PENNSYLVANIA ELECTRIC COMPANY
DEEP CREEK HYDROELECTRIC STATION
WATER APPROPRIATION PERMIT
NO. GA92S009(01)

ANNUAL REPORT FOR 1995

FEBRUARY 1996

2996-0001 #15240

DEEP CREEK HYDROELECTRIC STATION
MDE WATER APPROPRIATION PERMIT NO. GA92S009 (01)
GARRETT COUNTY, MARYLAND

ANNUAL REPORT FOR 1995

BY

PENNSYLVANIA ELECTRIC COMPANY
JOHNSTOWN, PA

FEBRUARY 1996

DEEP CREEK HYDROELECTRIC STATION
MDE WATER APPROPRIATION PERMIT NO. GA92S009 (01)
ANNUAL REPORT PER PERMIT CONDITION NO. 23

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DEEP CREEK HYDROELECTRIC STATION
MDNR WATER APPROPRIATION PERMIT NO. GA92S009 (01)
ANNUAL REPORT PER PERMIT CONDITION NO. 23

1.0 SUMMARY

The Pennsylvania Electric Company ("Permittee") holds Water Appropriation Permit GA92S009(01) originally issued by the Maryland Department of Natural Resources ("MDNR") and now administered by the Maryland Department of the Environment ("Department"). This report is submitted in accordance with Permit Condition 23, which requires the Permittee to submit an annual report to the Department, including data and information as specified in Permit Conditions 15-19 and 21.

1.1 Lake Level Monitoring

Permit Condition 15 requires the Permittee to report the results of water-level monitoring at Deep Creek Lake. Appendix A contains daily water-level data and a plot depicting lake levels for 1995.

1.2 Temperature Monitoring

Permit Condition 16 requires the Permittee to report the results of temperature monitoring. The "Youghiogheny River Water Temperature Enhancement Plan" was approved by the Department by letter dated June 8, 1995. In accordance with the Plan, the Permittee monitored river water temperature at the Sang Run bridge and made temperature enhancement releases on 24 days.[1/] The days on which temperature enhancement releases were made are tabulated in Appendix E (Table I).

By letters dated August 7, August 24 and September 1, 1995 to MDNR, the Permittee reported recorded occurrences of river water temperature exceeding 25 degrees C, as required by Permit Condition 16. The Permittee provided temperature monitoring data to Mr. S. P. Schreiner of Versar, Inc., consultant to the MDNR, by letter dated November 2, 1995. Copies of the Permittee's August 7, August 24, September 1 and November 2 letters are included herewith in Appendix B. Also included in Appendix B are daily maximum river water temperatures as monitored by the Permittee and by Versar.

[1/] The Permittee's letter dated November 2, 1995 (see next paragraph) reported that temperature enhancement releases were made on 22 days in 1995. Review of the operating record in preparation of this report indicated that temperature enhancement releases were made on two additional days. For further information see "Information Supplementing Letter to Department - November 2, 1995" in Appendix B.

1.3 Minimum Flow Release Monitoring

Permit Condition 17 requires the Permittee to report flow measurements and the occurrence of bypass releases. The Permittee operated the flow bypass to maintain a flow of 40 cfs in the river at the Deep Creek Station on 46 days, during the period beginning July 25 and ending October 11. The bypass was open whenever the river flow measured at the Oakland gage was 19 cfs or lower, in accordance with Table 3 of the Permittee's Flow Bypass Operation Protocol. (Columns 5 and 6 of Table 3 were used to determine the bypass flow requirement and per cent opening, respectively, insofar as the Johnson valves were always open during the bypass release period.) The 1995 flow bypass release represents approx. 240,000 kwh of lost generation. The monthly bypass operating times and estimated release quantities are as follows:

	Hrs. Operated	Total Release (MG)	Avg. Release* (cfs)
July	71	8	4.2
August	149	27	6.9
September	460	127	10.3
October	210	44	7.7
Year	890	207	8.6

*Note: "Avg. Release" is the average rate of release during the hours of operation.

The log of the flow bypass operation is presented in Appendix C. Also included in Appendix C is the record of daily river flow measured at the Oakland gage for the period October 1, 1994 through November 28, 1995, provided by the U.S. Geological Survey.

1.4 Dissolved Oxygen (DO) Monitoring

Permit Condition 18 requires the Permittee to report the results of dissolved oxygen monitoring. The tailrace weir was operated and tested in accordance with the "Dissolved Oxygen (DO) Enhancement Operations and Monitoring Protocol" approved by the Department on January 6, 1995. Appendix D reports the data obtained from monitoring DO and testing the weir in 1995.

The lowest DO measured in the tailrace downstream of the weir during generation (startup excluded) was 4.9 mg/l, when the DO in the powerhouse discharge was 0.5 mg/l. The maximum DO improvement ("uptake") measured at the weir during any weir effectiveness test was 4.5 mg/l, when the DO in the powerhouse discharge was 0.8 mg/l. In general, the magnitude of DO uptake exceeded expectations.

As expected, the magnitude of DO uptake at the tailrace weir varied inversely with the DO in the powerhouse discharge. Also, as expected, DO uptake was greater when the tailrace weir gates were closed.

1.5 Releases Unsuitable For Whitewater Recreation

Permit Condition 19 requires the Permittee to document the "times and dates when generation releases not suitable for whitewater recreation occurred." Such times and dates are presented in Appendix E. Appendix E also presents information about (a) the Permittee's compliance with the Condition 19 requirement for whitewater boating releases on Fridays, Mondays and designated Saturdays and (b) special releases made by the Permittee that were requested by MDNR on behalf of the whitewater boaters. The Permittee continued to announce scheduled releases in advance on the telephone recording, which was updated every Thursday. Also, the recording was updated to announce the two-hour temperature enhancement releases in accordance with the "Youghiogheny River Water Temperature Enhancement Plan."

1.6 Zebra Mussel Monitoring

Permit Condition 21 requires the Permittee to submit the results of its zebra mussel monitoring program. Appendix F is a memorandum report presenting the results of zebra mussel monitoring at Deep Creek Lake. Star substrates placed at the station intake area have shown no signs of the zebra mussel to date.

APPENDIX A

APPENDIX A

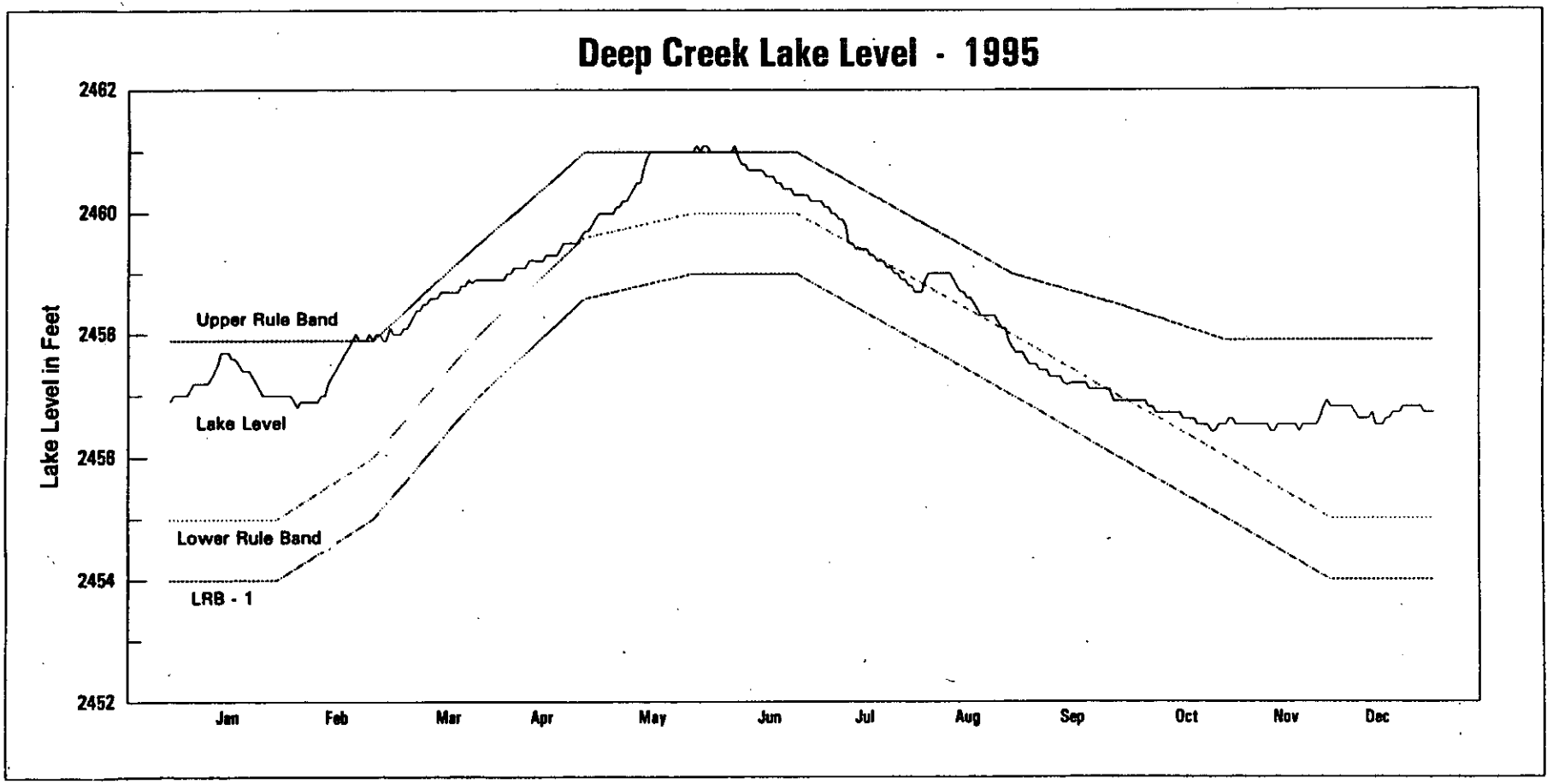
LAKE LEVEL DATA AND PLOT

Deep Creek Lake Level 1995

Month	Day	Lake Level	Rain Fall	Month	Day	Lake Level	Rain Fall	Month	Day	Lake Level	Rain Fall
Jan	1	2456.9	0.52	Feb	1	2457.0	0.00	Mar	1	2457.9	0.00
	2	2457.0	0.18		2	2457.0	0.00		2	2458.0	0.02
	3	2457.0	0.05		3	2457.0	0.27		3	2458.0	0.05
	4	2457.0	0.03		4	2457.0	0.43		4	2457.9	0.00
	5	2457.0	0.02		5	2457.0	0.07		5	2457.9	0.45
	6	2457.0	0.60		6	2456.9	0.05		6	2458.1	0.20
	7	2457.1	0.30		7	2456.8	0.02		7	2458.0	0.00
	8	2457.2	0.02		8	2456.9	0.10		8	2458.0	0.55
	9	2457.2	0.08		9	2456.9	0.00		9	2458.0	0.05
	10	2457.2	0.05		10	2456.9	0.03		10	2458.1	0.02
	11	2457.2	0.08		11	2456.9	0.00		11	2458.1	0.00
	12	2457.2	0.20		12	2456.9	0.02		12	2458.2	0.00
	13	2457.3	0.00		13	2456.9	0.00		13	2458.3	0.00
	14	2457.4	0.04		14	2457.0	0.05		14	2458.4	0.00
	15	2457.5	0.45		15	2457.0	1.30		15	2458.4	0.00
	16	2457.7	0.05		16	2457.2	0.02		16	2458.5	0.00
	17	2457.7	0.00		17	2457.3	0.00		17	2458.5	0.00
	18	2457.7	0.00		18	2457.4	0.00		18	2458.6	0.00
	19	2457.6	0.05		19	2457.5	0.00		19	2458.6	0.00
	20	2457.6	0.95		20	2457.6	0.00		20	2458.6	0.03
	21	2457.5	0.25		21	2457.7	0.10		21	2458.7	0.40
	22	2457.4	0.15		22	2457.8	0.00		22	2458.7	0.03
	23	2457.4	0.10		23	2457.9	0.70		23	2458.7	0.00
	24	2457.4	0.16		24	2458.0	0.20		24	2458.7	0.00
	25	2457.3	0.00		25	2457.9	0.00		25	2458.7	0.00
	26	2457.2	0.05		26	2457.9	0.30		26	2458.7	0.00
	27	2457.1	0.00		27	2457.9	0.28		27	2458.8	0.33
	28	2457.0	0.17		28	2458.0	0.38		28	2458.8	0.03
	29	2457.0	0.02						29	2458.9	0.00
	30	2457.0	0.05						30	2458.9	0.00
	31	2457.0	0.00						31	2458.9	0.03
Total			4.62				4.32				2.19
Apr	1	2458.9	0.02	May	1	2459.7	0.07	Jun	1	2461.0	0.07
	2	2458.9	0.00		2	2459.7	0.77		2	2461.1	0.21
	3	2458.9	0.00		3	2459.8	0.00		3	2461.0	0.17
	4	2458.9	0.35		4	2459.9	0.08		4	2461.1	0.00
	5	2458.9	0.00		5	2460.0	0.10		5	2461.1	0.00
	6	2458.9	0.02		6	2460.0	0.00		6	2461.0	0.00
	7	2458.9	0.03		7	2460.0	0.00		7	2461.0	0.05
	8	2458.9	0.32		8	2460.0	0.00		8	2461.0	0.03
	9	2459.0	0.27		9	2460.0	0.12		9	2461.0	0.10
	10	2459.0	0.35		10	2460.1	0.15		10	2461.0	0.23
	11	2459.1	0.00		11	2460.1	0.10		11	2461.0	0.45
	12	2459.1	0.20		12	2460.2	0.02		12	2461.0	0.65
	13	2459.1	0.13		13	2460.2	0.02		13	2461.1	0.00
	14	2459.1	0.10		14	2460.3	0.98		14	2460.9	0.00
	15	2459.2	0.00		15	2460.4	0.00		15	2460.8	0.00
	16	2459.2	0.00		16	2460.5	0.00		16	2460.8	0.00
	17	2459.2	0.22		17	2460.5	0.55		17	2460.7	0.00
	18	2459.2	0.03		18	2460.7	0.92		18	2460.7	0.00
	19	2459.2	0.00		19	2460.9	0.13		19	2460.7	0.00
	20	2459.3	0.07		20	2461.0	0.00		20	2460.7	0.00
	21	2459.3	0.02		21	2461.0	0.00		21	2460.7	0.00
	22	2459.3	0.00		22	2461.0	0.00		22	2460.6	0.10
	23	2459.3	0.40		23	2461.0	0.00		23	2460.6	0.32
	24	2459.4	0.25		24	2461.0	0.00		24	2460.6	0.03
	25	2459.5	0.02		25	2461.0	0.20		25	2460.5	0.04
	26	2459.5	0.00		26	2461.0	0.06		26	2460.5	0.05
	27	2459.5	0.15		27	2461.0	0.02		27	2460.4	0.02
	28	2459.5	0.03		28	2461.0	0.50		28	2460.4	0.00
	29	2459.5	0.00		29	2461.0	0.05		29	2460.4	0.07
	30	2459.6	0.55		30	2461.0	0.00		30	2460.3	0.52
					31	2461.0	0.00				
Total			3.53				4.84				3.11

