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

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

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

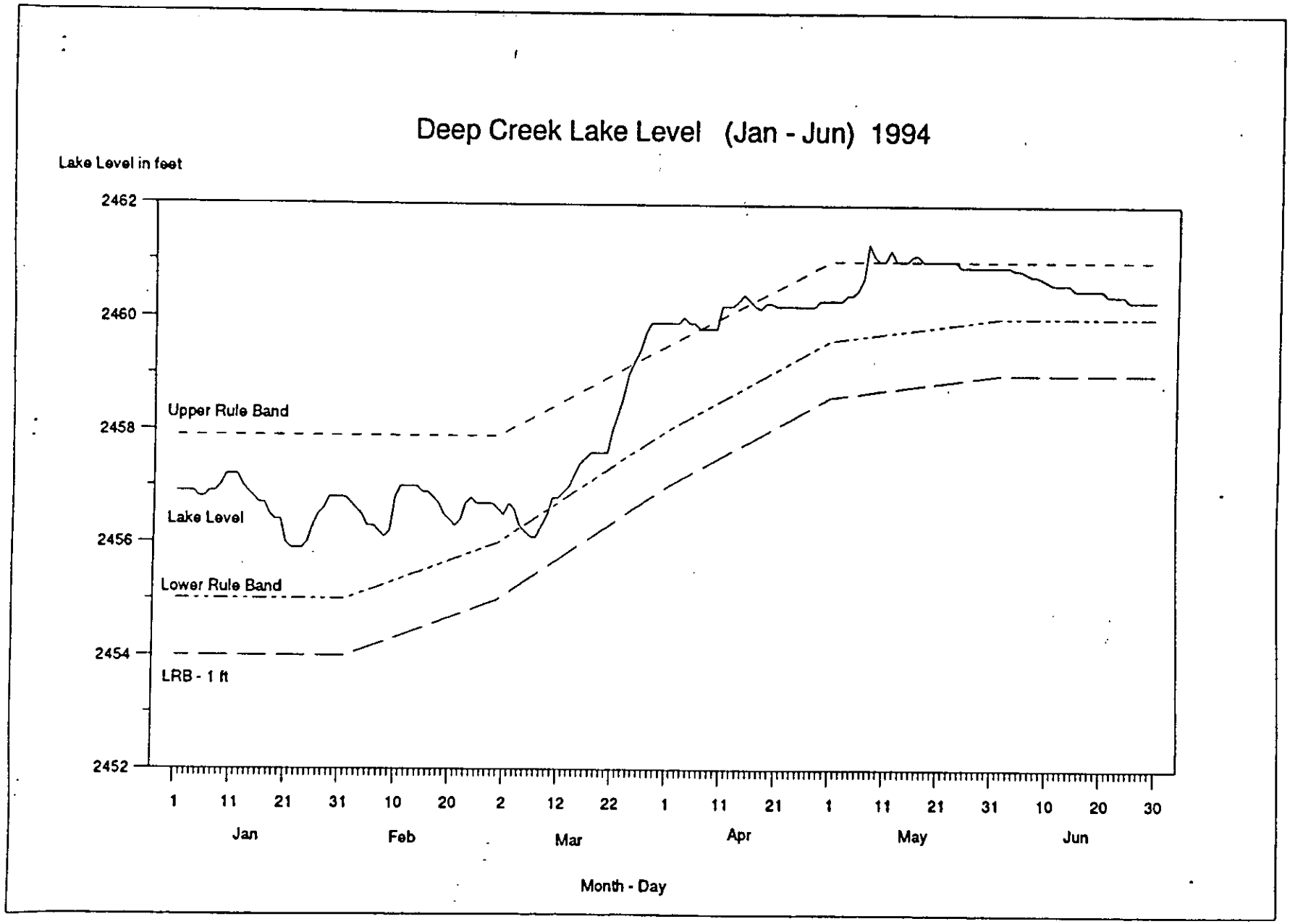
Month	Day	Lake Level	Rain Fall	Month	Day	Lake Level	Rain Fall	Month	Day	Lake Level	Rain Fal
Jan	1	2456.9	0.05	Mar	1	2456.6	0.15	May	1	2460.3	0.27
	2	2456.9	0.00		2	2456.5	0.70		2	2460.3	0.00
	3	2456.9	0.32		3	2456.7	0.13		3	2460.3	0.27
	4	2456.9	1.05		4	2456.6	0.05		4	2460.4	0.25
	5	2456.8	0.20		5	2456.3	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
Total			6.3				8.06				5.5
	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
Total			6.99				4.8				4.08

