

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

ANNUAL REPORT PER  
PERMIT CONDITION NO. 23

JANUARY 1995

2995-0001

#15241

**PENNSYLVANIA ELECTRIC COMPANY  
DEEP CREEK HYDROELECTRIC STATION  
MDNR WATER APPROPRIATION PERMIT NO. GA92S009 (01)  
GARRETT COUNTY, MARYLAND**

**ANNUAL REPORT  
PER PERMIT CONDITION NO. 23**

**JANUARY 1995**

**BY**

**PENNSYLVANIA ELECTRIC COMPANY  
JOHNSTOWN, PA**

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

**TABLE OF CONTENTS**

<b>SECTION</b>	<b>PAGE</b>
<b>1.0 SUMMARY . . . . .</b>	<b>1-1</b>
<b>1.1 Lake Level . . . . .</b>	<b>1-1</b>
<b>1.2 Temperature Monitoring . . . . .</b>	<b>1-1</b>
<b>1.3 Minimum Flow Release Monitoring . . . . .</b>	<b>1-1</b>
<b>1.4 Dissolved Oxygen Monitoring . . . . .</b>	<b>1-2</b>
<b>1.5 Releases Unsuitable For Whitewater Recreation . . .</b>	<b>1-2</b>
<b>1.6 Zebra Mussel Monitoring . . . . .</b>	<b>1-2</b>

**APPENDICES**

- Appendix A - Lake Level Plots**
- Appendix B - Temperature Monitoring Data Sheets**
- Appendix C - Report on Releases Unsuitable For Whitewater Recreation**
- Appendix D - Zebra Mussel Monitoring Report**

## 1.0 SUMMARY

### 1.1 Lake Level

Permit Condition 15 requires the Pennsylvania Electric Company ("Permittee") to report on an annual basis the results of water-level monitoring at Deep Creek Lake. Appendix A contains daily water-level data and two (2) plots respectively depicting lake levels for January - June and July - December, 1994. The low lake levels in the September - November period were approved by the Maryland Department of Natural Resources ("Department") on July 15, 1994, to facilitate Penelec's maintenance of the primary spillway weir and construction of the tailrace weir and flow bypass system.

### 1.2 Temperature Monitoring

Permit Condition 16 calls for the Permittee to include in an annual report results of temperature monitoring. Appendix B contains temperature monitoring data sheets kept in accordance with an interim temperature enhancement plan; the Permittee currently awaits approval from the Department on the final plan. Using the interim plan, Permittee made temperature enhancement releases on six (6) days (i.e. June 14 - 16, 18, 21, and July 5-6). During 1994, the Department's Power Plant Research Program monitored/collected actual water temperatures at Sang Run and maintained the data on file.

### 1.3 Minimum Flow Release Monitoring

Permit Condition 17 stipulates that a "report of flow measurements and the occurrence of bypass releases shall be submitted to the Department in an annual report." Construction and testing of the flow bypass system was completed in December 1994. The system is ready for operation in 1995.

### 1.4 Dissolved Oxygen Monitoring

Permit Condition 18 stipulates that the "results of dissolved oxygen monitoring shall be submitted to the Department in an annual report." Construction and operational testing of the tailrace weir designed to increase dissolved oxygen levels in the station discharge was completed in December 1994. The weir is ready for operation and effectiveness testing in 1995, in accordance with the "Dissolved Oxygen Enhancement Operations and Monitoring Protocol" approved by the Department on January 6, 1995.

## **1.5 Releases Unsuitable For Whitewater Recreation**

Permit Condition 19 calls for Permittee to document in an annual report the "times and dates when generation releases not suitable for whitewater recreation occurred." Appendix C contains a report listing such times and dates. In short, Permittee met the Condition 19 requirement that generation be restricted to hours suitable for whitewater boating unless there are at least three (3) hours of two-unit generation during such hours throughout the 1994 whitewater boating season. In addition, the Permittee always gave 48 hours advance notice of normal (scheduled) releases. Appendix C also presents information about Permittee's compliance with the Condition 19 requirement mandating releases on Fridays, Mondays and designated Saturdays between 1000 hours and 1300 hours.

## **1.6 Zebra Mussel Monitoring**

Permit Condition 21 requires Permittee to submit in an annual report the results of its zebra mussel monitoring program. Appendix D contains a 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**  
**LAKE LEVEL DATA AND PLOTS**

