	10000	21.55	7.65	0.206	107.3	9.17	12.9 &
70999	20000	21.55	7.65	0.207	107.4	9.18	12.9 &
70999	30000	21.55	7.64	0.206	107.6	9.2	12.9 &
70999	40000	21.55	7.64	0.207	108	9.23	12.9 &
70999	50000	21.55	7.63	0.207	106.5	9.1	12.9 &
70999	60000	21.55	7.62	0.208	106.3	9.09	12.8 &
70999	70000	21.54	7.61	0.208	105.2	8.99	12.8 &
70999	80000	21.52	7.61	0.208	105.6	9.03	12.8 &
70999	90000	21.5	7.61	0.208	105.8	9.05	12.8 &
70999	100000	21.5	7.61	0.208	105.6	9.03	12.8 &
70999	110000	21.5	7.61	0.208	105.2	9	12.8 &
70999	120000	21.52	7.61	0.208	105.6	9.03	12.8 &
70999	130000	21.64	7.62	0.208	105.9	9.03	12.7 &
70999	140000	21.8	7.63	0.209	104.8	8.92	12.8 &
70999	150000	21.96	7.64	0.209	107	9.07	12.8 &
70999	160000	22.14	7.65	0.21	107.8	9.11	12.8 &

70999	170000	22.19	7.64	0.21	107.8	9.1	12.8 &
70999	180000	22.16	7.64	0.21	107.3	9.06	12.7 &
70999	190000	22.1	7.63	0.21	107.5	9.09	12.7 &
70999	200000	21.91	7.63	0.209	107	9.08	12.8 &
70999	210000	21.85	7.62	0.211	107.1	9.1	12.8 &
70999	220000	21.71	7.62	0.21	106	9.03	12.8 &
70999	230000	21.57	7.61	0.211	106.7	9.11	12.8 &
71099	0	21.43	7.61	0.211	106.8	9.15	12.8 &
71099	10000	21.34	7.61	0.212	106.4	9.13	12.7 &
71099	20000	21.25	7.61	0.212	106.1	9.12	12.8 &
71099	30000	21.15	7.6	0.211	106.6	9.18	12.7 &
71099	40000	21.04	7.61	0.211	105.7	9.12	12.7 &
71099	50000	20.96	7.61	0.209	107.3	9.28	12.6 &
71099	60000	20.87	7.61	0.209	106.8	9.25	12.7 &
71099	70000	20.74	7.62	0.208	106.7	9.26	12.7 &
71099	80000	20.66	7.62	0.207	108	9.4	12.7 &
71099	90000	20.62	7.63	0.207	107.5	9.36	12.7 &
71099	100000	20.66	7.63	0.207	108.6	9.45	12.8 &
71099	110000	20.74	7.64	0.206	108.6	9.43	12.7 &
71099	120000	20.83	7.64	0.207	109.4	9.49	12.7 &
71099	130000	20.9	7.64	0.208	110	9.52	12.7 &
71099	140000	21.03	7.64	0.208	110.2	9.52	12.7 &
71099	150000	21.17	7.64	0.21	111.3	9.58	12.7 &
71099	160000	21.25	7.64	0.21	111.6	9.59	12.7 &
71099	170000	21.4	7.65	0.21	112.5	9.64	12.7 &
71099	180000	21.41	7.64	0.21	113.2	9.7	12.7 &
71099	190000	21.38	7.64	0.21	112.8	9.68	12.7 &
71099	200000	21.27	7.63	0.21	113.5	9.75	12.7 &
71099	210000	21.18	7.63	0.211	112.4	9.68	12.7 &
71099	220000	21.1	7.62	0.21	111.9	9.65	12.7 &
71099	230000	21.03	7.61	0.211	112	9.67	12.7 &
71199	0	20.96	7.61	0.212	111.6	9.65	12.7 &
71199	10000	20.87	7.61	0.212	112.1	9.71	12.7 &
71199	20000	20.78	7.61	0.213	111	9.63	12.6 &
71199	30000	20.69	7.61	0.213	111.6	9.7	12.6 &
71199	40000	20.59	7.61	0.213	112.6	9.81	12.6 &
71199	50000	20.46	7.61	0.213	111.4	9.73	12.6 &
71199	60000	20.36	7.61	0.212	111.3	9.74	12.6 &
71199	70000	20.27	7.61	0.212	111	9.73	12.6 &
71199	80000	20.24	7.61	0.212	111.6	9.78	12.6 &
71199	90000	20.26	7.61	0.211	111.4	9.76	12.6 &
71199	100000	20.34	7.62	0.21	111.7	9.77	12.6 &
71199	110000	20.48	7.62	0.21	111.6	9.74	12.6 &
71199	120000	20.69	7.62	0.208	112.9	9.82	12.6 &
71199	130000	20.94	7.63	0.207	112.2	9.71	12.6 &
71199	140000	21.06	7.63	0.207	113.6	9.8	12.6 &
71199	150000	21.27	7.63	0.208	114.2	9.82	12.6 &
71199	160000	21.45	7.63	0.207	113.4	9.71	12.6 &
71199	170000	21.64	7.62	0.206	113.6	9.69	12.5 &
71199	180000	21.61	7.62	0.207	113.4	9.68	12.6 &
71199	190000	21.59	7.62	0.206	112.7	9.62	12.6 &
71199	200000	21.48	7.61	0.206	113	9.67	12.6 &
71199	210000	21.43	7.6	0.205	111.7	9.57	12.5 &
71199	220000	21.27	7.59	0.205	111.6	9.59	12.6 &
71199	230000	21.2	7.59	0.205	109.4	9.41	12.6 &
71299	0	21.17	7.58	0.204	110.5	9.52	12.6 &
71299	10000	21.13	7.58	0.203	109.6	9.45	12.6 &
71299	20000	21.13	7.57	0.203	110	9.48	12.6 &