Deep Creek Lake Level 1995

Month	Day	Lake Level	Rain Fall	Month	Day	Lake Level	Rain Fall	Month	Day	Lake Level	Rain Fall
Jul	1	2460.3	0.62	Aug	1	2458.9	0.00	Sep	1	2457.8	0.00
	2	2460.3	0.00		2	2458.8	0.00		2	2457.7	0.00
	3	2460.3	0.00		3	2458.8	0.10		3	2457.7	0.00
	4	2460.3	0.00		4	2458.7	0.17		4	2457.7	0.00
	5	2460.2	0.00		5	2458.7	0.50		5	2457.6	0.00
	6	2460.2	0.05		6	2458.7	3.00		6	2457.5	0.00
	7	2460.2	0.13		7	2458.9	0.00		7	2457.5	0.00
	8	2460.2	0.00		8	2459.0	0.00		8	2457.5	0.00
	9	2460.1	0.03		9	2459.0	0.00		9	2457.4	0.00
	10	2460.1	0.03		10	2459.0	0.05		10	2457.4	0.00
	11	2460.0	0.00		11	2459.0	0.11		11	2457.4	0.00
	12	2460.0	0.00		12	2459.0	0.02		12	2457.3	0.05
	13	2459.9	0.00		13	2459.0	0.26		13	2457.3	0.05
	14	2459.9	0.00		14	2459.0	0.02		14	2457.3	0.03
	15	2459.8	0.62		15	2458.9	0.00		15	2457.3	0.02
	16	2459.5	0.00		16	2458.8	0.03		16	2457.2	0.25
	17	2459.5	0.72		17	2458.7	0.00		17	2457.2	0.55
	18	2459.4	0.02		18	2458.7	0.00		18	2457.2	0.04
	19	2459.4	0.00		19	2458.6	0.00		19	2457.2	0.00
	20	2459.4	0.00		20	2458.6	0.00		20	2457.2	0.00
	21	2459.4	0.10		21	2458.5	0.00		21	2457.2	0.00
	22	2459.3	0.02		22	2458.4	0.00		22	2457.2	0.62
	23	2459.3	0.00		23	2458.3	0.00		23	2457.1	0.00
	24	2459.2	0.01		24	2458.3	0.00		24	2457.1	0.00
	25	2459.2	0.45		25	2458.3	0.00		25	2457.1	0.00
	26	2459.2	0.05		26	2458.3	0.00		26	2457.1	0.05
	27	2459.1	0.00		27	2458.3	0.00		27	2457.1	0.00
	28	2459.1	0.25		28	2458.2	0.00		28	2457.1	0.00
	29	2459.0	0.13		29	2458.1	0.00		29	2457.1	0.00
	30	2459.0	0.00		30	2458.1	0.00		30	2456.9	0.00
	31	2458.9	0.00		31	2457.9	0.00				
Total			3.23				4.26				1.66
Oct	1	2456.9	0.00	Nov	1	2456.6	0.45	Dec	1	2456.8	0.00
	2	2456.9	0.00		2	2456.8	0.23		2	2456.8	0.02
	3	2456.9	0.10		3	2456.5	0.00		3	2456.8	0.11
	4	2456.9	0.20		4	2456.5	0.00		4	2456.8	0.00
	5	2456.9	0.57		5	2456.5	0.00		5	2456.8	0.15
	6	2456.9	0.03		6	2456.5	0.62		6	2456.8	0.07
	7	2456.9	0.00		7	2456.5	0.23		7	2456.8	0.00
	8	2456.9	0.00		8	2456.5	0.02		8	2456.7	0.00
	9	2456.9	0.00		9	2456.5	0.02		9	2456.6	0.15
	10	2456.8	0.00		10	2456.5	0.87		10	2456.6	0.05
	11	2456.8	0.00		11	2456.5	0.09		11	2456.8	0.07
	12	2456.7	0.00		12	2456.5	0.05		12	2456.6	0.03
	13	2456.7	0.00		13	2456.4	1.20		13	2456.7	0.22
	14	2456.7	1.17		14	2456.4	0.80		14	2456.5	0.30
	15	2456.7	0.00		15	2456.5	0.10		15	2456.5	0.00
	16	2456.7	0.00		16	2456.5	0.05		16	2456.5	0.60
	17	2456.7	0.00		17	2456.5	0.09		17	2456.6	0.00
	18	2456.7	0.00		18	2456.5	0.02		18	2456.6	0.40
	19	2456.7	0.00		19	2456.5	0.00		19	2456.7	0.60
	20	2456.6	0.45		20	2456.5	0.22		20	2456.7	0.35
	21	2456.6	0.32		21	2456.4	0.02		21	2456.7	0.30
	22	2456.6	0.00		22	2456.5	0.25		22	2456.8	0.10
	23	2456.6	0.00		23	2456.5	0.00		23	2456.8	0.07
	24	2456.5	0.00		24	2456.5	0.00		24	2456.8	0.08
	25	2456.5	0.00		25	2456.5	0.00		25	2456.8	0.35
	26	2456.5	0.00		26	2456.5	0.00		26	2456.8	0.55
	27	2456.5	0.25		27	2456.6	0.55		27	2456.8	0.15
	28	2456.4	0.20		28	2456.8	0.22		28	2456.7	0.03
	29	2456.4	0.80		29	2456.9	0.00		29	2456.7	0.00
	30	2456.5	0.00		30	2456.8	0.00		30	2456.7	0.00
	31	2456.5	0.00						31	2456.7	0.07
Total			4.09				6.1				4.82
										Year Total	46.77


Deep Creek Lake Level - 1995
Lake Level in Feet
2462
2460
2458
2456
2454
2452
Upper Rule Band
Lake Level
Lower Rule Band
LRB - 1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

APPENDIX B

APPENDIX B

TEMPERATURE MONITORING AND RELEASE REPORTS

- Letter to Department - August 7, 1995
- Letter to Department - August 24, 1995
- Letter to Department - September 1, 1995
- Letter to Department - November 2, 1995
- Information Supplementing Letter to Department - November 2, 1995
- Maximum Daily Water Temperatures

Penelec / GPU

Pennsylvania Electric Company

Please reply to:
Mr. J. C. Phillips
c/o GPU Service Corporation
P.O. Box 15152
Reading, PA 19612-5152

(610) 375-5827

August 7, 1995

Mr. Matthew G. Pajerowski, Chief
Water Appropriation Permits Section
Water Rights Division, E-2
Water Management Administration
Maryland Dept. of the Environment
Tawes State Office Bldg.
Annapolis, MD 21401

Deep Creek Station Permit No. GA92S009(01)
Conditions No. 16, 17 and 18

Dear Mr. Pajerowski:

This letter has two purposes:

(1) as required by Permit Condition 16, to report recently experienced, apparent exceedances of the river water temperature objective; and

(2) to advise you of the successful operation of the flow bypass and the tailrace weir (Permit Conditions No. 17 and 18, respectively).

River Water Temperature Monitoring (Permit Condition No. 16)

Data downloaded from the river water temperature monitor at Sang Run indicate eight apparent exceedances of the river water temperature objective since the last apparent exceedance reported by my July 11, 1995 letter, as described below:

The recorded data indicate that the river water temperature reached 27.63° C at 8:00 a.m. on July 14. Information from Mr. Schreiner, who we understand corrected the setting of the temperature monitor clock on July 18, suggests that the clock was some 61 hours "fast" prior to correction. On this basis, the 27.63° C reading is believed to have occurred at approx. 7:00 p.m. on July 11. On July 11, a temperature release was made from 12:30 p.m. to 2:30 p.m. in accordance with the protocol based on a predicted maximum temperature of 25.88° C made at 11:00 a.m.

The recorded data indicate that the river water temperature reached 27.05° C at 1:12 a.m. on July 16. Based on the clock error (see above), this reading is believed to have occurred at approx. noon on July 13. On July 13, a scheduled release was made from 10:00 a.m. to 1:00 p.m.

The recorded data indicate that the river water temperature reached 27.01° C at 5:44 p.m. on July 18. This was when the clock was corrected, so that the time and date are believed to be correct. The Oakland gage was inoperative on July 18. There was no release on July 18, but there should have been; when the Oakland gage is not in service, the Friendsville gage is to be used and, if the Friendsville gage is also not in service, then the protocol is to be implemented as if the river flow is low enough to potentially require a release.

The recorded data indicate that the river water temperature reached 26.62° C at 6:32 p.m. on July 19 (correct time and date). There was no release that day. The July 19 7:00 a.m. prediction was 20.94° C based upon a reading of 18.68° C. This predicted temperature was sufficiently low to permit the protocol to be discontinued for the day, hence no release was necessary.

The recorded data indicate that the river water temperature reached 27.06° C at 5:44 p.m. on July 22 (correct time and date). A temperature release was made from 3:30 p.m. to 4:30 p.m. on July 22 as required by the temperature prediction made at 3:00 p.m. However, the 7:00 a.m. temperature prediction was 26.48° C, so that a temperature release should have been scheduled to begin at 11:00 a.m. on July 22.

incorrect flow ≤ 30 cfs

The recorded data indicate that the river water temperature reached 27.34° C at 5:30 p.m. on July 23 (correct time and date). The 11:00 a.m. temperature prediction was 25.19° C and the 12:00 noon prediction was 25.73° C. According to the protocol, the 12:00 noon prediction should have triggered a one-hour temperature release to begin not later than 12:30 p.m. However, the temperature release was made from 3:25 p.m. to 4:25 p.m. We have no explanation for the delay in making the temperature release.

The recorded data indicate that the river water temperature reached 26.40° C at 4:02 p.m. on July 25 (correct time and date). The 12:00 noon temperature prediction was 24.96° C and the 2:00 p.m. temperature prediction was 25.29° C. In accordance with the protocol, a temperature release was made from 2:00 p.m. to 3:00 p.m.

The recorded data indicate that the river water temperature reached 25.48° C at 1:54 p.m. on July 27 (correct time and date). The 11:00 a.m. temperature prediction was 25.26° C and the 12:00 noon temperature prediction was 25.57° C. In accordance with the protocol, a temperature release was made from 12:00 noon to 1:00 p.m.

The temperature monitor clock error may affect the actual times and dates of the apparent temperature exceedances reported in my previous letters, namely June 18 (reported on June 27) and June 11 and July 7 (reported on July 11). The real-time monitoring and the recorded magnitudes of the temperature readings of course are not affected by the clock error and are believed to have been correct all along.

The clock has continued to function properly since the July 18 correction. We intend to check the clock when the recorded river water temperature data are downloaded, on a weekly basis. Penelec's ongoing training of on-shift operators will ensure proper implementation of the protocol in the future.

Flow Bypass Operation (Permit Condition No. 17)

In accordance with the Flow Bypass Operation Protocol, the flow bypass has operated frequently beginning on July 25, when the flow at the Oakland gage first dropped below 20 cfs this year.

Tailrace Weir Operation (Permit Condition No. 18)

The tailrace weir has significantly increased the dissolved oxygen (D.O.) in the plant discharge as expected. Our D.O. readings have indicated increases as high as 4 mg/l during the extremely low D.O., high temperature and low river flow conditions prevailing recently. To date, measured D.O. in the project discharge downstream from the weir 30 minutes after start-up has always equalled or exceeded 5.5 mg/l and generally has exceeded 6.0 mg/l.

Please call me if you have any questions about this information.

Very truly yours,

J. C. Phillips

cc: T. N. Atherton, Esq.
W. M. Dyok
R. I. McLean
K. W. Pavol
S. P. Schreiner

bcc: R. D. Berkhimer
R. T. Gallus
J. G. Herbein
R. D. Imler
C. A. Rosenberry
T. J. Simunich/M. J. Kmetz
R. W. Thomas
B. A. Williams

Penelec / GPU

Pennsylvania Electric Company

Please reply to:
Mr. J. C. Phillips
c/o GPU Service Corporation
P.O. Box 15152
Reading, PA 19612-5152

(610) 375-5827

August 24, 1995

Mr. Matthew G. Pajerowski, Chief
Water Appropriation Permits Section
Water Rights Division, E-2
Water Management Administration
Maryland Dept. of the Environment
Tawes State Office Bldg.
Annapolis, MD 21401

Deep Creek Project - Permit No. GA92S009(01)
Condition 16 - River Water Temperature Enhancement

Dear Mr. Pajerowski:

Since my last report to you (letter dated August 7, 1995), maximum daily river water temperatures at Sang Run exceeding the 25.0°C objective have been recorded on four days. On all four of these days, the river flow exceeded 100 cfs at Oakland; thus, in accordance with the Water Temperature Enhancement Plan, the water temperature enhancement protocol did not need to be implemented. The days, maximum temperatures, times, and morning river flows at Oakland were as follows:

day	max. temp.	time	morning river flow
August 14	26.24°C	6:12 p.m.	308 cfs
August 15	25.93°C	2.12 p.m.	147 cfs
August 16	26.22°C	2:28 p.m.	179 cfs
August 17	26.05°C	2:00 p.m.	116 cfs

Generation releases occurred on all four of the above days, as follows:

day	time	explanation
August 14	10:00 a.m. - 1:00 p.m.	scheduled
August 15	12:30 p.m. - 6:30 p.m.	run for cost
August 16	12:50 p.m. - 6:50 p.m.	run for cost
August 17	12:00 noon - 4:00 p.m.	run for cost

If you have any questions, please contact me.

Very truly yours,

J. C. Phillips

cc: T. N. Atherton, Esq.
W. M. Dyok
R. I. McLean
K. W. Pavol
S. P. Schreiner

bcc: R. D. Berkhimer
R. T. Gallus
J. G. Herbein
R. D. Imler
C. A. Rosenberry
T. J. Simunich/M. J. Kmetz
R. W. Thomas
B. A. Williams

Penelec / GPU

Pennsylvania Electric Company

Please reply to:
Mr. J. C. Phillips
c/o GPU Service Corporation
P.O. Box 15152
Reading, PA 19612-5152

(610) 375-5827

September 1, 1995

Mr. Matthew G. Pajerowski, Chief
Water Appropriation Permits Section
Water Rights Division, E-2
Water Management Administration
Maryland Dept. of the Environment
Tawes State Office Bldg.
Annapolis, MD 21401

Deep Creek Project - Permit No. GA92S009(01)
Condition 16 - River Water Temperature Enhancement

Dear Mr. Pajerowski:

This is the final report on monitored exceedances of the river water temperature objective for 1995; as you know, the 1995 river water annual temperature enhancement period ended on August 31.

Since my last report to you (letter dated August 24, 1995), maximum daily river water temperatures at Sang Run exceeding the 25.0°C objective have been recorded on two (2) days. The days, maximum temperatures, times, and morning river flows at Oakland were as follows:

day	max. temp.	time	morning river flow
August 23	26.53°C	5:24 p.m.	36 cfs
August 24	26.14°C	4:42 p.m.	29 cfs

Temperature releases were made on both of the above days. The release times and the times and temperatures of the prediction triggering the release and the immediate prior prediction were as follows:

day	release time	prediction time	predicted temp.
August 23	3:15 p.m. - 4:15 p.m.	2:00 p.m. 3:00 p.m.	24.97°C 25.59°C
August 24	2:30 p.m. - 3:30 p.m.	12:00 noon 2:00 p.m.	24.98°C 25.32°C

If you have any questions, please contact me.

Very truly yours,

J. C. Phillips

cc: T. N. Atherton, Esq.
W. M. Dyok
R. I. McLean
K. W. Pavol
S. P. Schreiner

bcc: R. D. Berkhimer
R. T. Gallus
J. G. Herbein
R. D. Imler
C. A. Rosenberry
T. J. Simunich/M. J. Kmetz
R. W. Thomas
B. A. Williams

Penelec / GPU

Pennsylvania Electric Company
Please reply to:
Mr. J. C. Phillips
c/o GPU Service Corporation
P. O. Box 15152
Reading, PA 19612-5152

(610) 375-5827

November 2, 1995

Mr. S. P. Schreiner
VERSAR ESM, INC
9200 Rumsey Road
Columbia, MD 21045

Deep Creek - Temperature Enhancement

Dear Steve:

For your information and use, enclosed are:

(1) printouts of the temperature enhancement release software program screen for the 22 days in 1995 on which temperature enhancement releases were made, plus one day (July 31) on which a temperature enhancement release would have been required but a scheduled release was made; and

(2) diskettes (3) of recorded river water temperature data downloaded from the temperature monitor at the Sang Run Bridge for June, July and August 1995, respectively.

Regarding the printouts (1) above, please note:

(a) Data corresponding to the times after a temperature enhancement release was committed were "carried over" from the prior day and are stricken.

(b) The 0700 and 0900 hour predictions that do not apply (based on Oakland flow relative to 30 cfs) are stricken.

(c) "Confirmed" means that the release was made as called for by the instruction.

(d) The protocol was met on each day except July 22 and 23, when the temperature releases were delayed.

(e) The temperature enhancement releases on August 13 and 15 were unnecessary due to river flow at Oakland exceeding 100 cfs.

Please call if you have any questions about this information.

Very truly yours,

JCP

J. C. Phillips

bec
Enclosure
cc: Wayne Dyok - printouts only
Rich McLean - printouts only
bcc: R. D. Berkhimer - printouts only
R. D. Imler - w/o encl.
C. A. Rosenberry - printouts only
R. W. Thomas - w/o encl.

