

DEEP CREEK HYDROELECTRIC STATION
MARYLAND DEPARTMENT of the ENVIRONMENT
WATER APPROPRIATION
PERMIT NO. GA92S009 (03)
GARRETT COUNTY, MARYLAND

2004 ANNUAL REPORT

January 2005

BY

RELIANT ENERGY MARYLAND HOLDINGS, LLC

292005-001

**DEEP CREEK HYDROELECTRIC STATION
MDE WATER APPROPRIATION PERMIT NO. GA92S009 (03)
ANNUAL REPORT for 2004**

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**DEEP CREEK HYDROELECTRIC STATION
MDE WATER APPROPRIATION PERMIT NO. GA92S009 (03)
ANNUAL REPORT 2004**

1.0 SUMMARY

Reliant Energy Maryland Holdings, LLC (Permittee) holds Water Appropriation Permit GA92S009(03) issued by the Maryland Department of the Environment (Department). Permit GA92S009(03) provides for the continued operation of the Deep Creek Hydroelectric Station.

Permit Condition 23 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

End of Month Levels

Appendix A contains daily water level data for 2004. Reservoir levels exceeded the desired end of month Upper Rule Band (URB) by 0.17 feet in July, 0.27 feet in August, and 0.08 feet in September. Reservoir levels were 2.1 feet, 1.4 feet, 0.55 feet, 0.15 feet, 0.1 feet, 0.2 feet, 0.12 feet, 0.2 feet, and 1.0 feet below the URB in January, February, March, April, May, June, October, November and December, respectively. Water levels were maintained above the Lower Rule Band (LRB) for the entire year.

Daily Levels

The following text describes each daily exceedance of the URB. Table 1.0 provides a summary of this text in a table format. As indicated above, the impoundment was maintained above the LRB for the entire year.

The reservoir level was maintained between 2457.7 and 2461.0 feet from the first of the year until the middle of May. The Deep Creek area received 1.95” of rain on May 19th, 0.45” on May 20th, and another 1.07” on May 22. These events forced the reservoir level above the URB to 2461.1 feet on May 20th, 2461.2 feet on May 22nd, and 2461.10 feet on May 23rd. From May 25th through June 4th, the Deep Creek area received at least 0.25” of precipitation on 6 of these 11 days, which forced the reservoir slightly above the URB by 0.1 feet from June 4th until June 8th. The reservoir elevated above the URB to 2461.3 feet on June 12th, 2461.2 feet on June 13th and 14th, and 2461.1 feet on June 15th due to 1.92” of precipitation on June 12. The reservoir remained at or below the URB from June 16th through August 1st. On July 28th and 29th the Deep Creek area received 0.92” and 0.62” of precipitation, resulting in the reservoir being above the URB on August 1st and August 2nd by 0.1 feet. From

August 3rd through September 1st, the reservoir remained at or below the URB. From September 1st through September 22nd, excluding the 7th, 8th, and 15th-17th the reservoir elevation exceeded the URB from 0.10 feet to 0.3 feet (0.18 feet average) above the upper rule band. During this period rainfall total was approximately 5.0". The Deep Creek reservoir remained at or below the URB from September 23rd through November 5th. On November 6th, 7th, and 8th the reservoir was at 2458.0 feet – 0.10 feet above the URB due to a previous 4-day total rainfall of approximately 1.5". The reservoir remained at or below the URB for the rest of the year, except for December 2nd and 7th when the reservoir was 0.1 feet above the URB due to 1.55" of precipitation on December 1st and 0.47" on December 6th and 7th.

Rainfall totals for May, June, August, September, November, and December were 7.53 inches, 4.43 inches, 5.84 inches, 5.65 inches, 4.01 inches, and 4.03 inches respectively. The rainfall total for these months in 2004 was 31.49 inches. Appendix A includes the monthly reservoir levels in tabular and graphical format. Reservoir levels during these months exceeded the URB as follows:

Table 1.0
Summary of Daily Exceedances of the URB

| Date | Reservoir Level (Ft) | Upper Rule Band (Ft) | Δ (Ft) |
|-------------|-----------------------------|-----------------------------|---------------|
| May 20 | 2461.10 | 2461.00 | 0.10 |
| May 22 | 2461.20 | 2461.00 | 0.20 |
| May 23 | 2461.10 | 2461.00 | 0.10 |
| June 4 | 2461.10 | 2461.00 | 0.10 |
| June 5 | 2461.10 | 2461.00 | 0.10 |
| June 6 | 2461.10 | 2461.00 | 0.10 |
| June 7 | 2461.10 | 2461.00 | 0.10 |
| June 8 | 2461.10 | 2461.00 | 0.10 |
| June 12 | 2461.30 | 2461.00 | 0.30 |
| June 13 | 2461.20 | 2461.00 | 0.20 |
| June 14 | 2461.20 | 2461.00 | 0.20 |
| June 15 | 2461.10 | 2461.00 | 0.10 |
| August 1 | 2460.10 | 2460.00 | 0.10 |
| August 2 | 2460.10 | 2460.00 | 0.10 |

| Date | Reservoir Level (Ft) | Upper Rule Band (Ft) | Δ (Ft) |
|--------------|---------------------------------|---------------------------------|---------------------------------|
| September 1 | 2459.30 | 2459.00 | 0.30 |
| September 2 | 2459.30 | 2459.00 | 0.30 |
| September 3 | 2459.20 | 2459.00 | 0.20 |
| September 4 | 2459.10 | 2459.00 | 0.10 |
| September 5 | 2459.10 | 2459.00 | 0.10 |
| September 6 | 2459.10 | 2459.00 | 0.10 |
| September 9 | 2459.20 | 2459.00 | 0.20 |
| September 10 | 2459.40 | 2459.00 | 0.40 |
| September 11 | 2459.30 | 2459.00 | 0.30 |
| September 12 | 2459.20 | 2459.00 | 0.20 |
| September 13 | 2459.10 | 2459.00 | 0.10 |
| September 14 | 2459.10 | 2459.00 | 0.10 |
| September 18 | 2459.10 | 2459.00 | 0.10 |
| September 19 | 2459.20 | 2459.00 | 0.20 |
| September 20 | 2459.20 | 2459.00 | 0.20 |
| September 21 | 2459.10 | 2459.00 | 0.10 |
| September 22 | 2459.10 | 2459.00 | 0.10 |
| November 6 | 2458.00 | 2457.90 | 0.10 |
| November 7 | 2458.00 | 2457.90 | 0.10 |
| November 8 | 2458.00 | 2457.90 | 0.10 |
| December 2 | 2458.00 | 2457.90 | 0.10 |

| Date | Reservoir Level (Ft) | Upper Rule Band (Ft) | Δ (Ft) |
|-------------|---------------------------------|---------------------------------|---------------|
| December 7 | 2458.00 | 2457.90 | 0.10 |

1.2 TEMPERATURE MONITORING

The Permittee monitored water temperature in the Youghiogheny River in accordance with “Deep Creek Station, Water Temperature Enhancement Plan” (approved June 8, 1996, revised September 2001). The Plan was designed to maintain river water temperatures below 25° C in the Youghiogheny River. The Permittee released water in accordance with the Water Temperature Enhancement Plan on two days in 2004. The temperature enhancement protocol predicted water temperatures in excess of 25° C on July 22 and August 4, however actual water temperature on those days remained below 25° C.

The temperature enhancement protocol called for a 2-hour temperature release on July 22 and August 4, 2004, to supplement the 25-cfs and 48-cfs, respectively, at the Oakland gage. On July 22, 2004, Reliant began the release at 1115 hours and continued until 1410 hours. That day, Sang Run’s maximum water temperature of 20.59° C occurred at 1320 hours. On August 4, 2004, Reliant began the release at 1100 hours and continued until 1515 hours. That day, Sang Run’s maximum water temperature of 22.77° C occurred at 1340 hours.

Water temperature at Sang Run climbed above 25° C on June 1, 4, 6, 7, 11, 24, and 25. The temperature enhancement protocol was not required on June 1-9, 11-27, July 13, 27, 28, and August 1, 13, 19-24, 30, and 31 as flows at the Oakland gage were greater than 100 cfs, as outlined in the temperature enhancement plan. Due to a data downloading malfunction there are no SMAX temperature readings from July 28-31 for Sang Run. Summary tables of the temperature exceedance dates at Sang Run, the temperature enhancement release dates, the maximum daily temperature comparison table (Reliant and VERSAR data), and the daily Temperature Enhancement Plan sheets are provided in Appendix B.

1.3 MINIMUM FLOW RELEASE MONITORING

The Permittee operated the flow bypass in accordance with the “Deep Creek Station Flow Bypass Operation Protocol” (May 1995, revised September 2001). The flow bypass protocol requires the Permittee to maintain a minimum flow of 40 cfs in the Youghiogheny River immediately downstream of the tailrace. Starting June 1, and continuing through November 30, the Permittee monitored the river flows at the Oakland gage. When flows at the Oakland gage fall below 26 cfs, the Permittee may be required to open a bypass valve to release enough water to maintain 40 cfs in the river immediately below the tailrace.