71299	30000	21.11	7.57	0.203	109.6	9.45	12.6 &
71299	40000	21.08	7.57	0.202	109.6	9.46	12.6 &
71299	50000	21.06	7.57	0.201	109.5	9.45	12.5 &
71299	60000	21.01	7.57	0.201	109.7	9.48	12.5 &
71299	70000	20.94	7.57	0.2	109	9.43	12.6 &
71299	80000	20.88	7.57	0.199	109.6	9.49	12.6 &
71299	90000	20.87	7.57	0.199	109.6	9.49	12.6 &
71299	100000	20.92	7.57	0.199	110.1	9.53	12.6 &
71299	110000	21.03	7.57	0.198	109.1	9.42	12.6 &
71299	120000	21.15	7.57	0.198	108.7	9.36	12.6 &
71299	130000	21.36	7.57	0.199	109.6	9.41	12.6 &
71299	140000	21.43	7.57	0.199	110.2	9.44	12.6 &
71299	150000	21.61	7.57	0.201	109.1	9.32	12.6 &
71299	160000	21.78	7.57	0.2	109.9	9.35	12.6 &
71299	170000	21.93	7.57	0.2	109.3	9.27	12.6 &
71299	180000	21.96	7.57	0.2	109.4	9.28	12.6 &
71299	190000	21.94	7.56	0.2	110.2	9.35	12.6 &
71299	200000	21.96	7.56	0.2	108.9	9.23	12.6 &
71299	210000	21.84	7.55	0.199	108.4	9.21	12.6 &
71299	220000	21.71	7.54	0.2	107	9.11	12.6 &
71299	230000	21.62	7.54	0.2	106.3	9.07	12.6 &
71399	0	21.55	7.54	0.2	106.1	9.07	12.6 &
71399	10000	21.52	7.55	0.2	106.5	9.11	12.6 &
71399	20000	21.47	7.55	0.199	107.9	9.24	12.5 &
71399	30000	21.43	7.56	0.199	107.7	9.23	12.6 &
71399	40000	21.43	7.57	0.199	107.7	9.23	12.5 &
71399	50000	21.43	7.58	0.199	109	9.34	12.6 &
71399	60000	21.4	7.59	0.198	108.5	9.3	12.6 &
71399	70000	21.34	7.59	0.198	107.2	9.2	12.5 &
71399	80000	21.31	7.6	0.198	108.5	9.32	12.6 &
71399	90000	21.31	7.6	0.198	108.5	9.32	12.6 &
71399	100000	21.36	7.61	0.198	107.8	9.24	12.6 &
71399	110000	21.41	7.62	0.198	108.7	9.31	12.5 &
71399	120000	21.52	7.62	0.199	109.9	9.4	12.6 &
71399	130000	21.59	7.63	0.199	110.4	9.43	12.5 &
71399	140000	21.54	7.63	0.2	109	9.32	12.5 &
71399	150000	21.54	7.63	0.2	109	9.32	12.5 &
71399	160000	21.55	7.63	0.201	108.8	9.3	12.5 &
71399	170000	21.61	7.63	0.201	109.3	9.33	12.5 &
71399	180000	21.62	7.63	0.203	107.8	9.2	12.5 &
71399	190000	21.64	7.62	0.202	108.5	9.26	12.5 &
71399	200000	21.64	7.62	0.203	108.9	9.29	12.5 &
71399	210000	21.61	7.61	0.203	106.5	9.09	12.5 &
71399	220000	21.57	7.61	0.204	107.1	9.15	12.5 &
71399	230000	21.55	7.6	0.204	106.1	9.07	12.6 &
71499	0	21.55	7.59	0.205	106.9	9.13	12.5 &
71499	10000	21.54	7.59	0.205	106.5	9.11	12.5 &
71499	20000	21.54	7.59	0.205	105.2	8.99	12.5 &
71499	30000	21.54	7.59	0.207	105.8	9.04	12.5 &
71499	40000	21.54	7.59	0.206	105.2	8.99	12.5 &
71499	50000	21.55	7.6	0.206	105.2	8.99	12.5 &
71499	60000	21.59	7.61	0.206	106.1	9.06	12.5 &
71499	70000	21.62	7.62	0.207	106.3	9.07	12.5 &
71499	80000	21.62	7.62	0.205	105.5	9.01	12.5 &
71499	90000	21.57	7.63	0.205	104.2	8.9	12.4 &
71499	100000	21.57	7.63	0.205	106.1	9.07	12.5 &
71499	110000	21.61	7.65	0.204	105.3	8.99	12.4 &
71499	120000	21.61	7.65	0.204	105.1	8.98	12.4 &

71499	130000	21.62	7.65	0.204	104.8	8.94	12.5 &
71499	140000	21.55	7.64	0.203	105.9	9.05	12.5 &
71499	150000	21.62	7.64	0.203	105.5	9.01	12.5 &
71499	160000	21.71	7.65	0.203	105.6	9	12.4 &
71499	170000	21.7	7.64	0.205	104.9	8.94	12.5 &
71499	180000	21.64	7.63	0.204	104.2	8.89	12.4 &
71499	190000	21.7	7.63	0.204	105.5	8.99	12.4 &
71499	200000	21.71	7.63	0.205	104	8.86	12.5 &
71499	210000	21.64	7.62	0.204	104.2	8.89	12.4 &
71499	220000	21.61	7.62	0.204	103.5	8.83	12.5 &
71499	230000	21.57	7.61	0.205	103.3	8.82	12.4 &
71599	0	21.54	7.61	0.205	103.1	8.82	12.4 &
71599	10000	21.5	7.61	0.206	102.4	8.76	12.4 &
71599	20000	21.48	7.6	0.206	102.4	8.76	12.5 &
71599	30000	21.48	7.6	0.207	103.3	8.84	12.4 &
71599	40000	21.47	7.6	0.207	102.6	8.78	12.4 &
71599	50000	21.47	7.6	0.207	101.8	8.72	12.5 &
71599	60000	21.47	7.6	0.208	102	8.73	12.4 &
71599	70000	21.5	7.6	0.208	101.4	8.68	12.4 &
71599	80000	21.55	7.6	0.208	100.7	8.6	12.4 &
71599	90000	21.68	7.61	0.208	102.3	8.72	12.4 &
71599	100000	21.85	7.61	0.208	100.9	8.57	12.4 &
71599	110000	22.07	7.62	0.208	101.9	8.62	12.4 &
71599	120000	22.35	7.62	0.209	103.2	8.69	12.4 &
71599	130000	22.68	7.63	0.209	104	8.7	12.4 &
71599	140000	22.98	7.64	0.208	104	8.65	12.4 &
71599	150000	23.23	7.64	0.209	104.8	8.67	12.4 &