## Deep Creek Lake Level (Jan - Jun) 1994

Month	Day	Lake Level	Rain Fall	Month	Day	Lake Level	Rain Fall	Month	Day	Lake Level	Rain Fall
Jan	1	2456.9	0.05	Mar	1	2456.6	0.15	May	1	2460.3	0.27
	2	2456.9	0.00		2	2456.5	0.70		2	2460.3	0.00
	3	2456.9	0.32		3	2456.7	0.13		3	2460.3	0.27
	4	2456.9	1.05		4	2456.6	0.05		4	2460.4	0.25
	5	2456.8	0.20		5	2456.3	0.02		5	2460.4	0.10
	6	2456.8	0.15		6	2456.2	0.00		6	2460.5	0.50
	7	2456.9	0.80		7	2456.1	0.53		7	2460.7	1.65
	8	2456.9	0.10		8	2456.1	0.22		8	2461.3	0.10
	9	2457.0	0.03		9	2456.3	1.15		9	2461.1	0.00
	10	2457.2	0.00		10	2456.5	0.50		10	2461.0	0.00
	11	2457.2	0.00		11	2456.8	0.00		11	2461.0	0.00
	12	2457.2	0.45		12	2456.8	0.00		12	2461.2	0.45
	13	2457.0	0.00		13	2456.9	0.10		13	2461.0	0.00
	14	2456.9	0.15		14	2457.0	0.03		14	2461.0	0.02
	15	2456.8	0.05		15	2457.2	0.23		15	2461.0	0.47
	16	2456.7	0.05		16	2457.4	0.10		16	2461.1	0.10
	17	2456.7	1.33		17	2457.5	0.00		17	2461.1	0.01
	18	2456.5	0.00		18	2457.6	0.57		18	2461.0	0.00
	19	2456.4	0.03		19	2457.6	0.00		19	2461.0	0.00
	20	2456.4	0.05		20	2457.6	0.00		20	2461.0	0.00
	21	2456.0	0.00		21	2457.6	0.83		21	2461.0	0.00
	22	2455.9	0.00		22	2458.0	0.07		22	2461.0	0.00
	23	2455.9	0.02		23	2458.3	0.00		23	2461.0	0.00
	24	2455.9	0.05		24	2458.6	0.50		24	2461.0	0.00
	25	2456.0	0.47		25	2459.0	0.00		25	2460.9	0.50
	26	2456.3	0.10		26	2459.2	0.03		26	2460.9	0.78
	27	2456.5	0.25		27	2459.4	1.32		27	2460.9	0.00
	28	2456.6	0.55		28	2459.7	0.35		28	2460.9	0.00
	29	2456.8	0.00		29	2459.9	0.48		29	2460.9	0.00
	30	2456.8	0.03		30	2459.9	0.00		30	2460.9	0.00
	31	2456.8	0.02		31	2459.9	0.00		31	2460.9	0.03
<b>Total</b>			<b>6.3</b>			<b>8.06</b>					<b>5.5</b>
Jan	1	2456.8	0.05	Apr	1	2459.9	0.00	Jun	1	2460.9	0.10
	2	2456.7	0.02		2	2459.9	0.00		2	2460.9	0.00
	3	2456.6	0.15		3	2459.9	0.10		3	2460.9	0.00
	4	2456.5	0.03		4	2460.0	0.00		4	2460.9	0.00
	5	2456.3	0.03		5	2459.9	0.00		5	2460.9	0.00
	6	2456.3	0.00		6	2459.9	0.37		6	2460.8	0.00
	7	2456.2	0.05		7	2459.8	0.23		7	2460.8	0.02
	8	2456.1	2.00		8	2459.8	0.00		8	2460.8	0.00
	9	2456.2	1.50		9	2459.8	0.00		9	2460.7	0.00
	10	2456.8	0.10		10	2459.8	1.83		10	2460.7	0.00
	11	2457.0	0.60		11	2460.2	0.30		11	2460.6	0.25
	12	2457.0	0.07		12	2460.2	0.03		12	2460.6	0.20
	13	2457.0	0.20		13	2460.2	0.85		13	2460.6	0.05
	14	2457.0	0.02		14	2460.3	0.00		14	2460.6	0.01
	15	2456.9	0.00		15	2460.4	0.60		15	2460.5	0.12
	16	2456.9	0.00		16	2460.3	0.13		16	2460.5	0.50
	17	2456.8	0.00		17	2460.2	0.00		17	2460.5	0.00
	18	2456.7	0.00		18	2460.2	0.00		18	2460.5	0.00
	19	2456.5	0.00		19	2460.3	0.00		19	2460.5	0.10
	20	2456.4	0.00		20	2460.3	0.00		20	2460.5	0.00
	21	2456.3	0.27		21	2460.2	0.00		21	2460.4	0.60
	22	2456.4	0.10		22	2460.2	0.00		22	2460.4	0.00
	23	2456.7	1.15		23	2460.2	0.00		23	2460.4	0.07
	24	2456.8	0.48		24	2460.2	0.00		24	2460.4	0.53
	25	2456.7	0.12		25	2460.2	0.00		25	2460.3	0.05
	26	2456.7	0.05		26	2460.2	0.00		26	2460.3	0.23
	27	2456.7	0.00		27	2460.2	0.02		27	2460.3	0.28
	28	2456.7	0.00		28	2460.2	0.00		28	2460.3	0.03
				29	2460.3	0.02	29	2460.3	0.92		
				30	2460.3	0.32	30	2460.3	0.02		
<b>Total</b>			<b>6.99</b>			<b>4.8</b>					<b>4.08</b>

NOTE: Lake level in feet; rainfall in inches.