The table in Appendix C summarizes flow bypass data for June through November 2004, when flows in the Youghiogheny River were less than 26 cfs. Flow data were obtained from the USGS recording at the Oakland gage, direct readings from the Oakland gage, or from the tailrace gage at the station, per guidance provided in the protocol. Valve openings were determined from Table 3 of the protocol (See Appendix C) based on station operating status.

1.4 DISSOLVED OXYGEN MONITORING

The Permittee operated the dissolved oxygen enhancement weir during 2004 in accordance with the "Dissolved Oxygen (DO) Enhancement Operations and Monitoring Protocol" approved by the Department on January 6, 1995. Data obtained from DO monitoring in 2004 are included in Appendix D.

The DO levels in the tailrace fell below 6.0 mg/l during 2004 on only one occasion. On July 26, 2004 the dissolved oxygen concentration fell to 5.92 mg/l.

1.5 RELEASES UNSUITABLE FOR WHITEWATER RECREATION

Permit Condition 19 outlines several operating rules designed to enhance whitewater boating opportunities in the Youghiogheny River. One operating rule restricts generation during certain times of the day unless flows suitable for whitewater boating also occur. The specific criteria for this operating rule are:

- Applies only from April 15 through October 15,
- Applies only when the Lake is between the upper and lower rule bands,
- May be suspended during emergency conditions described in Condition 14, and
- Prohibits releases between 1600 hours and 0800 hours of the following morning unless:
 1. A release providing three consecutive hours suitable for whitewater boating occurs during the 0800 to 1600 hour period immediately preceding the release.
 2. A release providing three consecutive hours suitable for whitewater boating occurs during the 0800 to 1600 hour period immediately following the release.

Condition 19 requires the Permittee to document "times and dates when generation releases not suitable for whitewater recreation occurred." Using the criteria above, generation releases during 2004 not suitable for whitewater recreation occurred on April 15th and 20th and July 7th and 13th.

On April 15th a release occurred for 3 hours from 1900-2200 hours, with no release occurring during the preceding 0800-1600 time period and no release occurring during the 0800-1600 period following this release.

On April 20th two releases occurred for a total of 4 hours and 15 minutes from 1315-1700 and from 2130-2200, with only a 2 hour and 45 minute release occurring during the preceding 0800-1600 time period and no release occurring in the 0800-1600 time period following this release.

On July 7th a release occurred for 3 hours from 1400-1900 hours, with only a 2 hour release occurring during the preceding 0800-1600 time period and no release occurring in the 0800-1600 period following this release.

On July 13th a release occurred for 3 hours from 1330-1630 hours, with only a 2 hour and 30 minute release occurring during the preceding 0800-1600 time period and no release occurring in the 0800-1600 period following this release.

On each of these days there were no emergency situations and the impoundment level was within the rule band.

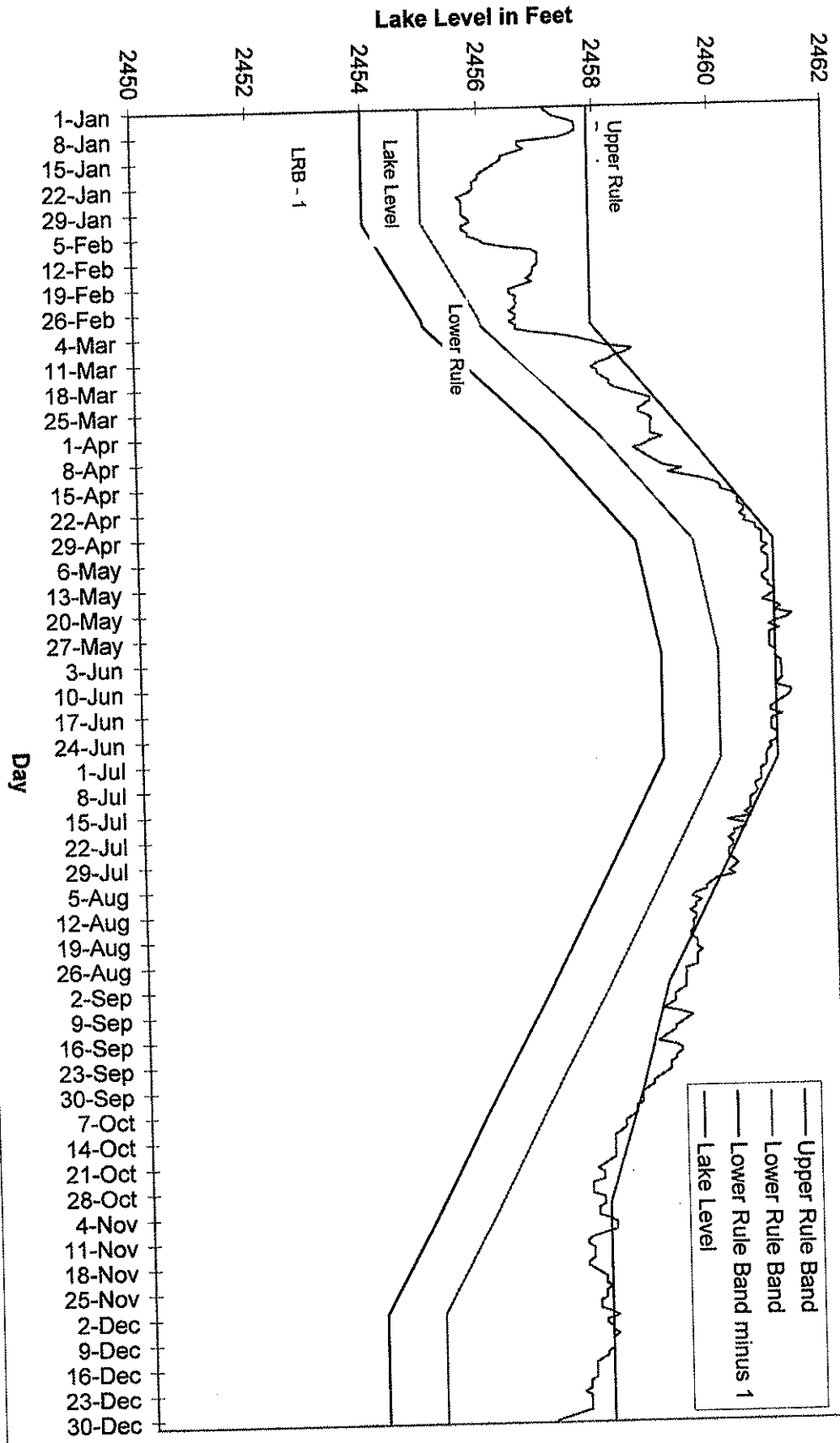
1.2 ZEBRA MUSSEL MONITORING

Artificial substrates placed at the station intake area during 2004 showed no signs of zebra mussel infestation. Appendix E contains the 2004 Zebra Mussel Monitoring Report data sheet.