Recovery finished at 071599 153642

Log File Name : grand rapids downstream 7/15
Setup Date (MMDDYY) : 071599
Setup Time (HHMMSS) : 152551
Starting Date (MMDDYY) : 071599
Starting Time (HHMMSS) : 160000
Stopping Date (MMDDYY) : 072599
Stopping Time (HHMMSS) : 160000
Interval (HHMMSS) : 010000
Warmup : Enable

==> Follow Variable and Calibration Change(s) <==

Date MMDDYY	Time HHMMSS	Temp degC	pH units	SpCond mS/cm	DO %Sat	DO mg/l	Batt volts	
71599	160000	23.45	7.55	0.203	82.3	6.79	13.6	&
71599	170000	23.59	7.57	0.203	82.5	6.79	13.6	&
71599	180000	23.69	7.57	0.204	82.2	6.76	13.4	&
71599	190000	23.74	7.57	0.203	82.6	6.78	13.6	&
71599	200000	23.69	7.57	0.203	80.8	6.64	13.6	&
71599	210000	23.56	7.56	0.202	80.9	6.66	13.5	&
71599	220000	23.5	7.56	0.201	80.7	6.66	13.5	&
71599	230000	23.47	7.55	0.201	80.1	6.61	13.5	&
71699	0	23.44	7.54	0.201	80.6	6.65	13.5	&
71699	10000	23.44	7.55	0.202	80.6	6.65	13.6	&
71699	20000	23.42	7.54	0.202	79.4	6.55	13.5	&
71699	30000	23.44	7.55	0.203	79.4	6.55	13.5	&
71699	40000	23.48	7.55	0.202	81	6.68	13.5	&
71699	50000	23.48	7.56	0.202	79.9	6.59	13.5	&
71699	60000	23.39	7.56	0.2	80.9	6.69	13.5	&
71699	70000	23.28	7.56	0.2	80.1	6.63	13.5	&
71699	80000	23.19	7.56	0.199	80.2	6.65	13.4	&
71699	90000	23.17	7.56	0.199	80.4	6.67	13.3	&
71699	100000	23.2	7.57	0.198	81.3	6.74	13.5	&
71699	110000	23.39	7.57	0.198	82.2	6.79	13.5	&
71699	120000	23.57	7.58	0.198	81.8	6.74	13.4	&
71699	130000	23.78	7.58	0.197	82.6	6.78	13.4	&
71699	140000	24.08	7.58	0.196	83.2	6.79	13.4	&
71699	150000	24.26	7.59	0.195	84.4	6.86	13.4	&
71699	160000	24.47	7.59	0.195	83.2	6.73	13.3	&
71699	170000	24.59	7.58	0.194	84.8	6.85	13.6	&
71699	180000	24.61	7.57	0.193	84.7	6.84	13.4	&
71699	190000	24.5	7.58	0.19	84.7	6.86	13.4	&
71699	200000	24.42	7.57	0.188	83.2	6.74	13.4	&
71699	210000	24.35	7.56	0.185	82.4	6.69	13.4	&
71699	220000	24.28	7.55	0.182	83.2	6.76	13.4	&
71699	230000	24.2	7.54	0.18	83.1	6.76	13.4	&
71799	0	24.11	7.53	0.177	81.5	6.65	13.4	&
71799	10000	24.04	7.52	0.174	82.3	6.71	13.4	&
71799	20000	23.97	7.5	0.171	81.6	6.67	13.5	&
71799	30000	23.88	7.5	0.169	81.9	6.71	13.4	&
71799	40000	23.79	7.49	0.167	81.9	6.72	13.5	&
71799	50000	23.66	7.48	0.165	81.7	6.72	13.4	&
71799	60000	23.53	7.47	0.163	80.7	6.65	13.4	&
71799	70000	23.42	7.46	0.162	79.2	6.54	13.4	&
71799	80000	23.37	7.46	0.16	79.4	6.56	13.3	&
71799	90000	23.38	7.45	0.159	79.9	6.61	13.3	&
71799	100000	23.51	7.45	0.158	79.5	6.55	13.4	&