Youghiogheny River Water Temperature Enhancement Plan

20-Jun-95

67.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	>30	24.59	Check again at 0900
	~~<=30~~	~~26.07~~	~~Check again at 0900~~
0900	>30	24.80	Check again at 1100
	~~<=30~~	~~26.28~~	~~Release at 1100 for 2 hours~~
1100	All	25.67	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~24.31~~	~~Check again at 1400~~
~~1400~~	~~All~~	~~18.64~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~19.16~~	~~No further predictions necessary today~~

Confirmed

Tair	30.0	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	18.25	River Temp Sang Run @700
T9	18.65	River Temp Sang Run @900
T11	20.00	River Temp Sang Run @1100
~~T12~~	~~19.79~~	~~River Temp Sang Run @1200~~
~~T14~~	~~17.60~~	~~River Temp Sang Run @1400~~
~~T15~~	~~18.23~~	~~River Temp Sang Run @1500~~
Q	67.0	River Flow at Oakland

86 Air Temp, Elkins WV - Degree F
PTCLDY Cloud Cover, Elkins WV

Youghiogheny River Water Temperature Enhancement Plan

21-Jun-95

64.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	24.82	Check again at 0900
	~~<=30~~	~~26.18~~	~~Check again at 0900~~
0900	> 30	25.28	Check again at 1100
	~~<=30~~	~~26.64~~	~~Release at 1100 for 2 hours~~
1100	All	26.70	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~24.09~~	~~Check again at 1400~~
~~1400~~	~~All~~	~~18.64~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~19.16~~	~~No further predictions necessary today~~

confirmed

Tair	30.0	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	18.56	River Temp Sang Run @700
T9	19.15	River Temp Sang Run @900
T11	21.04	River Temp Sang Run @1100
~~T12~~	~~19.79~~	~~River Temp Sang Run @1200~~
~~T14~~	~~17.60~~	~~River Temp Sang Run @1400~~
~~T15~~	~~18.23~~	~~River Temp Sang Run @1500~~
Q	64.0	River Flow at Oakland

86	Air Temp, Elkins WV - Degree F
PTCLDY	Cloud Cover, Elkins WV

Youghiogheny River Water Temperature Enhancement Plan

20-Jun-95

67.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	>30	24.59	Check again at 0900
	~~<=30~~	~~26.07~~	~~Check again at 0900~~
0900	>30	24.80	Check again at 1100
	~~<=30~~	~~26.28~~	~~Release at 1100 for 2 hours~~
1100	All	25.67	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~24.31~~	~~Check again at 1400~~
~~1400~~	~~All~~	~~18.64~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~19.16~~	~~No further predictions necessary today~~

Confirmed

Tair	30.0	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	18.25	River Temp Sang Run @700
T9	18.65	River Temp Sang Run @900
T11	20.00	River Temp Sang Run @1100
~~T12~~	~~19.79~~	~~River Temp Sang Run @1200~~
~~T14~~	~~17.60~~	~~River Temp Sang Run @1400~~
~~T15~~	~~18.23~~	~~River Temp Sang Run @1500~~
Q	67.0	River Flow at Oakland

86 Air Temp, Elkins WV - Degree F
PTCLDY Cloud Cover, Elkins WV

Youghiogheny River Water Temperature Enhancement Plan

21-Jun-95

64.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	24.82	Check again at 0900
	~~<=30~~	~~26.18~~	~~Check again at 0900~~
0900	> 30	25.28	Check again at 1100
	~~<=30~~	~~26.64~~	~~Release at 1100 for 2 hours~~
1100	All	26.70	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~24.09~~	~~Check again at 1400~~
~~1400~~	~~All~~	~~18.64~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~19.16~~	~~No further predictions necessary today~~

confirmed

Tair	30.0	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	18.56	River Temp Sang Run @700
T9	19.15	River Temp Sang Run @900
T11	21.04	River Temp Sang Run @1100
~~T12~~	~~19.79~~	~~River Temp Sang Run @1200~~
~~T14~~	~~17.60~~	~~River Temp Sang Run @1400~~
~~T15~~	~~18.23~~	~~River Temp Sang Run @1500~~
Q	64.0	River Flow at Oakland

86	Air Temp, Elkins WV - Degree F
PTCLDY	Cloud Cover, Elkins WV

Youghiogheny River Water Temperature Enhancement Plan

21-Jun-95

64.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	24.82	Check again at 0900
	~~<=30~~	~~26.18~~	~~Check again at 0900~~
0900	> 30	25.28	Check again at 1100
	~~<=30~~	~~26.64~~	~~Release at 1100 for 2 hours~~
1100	All	26.70	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~24.09~~	~~Check again at 1400~~
~~1400~~	~~All~~	~~18.64~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~19.16~~	~~No further predictions necessary today~~

confirmed

Tair	30.0	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	18.56	River Temp Sang Run @700
T9	19.15	River Temp Sang Run @900
T11	21.04	River Temp Sang Run @1100
~~T12~~	~~19.79~~	~~River Temp Sang Run @1200~~
~~T14~~	~~17.60~~	~~River Temp Sang Run @1400~~
~~T15~~	~~18.23~~	~~River Temp Sang Run @1500~~
Q	64.0	River Flow at Oakland

86	Air Temp, Elkins WV - Degree F
PTCLDY	Cloud Cover, Elkins WV

Youghiogheny River Water Temperature Enhancement Plan

20-Jun-95

67.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	>30	24.59	Check again at 0900
	~~<=30~~	~~26.07~~	~~Check again at 0900~~
0900	>30	24.80	Check again at 1100
	~~<=30~~	~~26.28~~	~~Release at 1100 for 2 hours~~
1100	All	25.67	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~24.31~~	~~Check again at 1400~~
~~1400~~	~~All~~	~~18.64~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~19.16~~	~~No further predictions necessary today~~

Confirmed

Tair	30.0	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	18.25	River Temp Sang Run @700
T9	18.65	River Temp Sang Run @900
T11	20.00	River Temp Sang Run @1100
~~T12~~	~~19.79~~	~~River Temp Sang Run @1200~~
~~T14~~	~~17.60~~	~~River Temp Sang Run @1400~~
~~T15~~	~~18.23~~	~~River Temp Sang Run @1500~~
Q	67.0	River Flow at Oakland

86 Air Temp, Elkins WV - Degree F
PTCLDY Cloud Cover, Elkins WV

Youghiogheny River Water Temperature Enhancement Plan

21-Jun-95

64.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	24.82	Check again at 0900
	~~<=30~~	~~26.18~~	~~Check again at 0900~~
0900	> 30	25.28	Check again at 1100
	~~<=30~~	~~26.64~~	~~Release at 1100 for 2 hours~~
1100	All	26.70	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~24.09~~	~~Check again at 1400~~
~~1400~~	~~All~~	~~18.64~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~19.16~~	~~No further predictions necessary today~~

confirmed

Tair	30.0	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	18.56	River Temp Sang Run @700
T9	19.15	River Temp Sang Run @900
T11	21.04	River Temp Sang Run @1100
~~T12~~	~~19.79~~	~~River Temp Sang Run @1200~~
~~T14~~	~~17.60~~	~~River Temp Sang Run @1400~~
~~T15~~	~~18.23~~	~~River Temp Sang Run @1500~~
Q	64.0	River Flow at Oakland

86	Air Temp, Elkins WV - Degree F
PTCLDY	Cloud Cover, Elkins WV

Youghiogheny River Water Temperature Enhancement Plan

05-Jul-95

47.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	25.58	Check again at 0900
	~~<= 30~~	~~26.26~~	~~Check again at 0900~~
0900	> 30	25.61	Check again at 1100
	~~<= 30~~	~~26.29~~	~~Release at 1100 for 2 hours~~
~~1100~~	~~All~~	~~26.20~~	~~Release at 1230 for 2 hours~~ Confirmed
~~1200~~	~~All~~	~~26.23~~	~~Release ASAP - not later than 1230 for 1 hour~~
~~1400~~	~~All~~	~~17.29~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~18.67~~	~~No further predictions necessary today~~

Tair	30.6	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	18.27	River Temp Sang Run @700
T9	18.54	River Temp Sang Run @900
T11	20.22	River Temp Sang Run @1100
~~T12~~	~~21.44~~	~~River Temp Sang Run @1200~~
~~T14~~	~~17.29~~	~~River Temp Sang Run @1400~~
~~T15~~	~~18.23~~	~~River Temp Sang Run @1500~~
Q	47.0	River Flow at Oakland

87	Air Temp, Elkins WV - Degree F
PTCLDY	Cloud Cover, Elkins WV

Youghiogheny River Water Temperature Enhancement Plan

11-Jul-95

47.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	25.17	Check again at 0900
	~~<=30~~	~~25.85~~	~~Check again at 0900~~
0900	> 30	25.09	Check again at 1100
	~~<=30~~	~~25.77~~	~~Check again at 1100~~
1100	All	25.88	Release at 1230 for 2 hours confirmed
~~1200~~	~~All~~	~~25.86~~	~~Release ASAP - not later than 1230 for 1 hour~~
~~1400~~	~~All~~	~~17.22~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~18.38~~	~~No further predictions necessary today~~

Tair	28.3	Air Temp, Elkins WV - Degree C
CCF	16	Cloud Cover Factor, Elkins WV
T7	18.04	River Temp Sang Run @700
T9	18.14	River Temp Sang Run @900
T11	20.00	River Temp Sang Run @1100
~~T12~~	~~21.22~~	~~River Temp Sang Run @1200~~
~~T14~~	~~17.31~~	~~River Temp Sang Run @1400~~
~~T15~~	~~18.01~~	~~River Temp Sang Run @1500~~
Q	47.0	River Flow at Oakland

83 Air Temp, Elkins WV - Degree F
FAIR Cloud Cover, Elkins WV

Youghiogheny River Water Temperature Enhancement Plan

20-Jul-95

25.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~> 30~~	~~25.82~~	~~Check again at 0900~~
	<=30	25.62	Check again at 0900
0900	~~> 30~~	~~25.39~~	~~Check again at 1100~~
	<=30	25.19	Check again at 1100
1100	All	25.40	Release at 1230 for 2 hours confirmed
~~1200~~	~~All~~	~~26.25~~	~~Release ASAP - not later than 1230 for 1 hour~~
~~1400~~	~~All~~	~~25.51~~	~~Release ASAP - not later than 1430 for 1 hour~~
~~1500~~	~~All~~	~~25.62~~	~~Release ASAP - not later than 1530 for 1 hour~~

Tair	29.4	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	17.44	River Temp Sang Run @700
T9	17.36	River Temp Sang Run @900
T11	19.14	River Temp Sang Run @1100
~~T12~~	~~21.18~~	~~River Temp Sang Run @1200~~
~~T14~~	~~23.32~~	~~River Temp Sang Run @1400~~
~~T15~~	~~24.30~~	~~River Temp Sang Run @1500~~
Q	25.0	River Flow at Oakland

85 Air Temp, Elkins WV - Degree F
PTCLDY Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
all other numbers are automatic.

Youghiogheny River Water Temperature Enhancement Plan

22-Jul-95

19.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action	
0700	~~> 30~~	~~26.48~~	~~Release at 1100 for 2 hours~~	
	< = 30	26.04	Check again at 0900	
0900	~~> 30~~	~~25.03~~	~~Check again at 1100~~	
	< = 30	24.59	Check again at 1100	
1100	All	26.26	Release at 1230 for 2 hours	release not made
1200	All	25.73	Release ASAP - not later than 1230 for 1 hour	release not made
1400	All	25.49	Release ASAP - not later than 1430 for 1 hour	release not made
1500	All	25.96	Release ASAP - not later than 1530 for 1 hour	Confirmed

Tair	27.8	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	20.26	River Temp Sang Run @700
T9	19.07	River Temp Sang Run @900
T11	21.07	River Temp Sang Run @1100
T12	21.75	River Temp Sang Run @1200
T14	23.69	River Temp Sang Run @1400
T15	24.83	River Temp Sang Run @1500
Q	19.0	River Flow at Oakland

82 Air Temp, Elkins WV - Degree F
HAZE Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

23-Jul-95

24.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action	
0700	~~> 30~~	~~25.63~~	~~Check again at 0900~~	
	< = 30	25.39	Check again at 0900	
0900	~~> 30~~	~~25.75~~	~~Check again at 1100~~	
	< = 30	25.51	Check again at 1100	
1100	All	25.19	Check again at 1200	
1200	All	25.73	Release ASAP - not later than 1230 for 1 hour	release not made
1400	All	25.99	Release ASAP - not later than 1430 for 1 hour	release not made
1500	All	26.07	Release ASAP - not later than 1530 for 1 hour	confirmed

Tair	27.8	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	18.35	River Temp Sang Run @700
T9	18.60	River Temp Sang Run @900
T11	20.02	River Temp Sang Run @1100
T12	21.55	River Temp Sang Run @1200
T14	23.97	River Temp Sang Run @1400
T15	24.87	River Temp Sang Run @1500
Q	24.0	River Flow at Oakland

82 Air Temp, Elkins WV - Degree F
HAZE Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

25-Jul-95

18.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~-> 30~~	~~25.06~~	~~Check again at 0900~~
	< = 30	24.58	Check again at 0900
0900	~~-> 30~~	~~25.09~~	~~Check again at 1100~~
	< = 30	24.61	Check again at 1100
1100	All	24.96	Check again at 1200
1200	All	24.96	Check again at 1400
1400	All	25.29	Release ASAP - not later than 1430 for 1 hour confirmed
~~1500~~	~~All~~	~~17.72~~	~~No further predictions necessary today~~

Tair	28.3	Air Temp, Elkins WV - Degree C
CCF	100	Cloud Cover Factor, Elkins WV
T7	19.00	River Temp Sang Run @700
T9	19.26	River Temp Sang Run @900
T11	20.61	River Temp Sang Run @1100
T12	21.48	River Temp Sang Run @1200
T14	23.38	River Temp Sang Run @1400
~~T15~~	~~17.50~~	~~River Temp Sang Run @1500~~
Q	18.0	River Flow at Oakland

83 Air Temp, Elkins WV - Degree F
tstrms Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

27-Jul-95

19.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~-> 30~~	~~24.82~~	~~Check again at 0900~~
	< = 30	24.38	Check again at 0900
0900	~~-> 30~~	~~24.80~~	~~Check again at 1100~~
	< = 30	24.36	Check again at 1100
1100	All	25.26	Check again at 1200
1200	All	25.57	Release ASAP - not later than 1230 for 1 hour confirmed
~~1400~~	~~All~~	~~6.85~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~2.46~~	~~No further predictions necessary today~~

Tair	27.8	Air Temp, Elkins WV - Degree C
CCF	100	Cloud Cover Factor, Elkins WV
T7	18.96	River Temp Sang Run @700
T9	19.15	River Temp Sang Run @900
T11	20.86	River Temp Sang Run @1100
T12	22.12	River Temp Sang Run @1200
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	19.0	River Flow at Oakland

82 Air Temp, Elkins WV - Degree F
TSTRMS Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

30-Jul-95

16.0 = **CFS River Flow at Oakland**

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~> 30~~	~~26.97~~	~~Release at 1100 for 2 hours~~
	< = 30	26.41	Release at 1100 for 2 hours
~~0900~~	~~> 30~~	~~2.97~~	~~No further predictions necessary today~~
	~~< = 30~~	~~2.41~~	~~No further predictions necessary today~~
~~1100~~	~~All~~	~~13.11~~	~~No further predictions necessary today~~
~~1200~~	~~All~~	~~11.59~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~6.59~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.52~~	~~No further predictions necessary today~~

confirmed

Tair	29.4	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	19.76	River Temp Sang Run @700
~~T9~~	~~0.00~~	~~River Temp Sang Run @900~~
~~T11~~	~~0.00~~	~~River Temp Sang Run @1100~~
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	16.0	River Flow at Oakland

85 Air Temp, Elkins WV - Degree F
PTCLDY Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

31-Jul-95

22.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~> 30~~	~~26.49~~	~~Release at 1100 for 2 hours~~
	<=30	26.17	Check again at 0900
0900	~~> 30~~	~~26.88~~	~~Release at 1100 for 2 hours~~
	<=30	26.56	Release at 1100 for 2 hours
~~1100~~	~~All~~	~~3.07~~	~~No further predictions necessary today~~
~~1200~~	~~All~~	~~2.84~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~6.59~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.52~~	~~No further predictions necessary today~~

Scheduled release 1000-1300

Tair	29.4	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	19.07	River Temp Sang Run @700
T9	19.54	River Temp Sang Run @900
~~T11~~	~~0.00~~	~~River Temp Sang Run @1100~~
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	22.0	River Flow at Oakland

85 Air Temp, Elkins WV - Degree F
PTCLDY Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

01-Aug-95

19.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~> 30~~	~~28.22~~	~~Release at 1100 for 2 hours~~
	< = 30	27.78	Release at 1100 for 2 hours
~~0900~~	~~> 30~~	~~4.23~~	~~No further predictions necessary today~~
	~~< = 30~~	~~3.79~~	~~No further predictions necessary today~~
~~1100~~	~~All~~	~~14.01~~	~~No further predictions necessary today~~
~~1200~~	~~All~~	~~12.35~~	No further predictions ~~necessary today~~
~~1400~~	~~All~~	~~6.82~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.63~~	~~No further predictions necessary today~~

Confirmed

Tair	31.7	Air Temp, Elkins WV - Degree C
CCF	1	Cloud Cover Factor, Elkins WV
T7	19.74	River Temp Sang Run @700
~~T9~~	~~0.00~~	~~River Temp Sang Run @900~~
~~T11~~	~~0.00~~	~~River Temp Sang Run @1100~~
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	19.0	River Flow at Oakland

89 Air Temp, Elkins WV - Degree F
SUNNY Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

02-Aug-95

13.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~> 30~~	~~27.50~~	~~Release at 1100 for 2 hours~~
	< = 30	26.82	Release at 1100 for 2 hours
~~0900~~	~~> 30~~	~~3.84~~	~~No further predictions necessary today~~
	< = 30	3.16	No further predictions necessary today
~~1100~~	~~All~~	~~13.52~~	~~No further predictions necessary today~~
~~1200~~	~~All~~	~~11.95~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~6.76~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.60~~	~~No further predictions necessary today~~

Confirmed

Tair	31.1	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	19.41	River Temp Sang Run @700
~~T9~~	~~0.00~~	~~River Temp Sang Run @900~~
~~T11~~	~~0.00~~	~~River Temp Sang Run @1100~~
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	13.0	River Flow at Oakland

88 Air Temp, Elkins WV - Degree F
PTCLDY Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

03-Aug-95

14.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~--> 30~~	~~26.90~~	~~Release at 1100 for 2 hours~~
	<=30	26.26	Check again at 0900
0900	~~--> 30~~	~~27.00~~	~~Release at 1100 for 2 hours~~
	<=30	26.36	Release at 1100 for 2 hours
~~1100~~	~~All~~	~~1.49~~	~~No further predictions necessary today~~
~~1200~~	~~All~~	~~3.83~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~6.76~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.60~~	~~No further predictions necessary today~~

Confirmed

Tair	31.1	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	17.74	River Temp Sang Run @700
T9	18.13	River Temp Sang Run @900
~~T11~~	~~0.00~~	~~River Temp Sang Run @1100~~
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	14.0	River Flow at Oakland

88 Air Temp, Elkins WV - Degree F
PTCLDY Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan 13-Aug-95

101.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	24.69	Check again at 0900
	~~<=30~~	~~27.53~~	~~Release at 1100 for 2 hours~~
0900	> 30	25.03	Check again at 1100
	~~<=30~~	~~27.87~~	~~Release at 1100 for 2 hours~~
1100	All	26.34	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~2.84~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~6.88~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.66~~	~~No further predictions necessary today~~