APPENDIX A
LAKE LEVEL DATA

DEEP CREEK LAKE LEVEL GRAPH

Deep Creek Lake Level



DEEP CREEK LAKE LEVEL TABLE

Deep Creek Lake Level 2004

| Month | Day | Lake Level | Rain Fall | Month | Day | Lake Level | Rain Fall | Month | Day | Lake Level | Rain Fall |
|-------|-----|------------|-----------|-------|-----|------------|-----------|-------|------|------------|-----------|
| Jan | 1 | 2457.15 | 0 | Feb | 1 | 2455.84 | 0 | Mar | 1 | 2456.6 | 0 |
| | 2 | 2457.23 | N/A | | 2 | 2455.7 | 0 | | 2 | 2456.6 | 0 |
| | 3 | 2457.31 | 0.1 | | 3 | 2455.7 | 0.00 | | 3 | 2456.9 | 0.02 |
| | 4 | 2457.52 | 0.75 | | 4 | 2455.8 | 0.50 | | 4 | 2457.4 | 0 |
| | 5 | 2457.68 | 0.4 | | 5 | 2455.8 | 0.00 | | 5 | 2457.7 | 0.46 |
| | 6 | 2457.69 | 0.55 | | 6 | 2456 | 0.7 | | 6 | 2457.93 | 0.87 |
| | 7 | 2457.7 | 0.1 | | 7 | 2456.1 | 0.05 | | 7 | 2458.15 | 0.94 |
| | 8 | 2457.6 | 0 | | 8 | 2456.4 | 0 | | 8 | 2458.6 | 0.47 |
| | 9 | 2457.4 | 0.05 | | 9 | 2456.9 | 0 | | 9 | 2458.5 | 0.4 |
| | 10 | 2456.7 | 0 | | 10 | 2457 | 0 | | 10 | 2458.3 | 0.12 |
| | 11 | 2456.7 | 0 | | 11 | 2457 | 0 | | 11 | 2458.2 | 0 |
| | 12 | 2456.8 | 0 | | 12 | 2457 | 0 | | 12 | 2458 | 0 |
| | 13 | 2456.6 | 0.05 | | 13 | 2457 | 0 | | 13 | 2457.9 | 0 |
| | 14 | 2456.4 | 0.05 | | 14 | 2456.93 | 0 | | 14 | 2457.99 | 0.2 |
| | 15 | 2456.4 | 0.15 | | 15 | 2456.92 | 0 | | 15 | 2458 | 0 |
| | 16 | 2456.3 | 0.05 | | 16 | 2456.9 | 0 | | 16 | 2458.1 | 0 |
| | 17 | 2456.2 | 0.05 | | 17 | 2456.8 | 0 | | 17 | 2458.2 | 0.75 |
| | 18 | 2456.1 | 0.35 | | 18 | 2456.9 | 0 | | 18 | 2458.2 | 0.12 |
| | 19 | 2456 | 0.5 | | 19 | 2456.7 | 0 | | 19 | 2458.3 | 0.45 |
| | 20 | 2456 | 0.05 | | 20 | 2456.5 | 0 | | 20 | 2458.5 | 0.15 |
| | 21 | 2455.9 | 0.02 | | 21 | 2456.5 | 0.11 | | 21 | 2458.7 | 0.75 |
| | 22 | 2455.9 | 0 | | 22 | 2456.82 | 0.10 | | 22 | 2458.9 | 0.07 |
| | 23 | 2455.9 | 0 | | 23 | 2456.6 | 0 | | 23 | 2458.9 | 0 |
| | 24 | 2455.8 | 0.25 | | 24 | 2456.62 | 0 | | 24 | 2458.8 | 0 |
| | 25 | 2455.63 | 0 | | 25 | 2456.6 | 0.1 | | 25 | 2458.7 | 0 |
| | 26 | 2455.7 | 0.1 | | 26 | 2456.5 | 0 | | 26 | 2458.7 | 0.07 |
| | 27 | 2455.7 | 0.05 | | 27 | 2456.6 | 0 | | 27 | 2458.87 | 0.15 |
| | 28 | 2455.7 | 0.5 | | 28 | 2456.6 | 0 | | 28 | 2458.93 | 0.03 |
| | 29 | 2455.7 | 0.1 | | | | | | 29 | 2458.9 | 0 |
| | 30 | 2455.7 | 0.1 | | | | | | 30 | 2458.9 | 0 |
| | 31 | 2455.8 | 0 | | | | | | 31 | 2458.9 | 0.2 |
| Total | | | 4.32 | | | | 1.56 | | | | 6.22 |
| Apr | 1 | 2458.9 | 0.17 | May | 1 | 2460.8 | 0 | Jun | 1 | 2461 | 0 |
| | 2 | 2459.1 | 0.75 | | 2 | 2460.8 | 0.52 | | 2 | 2461 | 0.02 |
| | 3 | 2458.9 | 0.75 | | 3 | 2460.9 | 0.02 | | 3 | 2460.99 | 0.25 |
| | 4 | 2458.8 | 0.07 | | 4 | 2460.8 | 0 | | 4 | 2461.09 | 0 |
| | 5 | 2458.6 | 0.4 | | 5 | 2460.8 | 0 | | 5 | 2461.09 | 0.08 |
| | 6 | 2458.7 | 0 | | 6 | 2460.9 | 0.03 | | 6 | 2461.1 | 0.1 |
| | 7 | 2458.8 | 0 | | 7 | 2460.9 | 0 | | 7 | 2461.1 | 0 |
| | 8 | 2458.9 | 0.2 | | 8 | 2460.9 | 0.43 | | 8 | 2461.1 | 0 |
| | 9 | 2459 | 0.2 | | 9 | 2460.9 | 0 | | 9 | 2461.11 | 0 |
| | 10 | 2459.1 | 0.3 | | 10 | 2460.9 | 0 | | 10 | 2461.04 | 0 |
| | 11 | 2459.43 | 0.05 | | 11 | 2460.8 | 0.05 | | 11 | 2461.02 | 0.2 |
| | 12 | 2459.2 | 0 | | 12 | 2460.8 | 0.67 | | 12 | 2461.26 | 1.92 |
| | 13 | 2459.5 | 1.05 | | 13 | 2460.9 | 0 | | 13 | 2461.26 | 0 |
| | 14 | 2459.8 | 1.8 | | 14 | 2460.9 | 0 | | 14 | 2461.2 | 0.15 |
| | 15 | 2460 | 0.15 | | 15 | 2460.99 | 0.25 | | 15 | 2461.1 | 0.02 |
| | 16 | 2460.1 | 0 | | 16 | 2461 | 0 | | 16 | 2461 | 0 |
| | 17 | 2460.1 | 0 | | 17 | 2460.9 | 0 | | 17 | 2460.9 | 0 |
| | 18 | 2460.3 | 0 | | 18 | 2460.8 | 0.05 | | 18 | 2460.9 | 0.75 |
| | 19 | 2460.4 | 0 | | 19 | 2461 | 1.95 | | 19 | 2461.1 | 0.37 |
| | 20 | 2460.4 | 0 | | 20 | 2461.1 | 0.45 | | 20 | 2460.93 | 0 |
| | 21 | 2460.4 | 0.05 | | 21 | 2461 | 0.05 | | 21 | 2460.9 | 0 |
| | 22 | 2460.5 | 0 | | 22 | 2461.3 | 1.07 | | 22 | 2460.9 | 0 |
| | 23 | 2460.5 | 0.1 | | 23 | 2461.21 | 0 | | 23 | 2460.9 | 0.32 |
| | 24 | 2460.43 | 0.25 | | 24 | 2461 | 0 | | 24 | 2461 | 0 |
| | 25 | 2460.53 | 0 | | 25 | 2460.9 | 0.25 | | 25 | 2461 | 0 |
| | 26 | 2460.5 | 0.57 | | 26 | 2461.07 | 0.26 | | 26 | 2461 | 0 |
| | 27 | 2460.7 | 0.59 | | 27 | 2460.9 | 0.27 | | 27 | 2460.86 | 0 |
| | 28 | 2460.7 | 0.17 | | 28 | 2460.9 | 0.38 | | 28 | 2460.9 | 0 |
| | 29 | 2460.8 | 0 | | 29 | 2460.9 | 0.09 | | 29 | 2460.84 | 0.25 |
| | 30 | 2460.8 | 0.05 | | 30 | 2460.9 | 0.1 | | 30 | 2460.8 | 0 |
| | | | | | | 31 | 2460.9 | | 0.64 | | |
| Total | | | 7.67 | | | | 7.53 | | | | 4.43 |