## Deep Creek Lake Level (Jul - Dec) 1994

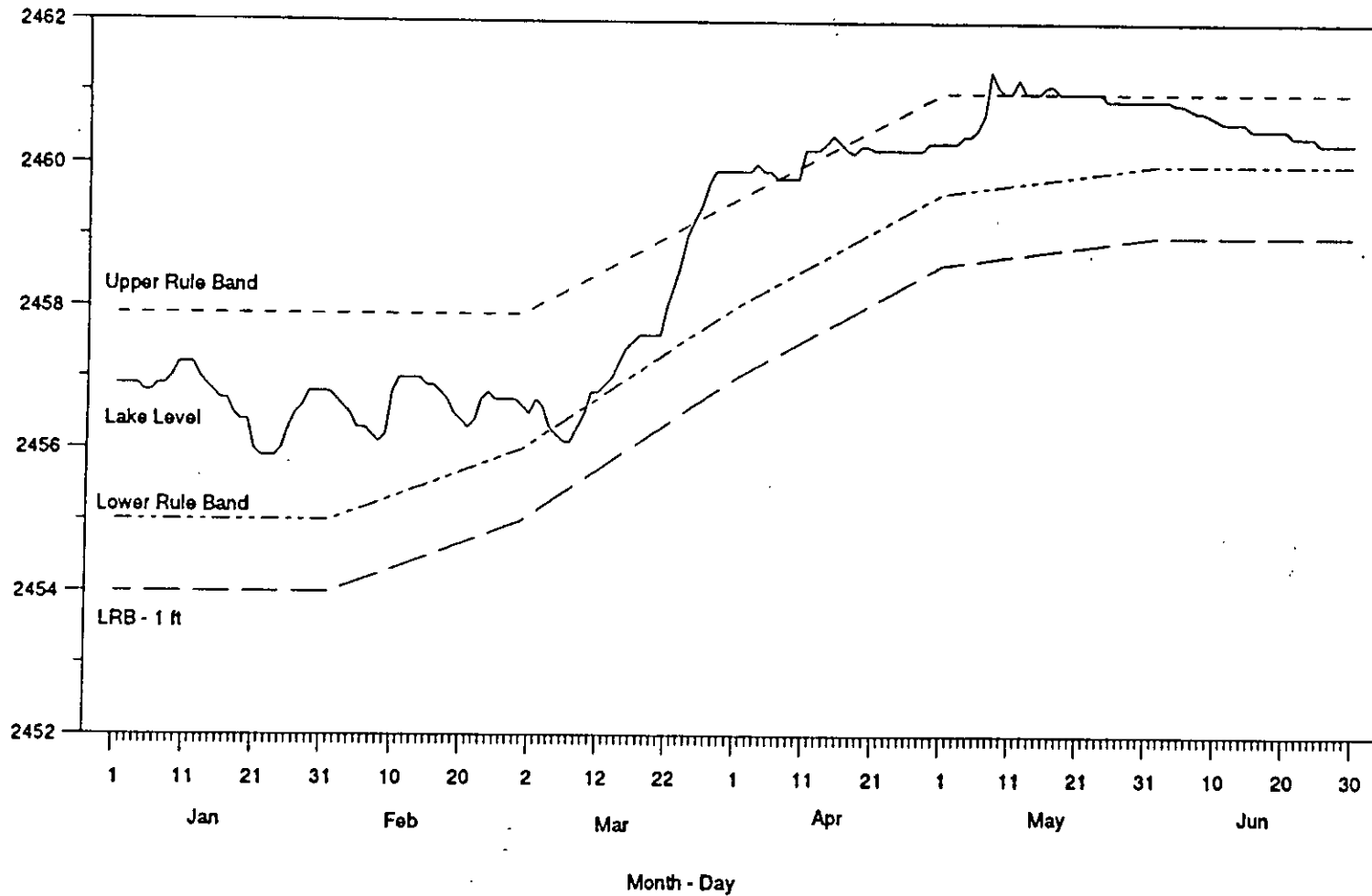
Month	Day	Lake Level	Rain Fall	Month	Day	Lake Level	Rain Fall	Month	Day	Lake Level	Rain Fal
Jul	1	2460.3	0.00	Sep	1	2457.9	0.07	Nov	1	2453.8	0.87
	2	2460.3	0.00		2	2457.9	0.00		2	2453.8	0.15
	3	2460.3	1.47		3	2457.8	0.18		3	2453.9	0.00
	4	2460.4	0.00		4	2457.8	0.00		4	2453.9	0.00
	5	2460.4	0.00		5	2457.7	0.00		5	2453.9	0.00
	6	2460.3	0.00		6	2457.7	0.00		6	2453.9	0.04
	7	2460.2	0.47		7	2457.6	0.00		7	2453.9	0.00
	8	2460.2	0.02		8	2457.4	0.00		8	2453.9	0.00
	9	2460.1	0.21		9	2457.2	0.00		9	2453.9	0.25
	10	2460.0	0.00		10	2457.0	0.32		10	2453.9	0.28
	11	2460.0	0.00		11	2456.9	0.00		11	2454.0	0.00
	12	2459.9	0.00		12	2456.7	0.00		12	2454.0	0.00
	13	2459.9	0.60		13	2456.6	0.00		13	2454.0	0.00
	14	2459.8	0.87		14	2456.4	0.00		14	2454.0	0.00
	15	2459.9	0.55		15	2456.3	0.00		15	2454.0	0.05
	16	2459.7	0.00		16	2456.1	0.00		16	2454.0	0.48
	17	2459.7	0.00		17	2455.9	0.35		17	2454.1	0.02
	18	2459.7	0.00		18	2455.7	0.00		18	2454.1	0.00
	19	2459.7	0.00		19	2455.6	0.00		19	2454.1	0.00
	20	2459.7	0.05		20	2455.5	0.00		20	2454.2	0.00
	21	2459.6	0.05		21	2455.3	0.00		21	2454.2	0.40
	22	2459.5	0.63		22	2455.1	0.01		22	2454.2	0.00
	23	2459.5	0.07		23	2454.9	0.00		23	2454.2	0.06
	24	2459.5	0.00		24	2454.7	0.00		24	2454.2	0.00
	25	2459.4	0.27		25	2454.5	0.30		25	2454.2	0.00
	26	2459.4	0.00		26	2454.4	0.20		26	2454.3	0.00
	27	2459.4	0.67		27	2454.2	0.00		27	2454.3	0.87
	28	2459.4	0.03		28	2454.0	0.15		28	2454.4	0.32
	29	2459.3	0.40		29	2453.9	0.00		29	2454.5	0.00
	30	2459.3	0.00		30	2453.9	0.02		30	2454.5	0.00
	31	2459.3	0.00								
			6.36				1.60				3.79
Aug	1	2459.3	0.00	Oct	1	2453.9	0.90	Dec	1	2454.6	0.00
	2	2459.3	0.35		2	2453.9	0.68		2	2454.6	0.00
	3	2459.3	0.00		3	2453.9	0.00		3	2454.6	0.00
	4	2459.2	0.55		4	2453.9	0.00		4	2454.7	0.60
	5	2459.2	0.80		5	2453.9	0.00		5	2454.8	0.68
	6	2459.2	0.00		6	2453.9	0.00		6	2455.0	0.05
	7	2459.2	0.00		7	2453.9	0.00		7	2455.1	0.20
	8	2459.2	0.00		8	2453.8	0.00		8	2455.1	0.00
	9	2459.2	0.00		9	2453.8	0.05		9	2455.2	0.53
	10	2459.1	0.00		10	2453.8	0.00		10	2455.4	0.75
	11	2459.0	0.00		11	2453.8	0.00		11	2455.7	0.20
	12	2458.9	0.00		12	2453.8	0.00		12	2455.9	0.00
	13	2458.8	0.00		13	2453.8	0.00		13	2456.0	0.00
	14	2458.8	0.75		14	2453.8	0.00		14	2456.1	0.02
	15	2458.8	0.00		15	2453.8	0.00		15	2456.2	0.05
	16	2458.8	0.05		16	2453.8	0.00		16	2456.2	0.23
	17	2458.7	1.77		17	2453.8	0.00		17	2456.2	0.25
	18	2459.0	0.00		18	2453.8	0.00		18	2456.3	0.28
	19	2458.9	0.02		19	2453.8	0.03		19	2456.4	0.07
	20	2458.8	0.22		20	2453.8	0.18		20	2456.5	0.00
	21	2458.8	0.40		21	2453.8	0.18		21	2456.5	0.00
	22	2458.9	0.50		22	2453.8	0.00		22	2456.6	0.00
	23	2458.8	0.00		23	2453.8	0.00		23	2456.7	0.00
	24	2458.8	0.00		24	2453.8	0.03		24	2456.7	0.15
	25	2458.7	0.08		25	2453.8	0.00		25	2456.8	0.00
	26	2458.5	0.05		26	2453.8	0.00		26	2456.8	0.00
	27	2458.3	0.20		27	2453.8	0.00		27	2456.8	0.00
	28	2458.2	0.00		28	2453.8	0.00		28	2456.8	0.00
	29	2458.1	0.27		29	2453.8	0.00		29	2456.8	0.00
	30	2457.9	0.00		30	2453.8	0.00		30	2456.8	0.00
	31	2457.9	0.55		31	2453.8	0.00		31	2456.8	0.47
			6.56				2.05				4.53
Total											
								Year Total			60.62

NOTE: Lake level in feet; rainfall in inches.