Confirmed

Tair	32.2	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	20.44	River Temp Sang Run @700
T9	20.86	River Temp Sang Run @900
T11	21.40	River Temp Sang Run @1100
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	101.0	River Flow at Oakland

90 Air Temp, Elkins WV - Degree F
HAZE Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

15-Aug-95

147.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	23.64	Check again at 0900
	~~<= 30~~	~~28.32~~	~~Release at 1100 for 2 hours~~
0900	> 30	23.97	Check again at 1100
	~~<= 30~~	~~28.65~~	~~Release at 1100 for 2 hours~~
1100	All	27.79	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~2.21~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~6.94~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.69~~	~~No further predictions necessary today~~

Confirmed (release not required due to high flow)

Tair	32.8	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	22.25	River Temp Sang Run @700
T9	22.54	River Temp Sang Run @900
T11	23.34	River Temp Sang Run @1100
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	147.0	River Flow at Oakland

91 Air Temp, Elkins WV - Degree F
HAZE Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

69.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	25.64	Check again at 0900
~~0700~~	~~<= 30~~	~~27.20~~	~~Release at 1100 for 2 hours~~
0900	> 30	25.53	Check again at 1100
~~0900~~	~~<= 30~~	~~27.09~~	~~Release at 1100 for 2 hours~~
1100	All	26.02	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~3.06~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~6.71~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.58~~	~~No further predictions necessary today~~

Confirmed

Tair	30.6	Air Temp, Elkins WV - Degree C
CCF	16	Cloud Cover Factor, Elkins WV
T7	19.93	River Temp Sang Run @700
T9	19.93	River Temp Sang Run @900
T11	20.77	River Temp Sang Run @1100
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	69.0	River Flow at Oakland

87 Air Temp, Elkins WV - Degree F
FAIR Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

20-Aug-95

58.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	25.95	Check again at 0900
	~~<= 30~~	~~27.07~~	~~Release at 1100 for 2 hours~~
0900	> 30	25.42	Check again at 1100
	~~<= 30~~	~~26.54~~	~~Release at 1100 for 2 hours~~
1100	All	26.50	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~3.38~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~6.71~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.58~~	~~No further predictions necessary today~~

Confirmed

Tair	30.6	Air Temp, Elkins WV - Degree C
CCF	16	Cloud Cover Factor, Elkins WV
T7	19.55	River Temp Sang Run @700
T9	19.23	River Temp Sang Run @900
T11	20.70	River Temp Sang Run @1100
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	58.0	River Flow at Oakland

87 Air Temp, Elkins WV - Degree F
FAIR Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

22-Aug-95

42.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	24.81	Check again at 0900
	~~<= 30~~	~~25.29~~	~~Check again at 0900~~
0900	> 30	26.47	Release at 1100 for 2 hours
	~~<= 30~~	~~26.95~~	~~Release at 1100 for 2 hours~~
~~1100~~	~~All~~	~~2.68~~	~~No further predictions necessary today~~
~~1200~~	~~All~~	~~2.91~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~6.31~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.39~~	~~No further predictions necessary today~~

Confirmed

Tair	26.7	Air Temp, Elkins WV - Degree C
CCF	1	Cloud Cover Factor, Elkins WV
T7	17.14	River Temp Sang Run @700
T9	18.67	River Temp Sang Run @900
~~T11~~	~~0.00~~	~~River Temp Sang Run @1100~~
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	42.0	River Flow at Oakland

80 Air Temp, Elkins WV - Degree F
SUNNY Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

23-Aug-95

36.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	> 30	24.84	Check again at 0900
	~~<=30~~	~~25.08~~	~~Check again at 0900~~
0900	> 30	24.44	Check again at 1100
	~~<=30~~	~~24.68~~	~~Check again at 1100~~
1100	All	24.66	Check again at 1200
1200	All	24.65	Check again at 1400
1400	All	24.97	Check again at 1500
1500	All	25.59	Release ASAP - not later than 1530 for 1 hour Confirmed

Tair	28.3	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	16.88	River Temp Sang Run @700
T9	16.84	River Temp Sang Run @900
T11	18.50	River Temp Sang Run @1100
T12	19.68	River Temp Sang Run @1200
T14	22.34	River Temp Sang Run @1400
T15	23.91	River Temp Sang Run @1500
Q	36.0	River Flow at Oakland

83 Air Temp, Elkins WV - Degree F
PTCLDY Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

24-Aug-95

29.0 = **CFS River Flow at Oakland**

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~-> 30~~	~~25.60~~	~~Check again at 0900~~
	<=30	25.56	Check again at 0900
0900	~~-> 30~~	~~25.78~~	~~Check again at 1100~~
	<=30	25.74	Check again at 1100
1100	All	25.06	Check again at 1200
1200	All	24.98	Check again at 1400
1400	All	25.32	Release ASAP - not later than 1430 for 1 hour
~~1500~~	~~All~~	~~-1.57~~	~~No further predictions necessary today~~

Confirmed

Tair	29.4	Air Temp, Elkins WV - Degree C
CCF	16	Cloud Cover Factor, Elkins WV
T7	16.13	River Temp Sang Run @700
T9	16.62	River Temp Sang Run @900
T11	18.31	River Temp Sang Run @1100
T12	19.52	River Temp Sang Run @1200
T14	22.45	River Temp Sang Run @1400
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	29.0	River Flow at Oakland

85 Air Temp, Elkins WV - Degree F
FAIR Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

29-Aug-95

20.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~> 30~~	~~27.10~~	~~Release at 1100 for 2 hours~~
	< = 30	26.70	Release at 1100 for 2 hours
0900	~~> 30~~	~~3.42~~	~~No further predictions necessary today~~
	~~< = 30~~	~~3.02~~	~~No further predictions necessary today~~
~~1100~~	~~All~~	~~13.31~~	~~No further predictions necessary today~~
~~1200~~	~~All~~	~~11.75~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~6.59~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.52~~	~~No further predictions necessary today~~

Confirmed

Tair	29.4	Air Temp, Elkins WV - Degree C
CCF	16	Cloud Cover Factor, Elkins WV
T7	19.52	River Temp Sang Run @700
~~T9~~	~~0.00~~	~~River Temp Sang Run @900~~
~~T11~~	~~0.00~~	~~River Temp Sang Run @1100~~
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	20.0	River Flow at Oakland

85 Air Temp, Elkins WV - Degree F
FAIR Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

Youghiogheny River Water Temperature Enhancement Plan

31-Aug-95

17.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~> 30~~	~~26.19~~	~~Check again at 0900~~
	< = 30	25.67	Check again at 0900
0900	~~> 30~~	~~26.02~~	~~Release at 1100 for 2 hours~~
	< = 30	25.50	Check again at 1100
1100	All	25.59	Release at 1230 for 2 hours
~~1200~~	~~All~~	~~4.32~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~6.71~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.58~~	~~No further predictions necessary today~~

Confirmed

Tair	30.6	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	16.53	River Temp Sang Run @700
T9	16.77	River Temp Sang Run @900
T11	18.73	River Temp Sang Run @1100
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	17.0	River Flow at Oakland

87 Air Temp, Elkins WV - Degree F
HAZE Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

INFORMATION SUPPLEMENTING LETTER TO DEPARTMENT
NOVEMBER 2, 1995

The Permittee's letter to the Department dated November 2, 1995 presented information concerning the temperature releases made on 22 days in 1995. Review of the operating record in preparation of this report indicates that temperature releases were made on two additional days, namely July 29 (1100 to 1300 hours) and August 27 (1230 to 1330 hours).

Attached is the printout of the temperature enhancement software program screen for July 29 annotated as the printouts for the 22 days enclosed with the November 2 letter.

No temperature enhancement software program screen is available for August 27. On that day, the water temperature monitoring instrument at Sang Run apparently became inoperative and a temperature enhancement release was made as required by the contingency protocol in the Youghiogheny River Water Temperature Enhancement Plan.

Youghiogheny River Water Temperature Enhancement Plan

29-Jul-95

16.0 = CFS River Flow at Oakland

Time	Oakland Flow CFS	Predicted Maximum River Water Temperature Degree C	Deep Creek Action
0700	~~> 30~~	~~28.97~~	~~Release at 1100 for 2 hours~~
	< -30	28.41	Release at 1100 for 2 hours
~~0900~~	~~> 30~~	~~2.97~~	~~No further predictions necessary today~~
	~~< -30~~	~~2.41~~	~~No further predictions necessary today~~
~~1100~~	~~All~~	~~13.11~~	~~No further predictions necessary today~~
~~1200~~	~~All~~	~~11.59~~	~~No further predictions necessary today~~
~~1400~~	~~All~~	~~8.59~~	~~No further predictions necessary today~~
~~1500~~	~~All~~	~~4.52~~	~~No further predictions necessary today~~

confirmed

Tair	29.4	Air Temp, Elkins WV - Degree C
CCF	36	Cloud Cover Factor, Elkins WV
T7	19.76	River Temp Sang Run @700
~~T9~~	~~0.00~~	~~River Temp Sang Run @900~~
~~T11~~	~~0.00~~	~~River Temp Sang Run @1100~~
~~T12~~	~~0.00~~	~~River Temp Sang Run @1200~~
~~T14~~	~~0.00~~	~~River Temp Sang Run @1400~~
~~T15~~	~~0.00~~	~~River Temp Sang Run @1500~~
Q	16.0	River Flow at Oakland

85 Air Temp, Elkins WV - Degree F
PTCLDY Cloud Cover, Elkins WV

Note: Enter only the Green Temps -
T9 - T11 - T12 - T14 - T15
as required -- all other numbers
are automatic.

MAXIMUM DAILY RIVER WATER TEMPERATURES

Daily maximum water temperatures in the Youghiogheny River at Sang Run are presented on the following sheet. The data were provided by Mr. S. P. Schreiner of Versar Inc., consultant to the MDNR Power Plant Research Program (PPRP).

The data labelled "SMAX" (left temperature column) are the arithmetic means of the daily maximum water temperatures, in degrees C, measured by two "Tempmentors" placed in the river by MDNR. The data labelled "PenMAX" (right temperature column) are the maximum water temperatures, in degrees C, measured by the Permittee's temperature monitor at the Sang Run Bridge. Mr. Schreiner prepared the "PenMAX" data from data downloaded electronically from the Permittee's monitor and provided to him on diskettes by the Permittee; he adjusted the recorded times and dates of the data during the period in which the monitor's clock was known to have been incorrect.

MDNR-PPRP and Versar are analyzing the data and evaluating the Water Temperature Enhancement Plan according to which the Permittee determines the need for and timing of daily temperature releases based in part upon the real-time measurements of river water temperature by the Permittee's temperature monitor.

DATE	SMAX	PenSMAX
01-Jun-95		
02-Jun-95		
03-Jun-95		
04-Jun-95		
05-Jun-95		
06-Jun-95		
07-Jun-95		
08-Jun-95		
09-Jun-95		
10-Jun-95		22.4
11-Jun-95		21.4
12-Jun-95		23.4
13-Jun-95		24.7
14-Jun-95		25.3
15-Jun-95		19.0
16-Jun-95		18.8
17-Jun-95		20.1
18-Jun-95		21.1
19-Jun-95		21.1
20-Jun-95	24.1	24.2
21-Jun-95	25.7	25.9
22-Jun-95	21.4	20.0
23-Jun-95	20.8	20.0
24-Jun-95	20.8	20.6
25-Jun-95	22.7	20.1
26-Jun-95	22.1	22.6
27-Jun-95	20.7	21.4
28-Jun-95	20.0	20.7
29-Jun-95	20.1	22.8
30-Jun-95	21.0	
01-Jul-95	20.1	
02-Jul-95	22.3	
03-Jul-95	20.8	
04-Jul-95	20.5	
05-Jul-95	23.2	
06-Jul-95	24.7	
07-Jul-95	22.2	
08-Jul-95	20.0	20.6
09-Jul-95	25.6	25.8
10-Jul-95	21.3	21.4
11-Jul-95	25.3	24.9
12-Jul-95	22.3	22.6
13-Jul-95	22.5	22.8
14-Jul-95	23.3	23.4
15-Jul-95	21.2	21.3
16-Jul-95	26.9	27.6
17-Jul-95	23.9	24.4
18-Jul-95	26.7	27.1
19-Jul-95	25.3	25.6
20-Jul-95	24.7	24.7
21-Jul-95	20.9	21.0
22-Jul-95	26.4	27.1
23-Jul-95	27.2	27.3
24-Jul-95	21.0	21.4
25-Jul-95	26.0	26.4
26-Jul-95	21.2	21.7
27-Jul-95	25.8	25.5
28-Jul-95	22.0	22.3
29-Jul-95	22.7	23.1
30-Jul-95	23.9	23.6
31-Jul-95	22.6	22.9
01-Aug-95	23.8	24.1
02-Aug-95	24.1	24.5
03-Aug-95	23.8	23.8
04-Aug-95	22.5	22.7
05-Aug-95	21.7	21.8
06-Aug-95	21.0	21.2
07-Aug-95	20.4	20.3
08-Aug-95	20.4	20.2
09-Aug-95	20.1	20.0
10-Aug-95	22.8	22.6
11-Aug-95	21.0	20.5
12-Aug-95	22.2	22.6
13-Aug-95	25.1	24.9
14-Aug-95	25.9	26.2
15-Aug-95	26.4	25.9
16-Aug-95	26.7	26.2
17-Aug-95	27.1	26.1
18-Aug-95	22.5	22.5
19-Aug-95	24.5	24.2
20-Aug-95	25.1	24.4
21-Aug-95	22.2	23.3
22-Aug-95	22.5	22.1
23-Aug-95	25.4	26.5
24-Aug-95	25.4	26.1
25-Aug-95	22.2	22.8
26-Aug-95	21.5	21.8
27-Aug-95	24.8	24.4
28-Aug-95	22.2	22.6
29-Aug-95	22.8	23.2
30-Aug-95	20.7	21.2
31-Aug-95	23.2	23.4
01-Sep-95	19.9	
02-Sep-95	19.9	
03-Sep-95	22.0	
04-Sep-95	20.4	
05-Sep-95	23.2	
06-Sep-95	22.5	
07-Sep-95	22.2	
08-Sep-95	18.5	
09-Sep-95	21.1	
10-Sep-95	20.7	
11-Sep-95	19.7	
12-Sep-95	17.9	
13-Sep-95	18.9	
14-Sep-95	20.6	
15-Sep-95	19.7	

APPENDIX C

Deep Creek By-Pass valve operations for 1995

		Bypass Valve				Bypass Valve				Bypass Valve				Bypass Valve			
		Time Open or Adjusted	Time Close	% Open	Release - CFS	Time Open or Adjusted	Time Close	% Open	Release - CFS	Time Open or Adjusted	Time Close	% Open	Release - CFS	Time Open or Adjusted	Time Close	% Open	Release - CF
July	25	829	952	23.8	3.3	1007	1407	23.8	3.3	1500	1900	23.3	3.3	0	0	0	0
July	26	820	957	24	3.4	1400	1859	24	3.4	0	0	0	0	0	0	0	0
July	27	738	1201	24	3.4	1301	1930	24	3.4	0	0	0	0	0	0	0	0
July	28	717	1000	28.8	6.3	1300	0	26	5	0	0	0	0	0	0	0	0
July	29	734	1058	29.5	6	1300	1916	29.5	6	0	0	0	0	0	0	0	0
July	31	748	1000	23	3	1300	0	23	3	0	0	0	0	0	0	0	0
August	1	0	1100	0	0	1300	0	24	3.4	0	0	0	0	0	0	0	0
August	2	0	1100	0	0	1300	0	24	3.4	0	0	0	0	0	0	0	0
August	3	910	1100	32	9	1300	0	32	9	1900	0	35.3	13	0	0	0	0
August	4	730	1000	26	5	1300	0	26	5	2140	0	35	10	0	0	0	0
August	5	1900	0	42.9	14.7	0	0	0	0	0	0	0	0	0	0	0	0
August	6	0	855	0	0	0	0	0	0	0	0	0	0	0	0	0	0
August	30	1600	0	22	2	1700	0	26	5	0	0	0	0	0	0	0	0
August	31	0	1230	0	0	1535	0	26	5	0	0	0	0	0	0	0	0
September	1	0	1000	0	0	1300	0	27	6	1905	0	29.9	6.9	0	0	0	0
September	2	0	1000	0	0	1300	0	30	8	0	0	0	0	0	0	0	0
September	3	730	0	32	9	0	0	0	0	0	0	0	0	0	0	0	0
September	4	700	1000	35	11	1300	0	35	11	0	0	0	0	0	0	0	0
September	5	700	0	32	9	0	0	0	0	0	0	0	0	0	0	0	0
September	7	730	0	32	9	0	0	0	0	0	0	0	0	0	0	0	0
September	8	745	1000	35	11	1100	1505	35	11	2040	0	39	14	0	0	0	0
September	9	0	1805	0	0	1812	0	40	13	0	0	0	0	0	0	0	0
September	11	1124	0	44.4	15.7	0	0	0	0	0	0	0	0	0	0	0	0
September	12	730	0	40	15	0	0	0	0	0	0	0	0	0	0	0	0
September	13	730	0	35	11	0	0	0	0	0	0	0	0	0	0	0	0
September	14	0	841	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	15	1300	0	32	9	1900	0	36	14	0	0	0	0	0	0	0	0
September	18	0	813	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	27	813	0	23.5	3.1	0	0	0	0	0	0	0	0	0	0	0	0
September	28	735	826	28.8	6.3	849	0	28.8	6.3	0	0	0	0	0	0	0	0
September	29	1829	0	30	8	0	0	0	0	0	0	0	0	0	0	0	0
September	30	1900	0	32	9	0	0	0	0	0	0	0	0	0	0	0	0
October	2	1900	0	27	6	0	0	0	0	0	0	0	0	0	0	0	0
October	3	1900	0	22	2	0	0	0	0	0	0	0	0	0	0	0	0
October	4	0	959	0	0	0	0	0	0	0	0	0	0	0	0	0	0
October	9	900	1000	26	5	1300	0	26	5	0	0	0	0	0	0	0	0
October	10	1930	0	30.3	7.1	0	0	0	0	0	0	0	0	0	0	0	0
October	11	1900	0	35.2	10.1	0	0	0	0	0	0	0	0	0	0	0	0
October	14	0	2025	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX C