71799	110000	23.71	7.45	0.157	80.5	6.61	13.3 &
71799	120000	23.95	7.45	0.157	80.8	6.61	13.3 &
71799	130000	24.16	7.45	0.158	81.5	6.64	13.3 &
71799	140000	24.37	7.45	0.158	80.2	6.51	13.3 &
71799	150000	24.56	7.44	0.159	81.1	6.55	13.3 &
71799	160000	24.7	7.44	0.16	79	6.37	13.3 &
71799	170000	24.79	7.44	0.16	79.6	6.41	13.3 &
71799	180000	24.74	7.44	0.16	80.4	6.48	13.3 &
71799	190000	24.65	7.43	0.16	79.1	6.39	13.3 &
71799	200000	24.56	7.42	0.16	79	6.39	13.3 &
71799	210000	24.36	7.42	0.161	77.8	6.31	13.3 &
71799	220000	24.3	7.41	0.161	77.7	6.31	13.3 &
71799	230000	24.24	7.41	0.161	77.6	6.31	13.5 &
71899	0	24.19	7.4	0.163	76.7	6.24	13.3 &
71899	10000	24.13	7.41	0.164	76.1	6.2	13.2 &
71899	20000	24.06	7.4	0.165	76.4	6.23	13.3 &
71899	30000	24	7.41	0.167	76.1	6.22	13.2 &
71899	40000	23.93	7.41	0.167	75.3	6.16	13.3 &
71899	50000	23.87	7.41	0.168	74.5	6.1	13.2 &
71899	60000	23.82	7.41	0.169	74.5	6.11	13.3 &
71899	70000	23.79	7.42	0.169	74.6	6.12	13.2 &
71899	80000	23.75	7.42	0.169	73.8	6.05	13.2 &
71899	90000	23.73	7.43	0.169	75.8	6.22	13.2 &
71899	100000	23.76	7.44	0.168	77.5	6.36	13.2 &
71899	110000	23.86	7.45	0.168	77.2	6.32	13.1 &
71899	120000	24.01	7.46	0.169	78	6.37	13.2 &
71899	130000	24.18	7.47	0.169	78.7	6.41	13.3 &
71899	140000	24.31	7.48	0.17	79.5	6.46	13.2 &
71899	150000	24.47	7.49	0.172	80.8	6.54	13.2 &
71899	160000	24.65	7.49	0.173	80.1	6.46	13.2 &
71899	170000	24.74	7.5	0.174	80.3	6.47	13.2 &
71899	180000	24.63	7.5	0.176	80.2	6.47	13.2 &
71899	190000	24.49	7.5	0.177	79.6	6.45	13.2 &
71899	200000	24.43	7.5	0.179	79.4	6.44	13.2 &
71899	210000	24.39	7.5	0.179	78.3	6.35	13.2 &
71899	220000	24.31	7.5	0.18	79	6.42	13.1 &
71899	230000	24.31	7.5	0.181	79.3	6.44	13.2 &
71999	0	24.29	7.49	0.182	79.3	6.45	13.1 &
71999	10000	24.26	7.49	0.183	78.2	6.36	13.2 &
71999	20000	24.21	7.5	0.183	78.4	6.38	13.1 &
71999	30000	24.13	7.5	0.184	77.9	6.35	13.1 &
71999	40000	24.08	7.5	0.185	78.3	6.39	13.1 &
71999	50000	24.02	7.49	0.186	77.4	6.32	13.1 &
71999	60000	23.94	7.5	0.187	69.4	5.67	13.2 &
71999	70000	23.88	7.49	0.188	74.6	6.11	13.2 &
71999	80000	23.77	7.48	0.19	75.2	6.17	13.1 &
71999	90000	23.66	7.47	0.191	75.7	6.22	13.2 &
71999	100000	23.58	7.46	0.191	75.3	6.2	13.1 &
71999	110000	23.6	7.46	0.191	75	6.17	13.1 &
71999	120000	23.61	7.46	0.193	73.7	6.07	13.1 &
71999	130000	23.64	7.45	0.194	74.1	6.09	13.1 &
71999	140000	23.68	7.45	0.195	73.3	6.02	13.1 &
71999	150000	23.78	7.45	0.195	74	6.07	13.1 &
71999	160000	23.92	7.45	0.195	73.6	6.02	13.1 &
71999	170000	24	7.45	0.195	73.3	5.98	13.1 &
71999	180000	23.99	7.45	0.196	72.8	5.95	13.1 &
71999	190000	23.97	7.45	0.196	73.5	6.01	13.1 &
71999	200000	23.97	7.45	0.196	72.9	5.96	13.1 &

71999	210000	23.86	7.45	0.196	72.4	5.93	13.1 &
71999	220000	23.82	7.45	0.196	72.4	5.93	13.1 &
71999	230000	23.76	7.45	0.196	72.6	5.95	13.1 &
72099	0	23.7	7.45	0.196	72.8	5.98	13.1 &
72099	10000	23.62	7.45	0.195	72.8	5.99	13.1 &
72099	20000	23.64	7.45	0.195	72	5.92	13.1 &
72099	30000	23.58	7.46	0.195	72.5	5.97	13.1 &
72099	40000	23.55	7.46	0.195	71.4	5.88	13.1 &
72099	50000	23.53	7.47	0.195	71.7	5.91	13.1 &
72099	60000	23.51	7.47	0.195	71.8	5.92	13.1 &
72099	70000	23.51	7.48	0.195	72.8	6	13 &
72099	80000	23.52	7.49	0.195	73.7	6.07	13.1 &
72099	90000	23.64	7.5	0.194	73.8	6.07	13 &
72099	100000	23.75	7.51	0.195	74.1	6.08	13.1 &
72099	110000	23.85	7.52	0.195	74.4	6.09	13 &
72099	120000	23.95	7.52	0.195	75.4	6.16	13 &
72099	130000	23.99	7.52	0.194	75.3	6.16	13 &
72099	140000	24.06	7.53	0.195	74.9	6.11	13 &
72099	150000	24.04	7.53	0.195	75.8	6.19	13 &
72099	160000	24	7.53	0.195	75	6.12	13 &
72099	170000	23.95	7.53	0.196	75.8	6.2	13.1 &
72099	180000	23.84	7.52	0.196	75.3	6.17	13 &
72099	190000	23.74	7.52	0.196	74.7	6.13	13.1 &
72099	200000	23.66	7.52	0.196	74.6	6.13	13 &
72099	210000	23.57	7.52	0.196	74.6	6.14	13 &
72099	220000	23.49	7.52	0.196	74.4	6.14	13 &
72099	230000	23.44	7.51	0.196	75	6.19	13 &
72199	0	23.41	7.51	0.197	74.2	6.13	13 &
72199	10000	23.37	7.51	0.197	74.7	6.17	13 &
72199	20000	23.34	7.52	0.197	73.9	6.11	13 &
72199	30000	23.37	7.51	0.197	74.3	6.14	13 &
72199	40000	23.39	7.52	0.197	74.4	6.15	13 &
72199	50000	23.41	7.52	0.198	74.3	6.14	13 &
72199	60000	23.41	7.53	0.197	74.6	6.16	13 &
72199	70000	23.42	7.53	0.197	73.3	6.05	13 &
72199	80000	23.41	7.53	0.197	73.3	6.05	13 &
72199	90000	23.36	7.53	0.197	74.5	6.16	13 &
72199	100000	23.3	7.53	0.197	74.4	6.15	12.9 &
72199	110000	23.25	7.53	0.197	73.3	6.07	13 &
72199	120000	23.24	7.53	0.197	74.7	6.19	13 &
72199	130000	23.19	7.53	0.198	74.2	6.16	13 &
72199	140000	23.18	7.53	0.197	73.9	6.13	13 &
72199	150000	23.24	7.53	0.198	73.6	6.1	13 &
72199	160000	23.35	7.53	0.198	73.8	6.1	13 &
72199	170000	23.35	7.53	0.198	73.9	6.11	13 &
72199	180000	23.41	7.53	0.198	74.6	6.16	12.9 &
72199	190000	23.44	7.53	0.198	73.7	6.08	12.9 &
72199	200000	23.4	7.52	0.198	74.2	6.13	12.9 &
72199	210000	23.3	7.52	0.198	73.8	6.11	12.9 &
72199	220000	23.22	7.51	0.199	72.5	6.01	12.9 &
72199	230000	23.12	7.51	0.199	72.2	5.99	12.9 &
72299	0	23.04	7.51	0.2	73.3	6.1	12.9 &
72299	10000	22.94	7.5	0.2	72.8	6.07	12.9 &
72299	20000	22.87	7.5	0.2	72.1	6.02	12.9 &
72299	30000	22.84	7.5	0.201	71.4	5.96	12.9 &
72299	40000	22.76	7.5	0.201	71.6	5.99	12.9 &
72299	50000	22.68	7.5	0.202	71.1	5.96	12.8 &
72299	60000	22.61	7.5	0.202	70.9	5.95	12.9 &