Deep Creek Lake Level 2004

| Month | Day | Lake Level | Rain Fall | Month | Day | Lake Level | Rain Fall | Month | Day | Lake Level | Rain Fall |
|-------|-----|------------|-----------|-------|-----|------------|-----------|-------|-----|------------|-----------|
| Jul | 1 | 2460.8 | 0 | Aug | 1 | 2460.1 | 0 | Sep | 1 | 2459.3 | 0 |
| | 2 | 2460.8 | 0.38 | | 2 | 2460.2 | 0 | | 2 | 2459.3 | 0 |
| | 3 | 2460.8 | 0 | | 3 | 2459.9 | 0 | | 3 | 2459.2 | 0 |
| | 4 | 2460.7 | 0.08 | | 4 | 2459.8 | 0.17 | | 4 | 2459.1 | 0 |
| | 5 | 2460.7 | 0 | | 5 | 2459.7 | 0.15 | | 5 | 2459.1 | 0 |
| | 6 | 2460.7 | 0 | | 6 | 2459.7 | 0 | | 6 | 2459.1 | 0 |
| | 7 | 2460.7 | 0.05 | | 7 | 2459.5 | 0 | | 7 | 2459 | 0 |
| | 8 | 2460.6 | 0 | | 8 | 2459.44 | 0 | | 8 | 2458.9 | 2.12 |
| | 9 | 2460.6 | 0 | | 9 | 2459.6 | 0 | | 9 | 2459.2 | 0.23 |
| | 10 | 2460.64 | 0.07 | | 10 | 2459.5 | 0 | | 10 | 2459.4 | 0 |
| | 11 | 2460.6 | 0 | | 11 | 2459.5 | 0 | | 11 | 2459.3 | 0 |
| | 12 | 2460.5 | 1.6 | | 12 | 2459.4 | 0.6 | | 12 | 2459.2 | 0 |
| | 13 | 2460.5 | 0.03 | | 13 | 2459.5 | 0.04 | | 13 | 2459.1 | 0 |
| | 14 | 2460.5 | 0.05 | | 14 | 2459.5 | 0 | | 14 | 2459.1 | 0 |
| | 15 | 2460.5 | 0 | | 15 | 2459.45 | 0.08 | | 15 | 2459 | 0 |
| | 16 | 2460.4 | 0 | | 16 | 2459.46 | 0.27 | | 16 | 2458.9 | 0 |
| | 17 | 2460.5 | 0.1 | | 17 | 2459.45 | 0 | | 17 | 2458.8 | 0.5 |
| | 18 | 2460.1 | 0.82 | | 18 | 2459.4 | 0 | | 18 | 2459.1 | 2.12 |
| | 19 | 2460.4 | 0 | | 19 | 2459.4 | 0.9 | | 19 | 2459.2 | 0 |
| | 20 | 2460.41 | 0 | | 20 | 2459.5 | 0.25 | | 20 | 2459.2 | 0 |
| | 21 | 2460.2 | 0 | | 21 | 2459.52 | 0.97 | | 21 | 2459.1 | 0 |
| | 22 | 2460.2 | 0 | | 22 | 2459.51 | 0 | | 22 | 2459.1 | 0 |
| | 23 | 2460.1 | 0 | | 23 | 2459.6 | 0 | | 23 | 2459 | 0 |
| | 24 | 2460.18 | 0 | | 24 | 2459.5 | 0 | | 24 | 2459 | 0 |
| | 25 | 2460.18 | 0 | | 25 | 2459.5 | 0 | | 25 | 2459 | 0 |
| | 26 | 2460.11 | 0.92 | | 26 | 2459.5 | 0.02 | | 26 | 2458.9 | 0 |
| | 27 | 2460.1 | 0.62 | | 27 | 2459.5 | 0 | | 27 | 2458.8 | 0.02 |
| | 28 | 2460.1 | 0 | | 28 | 2459.3 | 0.07 | | 28 | 2458.7 | 0.6 |
| | 29 | 2460.2 | 0 | | 29 | 2459.31 | 0.72 | | 29 | 2458.7 | 0.06 |
| | 30 | 2460.26 | 0.07 | | 30 | 2459.3 | 1.58 | | 30 | 2458.6 | 0 |
| | 31 | 2460.19 | 0.63 | | 31 | 2459.3 | 0.02 | | | | 5.65 |
| Total | | | 5.42 | | | | 5.84 | | | | |
| Oct | 1 | 2458.5 | 0 | Nov | 1 | 2457.8 | 0 | Dec | 1 | 2457.9 | 1.55 |
| | 2 | 2458.5 | 0 | | 2 | 2457.7 | 0.4 | | 2 | 2458 | 0 |
| | 3 | 2458.5 | 0 | | 3 | 2457.7 | 0.18 | | 3 | 2457.8 | 0 |
| | 4 | 2458.5 | 0 | | 4 | 2457.7 | 0.83 | | 4 | 2457.8 | 0 |
| | 5 | 2458.4 | 0 | | 5 | 2457.9 | 0.07 | | 5 | 2457.9 | 0 |
| | 6 | 2458.4 | 0 | | 6 | 2458 | 0 | | 6 | 2457.9 | 0.12 |
| | 7 | 2458.4 | 0 | | 7 | 2458 | 0 | | 7 | 2458 | 0.35 |
| | 8 | 2458.3 | 0 | | 8 | 2458 | 0 | | 8 | 2457.9 | 0 |
| | 9 | 2458.2 | 0 | | 9 | 2457.8 | 0 | | 9 | 2457.9 | 0.06 |
| | 10 | 2458.2 | 0 | | 10 | 2457.6 | 0 | | 10 | 2457.9 | 0.38 |
| | 11 | 2458.2 | 0 | | 11 | 2457.5 | 0 | | 11 | 2457.9 | 0.15 |
| | 12 | 2458.1 | 0 | | 12 | 2457.5 | 0.062 | | 12 | 2457.8 | 0.22 |
| | 13 | 2458 | 0.2 | | 13 | 2457.6 | 0 | | 13 | 2457.8 | 0.15 |
| | 14 | 2458 | 0.25 | | 14 | 2457.6 | 0 | | 14 | 2457.7 | 0.47 |
| | 15 | 2458 | 0.12 | | 15 | 2457.6 | 0 | | 15 | 2457.6 | 0.05 |
| | 16 | 2458 | 0.48 | | 16 | 2457.6 | 0 | | 16 | 2457.6 | 0 |
| | 17 | 2458 | 0 | | 17 | 2457.5 | 0.25 | | 17 | 2457.6 | 0.03 |
| | 18 | 2458 | 0.42 | | 18 | 2457.5 | 0.05 | | 18 | 2457.6 | 0.04 |
| | 19 | 2458 | 0.08 | | 19 | 2457.6 | 0.67 | | 19 | 2457.6 | 0.07 |
| | 20 | 2457.9 | 0.05 | | 20 | 2457.7 | 0.25 | | 20 | 2457.5 | 0.02 |
| | 21 | 2457.8 | 0 | | 21 | 2457.8 | 0.08 | | 21 | 2457.5 | 0 |
| | 22 | 2457.7 | 0.18 | | 22 | 2457.8 | 0.02 | | 22 | 2457.5 | 0 |
| | 23 | 2457.8 | 0.3 | | 23 | 2457.8 | 0.03 | | 23 | 2457.4 | 0.22 |
| | 24 | 2457.8 | 0 | | 24 | 2457.9 | 0.45 | | 24 | 2457.5 | 0 |
| | 25 | 2457.8 | 0 | | 25 | 2457.8 | 0.15 | | 25 | 2457.5 | 0.03 |
| | 26 | 2457.6 | 0 | | 26 | 2457.8 | 0.1 | | 26 | 2457.5 | 0.04 |
| | 27 | 2457.6 | 0.05 | | 27 | 2457.8 | 0.42 | | 27 | 2457.5 | 0.05 |
| | 28 | 2457.6 | 0 | | 28 | 2457.7 | 0 | | 28 | 2457.5 | 0.03 |
| | 29 | 2457.6 | 1.3 | | 29 | 2457.7 | 0 | | 29 | 2457.3 | 0 |
| | 30 | 2457.8 | 0 | | 30 | 2457.7 | 0 | | 30 | 2457.1 | 0 |
| | 31 | 2457.8 | 0 | | | | | | 31 | 2456.9 | 0 |
| Total | | | 3.43 | | | | 4.012 | | | Year Total | 60.112 |

APPENDIX B

TEMPERATURE MONITORING AND RELEASE REPORTS

Daily maximum river water temperatures in the Youghiogeny River at Sang Run are presented in the tables in Appendix B. These data were collated and provided by Versar, Inc., consultant to the MDNR Power Plant Assessment Division (PPAD). Due to problems installing equipment, the data provided by Versar, Inc. did not begin until June 6, 2004.

The column labeled "SMAX" lists the arithmetic means of the daily maximum water temperatures, in degrees C, measured by two "Tempmentors" placed in the river by the MDNR. The column labeled "PenSmax" lists the maximum water temperatures, in degrees C, measured by the Permittee's temperature monitor at the Sang Run Bridge. PPAD and Versar analyze the data to evaluate the Water Temperature Enhancement Plan used by the Permittee to determine the need and timing of daily temperature releases.

Days when temperatures exceeded 25° C and days when temperature enhancement releases were made are summarized in the following tables. Daily Temperature Enhancement Plan sheets for each of these dates are also enclosed.