FLOW BYPASS OPERATION RECORD

AND

USGS RECORD OF DAILY FLOW AT OAKLAND

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - TUCSON PRIME 01/30/96

STATION NUMBER 10254500 YOUGHIOGHENY R NR OAKLAND, MD STREAM SOURCE AGENCY USGS
LATITUDE 392519 LONGITUDE 0792532 DRAINAGE AREA 134.00 DATUM 2353.61 STATE 24 COUNTY 023
PROVISIONAL DATA SUBJECT TO REVISION

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	28	173	282	157	90e	91	246	110	83	16	15
2	34	129	143	504	155	650	86	466	115	115	12	15
3	42	81	124	359	143	302	81	557	282	60	13	14
4	32	50	114	319	165	402	96	423	318	44	14	14
5	27	38	781	255	125	327	100	308	196	38	10	14
6	27	33	837	230	144	553	85	302	156	35	1010	14
7	25	31	526	587	137	524	79	239	137	57	671	13
8	23	29	379	720	130	465	75	204	137	47	203	11
9	22	28	345	495	127	416	103	178	110	33	126	10
10	20	79	1200	372	114	350	105	179	99	33	96	9.9
11	20	90	1e60	316	111	385	132	181	106	28	102	9.5
12	19	56	1000	585	97	440	117	158	252	22	155	9.6
13	19	48	844	782	91	369	148	136	205	20	88	11
14	19	45	463	580	91	350	155	945	146	20	228	13
15	19	41	363	e01	98	307	145	1010	116	21	124	14
16	17	40	282	609	1530	264	133	505	96	110	201	13
17	17	93	391	474	1230	225	139	496	82	63	97	47
18	17	77	389	388	723	193	1e0	1010	71	46	69	55
19	17	65	350	324	616	174	141	1260	64	31	55	31
20	21	56	267	836	697	158	123	843	58	23	45	22
21	29	81	259	708	815	170	124	590	52	20	41	21
22	26	137	233	539	605	186	115	417	47	21	36	4e
23	24	93	216	426	714	156	106	297	50	23	31	73
24	26	78	201	346	1410	137	196	234	59	20	28	36
25	25	71	189	303	925	122	385	206	48	18	24	24
26	24	66	169	265	69e	112	283	215	45	18	22	21
27	23	66	152	253	595	107	236	163	56	19	20	18
28	20	458	142	202	861	117	211	159	47	17	20	16
29	19	338	132	212	---	110	181	195	42	19	19	15
30	19	225	118	176	---	101	200	160	39	20	18	14
31	21	---	112	178	---	92	---	129	---	17	17	---
TOTAL	717	2759	12420	13654	12282	9363	4339	12470	3345	1141	3611	639.0
MEAN	23.1	92.0	401	440	474	302	145	402	111	36.8	116	21.3
MAX	42	458	1e60	987	1530	90e	385	1260	318	115	1010	73
MIN	17	28	112	174	91	98	75	129	39	17	10	9.5
CFSM	.17	.69	2.99	3.29	3.54	2.25	1.08	3.00	.83	.27	.87	.16
IN.	.20	.77	3.45	3.79	3.69	2.60	1.20	3.46	.93	.32	1.00	.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1995, BY WATER YEAR (WY)

MEAN	115	238	410	424	495	604	453	325	200	156	130	80.8
MAX	608	1154	1027	861	1100	1477	879	676	730	629	586	533
(WY)	1955	1986	1973	1952	1986	1963	1973	1956	1981	1978	1956	1965
MIN	4.45	7.06	62.2	63.2	127	168	121	76.0	24.0	10.3	10.5	5.99
(WY)	1954	1954	1946	1977	1978	1990	1946	1982	1965	1952	1946	1953

SUMMARY STATISTICS FOR 1994 CALENDAR YEAR FOR 1995 WATER YEAR WATER YEARS 1941 - 1995

UNITED STATES DEPARTMENT OF THE INTERIOR

STATION NUMBER 03075500 YOUGHIOGHENY R NR OAI
LATITUDE 392519 LONGITUDE 0792532 DRAINAGE AREA
PROVISIONAL DATA
DISCHARGE, CUBIC FEET PER SECOND, WATER YE
DAILY MEAN VA

DAY	OCT 1995	NOV 1995	DEC	JAN	FEB	MAR
1	13	76	---	---	---	---
2	15	70	---	---	---	---
3	18	83	---	---	---	---
4	21	94	---	---	---	---
5	29	70	---	---	---	---
6	40	60	---	---	---	---
7	33	72	---	---	---	---
8	21	199	---	---	---	---
9	17	162	---	---	---	---
10	15	137	---	---	---	---
11	13	124	---	---	---	---
12	13	354	---	---	---	---
13	12	240	---	---	---	---
14	41	214	---	---	---	---
15	161	233	---	---	---	---
16	79	233	---	---	---	---
17	44	219	---	---	---	---
18	31	226	---	---	---	---
19	27	350	---	---	---	---
20	28	344	---	---	---	---
21	72	394	---	---	---	---
22	70	358	---	---	---	---
23	46	323	---	---	---	---
24	33	395	---	---	---	---
25	29	324	---	---	---	---
26	29	285	---	---	---	---
27	26	409	---	---	---	---
28	44	1460	---	---	---	---
29	157	---	---	---	---	---
30	187	---	---	---	---	---
31	104	---	---	---	---	---
TOTAL	1468	---	---	---	---	---
MEAN	47.4	---	---	---	---	---
MAX	187	---	---	---	---	---
MIN	12	---	---	---	---	---
CFSM	.55	---	---	---	---	---
IN.	.41	---	---	---	---	---

APPENDIX D

APPENDIX D

RECORD OF DISSOLVED OXYGEN MONITORING AND TAILRACE WEIR TESTING

- Tailrace Weir Effectiveness Tests - Summary of Results
- Tests of DO During Startup - Summary of Results
- DO Monitoring Logs
    - January
    - February
    - June
    - July
    - August
    - September

TAILRACE WEIR EFFECTIVENESS TESTS

Summary of Results

Twenty-two tailrace weir effectiveness tests were performed. Eight (8) tests were performed during January-February ("winter") and fourteen (14) tests were performed during June-September ("summer"). DO uptake at the weir ranged from 0.2 to 4.5 mg/l. The "ambient" DO concentration in the powerhouse discharge and the degree of weir gate closure appear to be the important factors influencing DO uptake.

Four tailrace weir effectiveness tests were performed when the measured DO in the powerhouse discharge was less than 2.0 mg/l. During each of those four tests, two of the weir gates were closed entirely and two were open 6 in. to permit the weir to drain at the cessation of generation. DO uptake at the weir during the four tests ranged from 4.2 to 4.5 mg/l. The results of the tailrace weir effectiveness tests are summarized below.

Winter

Five tests - all gates open (or three open, one closed)
- discharge 12.4-13.8 mg/l
- tailrace 12.6-14.1 mg/l
- uptake 0.2- 0.4 mg/l

Three tests - all gates closed
- discharge 12.3-13.7 mg/l
- tailrace 12.9-14.2 mg/l
- uptake 0.5- 0.7 mg/l

Summer

Two tests - all gates open
- discharge 5.2- 7.8 mg/l
- tailrace 6.5- 8.3 mg/l
- uptake 0.5- 1.3 mg/l

Five tests - all gates open 1 ft.
- discharge 3.6- 5.0 mg/l
- tailrace 6.4- 7.2 mg/l
- uptake 2.2- 2.8 mg/l

One test - two gates closed, two gates open 1 ft.
- discharge 2.1 mg/l
- tailrace 6.0 mg/l
- uptake 3.9 mg/l

Six tests - two gates closed, two gates open 6 in.
discharge 0.5- 3.4 mg/l
tailrace 4.9- 6.1 mg/l
uptake 2.7- 4.5 mg/l

All but one of the summer tests were at "low" flow (river flow less than 200 cfs); the remaining summer test was conducted at "mid" flow (300-500 cfs river flow range). DO uptake for the "mid" flow test was 0.5 mg/l (7.8 to 8.3 mg/l). All of the summer "low" flow tests showed uptakes exceeding 1.3 mg/l. The winter tests were primarily conducted at "high" flow (greater than 500 cfs).

Three pairs or groups of tailrace weir effectiveness tests of open vs. closed tailrace weir gates were conducted, with nearly identical powerhouse discharge DO concentrations for the tests within each pair or group. The results suggest that closure of the gates causes a significant increase in DO uptake:

Date	DO Uptake
February 23 (open)	0.3 mg/l (13.8 to 14.1 mg/l)
February 24 (closed)	0.5 mg/l (13.7 to 14.2 mg/l)
February 27 (open)	0.2 mg/l (13.2 to 13.4 mg/l)
February 28 (closed)	0.7 mg/l (13.2 to 13.9 mg/l)
March 1 (open)	0.4 mg/l (13.1 to 13.5 mg/l)
July 3 (open)	1.3 mg/l (5.2 to 6.5 mg/l)
July 5 (closed)	2.2 mg/l (5.0 to 7.2 mg/l)

TESTS OF DO DURING STARTUP

Summary of Results

Twenty-four startup DO tests were run, all with two-unit operation. The measured DO values in the tailrace at the start of generation ranged from 14.2 mg/l to 14.9 mg/l in the winter (two tests) and from 2.6 mg/l to 12.6 mg/l in the summer (22 tests). In general, 15 min. or 30 min. after startup, the DO was higher than at startup. However, DO decreased for the two winter tests and the June 1 test; for those three tests, DO exceeded 12 mg/l at the start of the test and decreased between 0.4 and 1.2 mg/l after 15 min. of generation. For the other 21 tests (all in summer), the increase in DO 15 min. after startup ranged from 0.0 to 3.4 mg/l, averaging approx. 1.2 mg/l. Eighteen (18) of those 21 tests extended to approx. 30 min, or longer; the increase in DO approx. 30 mins. after startup ranged from 0.2 to 3.7 mg/l, averaging approx. 1.4 mg/l.

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JANUARY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
1-01-95	Sunday - No one at Station													
1-02-95	Holiday - No one at Station													
1-03-95	No Generation during working hours													
1-04-95	No Generation during working hours													
1-05-95	08:25	14.2	9.36	08:30	2.9	12.82	2	08:03 - 09:03	Open				2022.8	2028.2
1-06-95	No Generation during working hours													
1-07-95	Saturday - No one at Station													
1-08-95	Sunday - No one at Station													
1-09-95	No Generation during working hours													
1-10-95	No Generation during working hours													
1-11-95	Non-Scheduled Generation 14:33 - 14:55; Less than 30 min, no reading required													
1-12-95	Non-Scheduled Generation 12:45 - 12:55; Less than 30 min, no reading required													
1-13-95	Non-Scheduled Generation 10:50 - 11:00; Less than 30 min, no reading required													
1-14-95	Saturday - No one at Station													
1-15-95	Sunday - No one at Station													
1-16-95	08:25	TEST 19:4	WEIR EFFECTIVENESS 8.29	08:35	2.9	12.63	2	08:00 - 2100	Open				2023.2	2027.6
							2		Open	08:45	2.9	12.38		
							2		Open	09:00	2.9	12.38		
				09:08	2.9	12.58	2		Open					

- No water going over top of weir

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
1-17-95	08:25	TEST 11.8	WEIR EFFECTIVENESS 9.88	08:35	2.9	- Water going over top of weir 12.95	2	08:00 - 21:00	Closed				2023.1	2028.5
							2		Closed	08:43	2.9	12.33		
							2		Closed	09:00	2.9	12.33		
				09:08	2.9	12.95	2		Closed					
	Note: The above readings for 1-16-95 and 1-17-95 is the Weir Effectiveness Test for the Elevation 2022.7 - 2023.1 (Non-operating Tailrace Range)													
1-18-95	08:25	14.2	9.29	08:30	2.8	12.84	2	08:00 - 21:00	Open				2022.9	2028.0
1-19-95	08:25	11.7	9.88	08:30	2.9	12.89	2	08:00 - 20:00	Open				2022.9	2027.8
1-20-95	08:25	14.3	9.29	08:30	3.0	12.86	2	08:00 - 24:00	Open				2023.3	2027.9
1-21-95	Saturday - No one at Station													
1-22-95	Sunday - No one at Station													
1-23-95	07:25	6.5	11.28	07:30	2.1	12.94	2	06:50 - 21:00	Open				2022.8	2027.4
1-24-95	08:25	10.3	10.30	08:35	2.0	12.95	2	08:00 - 21:00	Open				2022.9	2028.0
1-25-95	08:25	9.5	10.55	08:35	1.8	12.98	2	08:00 - 21:00	Open				2022.7	2027.7
1-26-95	08:25	11.3	9.77	08:30	1.7	13.22	2	08:00 - 21:00	Open				2022.7	2027.7
1-27-95	08:25	8.8	10.81	08:30	1.6	13.38	2	08:00 - 21:00	Open				2022.7	2027.7
1-28-95	Saturday - No one at Station													
1-29-95	Sunday - No one at Station													
1-30-95	08:25	10.8	10.56	08:30	1.1	*See Note 14.18	2	08:00 - 10:00 18:00 - 20:00	Open				2022.5	2027.8
	*Note: High reading due to membrane on instrument needing replaced													
1-31-95	08:25	14.4	9.3	08:30	1.1	13.05	2	08:00 - 10:00 18:00 - 20:00	Open				2022.5	2027.2

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

FEBRUARY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
2-01-95	No Generation during working hours													
2-02-95	No Generation during working hours													
2-03-95	Effectiveness Test of Weir - River flow range 0 - 200 CFS													
	0725	17.0	8.85	0730	1.4	13.7	2 - 86%	0652 - 0900	Open	0740	1.4	13.30	2022.3	2027.4
				0810	1.4	13.6	2 - 86%		Open	0800	1.4	13.30	2022.3	2027.4
2-04-95	Saturday - No one at Station													
2-05-95	Sunday - No one at Station													
2-06-95	Not able to get readings; Temp.-5°F; Wind Chill Factor -31°F to -41°F; 14" new snow.													
2-07-95	Non-Scheduled Generation 0850 - 0900; Less than 30 min. no reading required													
2-08-95	0735	16.4	8.65	0730	1.3	13.11	2 - 85%	0640 - 0745 1827 - 1838	Open				2022.3	2027.5
	Note: Due to sub-zero temp., heavy ice build-up on weir gates, we were not able to complete the weir effectiveness Test with Sluice Gates down.													
2-09-95	No Generation during working hours													
2-10-95	No Generation during working hours													
2-11-95	Saturday - No one at Station													
2-12-95	Sunday - No one at Station													
2-13-95	No Generation during working hours													
2-14-95	No Generation during working hours													
2-15-95	Non-Scheduled Generation 1103 - 1118; Less than 30 min. no reading required													
2-16-95	No Generation during working hours													
2-17-95	No Generation during working hours													
2-18-95	Saturday - No one at Station													

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

FEBRUARY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
2-19-95	Sunday - No one at Station													
2-20-95	Holiday - No one at Station													
2-21-95	No Generation during working hours													
2-22-95	No Generation during working hours													
2-23-95	0755	EFFECTIVENESS TEST OF WEIR - RIVER FLOW RANGE 300 - 500 CFS 12.4	9.86	0830	2.2	14.14	2 - 100%	0800 - 1000 1800 - 2000	Open	0835	2.1	13.90	2023.1	2028.1
				0905	2.1	14.00	2 - 100%		Open	0900	2.1	13.75	2023.1	2028.1
2-24-95	0755	EFFECTIVENESS TEST OF WEIR - RIVER FLOW RANGE 1000 CFS 15.7	9.20	0830	2.2	14.20	2 - 100%	0800 - 2359	Closed	0835	2.1	13.70	2024.4	2028.5
				0905	2.1	14.20	2 - 100%		Closed	0900	2.1	13.70	2024.4	2028.5
2-25-95	Saturday - No one at Station													
2-26-95	Sunday - No one at Station													
2-27-95	EFFECTIVENESS TEST OF WEIR - RIVER FLOW RANGE 500 CFS PLUS. NOTE: 3 Gates open and 1 Gate closed;lift nut on gate lift assembly on 1 gate stripped 0725	17.2	8.82	0730	2.2	13.50	2 - 87%	0700 - 1100 1700 - 2100	3 - Open	0735	2.2	13.23	2023.3	2028.2
				0805	2.2	13.36	2 - 87%		3 - Open	0800	2.2	13.12	2023.3	2028.2
2-28-95	0725	EFFECTIVENESS TEST OF WEIR - RIVER FLOW RANGE 1000CFS Plus 18.0	8.98	0730	2.3	13.93	2 - 90%	0700 - 1100 1115 - 2400	Closed	0735	2.3	13.23	2023.8	2028.5
				0805	2.3	13.83	2 - 90%		Closed	0800	2.3	13.13	2023.8	2028.5
3-01-95	EFFECTIVENESS TEST OF WEIR - RIVER FLOW RANGE 1000 CFS Plus. NOTE: 3 Gates open and 1 Gate closed;lift nut on gate lift assembly on 1 gate stripped 0925	15.8	9.18	0930	2.4	13.50	2 - 85%	0900 - 1100 1700 - 2100	3 - Open	0935	2.4	13.20	2023.8	2028.2
				1005	2.4	13.35	2 - 85%		3 - Open	1000	2.4	13.00	2023.8	2028.2