72299	70000	22.59	7.5	0.203	70.8	5.94	12.8 &
72299	80000	22.65	7.5	0.203	71.3	5.97	12.9 &
72299	90000	22.77	7.51	0.204	71.3	5.96	12.9 &
72299	100000	22.95	7.5	0.205	71.8	5.98	12.9 &
72299	110000	23.18	7.51	0.205	71.5	5.94	12.9 &
72299	120000	23.46	7.52	0.205	72.9	6.02	12.9 &
72299	130000	23.77	7.53	0.207	72.5	5.95	12.9 &
72299	140000	24.04	7.54	0.206	74.9	6.11	12.9 &
72299	150000	24.33	7.55	0.206	75.1	6.09	12.9 &
72299	160000	24.55	7.55	0.208	73.5	5.94	12.9 &
72299	170000	24.74	7.56	0.208	75.6	6.09	12.9 &
72299	180000	24.79	7.55	0.208	74.3	5.98	12.8 &
72299	190000	24.83	7.55	0.208	74.4	5.98	12.9 &
72299	200000	24.84	7.55	0.208	74.3	5.98	12.9 &
72299	210000	24.77	7.54	0.208	73.6	5.92	12.9 &
72299	220000	24.67	7.54	0.208	73.6	5.94	12.9 &
72299	230000	24.62	7.54	0.208	72.8	5.88	12.9 &
72399	0	24.54	7.53	0.209	73.3	5.92	12.9 &
72399	10000	24.43	7.53	0.209	72.6	5.88	12.9 &
72399	20000	24.39	7.53	0.208	71.5	5.8	12.9 &
72399	30000	24.32	7.53	0.208	71.8	5.83	12.9 &
72399	40000	24.3	7.52	0.208	71.8	5.83	12.9 &
72399	50000	24.26	7.52	0.209	70.5	5.73	12.8 &
72399	60000	24.23	7.52	0.209	70.2	5.71	12.8 &
72399	70000	24.22	7.52	0.209	68.1	5.54	12.8 &
72399	80000	24.21	7.53	0.209	70.9	5.77	12.8 &
72399	90000	24.18	7.53	0.209	71.3	5.81	12.8 &
72399	100000	24.19	7.53	0.209	70.2	5.71	12.8 &
72399	110000	24.33	7.54	0.209	70.3	5.71	12.9 &
72399	120000	24.55	7.55	0.211	70.1	5.67	12.9 &
~~72399~~	~~130000~~	~~26.15~~	~~7.56~~	~~0.0113~~	~~87.6~~	~~6.88~~	~~12.9 &~~
~~72399~~	~~140000~~	~~25.26~~	~~7.1~~	~~0.0006~~	~~96.2~~	~~7.68~~	~~12.7 &~~
~~72399~~	~~150000~~	~~24.91~~	~~6.88~~	~~0.0007~~	~~95.9~~	~~7.71~~	~~12.7 &~~

Equipment removed from river

Recovery finished at 072399 152330

MiniSonde 36468
Log File Name : grand downstream 072399
Setup Date (MMDDYY) : 072399
Setup Time (HHMMSS) : 121224
Starting Date (MMDDYY) : 072399
Starting Time (HHMMSS) : 133000
Stopping Date (MMDDYY) : 080399
Stopping Time (HHMMSS) : 150000
Interval (HHMMSS) : 010000
Sensor warmup (HHMMSS) : 000200
Circltr warmup (HHMMSS) : 000030