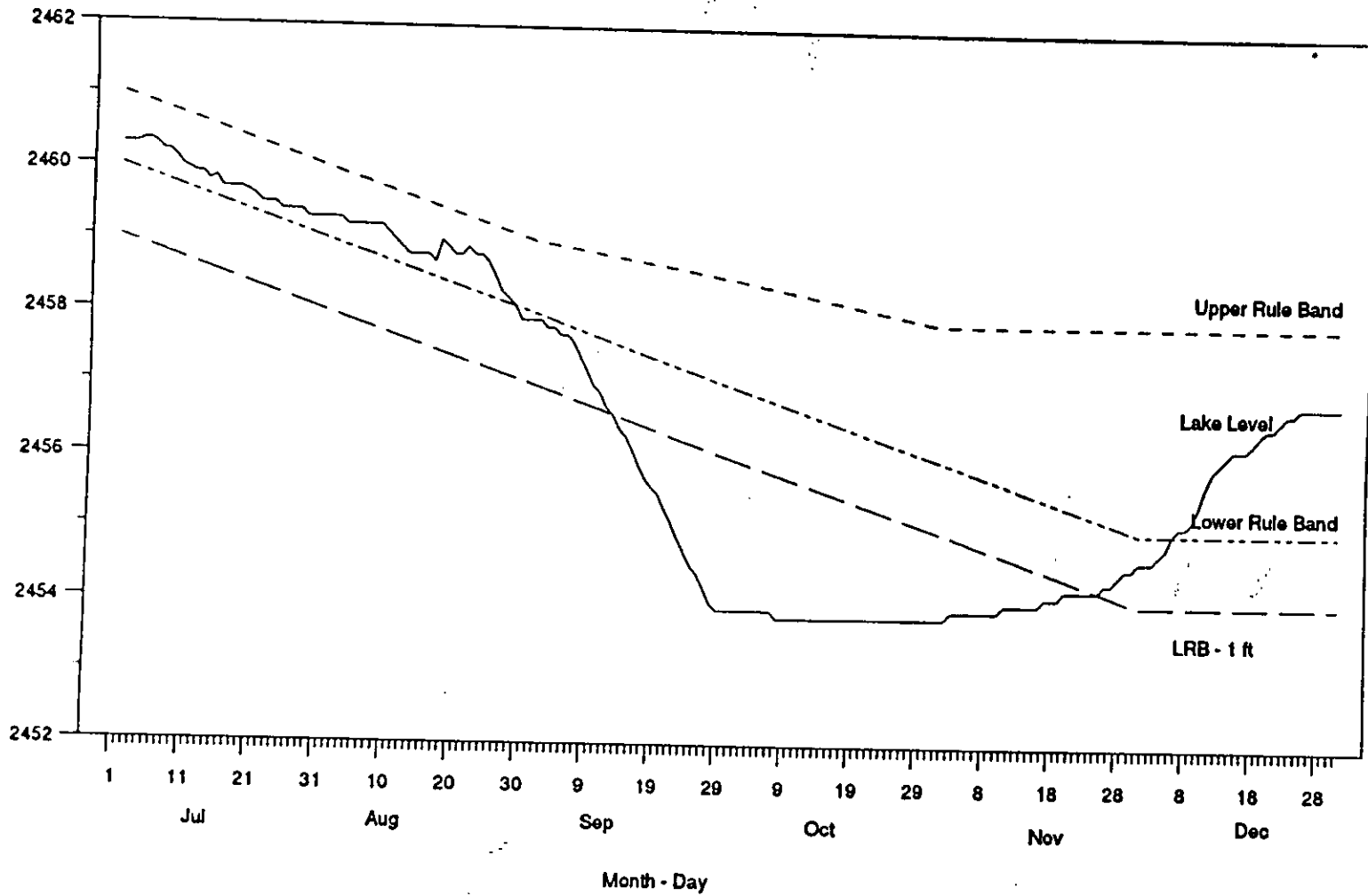
# Deep Creek Lake Level (Jan - Jun) 1994

Lake Level in feet



# Deep Creek Lake Level (Jul - Dec) 1994

Lake Level in feet



**APPENDIX B**  
**TEMPERATURE MONITORING DATA SHEETS**

RELEASED DEEP CREEK  
 NATIONAL WATER RESEARCH INSTITUTE  
 TEMPERATURES AND WATER RELEASES

FOR  
 YOUGHIOGHENY RIVER WATER  
 TEMPERATURE ENHANCEMENT PLAN

Date	Overnight Low Temp. °C	Projected Daytime High Temp. °C	Cloud Cover	Predicted River Temperature At Sang Run °C	Generation Times and Comments
6-01-94	9.44	23.89	80%	22.52	No Generation
6-02-94	5.56	17.78	Clear	24.49	Generated 10:00AM to 1:00PM
6-03-94	4.44	22.78	Clear	24.53	Generated 10:00AM to 1:00PM
6-06-94	10.00	28.89	Clear	27.56	Generated 10:00AM to 1:00PM
6-07-94	17.22	27.78	Clear	28.04	Ask to generate 10:00am to 12:00noon. They generated 10:00AM to 4:00PM.
6-08-94	16.67	23.89	80%	23.60	No Generation
6-09-94	5.56	21.67	Clear	24.46	Generated 10:00AM to 1:00PM
6-10-94	6.67	23.89	Clear	25.30	Generated 10:00AM to 1:00PM
6-13-94	11.67	27.78	Clear	27.21	Generated 10:00am to 1:00pm
6-14-94	15.56	30.00	Hazy	28.46	Rosenberry called and ask for a temp. release on 6-13-94, if river flow not 80cfs or above on 6-14-94. Generated 9:00AM to 9:20AM; 10:30AM to 12:30AM & 14:45 to 15:45PM.
6-15-94	16.11	32.22	Hazy	29.22	Rosenberry called Skip Rowlan for a Temp. Release. Generated 10:AM to 4:00PM.
6-16-94	14.44	32.22	Hazy	28.97	Rosenberry called Skip Rowlan for a temp. release. Generated 11:00AM to 1:00PM.
6-17-94	15.56	32.22	Hazy	29.13	Generated 10:00AM to 1:00PM
6-18-94	15.56	32.22	P.Cloud	27.43	Rosenberry ask John West to make a two hour temp. release on saturday, if we don't have 80cfs on the Oakland River gage-Generated 10:00am to 13:00 and 15:45 to 16:00.
6-19-94	15.56	32.22	P.Cloud	27.43	Rosenberry ask John west to make a two hour temp. release on Sunday, if they don't have 80cfs on the Oakland River gage. No Generation
6-20-94 = TMAX	=17.54 + .297 T.Air	= .377cc + .144 T.Min			New Formula
6-20-94	16.11	29.44	Clear	28.12	Generated 10:00AM to 1:00PM
6-21-94	17.78	30.56	Clear	28.65	Start using new formula today Rosenberry called at 7:30AM for a two hour temp. release generated 10:00AM to 12:00 N
6-22-94	16.67	27.78	P.Sunny	25.99	River flow at Oakland 115cfs No Temp. Release needed.
6-23-94	14.44	27.22	Clear	27.27	Generated 10:00AM to 12:00 N
6-24-94	16.67	27.22	P.Cloud	25.82	Generated 10:00AM to 1:00PM
6-25-94	17.78	24.44	M.Cloud	24.00	Saturday - Data based on Friday forecast from NWS Elkins W.Va.
					-Continued-