MAXIMUM DAILY RIVER WATER TEMPERATURES

**DEEP CREEK STATION
 YOUGHIOGHENY RIVER TEMPERATURE DATA 2004**

| <u>JUNE</u> | <u>SMAX</u> | <u>PENMAX</u> | <u>JULY</u> | <u>SMAX</u> | <u>PENMAX</u> | <u>AUGUST</u> | <u>SMAX</u> | <u>PENMAX</u> |
|-------------|-------------|---------------|-------------|-------------|---------------|---------------|-------------|---------------|
| 1 | N/A | 17.27 | 1 | 25.2 | 24.22 | 1 | 24.0 | 24.24 |
| 2 | N/A | 18.36 | 2 | 20.8 | 22.9 | 2 | 22.6 | 21.69 |
| 3 | N/A | 19.06 | 3 | 21.6 | 25.83 | 3 | 24.0 | 23.01 |
| 4 | N/A | 16.21 | 4 | 25.8 | 21.86 | 4 | 23.3 | 22.77 |
| 5 | N/A | 15.33 | 5 | 22.3 | 24.01 | 5 | 23.8 | 24.1 |
| 6 | N/A | 16.99 | 6 | 26.8 | 22.14 | 6 | 19.5 | 19.88 |
| 7 | 18.2 | 18.93 | 7 | 25.1 | 18.97 | 7 | 19.0 | 19.28 |
| 8 | 22.0 | 21 | 8 | 24.8 | 19.76 | 8 | 21.4 | 21.46 |
| 9 | 23.8 | 22.67 | 9 | 21.5 | 18.6 | 9 | 21.1 | 21.56 |
| 10 | 22.3 | 22.02 | 10 | 22.8 | 18.08 | 10 | 23.8 | 23.71 |
| 11 | 20.2 | 19.69 | 11 | 27.0 | 17.9 | 11 | 22.8 | 22.18 |
| 12 | 17.4 | 17.26 | 12 | 21.8 | 17.48 | 12 | 18.1 | 18.1 |
| 13 | 18.2 | 18.42 | 13 | 24.4 | 18.25 | 13 | 18.9 | 18.97 |
| 14 | 18.1 | 17.86 | 14 | 24.5 | 19.13 | 14 | 21.0 | 21 |
| 15 | 19.0 | 18.14 | 15 | 21.4 | 19.24 | 15 | 22.5 | 22.46 |
| 16 | 20.7 | 20.13 | 16 | 21.8 | 19.21 | 16 | 20.0 | 20.11 |
| 17 | 21.5 | 21.78 | 17 | 20.3 | 20.39 | 17 | 23.8 | 23.9 |
| 18 | 20.8 | 21.03 | 18 | 23.5 | 19.96 | 18 | 23.8 | 24.15 |
| 19 | 19.8 | 19.63 | 19 | 19.1 | 22.86 | 19 | 24.2 | 24.15 |
| 20 | 19.4 | 19.89 | 20 | 21.5 | 23.84 | 20 | 22.1 | 22.16 |
| 21 | 19.4 | 19.87 | 21 | 23.1 | 23.12 | 21 | 21.0 | 21.03 |
| 22 | 19.8 | 19.74 | 22 | 20.6 | 23.14 | 22 | 20.8 | 21.62 |
| 23 | 22.1 | 22.36 | 23 | 20.9 | 21.69 | 23 | 21.1 | 21.82 |
| 24 | 22.0 | 20.83 | 24 | 25.5 | 21.46 | 24 | 23.8 | 24.08 |
| 25 | 20.3 | 20.02 | 25 | 26.2 | 20.89 | 25 | 24.3 | 24.2 |
| 26 | 23.1 | 22.69 | 26 | 20.2 | 25.17 | 26 | 23.7 | 23.45 |
| 27 | 23.1 | 22.99 | 27 | 20.9 | 25.13 | 27 | 21.1 | 20.39 |
| 28 | 20.0 | 20.48 | 28 | N/A | 21.94 | 28 | 22.8 | 22.53 |
| 29 | 23.1 | 23.23 | 29 | N/A | 21.43 | 29 | 24.2 | 24.5 |
| 30 | 24.9 | 24.54 | 30 | N/A | 22.39 | 30 | 22.0 | 21.64 |
| | | | 31 | N/A | 20.17 | 31 | 21.2 | 21.86 |

DEEP CREEK TEMPERATURE ENHANCEMENT PLAN
SANG RUN TEMPERATURE EXCEEDANCES

DEEP CREEK POWER PLANT TEMPERATURE ENHANCEMENT PLAN

EXCEEDANCE OF 25.9 AT SANG RUN TEMPERATURE PROBE

| <u>DATE</u> | <u>DURATION</u> | <u>MAXIMUM</u> |
|-------------|-----------------|----------------|
| 07/01/04 | 16:40 - 18:20 | 25.23 |
| 07/04/04 | 15:30 - 19:20 | 25.83 |
| 07/06/04 | 15:00 - 21:10 | 26.83 |
| 07/07/04 | 15:40 - 16:00 | 25.13 |
| 07/11/04 | 15:20 - 20:10 | 27.01 |
| 07/24/04 | 17:00 - 19:20 | 25.46 |
| 07/25/04 | 16:00 - 20:00 | 26.24 |

DEEP CREEK TEMPERATURE ENHANCEMENT RELEASES

2004 DATES & TIMES OF TEMPERATURE ENHANCEMENT RELEASES

| DATE | START TIME | STOP TIME | RIVER FLOW (CFS) |
|----------------|-------------------|------------------|-------------------------|
| July 22, 2004 | 11:15 | 14:10 | 25 |
| August 4, 2004 | 11:00 | 15:15 | 48 |

DEEP CREEK DAILY TEMPERATURE PLAN SHEETS

UA = CFS River Flow at Oakland

July 1, 2004

Print Info for file

| Time | Oakland Flow CFS | Predicted Maximum River Water Temperature Degree C | Deep Creek Action |
|------|------------------|--|--|
| 0700 | <30 <=30 | 19.37 20.65 | No further predictions necessary today No further predictions necessary today |
| 0900 | > 30 <=30 | 1.18 2.46 | No further predictions necessary today No further predictions necessary today |
| 1100 | All | 10.09 | No further predictions necessary today |
| 1200 | All | 8.99 | No further predictions necessary today |
| 1400 | All | 5.45 | No further predictions necessary today |
| 1500 | All | 3.98 | No further predictions necessary today |

| | | |
|------|-------|--------------------------------|
| Tair | 18.33 | Air Temp, Elkins WV - Degree C |
| CCF | 64.00 | Cloud Cover Factor, Elkins WV |
| T7 | 14.89 | 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 | 62.00 | River Flow at Oakland |

65
SHWRS

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

UA = CFS River Flow at Oakland

July 4, 2004

Print Info for file

| Time | Oakland Flow CFS | Predicted Maximum River Water Temperature Degree C | Deep Creek Action |
|------|------------------|--|--|
| 0700 | <30 | 20.05 | No further predictions necessary today |
| | <=30 | 20.65 | No further predictions necessary today |
| 0900 | > 30 | 1.86 | No further predictions necessary today |
| | <=30 | 2.46 | No further predictions necessary today |
| 1100 | All | 10.09 | No further predictions necessary today |
| 1200 | All | 8.99 | No further predictions necessary today |
| 1400 | All | 5.45 | No further predictions necessary today |
| 1500 | All | 3.98 | No further predictions necessary today |

| | | |
|------|-------|--------------------------------|
| Tair | 18.33 | Air Temp, Elkins WV - Degree C |
| CCF | 64.00 | Cloud Cover Factor, Elkins WV |
| T7 | 14.89 | 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 | 45.00 | River Flow at Oakland |

65
SHWRS

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

UA = CFS River Flow at Oakland

July 6, 2004

Print Info for file

| Time | Oakland Flow CFS | Predicted Maximum River Water Temperature Degree C | Deep Creek Action |
|------|------------------|--|--|
| 0700 | <30 | 20.05 | No further predictions necessary today |
| | ≤30 | 20.65 | No further predictions necessary today |
| 0900 | > 30 | 1.86 | No further predictions necessary today |
| | ≤30 | 2.46 | No further predictions necessary today |
| 1100 | All | 10.09 | No further predictions necessary today |
| 1200 | All | 8.99 | No further predictions necessary today |
| 1400 | All | 5.45 | No further predictions necessary today |
| 1500 | All | 3.98 | No further predictions necessary today |

| | | |
|------|-------|--------------------------------|
| Tair | 18.33 | Air Temp, Elkins WV - Degree C |
| CCF | 64.00 | Cloud Cover Factor, Elkins WV |
| T7 | 14.89 | 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 | 45.00 | River Flow at Oakland |

65
SHWRS

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

UA = CFS River Flow at Oakland

July 7, 2004

Print Info for file

| Time | Oakland Flow CFS | Predicted Maximum River Water Temperature Degree C | Deep Creek Action |
|------|------------------|--|--|
| 0700 | <30 | 20.33 | No further predictions necessary today |
| | <=30 | 20.65 | No further predictions necessary today |
| 0900 | > 30 | 2.14 | No further predictions necessary today |
| | <=30 | 2.46 | No further predictions necessary today |
| 1100 | All | 10.09 | No further predictions necessary today |
| 1200 | All | 8.99 | No further predictions necessary today |
| 1400 | All | 5.45 | No further predictions necessary today |
| 1500 | All | 3.98 | No further predictions necessary today |

| | | |
|------|-------|--------------------------------|
| Tair | 18.33 | Air Temp, Elkins WV - Degree C |
| CCF | 64.00 | Cloud Cover Factor, Elkins WV |
| T7 | 14.89 | 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 | 38.00 | River Flow at Oakland |

65
SHWRS

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

UA = CFS River Flow at Oakland

July 11, 2004

| Time | Oakland Flow CFS | Predicted Maximum River Water Temperature Degree C | Deep Creek Action |
|------|------------------|--|--|
| 0700 | <30 <=30 | 20.69 20.65 | No further predictions necessary today No further predictions necessary today |
| 0900 | > 30 <=30 | 2.50 2.46 | No further predictions necessary today No further predictions necessary today |
| 1100 | All | 10.09 | No further predictions necessary today |
| 1200 | All | 8.99 | No further predictions necessary today |
| 1400 | All | 5.45 | No further predictions necessary today |
| 1500 | All | 3.98 | No further predictions necessary today |