Date MMDDYY	Time HHMMSS	Temp øC	SpCond mS/cm	DO% Sat	pH Units	IBatt Volts	DO mg/l
72399	133000	24.83	0.204	72.5	7.53	5.9	5.83
72399	143000	25.1	0.204	73.2	7.55	5.9	5.86
72399	153000	25.34	0.205	73.9	7.56	5.9	5.89
72399	163000	25.53	0.206	75.4	7.57	5.9	5.99
72399	173000	25.61	0.208	74.2	7.57	5.9	5.88
72399	183000	25.65	0.209	75.1	7.58	5.9	5.95
72399	193000	25.63	0.21	74.7	7.57	5.9	5.92
72399	203000	25.55	0.211	73.6	7.57	5.8	5.84
72399	213000	25.48	0.212	72.9	7.57	5.8	5.79
72399	223000	25.35	0.213	72.6	7.57	5.9	5.78
72399	233000	25.26	0.213	71.9	7.57	5.8	5.74
72499	3000	25.13	0.213	71.4	7.56	5.8	5.71
72499	13000	25.04	0.213	71	7.56	5.7	5.69
72499	23000	24.97	0.213	70.9	7.56	5.8	5.69
72499	33000	24.91	0.213	69.7	7.56	5.9	5.6
72499	43000	24.84	0.212	70.5	7.56	5.8	5.67
72499	53000	24.78	0.212	69.4	7.56	5.8	5.59
72499	63000	24.72	0.212	69.7	7.56	5.7	5.62
72499	73000	24.74	0.212	70.2	7.58	5.8	5.66
72499	83000	24.84	0.212	70.9	7.58	5.8	5.7
72499	93000	25.02	0.213	71.6	7.6	5.8	5.74
72499	103000	25.26	0.213	72.4	7.61	5.7	5.77
72499	113000	25.52	0.214	73.1	7.63	5.8	5.8
72499	123000	25.78	0.214	74.7	7.65	5.7	5.9
72499	133000	26.01	0.215	75.8	7.66	5.7	5.97
72499	143000	26.09	0.215	76.1	7.67	5.7	5.98
72499	153000	26.11	0.216	76.2	7.68	5.7	5.99
72499	163000	26.26	0.217	76.4	7.7	5.7	5.99
72499	173000	26.28	0.217	76.3	7.7	5.7	5.97
72499	183000	26.16	0.218	75.5	7.7	5.7	5.93
72499	193000	26.05	0.218	75.2	7.71	5.7	5.92
72499	203000	25.98	0.218	75	7.69	5.7	5.91
72499	213000	25.94	0.218	74.5	7.69	5.7	5.87
72499	223000	25.85	0.217	74	7.69	5.6	5.84
72499	233000	25.79	0.217	73.5	7.69	5.7	5.81
72599	3000	25.73	0.217	72.8	7.69	5.6	5.76
72599	13000	25.67	0.217	72.3	7.67	5.6	5.72
72599	23000	25.6	0.217	72.3	7.69	5.7	5.74
72599	33000	25.51	0.218	72	7.68	5.7	5.72
72599	43000	25.43	0.218	71.9	7.68	5.7	5.72
72599	53000	25.34	0.218	71.8	7.69	5.6	5.72
72599	63000	25.27	0.218	71.4	7.69	5.6	5.7

72599	73000	25.24	0.219	71.5	7.7	5.7	5.71
72599	83000	25.27	0.219	71.3	7.71	5.7	5.69
72599	93000	25.35	0.22	71.6	7.71	5.7	5.7
72599	103000	25.5	0.22	72.9	7.72	5.7	5.79
72599	113000	25.68	0.22	73.2	7.74	5.6	5.8
72599	123000	25.9	0.22	73.5	7.75	5.7	5.79
72599	133000	26.12	0.221	74.7	7.76	5.6	5.87
72599	143000	26.34	0.221	75.6	7.78	5.6	5.91
72599	153000	26.47	0.222	75.7	7.78	5.6	5.91
72599	163000	26.55	0.222	75.5	7.79	5.6	5.89
72599	173000	26.6	0.222	76.1	7.79	5.6	5.93
72599	183000	26.63	0.223	75.8	7.8	5.6	5.9
72599	193000	26.64	0.223	75.6	7.81	5.6	5.89
72599	203000	26.6	0.224	74.9	7.8	5.6	5.84
72599	213000	26.56	0.223	64.8	7.77	5.6	5.05
72599	223000	26.51	0.224	77.4	7.76	5.6	6.04
72599	233000	26.48	0.224	81.2	7.75	5.6	6.34
72699	3000	26.41	0.224	78.7	7.74	5.6	6.15
72699	13000	26.34	0.225	77.2	7.73	5.6	6.04
72699	23000	26.24	0.225	70.7	7.72	5.6	5.54
72699	33000	26.18	0.226	70.3	7.72	5.6	5.52
72699	43000	26.12	0.226	70.1	7.71	5.6	5.51
72699	53000	26.08	0.226	69.8	7.71	5.6	5.48
72699	63000	26.06	0.226	70	7.71	5.6	5.51
72699	73000	26.05	0.227	69.7	7.71	5.6	5.48
72699	83000	26.11	0.226	69.4	7.72	5.6	5.45
72699	93000	26.15	0.226	68.6	7.72	5.6	5.39
72699	103000	26.28	0.226	79.2	7.73	5.6	6.21
72699	113000	26.42	0.226	78.3	7.74	5.6	6.12
72699	123000	26.64	0.226	74.9	7.76	5.6	5.83
72699	133000	26.91	0.226	75.1	7.77	5.6	5.82
72699	143000	27.07	0.226	75.2	7.78	5.6	5.8
72699	153000	27.28	0.226	76	7.79	5.6	5.85
72699	163000	27.39	0.226	76.2	7.8	5.6	5.85
72699	173000	27.39	0.226	76	7.8	5.6	5.83
72699	183000	27.38	0.227	80.3	7.81	5.6	6.17
72699	193000	27.26	0.227	78.8	7.81	5.6	6.06
72699	203000	27.19	0.227	80.1	7.8	5.6	6.17
72699	213000	27.06	0.226	79.2	7.8	5.6	6.11
72699	223000	26.95	0.226	78	7.78	5.6	6.04
72699	233000	26.81	0.226	76.4	7.78	5.6	5.93
72799	3000	26.67	0.226	75.9	7.77	5.6	5.9
72799	13000	26.5	0.226	74.9	7.76	5.6	5.84
72799	23000	26.34	0.226	74.5	7.75	5.6	5.83
72799	33000	26.25	0.226	74.7	7.75	5.6	5.85
72799	43000	26.04	0.226	71.3	7.75	5.6	5.61
72799	53000	25.98	0.226	74	7.74	5.6	5.83
72799	63000	25.81	0.226	72.9	7.74	5.6	5.76
72799	73000	25.71	0.226	73.5	7.75	5.6	5.81
72799	83000	25.65	0.226	73.5	7.75	5.5	5.83
72799	93000	25.69	0.227	74.2	7.76	5.5	5.87
72799	103000	25.78	0.227	73.8	7.78	5.6	5.83
72799	113000	25.97	0.228	73.2	7.8	5.6	5.76
72799	123000	26.21	0.228	74.9	7.85	5.5	5.88
72799	133000	26.47	0.228	76.5	7.86	5.5	5.97
72799	143000	26.6	0.228	70.9	7.87	5.5	5.52
72799	153000	26.83	0.228	83	7.88	5.6	6.43
72799	163000	26.97	0.228	82.3	7.9	5.5	6.37