FENELEC DEEP CREEK  
 NATIONAL WATER RESOURCES CENTER  
 TEMPERATURES AND WATER RELEASES  
 FOR

TOUGHIOGHENT RIVER WATER  
 TEMPERATURE ENHANCEMENT PLAN

Date	Overnight Low Temp. °C	Projected Daytime High Temp. °C	Cloud Cover	Predicted River Temperature At Sang Run °C	Generation Times and Comments
July 1, 1994	13.89	26.67	P.Cloudy	25.34	108 Cfs at Oakland, Sch.Rel. 10:00 - 1300
July 2, 1994	13.89	29.44	P.Sunny	26.16	Sch. Rel. 1000 - 1300 and generated 1505 - 1520
July 3, 1994	15.56	26.67	P.Cloudy	25.33	Sch. Rel. based on Oakland gage at 700. Gen. 1030 - 1230
July 4, 1994	15.56	30.00	P.Cloudy	26.52	Gen. 1000 - 1300, Temp. Release Requested 1030 - 1230. Tom Fleming confirmed Sch. 1030 - 1230.
July 5, 1994	16.11	28.89	P.Cloudy	26.26	Called Bassage & Taylor & faxed Jan Phillips. Generated 1030 - 1230
July 6, 1994	17.78	32.22	P.Cloudy	27.44	Requested & Confirmed by Tom Fleming-Temp.Rel. 1030 - 1230, Called Bassage, Taylor, & fax to Jan Phillips.
July 7, 1994	18.89	30.56	P.Cloudy	27.07	Generated 1030 - 1630 Scheduled 1000 - 1300
July 8, 1994	17.78	31.11	P.Sunny	27.11	Called Bassage, Taylor, & fax Jan Phillips, Gen. 1000-1600
July 9, 1994	17.78	28.33	P.Cloudy	26.28	242 CFS at Oakland, Scheduled Generate 1000 - 1300
July 10, 1994	17.78	28.33	P.Cloudy	26.28	Gen. Already Sch. 1000 - 1300
July 11, 1994	13.89	26.67	M.Sunny	26.29	Gen. Already Sch. 1000 - 1300
July 12, 1994	11.67	26.67	M.Sunny	26.05	Scheduled 1000 - 1300
July 13, 1994	13.33	25.56	M.Cloudy	23.82	Scheduled 1000 - 1300
July 14, 1994	17.22	25.56	M.Cloudy	24.26	Sch. 1000 - 1300 & 1433 - 152 Sch. 1000 - 1300 & 2136 - 215
July 15, 1994	18.89	27.78	P.Cloudy	26.24	Oakland gage out, Rosenberry reported to Corp. of Engineer Sch. 1000 - 1300, Oakland gage back - 118 CFS
July 16, 1994	16.67	26.67	P.Sunny	25.66	Scheduled 1000 - 1300
July 17, 1994	15.56	26.67	M.Cloudy	24.40	Scheduled 1000 to 1300
July 18, 1994	17.78	27.78	P.Sunny	26.12	Sch. 1000 - 1300, Oakland Gage 54 CFS
July 19, 1994	16.11	27.28	P.Sunny	25.93	Sch 1000 - 1300, Oakland Gage 44 CFS - Gen. 1330 - 1630 & 1826 - 1835
July 20, 1994	16.11	29.44	P.Sunny	26.42	Sch. 1000 - 1300, Oakland Gage out, Rosenberry reported gage out to Corp. of Engineers.
July 21, 1994	18.33	27.78	Cloudy	24.30	Generated 1000 - 1600 Sch. 1000 - 1300, Oakland Gage 32 CFS, Gen. 1000 - 1530, 1605 - 1615, & 2015 - 2145

- Continued -



TEMPERATURES AND WATER RELEASES  
FOR  
YOUGHIOGHENY RIVER WATER  
TEMPERATURE ENHANCEMENT PLAN

Date	Overnight Low Temp. °C	Projected Daytime High Temp. °C	Cloud Cover	Predicted River Temperature At Sang Run °C	Generation Times and Comments
August 1, 1994	15.56	27.78	P.Cloudy	25.86	Scheduled 10:00 - 13:00 Lowest Friendsville Gage Reading 312 CFS
August 2, 1994	16.67	25.56	P.Cloudy	25.33	Scheduled 10:00 - 13:00 Lowest Friendsville Gage Reading 252 CFS
August 3, 1994	16.67	27.78	P.Cloudy	25.69	Scheduled 10:00 - 16:00 Lowest Friendsville Gage Reading 212 CFS
August 4, 1994	14.14	27.78	P. Cloudy	25.74	Scheduled 10:00 - 13:00 Lowest Friendsville Gage Reading 227 CFS
August 5, 1994	18.89	20.00	M.Cloudy	22.80	Generated 16:40 - 17:40 Scheduled 10:00 - 13:00 Lowest Friendsville Gage Reading 186 CFS at 9:00PM
August 6, 1994	7.22	22.22	M.Sunny	24.21	Scheduled 10:00 - 13:00
August 7, 1994	5.56	21.11	M.Sunny	23.69	Scheduled 10:00 - 13:00
August 8, 1994	12.22	26.67	P.Cloudy	25.15	Scheduled 10:00 - 13:00 Oakland Gage Still Out Friendsville Gage Lowest Reading 415 CFS Midnight Gen. 19:00 - 22:00
August 9, 1994	13.89	26.67	M.Sunny	26.29	Scheduled 10:00 - 13:00 and 15:00 - 18:00 ; Oakland Gage came back today. Oakland Gage Reading 172 CFS
August 10, 1994	18.89	25.56	P.Cloudy	25.58	Scheduled 10:00 - 13:00 Generated 15:00 - 18:00 Generated 22:00 - 22:15 Oakland Gage 136 CFS
August 11, 1994	13.33	25.56	M.Cloudy	23.82	Scheduled 10:00 - 13:00 and 15:00 - 18:00, Oakland Gage Reading 199 CFS
August 12, 1994	18.33	27.78	P.Cludy	26.18	Scheduled 10:00 - 13:00 and 15:00 - 18:00
August 13, 1994	16.67	29.44	P.Cloudy	26.48	Scheduled 10:00 - 13:00
August 14, 1994	20.00	26.67	P.Cloudy	26.04	Scheduled 10:00 - 13:00
August 15, 1994	13.89	23.89	P.Cloudy	24.52	Scheduled 10:00 - 13:00 Oakland River Gage Reading 301 CFS
August 16, 1994	10.56	23.89	M.Cloudy	23.01	Scheduled 10:00 - 13:00 Oakland River Gage Reading 132 CFS Generated 15:00 - 18:45