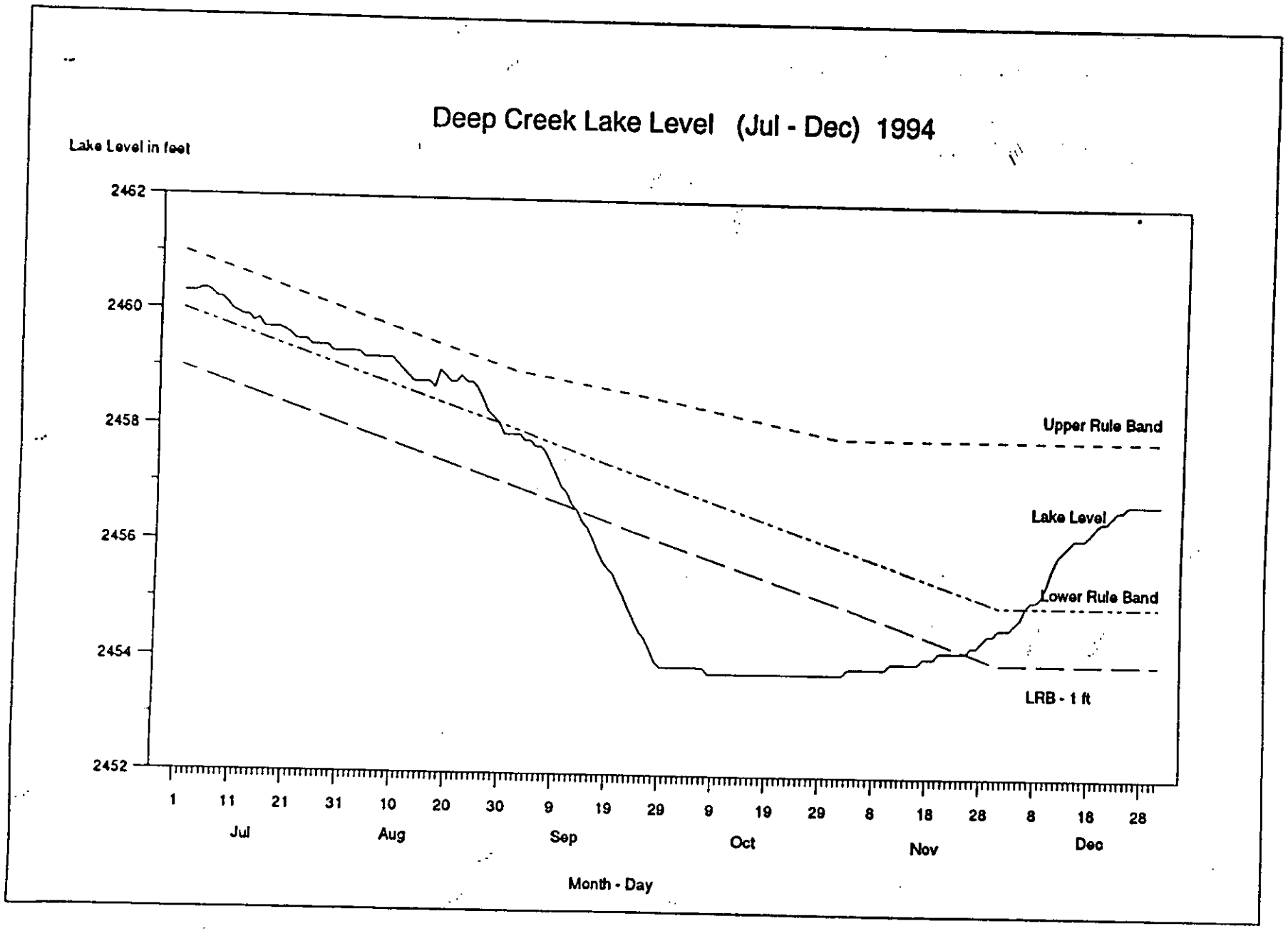
NOTE: Lake level in feet; rainfall in inches.

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								
Total			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
Total			6.56				2.05				4.53
										Year Total	60.62

NOTE: Lake level in feet; rainfall in inches.


Deep Creek Lake Level (Jan - Jun) 1994
Lake Level in feet
2462
2460
2458
2456
2454
2452
Upper Rule Band
Lake Level
Lower Rule Band
LRB - 1 ft
1 11 21 31 10 20 2 12 22 1 11 21 1 11 21 31 10 20 30
Jan
Feb
Mar
Apr
May
Jun
Month - Day


Deep Creek Lake Level (Jul - Dec) 1994
Lake Level in feet
2462
2460
2458
2456
2454
2452
Upper Rule Band
Lake Level
Lower Rule Band
LRB - 1 ft
1
11
21
31
10
20
30
9
19
29
9
19
29
8
18
28
8
18
28
Jul
Aug
Sep
Oct
Nov
Dec
Month - Day

APPENDIX B

TEMPERATURE MONITORING DATA SHEETS

[illegible]