Print info for file

| | | |
|------|-------|--------------------------------|
| Tair | 18.33 | Air Temp, Elkins WV - Degree C |
| CCF | 64.00 | Cloud Cover Factor, Elkins WV |
| T7 | 14.89 | 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 | 29.00 | River Flow at Oakland |

65
SHWRS

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

UA = CFS River Flow at Oakland

July 22, 2004

Print info for file

| Time | Oakland Flow CFS | Predicted Maximum River Water Temperature Degree C | Deep Creek Action |
|------|------------------|--|---|
| 0700 | <30 <=30 | 23.18 22.98 | Check again at 0900 No further predictions necessary today |
| 0900 | > 30 <=30 | 26.35 26.15 | Release at 1100 for 2 hours Release at 1100 for 2 hours |
| 1100 | All | 24.16 | Check again at 1200 |
| 1200 | All | 23.59 | Check again at 1400 |
| 1400 | All | 17.55 | No further predictions necessary today |
| 1500 | All | -1.88 | No further predictions necessary today |

| | | |
|------|-------|--------------------------------|
| Tair | 25.56 | Air Temp, Elkins WV - Degree C |
| CCF | 64.00 | Cloud Cover Factor, Elkins WV |
| T7 | 14.89 | River Temp Sang Run @700 |
| T9 | 17.91 | River Temp Sang Run @900 |
| T11 | 19.47 | River Temp Sang Run @1100 |
| T12 | 19.90 | River Temp Sang Run @1200 |
| T14 | 17.18 | River Temp Sang Run @1400 |
| T15 | 0.00 | River Temp Sang Run @1500 |
| Q | 25.00 | River Flow at Oakland |

78
SHWRS

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

UA = CFS River Flow at Oakland

July 24, 2004

Print Info for file

| Time | Oakland Flow CFS | Predicted Maximum River Water Temperature Degree C | Deep Creek Action |
|------|------------------|--|--|
| 0700 | <30 | 21.66 | No further predictions necessary today |
| | <=30 | 21.54 | No further predictions necessary today |
| 0900 | > 30 | 3.37 | No further predictions necessary today |
| | <=30 | 3.25 | No further predictions necessary today |
| 1100 | All | 10.77 | No further predictions necessary today |
| 1200 | All | 9.59 | No further predictions necessary today |
| 1400 | All | 5.73 | No further predictions necessary today |
| 1500 | All | 4.11 | No further predictions necessary today |

| | | |
|------|-------|--------------------------------|
| Tair | 21.11 | Air Temp, Elkins WV - Degree C |
| CCF | 64.00 | Cloud Cover Factor, Elkins WV |
| T7 | 14.89 | 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 | 27.00 | River Flow at Oakland |

70
SHWRS

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

UA = CFS River Flow at Oakland

July 25, 2004

Print Info for file

| Time | Oakland Flow CFS | Predicted Maximum River Water Temperature Degree C | Deep Creek Action |
|------|------------------|--|--|
| 0700 | <30 <=30 | 21.74 21.54 | No further predictions necessary today No further predictions necessary today |
| 0900 | > 30 <=30 | 3.45 3.25 | No further predictions necessary today No further predictions necessary today |
| 1100 | All | 10.77 | No further predictions necessary today |
| 1200 | All | 9.59 | No further predictions necessary today |
| 1400 | All | 5.73 | No further predictions necessary today |
| 1500 | All | 4.11 | No further predictions necessary today |

| | | |
|------|-------|--------------------------------|
| Tair | 21.11 | Air Temp, Elkins WV - Degree C |
| CCF | 64.00 | Cloud Cover Factor, Elkins WV |
| T7 | 14.89 | 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 | 25.00 | River Flow at Oakland |

70
SHWRS

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

| Time | Oakland Flow CFS | Predicted Maximum River Water Temperature Degree C | Deep Creek Action |
|------|------------------|--|--|
| 0700 | <30 | 24.92 | Check again at 0900 |
| | <=30 | 25.72 | Check again at 0900 |
| 0900 | > 30 | 25.28 | Check again at 1100 |
| | <=30 | 26.08 | Release at 1100 for 2 hours |
| 1100 | All | -3.55 | No further predictions necessary today |
| 1200 | All | 2.50 | No further predictions necessary today |
| 1400 | All | 6.59 | No further predictions necessary today |
| 1500 | All | 4.52 | No further predictions necessary today |

Print Info for file

| | | |
|------|-------|--------------------------------|
| Tair | 29.44 | Air Temp, Elkins WV - Degree C |
| CCF | 64.00 | Cloud Cover Factor, Elkins WV |
| T7 | 19.31 | River Temp Sang Run @700 |
| T9 | 19.79 | 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 | 50.00 | River Flow at Oakland |

85
SHWRS

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

APPENDIX C
FLOW BYPASS OPERATION RECORD

BYPASS FLOW OPERATION



Devine Tarbell & Associates, Inc.
Consulting Engineers, Scientists, & Regulatory Specialists

Principals:
John J. Devine, P.E., President
John C. Tarbell, P.E.
James M. Lynch
Edwin C. Luttrell, P.E.

FEDERAL EXPRESS

January 28, 2005

Mr. Matthew G. Pajerowski, Chief
Water Rights Division
Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224

**RE: *Water Appropriation and Use Permit No. GA92S009(03) 2004 Annual Report
and 2004 Semi-annual Report***

Dear Mr. Pajerowski:

On behalf of Reliant Energy Maryland Holdings, LLC and in accordance with Condition 23 of Permit No. GA92S009(03), please find enclosed the annual and semi-annual reports for the Deep Creek Hydroelectric Station.

If you have any questions regarding this report, please direct them to the undersigned at (315) 641-1624.

Sincerely,

Scott A. Jones
Regulatory Specialist/Biologist

Attachment

XC: **S. Schreiner (Versar)**
R. McLean (MDE)
T. Teitt (Reliant)
G. Neiport (Reliant)
C. Thomas (Reliant)
J. Gibson (DTA)

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Portland, Maine
207-775-4495/1031 (fax)

Charlotte, North Carolina
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Bothell, Washington
425-485-5668/5934 (fax)

Syracuse, New York
315-641-1624/1626 (fax)

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Bellingham, Washington
360-671-1150/1152 (fax)

DEEP CREEK STATION FLOW BYPASS OPERATION - 2004

| MONTH | DAY | RIVER FLOW AT OAKLAND | BYPASS FLOW REQUIRED | PERCENT VALVE OPEN |
|--------------|------------|------------------------------|-----------------------------|---------------------------|
| July | 22 | 25 | 2 | 22 |
| July | 23 | 24 | 3 | 23 |
| July | 25 | 25 | 2 | 22 |
| July | 26 | 20 | 9 | 32 |
| August | 10 | 24 | 3 | 23 |
| August | 11 | 0 | 20 | 47 |
| August | 12 | 21 | 8 | 30 |

7 de 11

USGS PROVISIONAL WATER DATA FOR THE OAKLAND GAGE
GAGE NO. 03075500
FOR WATER YEAR OCTOBER 2003 THROUGH SEPTEMBER 2004

MONONGAHELA RIVER BASIN

03075300 YOUGHIOGHENY RIVER NEAR OAKLAND, MD

LOCATION.--Lat 39°25'17.9", long 79°25'29.6", Garrett County, Hydrologic Unit 05020006, on left bank 200 ft downstream from Baltimore and Ohio Railroad bridge, 250 ft downstream from Little Youghiogheny River, 1.2 mi northwest of Oakland, and 1.5 mi upstream from Dunkard Lick Run.

DRAINAGE AREA.--134 mi².

PERIOD OF RECORD.--August 1941 to current year.