PENELEC DEEP CREEK  
 TEMPERATURES AND WATER RELEASES  
 FOR  
 YOUGHIOGHENY RIVER WATER  
 TEMPERATURE ENHANCEMENT PLAN

Date	Overnight Low Temp. °C	Projected Daytime High Temp. °C	Cloud Cover	Predicted River Temperature At Sang Run °C	Generation Times and Comments
August 17, 1994	16.67	21.11	Cloudy	22.13	Scheduled 10:00 - 13:00 and 15:00 - 18:00, Oakland River Gage 107 CFS
August 18, 1994	16.67	22.22	P. Sunny	25.34	Scheduled 10:00 - 13:00 Generated 07:15 - 08:15 09:15 - 10:00, Oakland River Gage 1454 CFS
August 19, 1994	12.78	27.78	M. Sunny	26.50	Scheduled 10:00 - 14:00 Oakland River Gage 842 CFS
August 20, 1994	14.44	27.78	P. Cloudy	25.74	Scheduled 10:00 - 14:00
August 21, 1994	16.67	27.78	M. Cloudy	24.86	Scheduled 10:00 - 14:00
August 22, 1994	15.00	20.56	M. Cloudy	22.53	Scheduled 15:00 - 22:00 Oakland River Gage 369 CFS
August 23, 1994	12.22	23.89	P. Cloudy	24.33	Scheduled 10:00 - 13:00 and 15:00 - 22:00, Oakland River Gage 765 CFS
August 24, 1994	10.56	26.67	M. Sunny	25.91	Scheduled 10:00 - 22:00 Oakland River Gage 452 CFS
August 25, 1994	13.33	26.67	P. Cloudy	25.28	Scheduled 10:00 - 24:00 Oakland River Gage 308 CFS
August 26, 1994	16.11	27.78	P. Cloudy	25.93	Scheduled 10:00 - 22:00 Oakland River Gage 257 CFS
August 27, 1994	15.56	26.67	P. Cloudy	25.53	Scheduled 10:00 - 22:00
August 28, 1994	15.56	29.44	P. Cloudy	26.35	Scheduled 10:00 - 22:00
August 29, 1994	21.11	23.89	Cloudy	24.47	Scheduled 10:00 - 22:00 Oakland River Gage 158 CFS
August 30, 1994	11.11	25.56	M. Sunny	25.65	Scheduled 10:00 - 13:00 Oakland River Gage 147 CFS
August 31, 1994	13.89	26.67	M. Cloudy	24.21	Scheduled 10:00 - 16:00 Oakland River Gage 116 CFS

**APPENDIX C**

**REPORT ON RELEASES UNSUITABLE FOR  
WHITEWATER RECREATION**

January 30, 1995

Report on Releases Unsuitable for Whitewater Recreation - 1994

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."

In accordance with Condition 19, Pennsylvania Electric Company ("Penelec") has prepared this report documenting the times and dates when generation releases were not suitable for whitewater recreation (i.e. boating).

Condition 19 defines the whitewater boating season as the period from April 15 through October 15. However, in 1994, in accordance with the plan approved by the Maryland Department of Natural Resources ("Department") the lake was lowered after September 5 (Labor Day) and the powerhouse shut down on October 3 to accommodate repair of the primary weir spillway concrete and construction of the tailrace weir and the flow bypass. The whitewater season in 1994 thus effectively extended from April 15 through October 2.

Also documented herein, although not specifically required by Condition 19, is the extent to which Penelec met the requirement to provide whitewater releases on Fridays, Mondays and Designated Saturdays during the whitewater boating season.

Release Hours Suitable for Whitewater Boating

The hours when releases are deemed suitable for whitewater boating are 0800-1600 hours during May, June, July and August (0800-1500 hours during April, September and October due to earlier darkness).

Lake Levels

The lake level was between the Upper and Lower Rule Bands for the following two (2) periods during the 1994 whitewater boating season: (1) April 15 through May 6; and (2) May 23 through September 13. Between May 6 and May 23, the lake level was above the Upper Rule Band. Generation was above normal in order to control the lake level, in accordance with the Operating Rules. After September 13, the lake level was below the Lower Rule Band, but generation suitable for whitewater boating was continued in order to lower the lake level to El. 2454.0 ft. by October 3, in accordance with the plan approved by the Department.

Times and Dates of Releases Unsuitable for Whitewater Boating

On all but seven (7) days during the whitewater boating season when the lake level was between the Upper and Lower Rule Bands and when releases occurred outside the hours suitable for whitewater boating, there were at least three (3) hours of two-unit generation during the hours suitable for whitewater boating. Table I shows the seven (7) dates.

TABLE I

<u>Day of Week</u>	<u>Date</u>	<u>Reason</u>
Tue.	April 19	One unit only operated per rafters' request due to high river flow (0900 - 2100 hours)
Wed.	April 20	One unit only operated per rafters' request due to high river flow

TABLE I (continued)

<u>Day of Week</u>	<u>Date</u>	<u>Reason</u>
Wed.	April 27	Emergency generation
Tue.	May 24	Unscheduled generation
Sun.	June 5	Emergency generation
Wed.	June 8	Emergency generation
Tue.	June 14	Emergency generation (0904 - 0925 and 1545 - 1645 hours); river water temperature (1030 - 1230 hours)

Table II shows all the times and dates during the whitewater boating season when the lake level was between the Upper and Lower Rule Bands and when releases occurred outside the hours suitable for whitewater boating. These releases were two-unit releases unless noted otherwise.

TABLE II

<u>Day of Week</u>	<u>Date</u>	<u>Hours</u>
Fri.	April 15	1300 - 2400
Sat.	April 16	0000 - 2400
Sun.	April 17	0000 - 2400
Mon.	April 18	0000 - 0800
Tue.	April 19	0900 - 2022 (one unit) 2022 - 2033 (two units) 2033 - 2100 (one unit)
Wed.	April 20	0900 - 2100 (one unit)
Wed.	April 27	1712 - 1724 2035 - 2050
Tue.	May 24	1338 - 1932

Report on Releases Unsuitable  
For Whitewater Recreation

TABLE II (continued)

<u>Day of Week</u>	<u>Date</u>	<u>Hours</u>
Wed.	May 25	0935 - 1820
Sun.	June 5	1625 - 1655
Wed.	June 8	1039 - 1050 1940 - 1950
Tue.	June 14	0904 - 0925 1030 - 1230 1545 - 1645
Fri.	June 24	0619 - 0636 1000 - 1600
Wed.	July 6	1030 - 1630
Thu.	July 14	1000 - 1300 2136 - 2150
Mon.	July 18	0701 - 0715 1000 - 1300
Tue.	July 19	1000 - 1300 1330 - 1630 1825 - 1834
Thu.	July 21	1000 - 1530 1605 - 1615 2045 - 2115
Fri.	July 22	0005 - 0015 1000 - 1300
Sun.	July 24	1000 - 1300 1735 - 1940
Fri.	July 29	1000 - 1300 1900 - 2200
Sat.	July 30	1015 - 1315 1730 - 2030
Sun.	July 31	1000 - 1300 1900 - 2200

Report on Releases Unsuitable  
For Whitewater Recreation

TABLE II (continued)