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

FEBRUARY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
	TEST OF DO DURING STARTUP - MEASURED DO AT ONE MINUTE INTERVALS FOR AT LEAST 15 MINUTES AFTER STARTUP													
2-23-95	0755	12.4	9.86	0801	2.3	14.20	2 - 100%	0800 - 1000 1800 - 2000	Open				2023.3	2028.1
				0802	2.3	13.67								
				0803	2.3	13.63								
				0804	2.3	13.63								
				0805	2.3	13.50								
				0806	2.3	13.50								
				0807	2.3	13.49								
				0808	2.3	13.57								
				0809	2.3	13.61								
				0810	2.3	13.57								
				0811	2.2	13.57								
				0812	2.2	13.57								
				0813	2.2	13.64								
				0814	2.2	13.59								
				0815	2.2	13.79								

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

FEBRUARY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
	TEST OF DO DURING STARTUP - MEASURED DO AT ONE MINUTE INTERVALS FOR AT LEAST 15 MINUTES AFTER STARTUP													
2-24-95	0750	15.7	9.20	0801	3.0	14.91	2 - 100%	0800 - 2359	CLOSED				2024.4	2028.5
				0802	2.7	14.63								
				0803	2.5	14.28								
				0804	2.4	14.14								
				0805	2.4	14.12								
				0806	2.4	14.02								
				0807	2.4	13.98								
				0808	2.4	13.97								
				0809	2.3	14.02								
				0810	2.3	14.03								
				0811	2.3	14.02								
				0812	2.3	14.04								
				0813	2.3	14.07								
				0814	2.3	14.02								
				0815	2.3	13.92								
	NOTE: THE RIVER AT 1000 PLUS CFS FLOW WAS READING A 14.91 mg/1 at 3°C BEFORE GENERATING. ACTURAL FLOW 1609 CFS AT 0600 AT OAKLAND.													

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JUNE - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
6-01-95	0945	17.9	8.41	10:02	11.1	12.58	2	1000 - 1300	Open				2022.1	2028.2
				10:03	10.6	12.61								
				10:04	10.4	13.04								
				10:05	10.4	12.25								
				10:06	10.3	13.07								
				10:07	10.3	13.15								
				10:08	10.4	13.00								
				10.09	10.3	11.94								
				10.10	10.5	12.08								
				10.11	10.5	11.58								
				10.12	10.7	11.33								
				10.13	11.8	11.35								
				10.14	12.3	11.28								
				10.15	13.2	11.30								
				10.16	13.7	11.29								
				10.17	14.0	11.36								
				10.32	13.8	11.38								
6-02-95	0945	25.3	7.76	10.32	14.7	8.96	2	1000 - 1300	Open				2022.0	2027.5
6-03-95	Saturday - No one at Station													
6-04-95	Sunday - No one at Station													

(Instrument Calibrated to 2000 ft. MSL)

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

June - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
06-05-95	1020	22.0	8.06	1034	13.5	8.83	2	1000 - 1300	Open				2022.3	2027.3
06-06-95	No Generation													
06-07-95	No Generation													
06-08-95	1010	23.8	7.81	1017	13.8	9.25	2	1000 - 1300	Open				2022.1	2028.1
				1018	14.0	9.26								
				1019	14.0	9.24								
				1020	13.9	9.22								
				1021	13.9	9.23								
				1022	13.9	9.22								
				1023	13.9	9.21								
				1024	13.9	9.21								
				1025	13.9	9.21								
				1026	13.9	9.20								
				1027	13.8	9.21								
				1028	13.8	9.20								
				1029	13.8	9.21								
				1030	13.8	9.20								
				1031	13.9	9.20								
				1032	13.9	9.21								

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JUNE - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
~~06-08-95~~	~~0950~~	~~23.8~~	~~7.81~~	~~1030~~	~~13.8~~	~~9.20~~	~~2~~	~~1000 - 1300~~	Open				2022.1	2028.1
06-09-95	1025	23.6	7.85	1032	13.7	8.97	2	1000 - 1300	Open				2022.0	2027.5
06-10-95	Saturday - No one at Station													
06-11-95	Sunday - No one at Station													
06-12-95	1010	20.3	8.24	1020	14.3	8.74	2 - 80%	0950 - 1300	Open				2022.2	2027.5
	EFFECTIVENESS TEST OF WEIR - 300 - 500 CFS River Flow Range													
06-13-95	0750	18.0	8.77	0800	13.1	8.31	2 - 75%	0730 - 2330	Open	0815	13.2	7.87	2022.5	2027.0
				0835	13.3	8.36	2 - 75%		Open	0830	13.3	7.87		
				0801	13.0	8.29								
				0802	13.0	8.29								
				0803	13.0	8.28								
				0804	13.1	8.31								
				0805	13.1	8.32								
				0806	13.1	8.33								
				0807	13.1	8.34								
				0808	13.1	8.32								
				0809	13.1	8.31								
				0810	13.1	8.32								
				0811	13.1	8.31								
				0812	13.1	8.32								

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JUNE - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
06-13-95	(Continued)			0813	13.1	8.32								
				0814	13.1	8.33								
06-14-95	Holiday - No one at Station													
06-15-95	1255	22.5	7.73	1301	11.1	7.96	2 - 80%	1300 - 1600	Open				2022.0	2027.0
				1302	11.3	7.98								
				1303	11.2	8.03								
				1304	11.2	8.01								
				1305	11.2	8.10								
				1306	11.3	8.11								
				1307	11.3	8.13								
				1308	11.2	8.15								
				1309	11.2	8.11								
				1310	11.2	8.15								
				1311	12.0	8.16								
				1312	12.2	8.27								
				1313	12.8	8.39								
				1314	12.9	8.62								
				1315	13.5	8.75								
				1330	14.3	9.04								
06-16-95	1020	19.1	8.57	1030	14.9	8.98	2 - 100%	1000 - 1300	Open				2022.0	2028.1

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JUNE - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
06-17-95	Saturday - No one at Station													
06-18-95	Sunday - No one at Station													
06-19-95	0958	22.3	8.07	1003	11.1	7.17	2 - 76%	1000 - 1300	Open				2021.8	2027.1
				1004	11.3	7.19								
				1005	11.2	7.23								
				1006	11.2	7.22								
				1007	11.2	7.30								
				1008	11.3	7.31								
				1009	11.3	7.32								
				1010	11.2	7.34								
				1011	11.2	7.31								
				1012	11.2	7.34								
				1013	11.1	7.35								
				1014	12.0	7.45								
				1015	12.2	7.56								
				1016	12.8	7.77								
				1017	12.9	7.88								
				1018	13.5	8.08								
				1033	14.3	8.18								
06-20-95	1220	23.2	7.73	1232	11.1	6.74	2 - 100%	1230 - 1430	Open				2021.8	2028.1

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JUNE - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
06-20-95	(Continued)			1233	10.9	6.80								
				1234	10.9	6.86								
				1235	11.1	7.14								
				1236	11.3	7.19								
				1237	11.2	7.25								
				1238	11.1	7.24								
				1239	10.9	7.16								
				1240	10.8	7.22								
				1241	10.8	7.20								
				1242	10.8	7.22								
				1243	10.9	7.24								
				1244	11.0	7.31								
				1245	11.7	7.47								
				1246	12.7	7.76								
				1247	13.2	7.91								
				1248	13.7	8.07								
				1249	14.1	8.17								
				1250	14.2	8.19								
				1251	14.2	8.18								
				1301	14.1	8.12								

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JUNE - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
06-21-95	1250	26.0	7.49	1300	14.4	8.39	2 - 95%	1230 - 1430	Open				2021.7	2028.1
06-22-95	1020	22.5	8.20	1030	14.5	8.24	2 - 90%	1000 - 1300	Open				2021.7	2028.0
06-23-95	1020	22.3	8.04	1030	14.5	7.84	2 - 100%	1000 - 1300	Open				2021.7	2028.1
06-24-95	No Scheduled Generation			- Saturday - No one at Station										
06-25-95	Sunday - No one at Station													
06-26-95	0945	23.6	7.81	1000	12.2	6.80	2 - 100%	1000 - 1300	Open				2021.7	2028.1
				1001	12.0	6.72								
				1002	11.2	5.80								
				1003	11.7	6.16								
				1004	11.7	6.59								
				1005	11.3	6.58								
				1006	11.3	6.69								
				1007	11.2	6.70								
				1008	11.1	6.58								
				1009	11.1	6.63								
				1010	11.1	7.67								
				10.11	11.1	6.66								
				1012	11.1	6.65								
				1013	11.1	6.67								
				1014	11.7	6.77								

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JUNE - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
06-26-95	(Continued)			1015	12.8	7.04								
				1016	13.4	7.22								
				1017	14.6	7.41								
				1018	14.6	7.42								
				1030	14.0	7.41								
06-27-95	1020	23.9	7.71	1030	14.0	7.89	2 - 100%	1000 - 1300	Open				2021.7	2028.0
06-28-95	1020	21.1	8.17	1030	16.4	7.22	2 - 100%	1000 - 1300	Open				2021.8	2028.1
06-29-95	1020	21.9	8.11	1030	15.1	7.11	2 - 100%	1000 - 1300	Open				2021.7	2028.1
06-30-95	1020	23.0	7.95	1030	13.9	6.97	2 - 100%	1000 - 1300	Open				2021.7	2028.1

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JULY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
7-01-95	Saturday-No one at Station													
7-02-95	Sunday - No one at Station													
7-03-95	0950	22.4	7.71	1002	11.2	4.69	2 - 95%	1000 - 1300	Open				2021.9	2028.00
				1003	11.4	5.16								
				1004	11.5	5.54								
				1005	11.3	5.66								
				1006	11.1	5.51								
				1007	11.0	5.58								
				1008	11.0	5.57								
				1009	11.0	5.61								
				1010	11.1	5.71								
				1011	11.2	5.74								
				1012	11.2	5.77								
				1013	11.3	5.80								
				1014	12.2	6.10								
				1015	13.6	6.36								
				1016	14.1	6.41								
				1017	14.6	6.49								
				1018	14.7	6.52								
				1019	14.7	6.54								

(Instrument Calibrated to 2000 ft. MSL)

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

JULY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
	EFFECTIVENESS TESTS OF TAILRACE WEIR - River flow range 0 - 200 CFS													
7-03-95	0950	22.4	7.71	1032	14.2	6.47	2 - 95%	1000 - 1300	Open	1035	14.3	5.12	2021.9	2028.0
				1102	14.5	6.48				1100	14.6	5.18		
	1430	- Closed all four weir gates (4 gates open 1 foot)												
7-04-95	Holiday													
7-05-95	EFFECTIVENESS TEST OF WEIR - Four gates open one foot - River flow range 0 - 200 CFS													
7-05-95	1220	25.2	7.37	1300	15.0	7.22	2 - 100%	1230 - 1430	Open 1 ft	1305	15.0	4.93	2021.7	2028.4
				1335	15.2	7.22				1330	15.2	5.00		
7-06-95	No Generation													
7-07-95	0950	23.0	7.42	0950	12.9	5.07		Prior to generation	Open 1 ft				2021.8	
				1000	12.4	5.24	2 - 86%	1000 - 1300						2028.4
				1001	12.0	5.46								
				1002	11.8	6.45								
				1003	12.1	6.60								
				1004	12.5	6.71								
				1005	11.6	6.58								
				1006	11.4	6.53								
				1007	11.3	6.52								
				1008	11.2	6.53								
				1009	11.2	6.56								

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JULY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
7-07-95	(Continued)			1010	11.2	6.54								
				1011	11.2	6.58								
				1012	11.2	6.55								
				1013	11.2	6.60								
				1014	11.2	6.55								
				1015	11.5	6.56								
				1016	11.5	6.57								
				1017	13.1	6.68								
				1030	14.0	6.81								
	Effectiveness Test of Weir - Four gates open one foot - River flow range 0 -.200 CFS													
7-07-95	0950	23.0	7.42	1030	14.0	6.81	2 - 86%	1000 - 1300	Open 1 ft.	1034	14.0	4.18	2021.7	2028.4
				1105	14.2	6.85				1100	14.1	4.23		
7-08-95	Saturday - No one at Station													
7-09-95	Sunday - No one at Station													
7-10-95	0950	21.5	8.02	1001	12.3	4.78	2	1000 - 1300	Closed				2021.6	2028.4
				1002	12.2	4.67								
				1003	11.8	4.66								
				1004	12.0	5.39								
				1005	11.6	6.41								
				1006	11.8	6.46								

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JULY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
7-10-95	(Continued)			1007	11.9	6.45								
				1008	11.9	6.47								
				1009	11.6	6.43								
				1010	11.6	6.43								
				1011	11.5	6.44								
				1012	11.5	6.36								
				1013	11.5	6.38								
				1014	11.5	6.39								
				1015	11.6	6.45								
				1016	12.3	6.49								
				1017	13.2	6.52								
				1018	13.7	6.58								
				1019	13.7	6.54								
				1020	14.3	6.64								
	Effectiveness Test of Weir - Four gates open one foot - River flow range 0 - 200 CFS													
7-10-95	0950	21.5	8.02	1030	15.1	6.65	2 - 100%	1000 - 1300	Open 1 Ft.	1035	14.9	4.09	2021.6	2028.4
				1105	15.2	6.76				1100	15.2	4.18		
	Effectiveness Test of Weir - Four gates open one foot - River flow range 0 - 200 CFS													
7-11-95	1245	24.5	7.21	1300	15.2	6.59	2 - 100%	1230 - 1430	Open 1 ft	1305	15.3	3.97	2021.6	2028.4
				1331	15.5	6.54				1327	15.4	4.01		

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JULY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
	Effectiveness Test of Weir - Four gates open one foot - River Flow Range 0 - 200 CFS													
7-12-95	1020	23.3	7.46	1030	14.8	6.38	2 - 100%	1000 - 1300	Open 1 ft.	1035	14.7	3.58	2021.6	2028.4
				1105	15.1	6.42				1100	15.1	3.71		
7-13-95	1020	23.9	7.71	1030	15.3	6.73	2 - 100%	1000 - 1300	Closed				2021.5	2028.4
7-14-95	1020	23.9	7.05	1030	15.4	6.34	2 - 100%	1000 - 1930	Closed				2021.5	2028.4
7-15-95	Saturday - No one at Station													
7-16-95	Sunday - No one at Station													
7-17-95	1015	23.3	7.61	1030	15.6	7.19	2 - 90%	1000 - 1300 1610 - 1930	Closed				2021.8	2028.4
7-18-95	No Generation													
7-19-95	No Generation													
7-20-95	1250	24.4	7.48	1300	15.6	6.11	2 - 100%	1230 - 1430	Closed				2021.6	2028.4
7-21-95	0950	22.9	7.43	1002	12.7	4.94	2 - 100%	1000 - 1300	Closed				2021.6	2028.4
				1003	12.6	4.95								
				1004	12.5	4.97								
				1005	12.3	5.01								
				1006	12.2	4.99								
				1007	12.0	4.92								
				1008	11.8	4.90								
				1009	11.7	5.06								
				1010	11.8	4.84								

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JULY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
7-21-95	(Continued)			1011	11.9	4.82								
				1012	12.0	4.88								
				1013	13.2	5.03								
				1014	14.5	5.32								
				1015	15.4	5.45								
				1016	15.9	5.81								
				1032	15.8	6.06								
7-22-95	Saturday - No one at Station													
7-23-95	Sunday - No one at Station													
7-24-95	0945	23.2	7.16	1002	12.5	4.89	2 - 100%	1000 - 1300	Closed				2021.5	2028.5
				1003	12.3	5.00	NOTE: This test was conducted with 2 gates on weir completely closed and 2 gates open 1 foot.							
				1004	12.2	4.99								
				1005	12.3	5.02								
				1006	12.1	4.98								
				1007	12.0	4.97								
				1008	11 9	4.94								
				1009	12.0	4.96								
				1010	12.0	4.96								
				1011	12.0	4.94								
				1012	12.0	4.96								