REVISED RECORDS.--WSP 1113; 1947(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,353.61 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1946, nonrecording gage at bridge 200 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are poor. Town of Oakland diverted an average of 0.4 ft³/s for water supply. The diversion is returned upstream from station as sewage. U.S. Army Corps of Engineers satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage of 15.3 ft. from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft ³ /s) | Gage height (ft) | Date | Time | Discharge (ft ³ /s) | Gage height (ft) |
|--------|------|--------------------------------|------------------|--------|------|--------------------------------|------------------|
| Nov 12 | 1515 | 4,230 | 7.07 | Mar 4 | 1545 | 3,730 | 6.67 |
| Nov 19 | 2015 | 2,810 | 5.86 | Mar 6 | 1215 | 4,530 | 7.32 |
| Jan 5 | 1615 | 2,180 | 5.25 | Mar 21 | 0630 | 2,500 | 5.57 |
| Feb 7 | 0400 | *4,830 | *7.53 | Apr 13 | 2100 | 3,220 | 6.23 |
| Mar 2 | 2245 | 2,640 | 5.70 | Jun 12 | 0515 | 3,820 | 6.74 |

Minimum discharge, 24 ft³/s, July 26.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|--------|--------|--------|--------|--------|--------|-------|--------|-------|-------|-------|
| 1 | 459 | 229 | e420 | 493 | e85 | 384 | 421 | 201 | 315 | 69 | 165 | 193 |
| 2 | 370 | 208 | e330 | 1,060 | e84 | 1,410 | 720 | 192 | 262 | 61 | 89 | 126 |
| 3 | 284 | 188 | e285 | 1,710 | e82 | 1,890 | 828 | 253 | 265 | 55 | 66 | 95 |
| 4 | 350 | 171 | e250 | 1,450 | e160 | 2,860 | 1,100 | 179 | 215 | 53 | 56 | 76 |
| 5 | 364 | 362 | e230 | 1,660 | e240 | 2,370 | 862 | 169 | 217 | 54 | 72 | 72 |
| 6 | 270 | 765 | e210 | 1,410 | 1,840 | 4,010 | 737 | 165 | 188 | 50 | 63 | 58 |
| 7 | 232 | 653 | e195 | 914 | 3,940 | 2,760 | 766 | 142 | 159 | 44 | 43 | 33 |
| 8 | 200 | 486 | 193 | 718 | e800 | 1,650 | 772 | 135 | 125 | 41 | 37 | 293 |
| 9 | 173 | 386 | 183 | 511 | e460 | 1,080 | 678 | 110 | 106 | 38 | 33 | 1,160 |
| 10 | 153 | 312 | 199 | 391 | e350 | 823 | 484 | 94 | 95 | 35 | 29 | 676 |
| 11 | 135 | 275 | 1,090 | e300 | e280 | 700 | 378 | 92 | 552 | 37 | 28 | 357 |
| 12 | 122 | 2,870 | 737 | e240 | e240 | 619 | 532 | 216 | 2,670 | 70 | 59 | 235 |
| 13 | 111 | 2,250 | 507 | e217 | e208 | 472 | 1,930 | 277 | 1,010 | 181 | 116 | 177 |
| 14 | 127 | 1,040 | 415 | e195 | e195 | 398 | 2,160 | 142 | 609 | 105 | 67 | 146 |
| 15 | 571 | 714 | 356 | e170 | e180 | 401 | 1,140 | 118 | 394 | 75 | 47 | 126 |
| 16 | 297 | 518 | 300 | e157 | e170 | 420 | 774 | 115 | 292 | 54 | 64 | 128 |
| 17 | 243 | 399 | e270 | e150 | e155 | 564 | 562 | 92 | 382 | 42 | 51 | 189 |
| 18 | 280 | 313 | e255 | e145 | e165 | 485 | 406 | 122 | 818 | 39 | 37 | 632 |
| 19 | 224 | 1,340 | e243 | e138 | e195 | 956 | 321 | 767 | 498 | 42 | 151 | 281 |
| 20 | 205 | 1,800 | e235 | e132 | 215 | 829 | 274 | 416 | 357 | 61 | 113 | 195 |
| 21 | 212 | 962 | e220 | e126 | 864 | 2,000 | 234 | 323 | 264 | 34 | 378 | 154 |
| 22 | 201 | 670 | 208 | e120 | 578 | 1,180 | 204 | 937 | 234 | 30 | 319 | 115 |
| 23 | 170 | 492 | 417 | e113 | 393 | 809 | 189 | 526 | 222 | 31 | 160 | 99 |
| 24 | 146 | 405 | 1,150 | e109 | 372 | 625 | 170 | 338 | 165 | 34 | 115 | 85 |
| 25 | 126 | 354 | 1,090 | e103 | 320 | 493 | 158 | 248 | 135 | 28 | 91 | 76 |
| 26 | 136 | 276 | 749 | e101 | 282 | 395 | 549 | 254 | 132 | 45 | 72 | 68 |
| 27 | 271 | 238 | 537 | e97 | 249 | 360 | 516 | 231 | 116 | 221 | 61 | 64 |
| 28 | 324 | 453 | 407 | e94 | 247 | 325 | 362 | 483 | 97 | 171 | 54 | 92 |
| 29 | 286 | 741 | 346 | e91 | 294 | 267 | 278 | 388 | 93 | 89 | 97 | 124 |
| 30 | 306 | 519 | 654 | e89 | — | 242 | 231 | 252 | 81 | 63 | 302 | 81 |
| 31 | 255 | — | 628 | e87 | — | 255 | — | 255 | — | 77 | 586 | — |
| TOTAL | 7,603 | 20,391 | 13,309 | 13,291 | 13,643 | 32,032 | 18,736 | 8,232 | 11,062 | 2,029 | 3,621 | 6,226 |
| MEAN | 245 | 680 | 429 | 429 | 470 | 1,033 | 625 | 266 | 369 | 65.5 | 117 | 208 |
| MAX | 571 | 2,870 | 1,150 | 1,710 | 3,940 | 4,010 | 2,160 | 937 | 2,670 | 221 | 586 | 1,160 |
| MIN | 111 | 171 | 183 | 87 | 82 | 242 | 158 | 92 | 81 | 28 | 28 | 53 |
| CFSM | 1.83 | 5.07 | 3.20 | 3.20 | 3.51 | 7.71 | 4.66 | 1.98 | 2.75 | 0.49 | 0.87 | 1.55 |
| IN. | 2.11 | 5.66 | 3.69 | 3.69 | 3.79 | 8.89 | 5.20 | 2.29 | 3.07 | 0.56 | 1.01 | 1.73 |

c Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

| | 1941 | 1942 | 1943 | 1944 | 1945 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|----------|------|-------|-------|------|-------|-------|------|------|------|------|------|------|------|-------|-------|------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 115 | 246 | 397 | 427 | 499 | 620 | 457 | 335 | 215 | 171 | 132 | 99.8 | 115 | 246 | 397 | 427 | 499 | 620 | 457 | 335 | 215 | 171 | 132 | 99.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MAX (WY) | 608 | 1,152 | 1,027 | 973 | 1,100 | 1,477 | 879 | 995 | 766 | 629 | 586 | 900 | 608 | 1,152 | 1,027 | 973 | 1,100 | 1,477 | 879 | 995 | 766 | 629 | 586 | 900 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MIN (WY) | 4.45 | 7.08 | 62.2 | 63.2 | 127 | 168 | 121 | 76.0 | 22.9 | 10.3 | 10.5 | 5.99 | 4.45 | 7.08 | 62.2 | 63.2 | 127 | 168 | 121 | 76.0 | 22.9 | 10.3 | 10.5 | 5.99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CFSM | 1.83 | 5.07 | 3.20 | 3.20 | 3.51 | 7.71 | 4.66 | 1.98 | 2.75 | 0.49 | 0.87 | 1.55 | 1.83 | 5.07 | 3.20 | 3.20 | 3.51 | 7.71 | 4.66 | 1.98 | 2.75 | 0.49 | 0.87 | 1.55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IN. | 2.11 | 5.66 | 3.69 | 3.69 | 3.79 | 8.89 | 5.20 | 2.29 | 3.07 | 0.56 | 1.01 | 1.73 | 2.11 | 5.66 | 3.69 | 3.69 | 3.79 | 8.89 | 5.20 | 2.29 | 3.07 | 0.56 | 1.01 | 1.73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