<u>Day of Week</u>	<u>Date</u>	<u>Hours</u>
Mon.	August 1	1000 - 1300 2100 - 2115
Thu.	August 4	1000 - 1300 1640 - 1740
Mon.	August 8	1000 - 1300 1900 - 2200
Tue.	August 9	1000 - 1300 1500 - 1800
Wed.	August 10	1000 - 1300 1500 - 1800 2200 - 2215
Thu.	August 11	1000 - 1300 1500 - 1800
Fri.	August 12	1000 - 1300 1500 - 1800
Sat.	August 13	0922 - 1600 2035 - 2042
Mon.	August 15	1000 - 1300 1545 - 1800
Tue.	August 16	1000 - 1300 1500 - 1845
Wed.	August 17	1000 - 1300 1500 - 1800
Thu.	August 18	0715 - 0815 0915 - 2000
Fri.	August 19	1000 - 2000
Mon.	August 22	1500 - 2400
Tue.	August 23	0000 - 0050 1000 - 1300 1500 - 2200

TABLE II (continued)

<u>Day of Week</u>	<u>Date</u>	<u>Hours</u>
Wed.	August 24	1000 - 2200
Thu.	August 25	1000 - 2359
Fri.	August 26	1000 - 2200
Sat.	August 27	1000 - 2200
Sun.	August 28	1000 - 2200
Mon.	August 29	1000 - 2200
Tue.	September 6	1000 - 2200
Wed.	September 7	1000 - 2200
Thu.	September 8	1000 - 2200
Fri.	September 9	1000 - 2200
Sat.	September 10	1000 - 2200
Sun.	September 11	1000 - 2200
Mon.	September 12	1000 - 2200
Tue.	September 13	1000 - 2200

Conclusion

Penelec believes that it has met the requirement that generation be restricted to hours suitable for whitewater boating unless there are at least three hours of two-unit generation during such hours, throughout the 1994 whitewater boating season (April 15 - October 2).

Releases for Whitewater Boating on Fridays, Mondays and Designated Saturdays

The attached letter dated March 24, 1994, from the Department identified the following seven (7) Saturdays as "Designated Saturdays" for 1994: (1) May 7; (2) May 28; (3) June 4; (4) July 2; (5) August 6; (6) September 3; and (7) October 1. In general, Penelec operated two units between 1000 - 1300 hours on each Friday, Monday and Designated Saturday during the 1994 whitewater boating season (April 15 - October 2). Table III shows the three (3) dates that were exceptions to this rule.

TABLE III

<u>Day of Week</u>	<u>Date</u>	<u>Reason</u>
Mon.	April 18	Generation was discontinued at 0800 hours due to high river flow
Sat.	May 7	Only one unit was operated 1000 - 1300 hours per rafters' request due to high river flow
Mon.	August 22	Start of generation was delayed to 1500 hours due to high river flow

Therefore, Penelec believes that it has met the requirement to provide whitewater releases on Fridays, Mondays and Designated Saturdays throughout the 1994 whitewater boating season.





*SPZ/WD/SEC*

*XC: CMP/CLS*

William Donald Schaefer  
Governor

Maryland Department of Natural Resources  
State Forest and Park Service  
Deep Creek Lake Natural Resources Management Area

Torrey C. Brown, M.D.  
Secretary

Rt. 2, Box 69C  
Swanton, Maryland 21561  
301-387-4111

March 24, 1994

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

Dear Bob:

Just a follow-up on our telephone conversation of March 21, 1994. The outfitters have requested that the release tentatively scheduled for the last Saturday in April be moved to the first Saturday in May. This has been requested because traditionally the first Saturday of May was a release day so many outfitters have "booked" trips for this particular Saturday earlier in the year. It is my understanding that a representative from the Outfitters Association has contacted Jan Philips. Apparently Mr. Philips said he was agreeable but wanted the request to come through the Youghiogheny River Management Area Office. If this request is acceptable by Penelec then the following should be the Saturday release schedule for 1994:

- 1st Saturday in May - May 7, 1994
- Last Saturday in May - May 28, 1994
- 1st Saturday in June - June 4, 1994
- 1st Saturday in July - July 2, 1994
- 1st Saturday in August - August 6, 1994
- 1st Saturday in September - September 3, 1994
- 1st Saturday in October - October 1, 1994

Sincerely,

*Karl E. Christensen*

Karl E. Christensen

KEC/slf  
cc: Dave Bassage  
Upper Yough Whitewater Outfitters



**APPENDIX D**

**ZEBRA MUSSEL MONITORING REPORT**

January 25, 1995

Deep Creek Hydroelectric Station  
Report on Zebra Mussel Monitoring - 1994

This report on the results of GPU's zebra mussel monitoring program at the Deep Creek Hydroelectric Station in 1994 is provided in accordance with Permit Condition 21.

GPU Nuclear Environmental & Chemistry Support 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/attachment of zebra mussels. Water temperatures are recorded monthly for the substrate location as well as at 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 1994.

Copies of the Zebra Mussel "Field Collection Sheets" have been sent to John Christmas of the MDNR. These reports, and the reports generated by MDNR's own monitoring program, have yet to detect zebra mussel presence at Deep Creek Lake. Discovery of zebra mussels in the Allegheny River near Kittanning, PA suggests that they may soon become a problem in the fresh waters of Western Pennsylvania and Maryland.

Projected activities for 1995 include monthly zebra mussel veliger sampling via plankton net/microscopic identification from June through September at Deep Creek Lake. The substrate will continue to be monitored monthly by Station personnel. Water samples will be sampled for calcium as an indicator of zebra mussel colonization potential.

Attachment

GPU ZEBRA MUSSEL PROGRAM  
Field Collection Sheet

RECEIVED

JUN 7 1994

CHEMISTRY / MATERIALS  
GPU NUCLEAR

Facility Name: Deep Creek Dam  
Collector: H.R. Bernard  
Phone No.: 301-387-6616

Date: June 3, 1994  
Time: 11:30 AM

SAMPLE DATA

Station Code	Sampler Type	# Mussels Present	Comments
DC-1	Star	None	Outside Air Temp. 70°F Lake Elev. 2460.9 Lake Surface Water Temp. 64°F Weather Clear Lake Calm

( Sampler Types: 1=Biobox, 2=Plate sampler, 3=Star sampler, 4=Pump sampler, 5=Other )

WATER QUALITY DATA

Station	Temp.	D.O.	pH	Other
1 Tailrace	Temp. - Generating		60°F	
2	Water Temp. where Device is located		63°F	

ROUTING MEMO

		DATE
		06/03/94
TO	LOCATION	TIME
Dave Reed	Reading	
		APPROVE
		RETURN
		PASS ON
		COMMENT
		SEE ME
		FOLLOW THROUGH
		PREPARE REPLY
		AS YOU REQUESTED
		INFORMATION ONLY
		FILE
		CALL NO
FROM	Charlie Rosenberry Deep Creek Station	

Sample:  
I:  
P)  
REMARKS  
Re

I contacted the Maryland DNR to see if it would be possible for us to do our Zebra Mussel Inspections at the same time. It will not, due to the DNR will only be doing periodic inspections with no set time frame. Unless they detect the presence of Zebra Mussels they will only submit one report the end of the year.