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 Comme
6-01-94	9.44	23.89	80%	22.52	No Generation
6-02-94	5.56	17.78	Clear	24.49	Generation 10:00AM to 1:00P
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 fo a temp. release on 6-13-94, i river flow not 80cfs or abov on 6-14-94. Generated 9:00Am to 9:20AM; 10:30AM to 12:30 & 14:45 to 15:45PM.
6-15-94	16.11	32.22	Hazy	29.22	Rosenberrycalled Skip Rowlan for a Temp. Release. Generat 10:AM to 4:00PM.
6-16-94	14.44	32.22	Hazy	28.97	Rosenberry called Skip Rowla for a temp. release. Generat 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. releas on saturday, if we don't have 80cfs on the Oakland River gage-Generated 10:00Am to 13:00 and 15:46 to 16:00.
6-19-94	15.56	32.22	P.Cloud	27.43	Rosenberry ask John West to make a two hour temp. releas on Sunday, if they don't have 80cfs on the OaklandRiver 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 toda Rosenberry called at 7:30AM for a two hour temp. release
6-22-94	16.67	27.78	P.Sunny	25.99	generated 10:00Am to 12:00 N River flow at Oakland 115cfs
6-23-94	14.44	27.22	Clear	27.27	No Temp. Release needed.
6-24-94	16.67	27.22	P.Cloud	25.82	Generated 10:00Am to 12:00 N
6-25-94	17.78	24.44	M.Cloud	24.00	Generated 10:00AM to 1:00PM Saturday - Data based on Friday forcast from NWS Elkins W.Va.

-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 Comme:
6-26-94	12.78	23.89	P.Cloud	24.40	Forcast - Data based on
					Friday forcast from NWS
					Elkins, W. Va. - Sunday
6-27-94	14.14	22.22	Cloudy	21.74	Will generate 10:00Am to
6-27-94 Note:	New Formula:	T.Max=17.54	+.297 -	.377Xcc +.114 T.Min	1:00PM for rafters.
6-28-94	Return to	previous fo	rmula -	New formula question	able.
	Use Formula	T.Max= 17.5	4 +.297	-.377 X cc +.114	
6-28-94	14.44	26.67	P.Cloud	25.41	Oakland river gage 129cfs
					No release needed
6-29-94	16.67	26.67	Cloudy	23.78	No release needed
6-30-94	15.56	25.56	P.Cloud	25.20	Oakland river gage 121cfs
					No release needed

TOTAL P.02

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 Comme
July 1, 1994	13.89	26.67	P.Cloudy	25.34	108 Cfs at Oakland, Sch.Rel.
July 2, 1994	13.89	29.44	P.Sunny	26.16	10:00 - 1300
July 3, 1994	15.56	26.67	P.Cloudy	25.33	Sch. Rel. 1000 - 1300 and generated 1505 - 1520
July 4, 1994	15.56	30.00	P.Cloudy	26.52	Sch. Rel. based on Oakland gage at 700. Gen. 1030 - 123
July 5, 1994	16.11	28.89	P.Cloudy	26.26	Gen. 1000 - 1300, Temp. Release Requested 1030 - 1230.Tom Fleming confirmed Sch. 1090 - 1230, Called Bassage & Taylor & faxed Jan Phillips.
July 6, 1994	17.78	32.22	P.Cloudy	27.44	Generated 1030 - 1230 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, Schedule Generate 1000 - 1300
July 10, 1994	17.78	28.33	P.Cloudy	26.28	Gen. Already Sch. 1000 - 130
July 11, 1994	13.89	26.67	M.Sunny	26.29	Gen. Already Sch. 1000 - 130
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 - 21
July 15, 1994	18.89	27.78	P.Cloudy	26.24	Oakland gage out, Rosenberry reported to Corp. of Engineer Sch. 1000 - 1300, Oakland gag
July 16, 1994	16.67	26.67	P.Sunny	25.66	back - 118 CFS
July 17, 1994	15.56	26.67	M.Cloudy	24.40	Scheduled 1000 - 1300
July 18, 1994	17.78	27.78	P.Sunny	26.12	Scheduled 1000 to 1300
July 19, 1994	16.11	27.28	P.Sunny	25.93	Sch. 1000 - 1300,Oakland Gage 54 CFS
July 20, 1994	16.11	29.44	P.Sunny	26.42	Sch 1000 - 1300, Oakland Gage 44 CFS -Gen. 1330 - 1630 & 1826 - 1835
July 21, 1994	18.33	27.78	Cloudy	24.30	Sch. 1000 - 1300, Oakland Gag out,Rosenberry reported gage out to Corp. of Engineers, Generated 1000 - 1600 Sch. 1000 - 1300,Oakland Gage 32 CFS, Gen. 1000 - 1530, 1605 - 1615, & 2045 - 2145