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

JULY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
7-24-95	(Continued)			1013	12.0	4.98								
				1014	12.0	5.00								
				1015	12.1	4.99								
				1016	12.4	5.00								
				1017	13.3	5.09								
				1018	14.1	5.27								
				1019	14.6	5.41								
				1020	15.5	5.64								
				1021	15.8	5.68								
				1022	15.9	5.72								
				1032	15.3	5.53								
7-24-95	EFFECTIVENESS TEST OF WEIR - 2 gates closed & 2 gates open one foot - Due to low DO readings; at 1045 closed remaining 2 gates (all gates closed													
	now) River flow range 0 - 200 CFS													
7-24-95	0945	23.2	7.16	1032	15.3	5.53	2 - 100%	1000 - 1300	All Closed	1035	15.5	2.16	2021.5	2028.5
				1107	15.8	6.02				1102	15.6	2.10		
				1110	16.0	6.06								
7-25-95	1415	28.1	7.33	1430	15.6	6.71	2 - 100%	0952 - 1004 1400 - 1500	Closed				2021.5	2028.5
7-26-95	0945	23.3	7.96	1004	12.1	5.84	2 - 93%	1000 - 1400	2 closed 2 open 6"				2021.6	2028.5
				1005	12.7	5.87								
				1006	12.9	5.91								

(Instrument Calibrated to 2000 ft. MSL)

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

JULY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
7-26-95	(Continued)			1007	12.0	5.79								
				1008	12.0	5.79								
				1009	12.1	5.77								
				1010	12.1	5.77								
				1011	12.0	5.74								
				1012	11.9	5.75								
				1013	11.9	5.76								
				1014	11.8	5.71								
				1015	11.9	5.70								
				1016	12.0	5.69								
				1017	14.6	6.14								
				1018	15.2	6.29								
				1030	15.4	6.19				1035	15.4	2.14		
				1107	15.7	6.26				1100	15.6	2.12		
				1110	15.6	6.52			All Closed					
7-27-95	1220	27.2	6.49	1230	15.9	5.97	2 - 100%	1200 - 1300	2 closed 2 open 6"				2021.5	2028.5
7-28-95	0950	24.0	7.54	0955	12.8	5.33	Prior to Generation		2 closed 2 open 6"				2021.5	
	1020	22.5	7.56	1030	16.1	6.00	2 - 100%		2 closed 2 open 6"				2021.5	2028.5
7-29-95	Saturday - No one at Station													
7-30-95	Sunday - No one at Station													

(Instrument Calibrated to 2000 ft. MSL)

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

JULY - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
7-31-95	0945	23.9	7.45	0955	12.7	3.87	Prior to Generation						2021.5	
				1003	12.1	5.29	2 - 76%	1000 - 1300	2 closed 2 open 6"				2021.5	2028.4
				1004	12.3	5.41								
				1005	12.5	5.43								
				1006	12.7	5.47								
				1007	12.1	5.46								
				1008	12.0	5.40								
				1009	12.0	5.37								
				1010	12.0	5.39								
				1011	12.0	5.35								
				1012	12.0	5.36								
				1013	12.0	5.35								
				1014	12.1	5.35								
				1015	12.1	5.32								
				1016	12.5	5.34								
				1017	13.3	5.30								
				1018	14.4	5.42								
				1019	15.3	5.60								
				1020	15.6	5.70								
				1032	15.2	5.49								

(Instrument Calibrated to 2000 ft. MSL)

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

August - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
8-01-95	1049	24.7	7.16	1050	13.1	4.23		Prior to generation						
8-01-95	1120	22.6	7.55	1130	15.6	5.72	2 - 100%	1100 - 1300 1450 - 1503	2 open 6" 2 closed				2021.6	
8-02-95	1050	24.9	7.28	1055	12.9	5.9		Prior to generation					2021.6	2028.5
8-02-95	1120	22.7	7.55	1130	15.8	5.64	2 - 100%	1100 - 1300	" " "				2021.6	
8-02-95	EFFECTIVENESS TEST OF WEIR - 2 gates closed & 2 gates open 6" - River flow range 0 - 200 CFS												2021.6	2028.5
8-02-95	1120	22.7	7.55	1130	15.8	5.64	2 - 100%	1100 - 1300	2 open 6" 2 closed					
				1205	16.2	5.68		2014 - 2051	" " "	1135	15.8	1.37	2021.6	2028.5
8-03-95	1130	24.5	7.10	11.35	15.6	5.64	2 - 100%	1100 - 1300	" " "	1200	16.2	1.41		
8-04-95	950	22.8	7.59	0955	13.4	5.65		Prior to generation		Unscheduled			2021.7	2028.5
8-04-95	1025	22.8	7.59	1030	15.7	5.62	2 - 100%	1000 - 1300	" " "				2021.7	
8-05-95	Saturday - No one at Station												2021.7	2028.5
8-06-95	Sunday - No one at Station													
8-07-95	No Generation													
8-08-95	No Scheduled Generation													
8-09-95	No Generation													
8-10-95	No Generation													
8-11-95	940	21.4	8.07	948	13.1	2.39		Prior to generation						
8-11-95	940	21.4	8.07	1003	13.0	2.57	2 - 100%	1000 - 1300 2205 - 2212	" " "				2022.0	
				1004	12.5	4.71							2022.0	2028.5
				1005	12.7	5.22								

(Instrument Calibrated to 2000 ft. MSL)

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

AUGUST - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
8-11-95	(Continued)			1006	13.8	5.47								
				1007	13.0	5.46								
				1008	12.1	5.38								
				1009	12.5	5.39								
				1010	12.6	5.34								
				1011	12.4	5.35								
				1012	12.4	5.32								
				1013	12.5	5.26								
				1014	12.4	5.30								
				1015	12.4	5.27								
				1016	13.6	5.34								
				1017	15.6	5.68								
				1018	16.7	5.89								
				1020	17.2	5.97								
				1033	16.3	5.60								
8-12-95	Saturday	- No one at Station												
8-13-95	Sunday	- No one at Station												
8-14-95	945	24.7	7.17	955	17.3	3.00								
8-14-95	945	24.7	7.17	1003	17.1	2.73	2 - 100%	0010 - 0345 1000 - 1300	2 open 6" 2 closed				2021.9	
				1004	16.2	4.94							2021.9	2028.5

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

AUGUST - 1995

(Instrument Calibrated to 2000 ft. MSL)

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
8-14-95	(Continued)			1005	15.8	5.30								
				1006	15.0	5.33								
				1007	14.6	5.34								
				1008	13.9	5.36								
				1009	13.5	5.32								
				1010	13.3	5.28								
				1011	13.3	5.28								
				1012	13.2	5.29								
				1013	13.1	5.29								
				1014	12.8	5.31								
				1015	12.8	5.29								
				1016	12.7	5.29								
				1017	14.8	5.27								
				1018	15.8	5.39								
				1019	16.4	5.45								
				1020	16.9	5.53								
				1033	16.5	5.34								
8-14-95	EFFECTIVENESS TEST OF WEIR - 2 gates open 6" & 2 gates closed -							River flow 0 - 200	CFS					
8-14-95	945	24.7	7.17	1033	16.5	5.34	2 - 100%	1000 - 1300	2 open 6" 2 Closed	1037	16.6	.83	2021.9	2028.5
				1106	16.8	5.26				1100	16.8	.79		

(Instrument Calibrated to 2000 ft. MSL)

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

AUGUST - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
8-15-95	820	23.7	7.52	825	13.6	2.40		Prior to generation					2022.1	
8-15-95	1250	29.4	6.36	1302	16.8	5.10	2 - 100%	1230 - 1830	2 open 6" 2 closed				2022.1	2028.5
8-16-95	1252	28.8	6.45	1320	16.9	5.15	2 - 100%	1250 - 1850	" " "	Unscheduled			2022.0	2028.5
8-17-95	1215	28.7	6.37	1232	16.2	5.19	2 - 90%	1200 - 1600	" " "	Unscheduled			2022.0	2028.5
8-18-95	935	23.7	7.32	945	13.7	2.20		Prior to generation					2021.9	
				1035	17.0	5.13	2 - 100%	1000 - 1600	" " "	1040	17.1	1.10	2021.9	2028.5
8-19-95	Saturday - No one at Station													
8-20-95	Sunday - No one at Station													
8-21-95	945	21.4	7.70	950	13.4	2.27		Prior to generation					2021.7	
8-21-95				1003	12.7	4.83	2 - 100%	1000 - 1300	" " "				2021.7	2028.5
				1004	13.3	5.07								
				1005	13.0	5.10								
				1006	13.0	5.10								
				1007	13.0	5.10								
				1008	12.9	5.10								
				1009	12.8	5.08								
				1010	12.8	5.08								
				1011	12.8	5.07								
				1012	12.9	5.06								
				1013	12.9	5.05								

(Instrument Calibrated to 2000 ft. MSL)

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

AUGUST - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
8-21-95	(continued)			1014	12.8	5.05								
				1015	12.9	5.04								
				1016	14.2	5.00								
				1017	16.6	5.10								
				1033	16.6	5.10								
8-21-95	EFFECTIVENESS TEST OF WEIR - 2 gates closed & 2 gates open 6"							- River flow range	0 - 200 CFS					
8-21-95	945	21.4	7.70	1033	16.6	5.10	2 - 100%	1000 - 1300 1750 - 2050	2 open 6" 2 closed	1037	16.8	.90	2021.7	2028.5
				1104	16.9	5.10				1100	16.9	.84		
8-22-95	1045	22.0	7.51	1050	14.2	2.16		Prior to generation					2021.7	
8-22-95	1045	22.0	7.51	1130	16.6	5.06	2 - 100%	1100 - 1300	" " "				2021.7	2028.5
8-23-95	No scheduled generation													
8-24-95	1445	26.7	6.82	1500	16.8	5.15	2 - 100%	1430 - 1530	" " "	Unscheduled			2021.6	2028.5
8-25-95	945	19.1	8.24	950	13.6	2.21		Prior to generation					2021.6	
8-25-95	945	19.1	8.24	1030	17.7	5.30	2 - 100%	1000 - 1300	" " "				2021.6	2028.5
8-26-95	Saturday - No one at Station													
8-27-95	Sunday - No one at Station													
8-28-95	945	22.3	7.47	952	13.9	2.13		Prior to generation					2021.5	
8-28-95	945	22.3	7.47	1002	13.6	4.83	2 - 95%	1000 - 1300	" " "				2021.5	2028.5
				1003	13.6	5.03								
				1004	13.2	5.04								

(Instrument Calibrated to 2000 ft. MSL)

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

AUGUST - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
8-28-95	(Continued)			1005	13.3	5.04								
				1006	13.4	5.02								
				1007	13.1	5.01								
				1008	12.9	5.05								
				1009	12.9	5.01								
				1010	12.9	5.03								
				1011	12.9	5.01								
				1012	12.9	5.02								
				1013	12.9	5.01								
				1014	12.9	5.01								
				1015	14.8	5.07								
				1016	16.3	5.21								
				1017	17.2	5.38								
				1018	17.8	5.48								
				1019	18.0	5.53								
				1032	17.6	5.32								
8-29-95	1115	24.3	7.02	1132	17.4	5.27	2 - 95%	1100 - 1300	2 open 6" 2 closed	Unscheduled			2021.5	2028.5
8-30-95	950	20.8	8.03	955	14.3	2.26		Prior to generation					2021.5	
8-30-95				1030	17.5	5.25	2 - 100%	1000 - 1600	" " "				2021.5	2028.5
31-95	1245	25.0	6.64	1303	17.5	5.07	2 - 100%	1230 - 1530	" " "				2021.6	2028.5

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

SEPTEMBER - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
9-01-95	0950	23.7	7.36	0955	13.6	5.09		Prior to generation					2021.6	
9-01-95	EFFECTIVENESS TEST OF WEIR - 2 gates closed & 2 gates open 6"							- River flow range	0 - 200 CFS					
9-01-95	0950	23.7	7.36	1040	17.1	4.98	2 - 100%	1000 - 1300	2 open 6" 2 closed	1045	17.0	.52	2021.6	2028.5
				1110	17.4	4.92				1100	17.2	.52		
9-02-95	Saturday - No one at Station													
9-03-95	Sunday - No one at Station													
9-04-95	Holiday - No one at Station													
9-05-95	No Generation													
9-06-95	No Generation													
9-07-95	No Scheduled Generation													
9-08-95	0932	18.1	8.69	0940	13.6	5.47		Prior to generation					2021.6	
				1003	13.8	5.37	2 - 100%	1000 - 1300	2 Open 6" 2 closed				2021.6	2028.5
				1004	13.3	5.21		1505 - 1520						
				1005	13.2	5.18		2305 - 2325						
				1006	13.2	5.17								
				1007	13.2	5.13								
				1008	13.2	5.14								
				1009	13.2	5.15								
				1010	13.2	5.13								
				1011	13.2	5.11								

(Instrument Calibrated to 2000 ft. MSL)

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

SEPTEMBER - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
9-08-95	(Continued)			1012	13.3	5.12								
				1013	16.5	5.39								
				1014	16.9	5.54								
				1015	17.5	5.72								
				1016	17.8	5.78								
				1017	18.3	5.97								
				1033	18.2	5.76								
	EFFECTIVENESS TEST OF WEIR - 2 gates closed & 2 gates open 6" - River flow range -								0 - 200 CFS					
9-08-95	0932	18.1	8.69	1033	18.2	5.76	2 - 100%	1000 - 1300	2 open 6" 2 closed	1038	18.2	2.22	2021.6	2028.5
				1106	18.3	5.69				1103	18.3	2.20		
9-09-95	Saturday -No one at Station													
9-10-95	Sunday - No one at Station													
9-11-95	No Generation													
9-12-95	No Generation													
9-13-95	No Generation													
9-14-95	No Generation													
9-15-95	1000	17.9	8.51	1005	13.9	5.30	2 - 100%	1000 - 1300	2 Open 6" 2 closed				2021.7	2028.5
				1006	13.7	5.21								
				1007	13.5	5.19								
				1008	13.5	5.15								

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

SEPTEMBER - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
9-15-95	(Continued)			1009	13.5	5.16								
				1010	13.4	5.12								
				1011	13.4	5.10								
				1012	13.5	5.04								
				1013	13.5	5.05								
				1014	13.5	5.05								
				1015	14.8	5.08								
				1016	16.3	5.43								
				1017	17.3	5.70								
				1018	17.7	5.85								
				1019	17.9	5.94								
				1035	18.1	5.82								
9-16-95	Saturday - No one at Station													
9-17-95	Sunday - No one at Station													
9-18-95	No Generation													
9-19-95	No Generation													
9-20-95	No Generation													
9-21-95	No Generation													
9-22-95	0950	20.4	7.82	0955	15.3	2.01		Prior to Generation					2021.6	

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

SEPTEMBER - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
9-22-95	0950	20.4	7.82	1002	15.4	2.53	2 - 100%	1000 - 1300 1550 - 1625	2 open 6" 2 closed				2021.6	2028.5
				1003	14.8	4.41								
				1004	13.8	4.91								
				1005	14.4	4.97								
				1006	13.7	4.96								
				1007	13.6	4.93								
				1008	13.5	4.95								
				1009	13.5	4.91								
				1010	13.5	4.80								
				1011	13.7	4.86								
				1012	13.7	4.92								
				1013	13.6	4.83								
				1014	14.9	5.02								
				1015	16.2	5.47								
				1016	17.0	5.77								
				1032	18.2	6.21								
	EFFECTIVENESS TEST OF WEIR - 2 gates closed & 2 gates open 6" - River flow range 0 - 200 CFS													
9-22-95	0950	20.4	7.82	1032	18.2	6.21	2 - 100%	1000 - 1300	2 open 6" 2 closed	1040	17.8	3.44	2021.6	2028.5
				1105	17.8	6.11				1100	17.8	3.35		
9-23-95	Saturday - No one at Station													

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

SEPTEMBER - 1995

(Instrument Calibrated to 2000 ft. MSL)

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/l)	TIME	TEMP °C	DO (mg/l)				TIME	TEMP °C	DO (mg/l)		
9-24-95	Sunday - No one at Station													
9-25-95	0950	15.6	8.28	1012	13.7	3.20	2 - 100%	1010 - 1300	2 open 6" 2 closed				2021.6	2028.5
				1013	13.6	3.81								
				1014	13.9	4.69								
				1015	13.9	4.88								
				1016	13.7	4.88								
				1017	13.8	4.92								
				1018	13.6	4.84								
				1019	13.5	4.81								
				1020	13.5	4.81								
				1021	13.5	4.80								
				1022	13.5	4.79								
				1023	13.6	4.81								
				1024	13.8	4.83								
				1025	14.8	5.19								
				1026	15.8	5.81								
				1042	17.0	6.38								
9-26-95	No Generation													
9-27-95	No Generation													
9-28-95	No Scheduled Generation													

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

SEPTEMBER - 1995

DATE	INSTRUMENT CALIBRATION CAL. READINGS			DO MEASUREMENTS DOWNSTREAM FROM WEIR			NO. UNITS GENERATING	TIMES OF GENERATION	SLUICE GATE POSITION	DO MEASUREMENTS UPSTREAM FROM WEIR			NON-OPERATING TAILRACE ELEV	OPERATING TAILRACE ELEV
	TIME	TEMP °C	DO (mg/1)	TIME	TEMP °C	DO (mg/1)				TIME	TEMP °C	DO (mg/1)		
9-29-95	1015	16.3	8.43	1033	16.8	7.22	2 - 100%	1000 - 1300	2 open 6" 2 closed				2021.6	2028.5
9-30-95	Saturday - No one at Station													

APPENDIX E

APPENDIX E

REPORT OF RELEASES UNSUITABLE FOR WHITEWATER RECREATION

REPORT OF RELEASES UNSUITABLE FOR WHITEWATER RECREATION

Permit Condition 19 provides that "[w]hen lake levels are between the Upper and Lower Rule Bands, no releases shall be made between the 1600 hours and 0800 hours of the following morning, unless the release also provides three consecutive hours of flows suitable for white water boating during the hours between 0800 hours and 1600 hours. The times and dates when generation releases not suitable for whitewater recreation occurred shall be documented in an annual report."