**GPU ZEBRA MUSSEL PROGRAM  
Field Collection Sheet**

**RECEIVED**

JUL 15 1994  
CHEMISTRY / MATERIALS  
GPU NUCLEAR

Facility Name: Deep Creek Dam  
Collector: Charles A. Rosenberry  
Phone No.: 301-387-6616

Date: 07/11/94  
Time: 12:40 (noon)

**SAMPLE DATA**

Station Code	Sampler Type	# Mussels Present	Comments
DC-1	Star	None	1. Lake Elev. 2459.90 2. outside air temp 72°F 3. Lake Calm 4. Lake surface water temp 78°F 5. Partly Cloudy 6. Condition of Star Sampler - had a light coating of mud.

( Sampler Types: 1=Biobox, 2=Plate sampler, 3=Star sampler, 4=Pump sampler, 5=Other )

**WATER QUALITY DATA**

Station	Temp.	D.O.	pH	Other
1.	Water Temperature where device is located			75°F
2.	Tailrace water temperature after generating for 2 hours and 40 minutes			60°F

Samples Saved ? Yes No  
If Yes, Time/Date Sent \_\_\_\_\_  
Preserved ? Yes No Method ? \_\_\_\_\_

Received By: \_\_\_\_\_  
Date/Time: \_\_\_\_\_

GPU ZEBRA MUSSEL PROGRAM  
Field Collection Sheet

RECEIVED  
AUG 5 1994  
CHEMISTRY/MATERIALS  
GPU NUCLEAR

Facility Name: Deep Creek Dam  
Collector: Charles A. Rosenberg  
Phone No.: 301-387-6616

Date: 08/02/94  
Time: 11:22 AM

SAMPLE DATA

Station Code	Sampler Type	# Mussels Present	Comments
DC-1	Star	NONE	1. Lake Elev. 2459.3 2. Outside air temp. 78°F 3. Lake Calm 4. Lake Surface Water Temp. 79°F 5. Cloudy 6. Condition of Star Sampler had a light coating of mud

( Sampler Types: 1=Biobox, 2=Plate sampler, 3=Star sampler, 4=Pump sampler, 5=Other )

WATER QUALITY DATA

Station	Temp.	D.O.	pH	Other
1.	Water Temperature where the device is located			77°F
2.	Tailrace water temperature after gempting for 1 1/2 hours			62°F

Samples Saved ?  Yes  No  
If Yes, Time/Date Sent \_\_\_\_\_  
Preserved ?  Yes  No Method ? \_\_\_\_\_

Received By: \_\_\_\_\_  
Date/Time: \_\_\_\_\_

SPITD/DISE

GPU ZEBRA MUSSEL PROGRAM  
Field Collection Sheet

Facility Name: Deep Creek Dam  
Collector: Charles A. Rosenberry  
Phone No.: 301-387-6644

Date: 09/02/94  
Time: 1:00 PM

SAMPLE DATA

Station Code	Sampler Type	Mussels Present	Comments
D-1	Star	None	1. Lake Elev. 2497.85 2. Outside air temperature 66°F 3. Lake Calm 4. Lake surface water temp. 70°F 5. Partly Cloudy 6. Condition of Star Sampler had a light coating of mud.

( Sampler Types: 1=Biobox, 2=Plate sampler, 3=Star sampler, 4=Pump sampler, 5=Other )

WATER QUALITY DATA

Station	Temp.	D.O.	pH	Other
1.	Water temperature where the device is located.			77°F
2.	Tailrace water temperature after generating for two hours			63°F

Samples Saved ? Yes No  
If Yes, Time/Date Sent \_\_\_\_\_  
Preserved ? Yes No Method ? \_\_\_\_\_

Received By: \_\_\_\_\_  
Date/Time: \_\_\_\_\_

RECEIVED

GPU ZEBRA MUSSEL PROGRAM  
Field Collection Sheet

RECEIVED

OCT 6 1994

CHEMISTRY/MATERIALS  
GPU NUCLEAR

Facility Name: Deep Creek Dam  
Collector: Charles A. Rosenberry  
Phone No.: 301-387-6616

Date: 10/01/94  
Time: 9<sup>00</sup>AM

SAMPLE DATA

Station Code	Sampler Type	# Mussels Present	Comments
<u>DC1</u>	<u>Star</u>	<u>None</u>	<u>1. Lake Elevation 8453.8</u> <u>2. Outside air temperature 59°F</u> <u>3. Lake Calm</u> <u>4. Lake Surface Water Temp. 64°F</u> <u>5. Partly Cloudy</u> <u>6. Condition of Star Sampler had a light coating of mud.</u>

( Sampler Types: 1=Biobox, 2=Plate sampler, 3=Star sampler, 4=Pump sampler, 5=Other )

WATER QUALITY DATA

Station	Temp.	D.O.	pH	Other
<u>1. Water temperature where device is located</u>	<u>64°F</u>			
<u>2. Tailrace water temperature</u>	<u>62°F, not generating.</u>			

Samples Saved ? Yes No  
If Yes, Time/Date Sent \_\_\_\_\_  
Preserved ? Yes No Method ? \_\_\_\_\_

Received By: \_\_\_\_\_  
Date/Time: \_\_\_\_\_



**GPU ZEBRA MUSSEL PROGRAM  
Field Collection Sheet**

Facility Name: Deep Creek Dam  
 Collector: Charles A. Raschberry  
 Phone No.: 301-387-6616

Date: 11/01/94  
 Time: 9:30 AM

**SAMPLE DATA**

Station Code	Sampler Type	# Mussels Present	Comments
<u>DC-1</u>	<u>Star</u>	<u>None</u>	<ul style="list-style-type: none"> <li>- 1. Lake Elev. <u>2453.80</u></li> <li>- 2. Outside Air Temp. <u>52°F</u></li> <li>- 3. <u>Light</u> Wind</li> <li>- 4. Lake Surface Water Temp. <u>60°F</u></li> <li>- 5. <u>Cloudy - light rain</u></li> <li>- 6. Condition of Star Sampler had a light coating of mud on it.</li> </ul>

( Sampler Types: 1=Biobox, 2=Plate sampler, 3=Star sampler, 4=Pump sampler, 5=Other )

**WATER QUALITY DATA**

Station	Temp.	D.O.	pH	Other
1.	Water Temperature where device is located			<u>58°F</u>
2.	Tailrace drained and station shutdown for tailrace weir construction			
3.	Sampler type Star removed today for winter.			

Samples Saved ? Yes No  
 If Yes, Time/Date Sent \_\_\_\_\_  
 Preserved ? Yes No Method ? \_\_\_\_\_  
 Received By: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_