72799	173000	27.04	0.228	81.7	7.9	5.5	6.32
72799	183000	27.06	0.228	81.3	7.9	5.5	6.28
72799	193000	27.04	0.228	81.1	7.9	5.5	6.26
72799	203000	26.97	0.228	80.2	7.9	5.6	6.21
72799	213000	26.88	0.228	80.7	7.88	5.5	6.25
72799	223000	26.7	0.228	78.6	7.87	5.6	6.11
72799	233000	26.58	0.228	78.6	7.86	5.5	6.13
72899	3000	26.43	0.228	77.2	7.85	5.5	6.03
72899	13000	26.32	0.228	77.1	7.84	5.5	6.04
72899	23000	26.2	0.227	77	7.82	5.5	6.04
72899	33000	26.03	0.227	74.4	7.82	5.4	5.86
72899	43000	25.96	0.227	75.1	7.81	5.5	5.92
72899	53000	25.88	0.227	75.7	7.8	5.5	5.97
72899	63000	25.75	0.227	73.4	7.8	5.4	5.8
72899	73000	25.73	0.227	74.5	7.79	5.5	5.89
72899	83000	25.75	0.227	73.8	7.8	5.5	5.84
72899	93000	25.83	0.227	74.8	7.79	5.5	5.91
72899	103000	26	0.227	75.2	7.81	5.4	5.92
72899	113000	26.19	0.227	75.7	7.82	5.5	5.94
72899	123000	26.56	0.228	74.6	7.85	5.5	5.81
72899	133000	26.83	0.227	76.7	7.87	5.5	5.95
72899	143000	27.04	0.227	78	7.89	5.5	6.02
72899	153000	27.22	0.227	78.7	7.91	5.5	6.06
72899	163000	27.32	0.227	76.3	7.92	5.5	5.87
72899	173000	27.39	0.228	82.7	7.93	5.5	6.35
72899	183000	27.45	0.228	83.4	7.93	5.5	6.4
72899	193000	27.46	0.228	82.9	7.93	5.4	6.36
72899	203000	27.39	0.228	82.2	7.92	5.5	6.31
72899	213000	27.3	0.229	81.1	7.91	5.4	6.23
72899	223000	27.19	0.229	80.5	7.89	5.4	6.2
72899	233000	26.97	0.23	77.4	7.88	5.4	5.99
72999	3000	26.89	0.23	78.6	7.86	5.5	6.09
72999	13000	26.75	0.23	77.8	7.85	5.4	6.04
72999	23000	26.53	0.23	75.2	7.84	5.5	5.86
72999	33000	26.45	0.23	76	7.83	5.5	5.93
72999	43000	26.31	0.23	75.3	7.82	5.5	5.89
72999	53000	26.17	0.23	74.2	7.8	5.4	5.82
72999	63000	26.06	0.231	73.6	7.8	5.5	5.79
72999	73000	25.92	0.231	73	7.81	5.4	5.76
72999	83000	25.86	0.231	74.2	7.8	5.4	5.85
72999	93000	25.87	0.231	73.3	7.81	5.5	5.78
72999	103000	25.93	0.231	72.7	7.81	5.5	5.73
72999	113000	26.01	0.231	74.1	7.81	5.4	5.83
72999	123000	26.2	0.231	74.8	7.83	5.5	5.87
72999	133000	26.43	0.231	75	7.84	5.5	5.86
72999	143000	26.72	0.231	76.6	7.86	5.5	5.95
72999	153000	27.1	0.231	78	7.89	5.5	6.02
72999	163000	27.39	0.231	79.8	7.93	5.5	6.13
72999	173000	27.52	0.231	80.7	7.93	5.4	6.18
72999	183000	27.57	0.231	81.3	7.95	5.4	6.22
72999	193000	27.63	0.231	82.1	7.95	5.4	6.28
72999	203000	27.6	0.231	82.6	7.96	5.4	6.32
72999	213000	27.5	0.232	82.2	7.94	5.4	6.3
72999	223000	27.44	0.232	82	7.93	5.5	6.29
72999	233000	27.32	0.232	80.6	7.91	5.4	6.19
73099	3000	27.22	0.232	80	7.9	5.4	6.16
73099	13000	27.02	0.233	77.6	7.89	5.4	6
73099	23000	26.83	0.233	75.9	7.88	5.5	5.89