This report documents the occurrence of all releases during the whitewater boating season, defined below, that could be considered unsuitable for whitewater boating for one or more of the following reasons: (a) the release was not announced in advance on the Permittee's regular recording, that is accessible to the public by telephone; (b) the release was not at least three hours in length; or (c) the release did not occur within the hours of 1000-1500 hours (May, September and October) or 1000-1600 hours (June, July and August).

1995 Whitewater Boating Season

The 1995 whitewater boating season was April 15 through October 15. All information in this report pertains to the period April 15 through October 15, 1995.

1995 Water Conditions

There was ample runoff during the spring of 1995. The lake level reached the Upper Rule Band (El. 2461.0 ft.) on May 20 and remained at or just above the Upper Rule Band through June 13. Thereafter conditions gradually became extremely dry, and the lake level fell below the Lower Rule Band during the periods July 16-August 7 and September 3-October 1. (See Appendix A.) The dry conditions in late summer also affected water availability for scheduled releases suitable for whitewater boating due to (a) river water temperature enhancement releases (see Appendix B) and (b) operation of the flow bypass (see Appendix C).

Two-Unit Operation

All generation was by two-unit operation, with the exception of the 20-minute period 1540-1600 hours on August 18.

Scheduled Whitewater Releases

Fridays. Releases were made from 1000 to 1300 hours on all Fridays except May 19 (high river flow).

Mondays. Releases were made from 1000 to 1300 hours on all Mondays except May 15 (due to high river flow) and August 7, September 11, September 18 and September 25 (all due to lake level below the Lower Rule Band). A release for whitewater boating was made from 1000-1300 hours on Monday, September 4, notwithstanding that the lake level was below the Lower Rule Band, because of the Labor Day holiday and because the release had been announced on the telephone recording the prior week.

Designated Saturdays. Releases were made from 1000 to 1300 hours on the following Saturdays: May 6 (0900-1200 hours at request of MDNR), May 27, June 3, June 24, July 1 (1015-1315 hours), July 8, August 5, August 12, August 26, September 2 and September 25.

Special Whitewater Boating Release Days. Special releases were made from 1000 to 1400 hours on Wednesday, July 26 and from 1000 to 1600 hours on Wednesday, August 30.

Included in this Appendix for reference are annotated copies of two letters (dated January 19, 1995 and July 12, 1995) by which MDNR requested, on behalf of the whitewater boaters, Saturday and special whitewater releases in 1995.

Releases Unusable by Whitewater Boaters

Table I lists the occurrences of unscheduled releases made on days on which no scheduled releases suitable for whitewater boating were made.

TABLE I

Day/Date	Hours	Comment
Sat., April 15	0909-0932	Emergency orders - 100% Spinning
Fri., May 19 (*)	1600-2200	High lake water level
	2218-2228	Emergency orders - 100% Spinning
Sat., May 20	1645-2200	High lake water level
Sun., May 21	1600-2200	High lake water level
Wed., May 24	1253-1314	Emergency orders - 100% Spinning
Tue., June 13	0730-2330	High lake water level
Wed., June 14	1315-1615	High lake water level
Thu., June 15	1300-1600	High lake water level
Sun., June 18	2133-2157	Emergency orders - 100% Spinning
Tue., June 20	1230-1430	Temperature release
	1719-1824	Loaded for high system cost
Wed., June 21	1230-1430	Temperature release
Wed., July 5	1230-1430	Temperature release
Tue., July 11	1230-1430	Temperature release

(continued)

Sat., July 15	0838-0918	Emergency orders - 100% Spinning
	1010-0423	Loaded for high system cost, Emergency orders - 100% Spinning, Max. Emergency Generation
Thu., July 20	1230-1430	Temperature release
Sat., July 22	1530-1630	Temperature release
Sun., July 23	1525-1625	Temperature release
Tue., July 25	0952-1004	Emergency orders - 100% Spinning
	1400-1500	Temperature release
Thu., July 27	1200-1300	Temperature release
Sat., July 29	1100-1300	Temperature release
Sun., July 30	1100-1300	Temperature release
Tue., August 1	1100-1300	Temperature release
	1450-1503	Emergency orders - 100% Spinning
Wed., August 2	1100-1300	Temperature release
Thu., August 3	1100-1300	Temperature release
Sun., August 13	1230-1430	Temperature release
Tue., August 15	1230-1430	Temperature release
	1430-1830	Loaded for high system cost
Wed., August 16	1250-1850	Loaded for high system cost
Thu., August 17	1200-1600	Loaded for high system cost
Sat., August 19	1230-1430	Temperature release
Sun., August 20	1230-1430	Temperature release
Tue., August 22	1100-1300	Temperature release
Wed., August 23	1515-1615	Temperature release
Thu., August 24	1430-1530	Temperature release
Sun., August 27	1230-1330	Temperature release
Tue., August 29	1100-1300	Temperature release
	2021-2037	Emergency orders - 100% Spinning
Thu., August 31	1230-1430	Temperature release
	1430-1535	Loaded for high system cost
Thu., September 7	2100-2115	Emergency orders - 100% Spinning
Sat., September 9	1805-1810	Emergency orders - 100% Spinning
Thu., September 28	0830-0848	Emergency orders - 100% Spinning
Wed., October 4	0655-0720	Emergency orders - 100% Spinning
Thu., October 5	1236-1250	Emergency orders - 100% Spinning

(*) Scheduled release for whitewater boating not made due to high river flow.

Table II lists the occurrences of unscheduled releases made on days on which scheduled releases suitable for whitewater boating were made.

TABLE II

Day/Date	Hours	Comment
Fri., May 5	1544-1602	Emergency orders - 100% Spinning
Mon., May 22	1700-2200	High lake level
Fri., May 26	1900-2200	High lake level
Thu., June 8	1545-1635	Emergency orders - 100% Spinning
Fri., June 16	1920-1935	Emergency orders - 100% Spinning
Fri., June 23	1420-1430	Emergency orders - 100% Spinning
Fri., July 14	1300-1930	Loaded for high system cost
Mon., July 17	1610-1709	Emergency orders - 100% Spinning
	1709-1930	Loaded for high system cost
Fri., July 21	1516-1639	Loaded for high system cost
Fri., August 18	1300-1600	Loaded for high system cost (one unit unloaded at 1540 for transmission line contingency)
Mon., August 21	1750-2050	Loaded for high system cost
Fri., September 22	1550-1625	Emergency orders - 100% Spinning

MARYLAND DEPARTMENT OF NATURAL RESOURCES
PUBLIC LANDS AND FORESTRY
DEEP CREEK LAKE RECREATION AREA
898 STATE PARK ROAD
SWANTON, MARYLAND 21561
(301) 387-4111

January 19, 1995

Special Deep Creek Releases agreed To By BAW on 7/13/95
Karl Christensen will send Memo To Rust Confirming
Wed, 7/26, 4hr (10-14)
Sat, 8/26, 3 hr

Mr. Bob McFeeters
Pennsylvania Electric Company
1001 Broad Street
Johnstown, PA 15907

Dear Mr. McFeeters:

On behalf of the Maryland Department of Natural Resources Youghiogheny River Management Area, the Upper Yough Outfitters Association, and the American Whitewater Affiliation, I am officially requesting the following 1995, Saturday releases:

9 - 12 --PER KARL CHRISTENSEN 6/23/95
May 6, 1995 (~~8 - 11~~ release)
May 27, 1995 (normal release time)
June 3, 1995
July 1, 1995
~~August 5, 1995~~ ↑ see NOTE 4-8-26-95
August 12, 1995
September 2, 1995 → Aug 30 4-6 hr

See Flow Charts For release times.

It is my understanding that the initial request for the above release dates was made by Mr. Dave Bassage of the Upper Yough Outfitters Association. It is also my understanding that Penelec was agreeable to this schedule, however; you requested that the official request be made through my office (DNR). We have no problems with this request if Penelec is agreeable. If this is not the case please notify me as soon as possible. I also understand that any agreement to this request may be negated due to unexpected circumstances such as, low water, emergency generation needs, etc.

If you have any questions please feel free to contact me. I have also attached a copy of the written request I have received from Mr. Bassage of the Upper Yough Outfitters Association.

Sincerely,

Karl E. Christensen

Karl E. Christensen
Youghiogheny River Manager

JAN 1995 RECEIVED Water Operations Dept.

KEC/slf

Maryland Department of Natural Resources
~~Tawes State Office Building~~
~~Annapolis, Maryland 21401~~

Parris N. Glendening
Governor

John Griffin
Secretary

DEEP CREEK LAKE REC AREA
698 STATE PARK RD
SWANTON, MD. 21561

July 12, 1995

Mr. R.W. Thomas
Penelec - Systems Operations
1001 Broad Street
Johnstown PA 15907

Dear Mr. Thomas:

I just want to confirm the following releases from Deep Creek Lake as per agreement with Branson Williams on 7-12-95. The dates and times for additional releases are as follows:

~~Wednesday,~~ July 26, 1995	4 hr	1000-1400 hours
Saturday, August 26, 1995	3 hr	Normal times
WED Aug 30, 1995	4-6 hr	

I appreciate your cooperation and assistance in this matter. If you have any questions, please feel free to contact me at (301) 387-4111.

Sincerely,

Karl E. Christensen

Karl E. Christensen
Youghiogheny River Management Area

JUL 1995
RECEIVED
System Operations
Dept.

Telephone: _____

APPENDIX F

APPENDIX F

ZEBRA MUSSEL MONITORING REPORT

GPU Nuclear

Memorandum

Subject: GPU ZEBRA MUSSEL MONITORING PROGRAM - DEEP CREEK

Date: January 10, 1996

From: R. L. Grove - Chemist, E&CS

Location: Reading
5373-96-1004

To: J. C. Phillips - Manager, Water Resources (Reading)

This memo on the results of GPU's Zebra Mussel Monitoring Program at the Deep Creek Hydroelectric Station in 1995 is provided in accordance with Permit Condition 21 with the State of Maryland Department of Natural Resources.

GPU Nuclear Environmental & Chemistry Support (GPUN E&CS) began a Zebra Mussel Monitoring Program at Deep Creek in 1992. A star substrate has been placed at the Station intake area in Deep Creek Lake which is checked monthly (June through October) by Station personnel for the presence and/or attachment of zebra mussels. Water temperatures are recorded monthly for the substrate location as well as the Station tailrace location. Attached are copies of the monthly "Field Collection Sheets" for the Zebra Mussel Monitoring Program as supplied by Station personnel for 1995.

GPUN E&CS conducted monthly zebra mussel veliger sampling via plankton net/microscopic identification from June through October 1995 at the Deep Creek Hydroelectric Station. Field observations to date have indicated no presence of zebra mussels at Deep Creek Lake.

Zebra mussels have been confirmed in western Pennsylvania in the Allegheny River, therefore the spread of the mussels into other fresh waters of Pennsylvania and Maryland appears inevitable. Projected activities for 1996 includes monthly zebra mussel veliger sampling via plankton net/microscopic identification from June through October 1996 at the Deep Creek Hydroelectric Station. The substrate will continue to be monitored monthly by Station personnel. Water samples will be collected and monitored for calcium as an indicator of zebra mussel colonization potential. During 1996 GPUN E&CS will develop an "Action Plan" for the Deep Creek Hydroelectric Station. This includes a review of the operational water uses at the facility and mitigation strategies for the control of zebra mussels at the Station.

Should you have any questions concerning the GPU Zebra Mussel Monitoring Program, please feel free to contact me at (610) 375-5046.

R. L. Grove

ATT

cc: R. C. Bosold
T. R. Teitt

GPU ZEBRA MUSSEL PROGRAM
Field Collection

Facility Name: Deep Creek Dam

Date: 06/06/95

Sampled by: Charles A. Rosenberry

Time: 12 Ho NOON

SAMPLE DATA

Sampler Tag ID	Sampler Type	# Mussels Present	Comments
DC-1	Star	NONE	1. Lake Elev. 2461.05
			2. outside air temperature - 72° F
			3. Lake Surface - Water Temp. - 70° F
			4. Water Temp where device is located 68° F
			5. Condition of Star Sampler - light coating
			of mud - clean up and put back in.
			6. Lake Calm

Sampler Type: 1 = Biobox, 2 = Plate sampler, 3 = Star sampler, 4 = Other

WATER QUALITY DATA

Station Tag ID	Temp.	Diss. Oxygen	pH	Other

Send completed sheet interoffice:

Tom Teitt
TMI - NOB 1
Environmental Affairs
(Phone # 3-992-8177)

GPU ZEBRA MUSSEL PROGRAM
Field Collection

Facility Name: Deep Creek Dam Date: 07/05/95

Sampled by: Charles A. Rosenberry Time: 8⁰⁰AM

SAMPLE DATA

Sampler Tag ID	Sampler Type	# Mussels Present	Comments
DC-1	Star	None	1. Lake elevation - 2460.2
			2. Outside air temperature-61°F
			3. Lake surface water temperature 76°F
			4. Water Temperature where device is 75°F
			5. Condition of star sampler, had a light
			coating of mud, clean up and put back in.
			6. Lake calm and partly cloudy.

Sampler Type: 1 = Biobox, 2 = Plate sampler, 3 = Star sampler, 4 = Other

WATER QUALITY DATA

Station Tag ID	Temp.	Diss. Oxygen	pH	Other

Send completed sheet interoffice:

Tom Teitt
TMI - NOB 1
Environmental Affairs
(Phone # 3-992-8177)

GPU ZEBRA MUSSEL PROGRAM
Field Collection

Facility Name: Deep Creek Dam Date: 08/02/95

Sampled by: Charles A. Rosenberry Time: 2 00 PM

SAMPLE DATA

Sampler Tag ID	Sampler Type	# Mussels Present	Comments
DC-1	Star	None	1. Lake elevation 2458.80
			2. Outside air temperature - 86°F
			3. Lake surface water temperature 80°F
			4. Water Temperature where device is 77°F
			5. Condition of star sampler had a light
			coating of mud. Clean up and put back in.
			6. Lake Calm and sunny.

Sampler Type: 1 = Biobox, 2 = Plate sampler, 3 = Star sampler, 4 = Other

WATER QUALITY DATA

Station Tag ID	Temp.	Diss. Oxygen	pH	Other

Send completed sheet interoffice:

Tom Teitt
TMI - NOB 1
Environmental Affairs
(Phone # 3-992-8177)

GPU ZEBRA MUSSEL PROGRAM
Field Collection

Facility Name: Deep Creek Dam

Date: 09/07/95

Sampled by: Charles A. Rosenberry

Time: 1 PM

SAMPLE DATA

Sampler Tag ID	Sampler Type	# Mussels Present	Comments
DC-1	Star	None	1. Lake elevation - 2457.6
			2. Outside air temperature - 80°F
			3. Lake Surface Water Temperature - 80°F
			4. Water temperature where device is - 76°F
			5. Condition of star sampler had a light
			coating of mud. Clean up and put back in.
			6. Lake calm and sunny

Sampler Type: 1 = Biobox, 2 = Plate sampler, 3 = Star sampler, 4 = Other

WATER QUALITY DATA

Station Tag ID	Temp.	Diss. Oxygen	pH	Other

Send completed sheet interoffice:

Tom Teitt
TMI - NOB 1
Environmental Affairs
(Phone # 3-992-8177)

GPU ZEBRA MUSSEL PROGRAM
Field Collection

Facility Name: Deep Creek Dam Date: 10/03/95

Sampled by: Charles A. Rosenberry Time: 10 AM

SAMPLE DATA

Sampler Tag ID	Sampler Type	# Mussels Present	Comments
DC-1	Star	None	1. Lake elev. - 2456.9
			2. Outside air temperature - 56°F
			3. Lake Surface Water Temperature - 68°F
			4. water Temperature where device is - 66°F
			5. Condition of star sampler - had a light
			coating of mud, clean up and reinstall.
			6. Lake calm and Sunny

Sampler Type: 1 = Biobox, 2 = Plate sampler, 3 = Star sampler, 4 = Other

WATER QUALITY DATA

Station Tag ID	Temp.	Diss. Oxygen	pH	Other

Send completed sheet interoffice:

Tom Teitt
TMI - NOB 1
Environmental Affairs
(Phone # 3-992-8177)

GPU ZEBRA MUSSEL PROGRAM
Field Collection

Facility Name: Deep Creek Dam Date: 11-02-95

Sampled by: Harland Bernard Time: 1 30 PM

SAMPLE DATA

Sampler Tag ID	Sampler Type	# Mussels Present	Comments
DC-1	Star	None	Lake Elev. 2456.50
			Outside Air Temp. 63°F
			Lake Surface Water Temp. 57°F
			Water Temp. where device located 57°F

Sampler Type: 1 = Biobox, 2 = Plate sampler, 3 = Star sampler, 4 = Other

WATER QUALITY DATA

Station Tag ID	Temp.	Diss. Oxygen	pH	Other

Send completed sheet interoffice:

Tom Teitt
TMI - NOB 1
Environmental Affairs
(Phone # 3-992-8177)