- Continued -

SUMMARY OF DEEP CREEK STATION 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 Comm
July 22, 1994	16.67	27.78	M.Cloudy	24.86	Sch. 1000 - 1300, Oakland Gage out, Rosenberry report to Corp. of Engineers
July 23, 1994	16.67	27.78	P.Cloudy	25.99	Oakland Gage no longer available.
July 24, 1994	15.56	29.44	P. Cloudy	26.24	Sch. 1000 - 1300 Generated Sch. 1000 - 1300 & 1735 - 1940
July 25, 1994	17.22	27.78	P.Sunny	26.05	Sch. 1000 - 1300
July 26, 1994	15.56	25.00	M.Cloudy	23.91	Sch. 1000 - 1300
July 27, 1994	14.44	23.89	P.Cloudy	24.59	Sch. 1000 - 1300
July 28, 1994	15.00	25.00	M.Cloudy	23.85	Sch. 1000 - 1300
July 29, 1994	15.56	23.33	P.Cloudy	24.54	Sch. 1000 - 1300
July 30, 1994	13.89	25.56	P.Cloudy	25.01	Sch. 1000 - 1300
July 31, 1994	13.89	26.67	P.Sunny	25.84	Sch. 1000 - 1300

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 252CFS
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
					Generated 16:40 - 17:40
August 5, 1994	18.89	20.00	M.Cloudy	22.80	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
August 12, 1994	18.33	27.78	P.Cludy	26.18	Gage Reading 199 CFS
					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

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 452CFS
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

Day of Week	Date	Reason
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)

Day of Week	Date	Reason
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

Day of Week	Date	Hours
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

TABLE II (continued)

Day of Week	Date	Hours
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

TABLE II (continued)

Day of Week	Date	Hours
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)

Day of Week	Date	Hours
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

Day of Week	Date	Reason
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.

XC: CMR/JLS

STATE OF MARYLAND DEPARTMENT OF NATURAL RESOURCES

William Donald Schaefer
Governor

Maryland Department of Natural Resources

State Forest and Park Service

Deep Creek Lake Natural Resources Management Area

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

Torrey C. Brown, M.D.
Secretary

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

KEC/slf
cc: Dave Bassage
Upper Yough Whitewater Outfitters

MAR 1994
RECEIVED

Telephone: ____________

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

RECEIVED
JUN 7 1994
CHEMISTRY / MATERIALS
GPU NUCLEAR

GPU ZEBRA MUSSEL PROGRAM
Field Collection Sheet

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

Date: June 3, 1994
Time: 11:39 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				

Sample:
I:
P:
Re

ROUTING MEMO

DATE 06/03/94

TO	LOCATION	TIME AM PM
Dave Reed	Reading	APPROVE
		RETURN

REMARKS

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.

PASS ON
COMMENT
SEE ME
FOLLOW THROUGH
PREPARE REPLY
AS YOU REQUESTED
INFORMATION ONLY
FILE
CALL NO

FROM Charlie Rosenberry Deep Creek Station

MS-1 REV 1/89

GPU ZEBRA MUSSEL PROGRAM
Field Collection Sheet

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

Date: 07/11/94
Time: 1242 Hours

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

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

Date: 08/02/94
Time: 11 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. 78°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 generating for 1½ hours				62°F

Samples Saved ? ___Yes ___No
If Yes, Time/Date Sent _____
Preserved ? ___Yes ___No Method ? _____

Received By: _____
Date/Time: _____

YP/TDP/RE

GPU ZEBRA MUSSEL PROGRAM
Field Collection Sheet

Facility Name: Deep Creek Dam
Collector: Charles A. Rosenberry
Phone No.: 301-387-6614

Date: 09/02/94
Time: 1300

SAMPLE DATA

Station Code	Sampler Type	# Mussels Present	Comments
DC-1	Star	None	1. Lake Elev. 2457.85 2. Outside air temperature 66°F 3. Lake Calm 4. Lake surface water temp. 72°F 5. Partly Cloudy 6. Condition of Star Samplers 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. 71°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: _____

GPU ZEBRA MUSSEL PROGRAM
Field Collection Sheet

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

Date: 10/01/94
Time: 9^00 AM

SAMPLE DATA

Station Code	Sampler Type	# Mussels Present	Comments
DC-1	Star	None	1. Lake Elev. 1453.8 2. Outside air temperature 52°F 3. Lake Calm 4. Lake Surface Water Temp. 64°F 5. Party 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 64°F				
2. Tailrace water temperature 62°F, not generating.				

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. Rosenberry
Phone No.: 301-387-6616

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

SAMPLE DATA

Station Code	Sampler Type	# Mussels Present	Comments
DC-1	Star	None	1. Lake Elev. 2453.80 2. Outside Air Temp. 52°F 3. Lake Calm 4. Lake Surface Water Temp 60°F 5. Cloudy, light rain 6. Condition of Star Sampler had a light coating of mud on it.

(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				58° F
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: _____