73099	33000	26.71	0.234	77.8	7.85	5.4	6.05
73099	43000	26.54	0.234	76.4	7.84	5.5	5.96
73099	53000	26.35	0.234	74.6	7.83	5.4	5.84
73099	63000	26.17	0.235	70.8	7.83	5.4	5.55
73099	73000	26.12	0.235	62.5	7.83	5.4	4.91
73099	83000	26.13	0.235	75.7	7.83	5.5	5.95
73099	93000	26.19	0.235	77.2	7.83	5.3	6.05
73099	103000	26.32	0.235	76.5	7.84	5.3	5.98
73099	113000	26.61	0.237	74.9	7.87	5.3	5.83
73099	123000	26.87	0.237	76.3	7.89	5.4	5.92
73099	133000	27.16	0.236	78.1	7.91	5.3	6.02
73099	143000	27.52	0.236	80.2	7.94	5.4	6.14
73099	153000	27.8	0.237	81.6	7.97	5.3	6.22
73099	163000	28.03	0.237	82.3	7.99	5.5	6.25
73099	173000	28.17	0.237	84.2	8.01	5.3	6.38
73099	183000	28.23	0.237	83.4	8.01	5.3	6.31
73099	193000	28.2	0.237	82.9	8	5.3	6.27
73099	203000	28.18	0.237	81.9	7.98	5.4	6.2
73099	213000	28.11	0.238	80.8	7.97	5.3	6.12
73099	223000	28.01	0.238	79.7	7.95	5.3	6.05
73099	233000	27.85	0.238	80	7.95	5.4	6.09
73199	3000	27.61	0.238	77.9	7.92	5.3	5.96
73199	13000	27.42	0.238	77.6	7.9	5.4	5.96
73199	23000	27.32	0.238	75.3	7.88	5.4	5.79
73199	33000	27.19	0.238	74.9	7.87	5.3	5.77
73199	43000	27.11	0.238	74.9	7.87	5.4	5.78
73199	53000	27.04	0.237	74.8	7.86	5.3	5.78
73199	63000	26.98	0.237	74.3	7.86	5.3	5.75
73199	73000	27.02	0.237	74.6	7.86	5.4	5.77
73199	83000	27.04	0.237	74.4	7.86	5.4	5.75
73199	93000	27.09	0.236	75	7.88	5.4	5.79
73199	103000	27.17	0.236	74.6	7.88	5.4	5.75
73199	113000	27.35	0.236	75.2	7.89	5.3	5.77
73199	123000	27.52	0.236	68.4	7.91	5.3	5.24
73199	133000	27.69	0.235	79.4	7.91	5.3	6.07
73199	143000	27.89	0.236	81	7.92	5.3	6.16
73199	153000	28.01	0.236	80.8	7.97	5.3	6.14
73199	163000	28.05	0.236	81	7.98	5.3	6.15
73199	173000	28.07	0.236	81.6	7.98	5.4	6.19
73199	183000	28.06	0.236	82.6	7.98	5.3	6.27
73199	193000	27.93	0.236	82.3	7.98	5.3	6.26
73199	203000	27.85	0.236	82.2	7.96	5.3	6.26
73199	213000	27.64	0.236	81.4	7.94	5.3	6.22
73199	223000	27.48	0.236	81.3	7.93	5.4	6.23
73199	233000	27.27	0.236	79.3	7.91	5.4	6.1
80199	3000	27.04	0.236	77.9	7.91	5.4	6.02
80199	13000	26.88	0.236	78.1	7.88	5.3	6.05
80199	23000	26.64	0.237	76.9	7.87	5.4	5.98
80199	33000	26.48	0.237	75.9	7.86	5.3	5.92
80199	43000	26.33	0.237	76.2	7.86	5.4	5.96
80199	53000	26.19	0.237	74.9	7.85	5.4	5.87
80199	63000	26.07	0.238	75.1	7.84	5.3	5.9
80199	73000	25.96	0.238	74.2	7.84	5.3	5.85
80199	83000	25.86	0.238	74.2	7.85	5.4	5.86
80199	93000	25.86	0.238	74.6	7.85	5.3	5.89
80199	103000	25.95	0.238	73.2	7.87	5.3	5.77
80199	113000	26.07	0.238	73.9	7.9	5.3	5.81
80199	123000	26.2	0.238	75.1	7.92	5.4	5.89

80199	133000	26.36	0.238	77.1	7.95	5.3	6.03
80199	143000	26.52	0.238	78.8	7.98	5.4	6.14
80199	153000	26.71	0.238	81.2	8	5.4	6.31
80199	163000	26.81	0.238	82.8	8.03	5.3	6.42
80199	173000	26.82	0.238	67.9	8.04	5.4	5.27
80199	183000	26.8	0.239	82.3	8.03	5.3	6.39
80199	193000	26.73	0.239	85.9	8.04	5.3	6.68
80199	203000	26.58	0.239	85.1	8.03	5.3	6.63
80199	213000	26.49	0.239	84.6	8.02	5.4	6.6
80199	223000	26.35	0.24	83.1	8	5.3	6.5
80199	233000	26.17	0.24	81.3	7.99	5.3	6.38
80299	3000	26.01	0.24	81	7.97	5.3	6.37
80299	13000	25.84	0.24	80.1	7.95	5.3	6.32
80299	23000	25.64	0.24	79.1	7.93	5.3	6.27
80299	33000	25.45	0.24	75.9	7.92	5.4	6.04
80299	43000	25.25	0.24	74.5	7.91	5.3	5.95
80299	53000	25.17	0.24	76	7.89	5.3	6.08
80299	63000	24.99	0.24	71.7	7.88	5.4	5.75
80299	73000	24.85	0.239	72	7.88	5.4	5.79
80299	83000	24.85	0.239	71.9	7.88	5.3	5.78
80299	93000	24.91	0.239	72.9	7.9	5.4	5.86
80299	103000	25.03	0.239	74.3	7.91	5.3	5.96
80299	113000	25.19	0.239	75.8	7.93	5.3	6.06
80299	123000	24.02	0.0001	96.8	8.16	5.4	7.89
80299	133000	21.3	0.0003	96	8.22	5.4	8.26
80299	143000	22.22	0.0003	94.8	8.21	5.3	8.02

Equipment removed from river

Recovery finished at 080299 152130