APPENDIX D

RECORD OF
DISSOLVED OXYGEN MONITORING

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

| DATE | INSTRUMENT CALIBRATION | | DO MEASUREMENTS | | | NO. UNITS GENERATING | TIMES OF GENERATION | SLUICE GATE POSITION | NON-OPERATING TAILRACE ELEV | OPERATING TAILRACE ELEV | |
|------|------------------------|---------|----------------------|------------|-----------|----------------------|---------------------|----------------------|-----------------------------|-------------------------|-----------|
| | CAL. READINGS | | DOWNSTREAM FROM WEIR | | DO (mg/l) | | | | | | |
| | TIME | TEMP °C | DO (mg/l) | TEMP °C | | | | | | | DO (mg/l) |
| 1-04 | 13:20 | 21.7 | 7.97 | 13:30 | 12.5 | 8.97 | 2 @ 90% | 13:00 To 15:30 | All OPEN | 2022.7 | 2028.1 |
| 2 | — | — | — | — | — | — | — | NONE | " | 2022.6 | — |
| 3 | — | — | — | — | — | — | — | NONE | " | 2022.5 | — |
| 4 | 10:10 | 22.5 | 7.71 | 10:40 | 12.4 | 8.89 | 2 @ 90% | 10:00 To 15:00 | " | 2022.4 | 2028.1 |
| 5 | — | STATION | — | UNATTENDED | — | — | 2 @ 88% | 10:00 To 13:00 | " | — | 2028. |
| 6 | — | — | — | — | — | — | — | NONE | " | — | — |
| 7 | 10:25 | 21.5 | 8.01 | 10:35 | 13.4 | 9.03 | 2 @ 85% | 10:00 To 14:15 | " | 2022.2 | 2027.8 |
| 8 | 13:40 | 24.8 | 7.51 | 13:50 | 13.2 | 8.96 | 2 @ 100% | 13:15 To 19:00 | " | 2022.2 | 2028.1 |
| 9 | 13:15 | 25.9 | 7.39 | 13:25 | 13.4 | 8.72 | 2 @ 100% | 12:50 To 18:00 | " | 2022.2 | 2028. |
| 10 | — | — | — | — | — | — | — | NONE | " | 2022.1 | — |
| 11 | 10:20 | 25.0° | 7.32 | 10:30 | 13.1 | 8.64 | 2 @ 85% | 10:00 To 13:00 | " | 2022.0 | 2027.9 |
| 12 | — | — | STATION | UNATTENDED | — | — | 2 @ 85% | 07:30 To 17:50 | " | — | 2028.1 |
| 13 | — | — | — | — | — | — | — | NONE | " | — | — |
| 6-14 | 10:25 | 25.4° | 7.27 | 10:30 | 14.7 | 8.80 | 2 @ 88% | 10:00 To 24:00 | " | 2023.2 | 2028. |
| 6-15 | 08:25 | 23.9° | 7.61 | 08:35 | 13.8 | 8.68 | 2 @ 85% | 08:00 To 23:00 | " | 2022.8 | 2027.8 |
| 6-16 | 10:50 | 24.1° | 7.52 | 11:00 | 13.9 | 8.71 | 2 @ 85% | 10:30 To 21:30 | " | 2022.6 | 2027.6 |
| 6-17 | — | — | — | — | — | — | — | NONE | " | 2022.6 | — |
| 6-18 | — | — | — | — | — | — | — | NONE | " | — | — |
| 6-19 | — | — | STATION | UNATTENDED | — | — | 2 @ 80% | 08:00 To 13:50 | " | — | 2028.1 |
| 6-20 | — | — | STATION | UNATTENDED | — | — | — | NONE | " | — | — |

2004

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

| DATE | INSTRUMENT CALIBRATION | | DO MEASUREMENTS | | NO. UNITS GENERATING | TIMES OF GENERATION | SLUICE GATE POSITION | NON-OPERATING TAILRACE ELEV | OPERATING TAILRACE ELEV | | |
|-------|------------------------|---------|-----------------|----------------------|----------------------|---------------------|----------------------|-----------------------------|-------------------------|-----------|--------|
| | TIME | TEMP °C | DO (mg/l) | DOWNSTREAM FROM WEIR | | | | | | DO (mg/l) | |
| 21-04 | 10:20 | 21.1° | 8.11 | 10:36 | 14.1° | 8.42 | 2 @ 78% | 10:00 To 13:00 | All Open | 2022.5 | 2027.5 |
| 22-04 | | | | | | | | NONE | " | 2022.3 | |
| 23 | | | | | | | | NONE | " | 2022.4 | |
| 24 | 11:45 | 23.5° | 8.00 | 11:55 | 14.6° | 8.73 | 1 @ 95% | | " | 2022.2 | 2024.5 |
| 25 | 10:30 | 23.0° | 7.93 | 10:40 | 13.7° | 8.48 | 2 @ 90% | 10:00 To 13:00 | " | 2022.2 | 2028.1 |
| 26 | | | | | | | | NONE | " | | |
| 27 | | | | | | | | NONE | " | | |
| 28 | 10:25 | 22.5° | 7.90 | 10:35 | 14.8° | 8.02 | 2 @ 95% | 10:00 To 13:00 | " | 2022.0 | 2028.1 |
| 29 | | | | | | | | NONE | " | 2022.0 | |
| 30 | | | | | | | | NONE | " | 2021.9 | |
| 1-1 | 10:30 | | | | | | | NONE | " | 2021.9 | |
| 1-2 | 10:30 | 22.9° | 8.01 | 10:40 | 14.6° | 7.99 | 2 @ 90% | 10:00 To 13:00 | " | 2021.9 | 2028. |
| 1-3 | | | | UNATTENDED | | | | 10:00 To 13:00 | " | | |
| 1-4 | | | | | | | | NONE | " | | |
| 1-5 | | | | | | | 2 @ 90% | 10:00 To 13:00 | " | 2021.7 | 2028. |
| 1-6 | | | | | | | | NONE | " | 2021.7 | |
| 1-7 | 14:30 | 26.0° | 7.34 | 14:40 | 14.7° | 7.45 | 2 @ 95% | 14:00 To 17:00 | " | 2021.7 | 2028. |
| 1-8 | | | | | | | | NONE | " | 2021.7 | |
| 1-9 | 10:30 | 27.0° | 7.25 | 10:40 | 14.8° | 7.49 | 2 @ 90% | 10:00 To 13:00 | " | 2021.7 | 2028. |
| 1-10 | | | | | | | | NONE | " | | |

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

| DATE | INSTRUMENT CALIBRATION | | DO MEASUREMENTS | | NO. UNITS GENERATING | TIMES OF GENERATION | SLUICE GATE POSITION | NON-OPERATING TAILRACE ELEV | OPERA. TAILR. ELEV |
|--------|------------------------|---------|-----------------|----------------------|----------------------|------------------------------|----------------------|-----------------------------|--------------------|
| | TIME | TEMP °C | DO (mg/l) | DOWNSTREAM FROM WEIR | | | | | |
| -11-04 | — | STATION | NOT ATTENDED | — | 2 @ 90% | 17:40 To 21:00 | ALL OPEN | — | — |
| -12 | 08:50 | 24.5° | 7.33 | 09:05 | 2 @ 85% | 08:35 To 13:00 | " | 2021.7 | 2027.1 |
| -13 | 13:55 | 25.3° | 7.23 | 14:05 | 2 @ 90% | 13:30 To 16:30 | " | 2022.3 | 2028. |
| -14 | — | — | — | — | — | — NONE — | " | 2022.1 | — |
| -15 | — | AWAY | FROM STATION | — | 2 @ 85% | UNRECORDED 13:50 To 16:50 | " | 2022.0 | — |
| -16 | 10:20 | 22.3° | 7.89 | 10:35 | 2 @ 90% | 10:00 To 13:00 | " | 2021.8 | 2028. |
| -17 | — | STATION | UNATTENDED | — | — | 13:00 To 16:00 | " | — | — |
| -18 | — | " | " | " | — | — NONE — | " | — | — |
| -19 | 10:25 | 20.9° | 7.42 | 10:35 | 2 @ 90% | 10:00 To 14:35 | " | 2021.8 | 2028. |
| -20 | 13:25 | 22.8° | 7.27 | 13:35 | 2 @ 90% | 13:00 To 18:00 | " | 2021.8 | 2028. |
| -21 | 13:40 | 24.7° | 7.56 | 13:50 | 2 @ 95% | 13:15 To 18:00 | " | 2021.7 | 2028. |
| -22 | 11:25 | 24.1° | 7.39 | 11:35 | 2 @ 95% | 11:00 To | " | 2021.6 | 2028. |
| -23 | 10:30 | 26.7° | 7.11 | 10:35 | 2 @ 95% | 10:00 To 13:00 | " | 2021.6 | 2028. |
| -24 | — | STATION | UNATTENDED | — | — | — NONE — | " | — | — |
| -25 | — | — | — | — | 2 @ 90% | 21:15 To 22:20 | " | — | — |
| -26 | 10:30 | 23.1° | 7.10 | 10:35 | 2 @ 100% | 10:00 To 13:00 | " | 2021.6 | 2028 |
| -27 | — | — | — | — | — | — NONE — | * CLOSED, 2 OPEN | 2021.8 | — |
| -28 | — | — | — | — | — | — NONE — | " | 2022.2 | — |
| -29 | — | — | — | — | — | — NONE — | " | 2021.9 | — |
| -30 | 09:20 | 23.5° | 7.20 | 09:30 | 2 @ 90% | 8:45 To 13:10 | " | 2021.9 | 2028. |

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

| DATE | INSTRUMENT CALIBRATION | | DO MEASUREMENTS | | NO. UNITS GENERATING | TIMES OF GENERATION | SLUICE GATE POSITION | NON-OPERATING TAILRACE ELEV | OPERATING TAILRACE ELEV |
|------|------------------------|---------|-----------------|----------------------|----------------------|---------------------|----------------------|-----------------------------|-------------------------|
| | TIME | TEMP °C | DO (mg/l) | DOWNSTREAM FROM WEIR | | | | | |
| 3-31 | | | STATION | UNATTENDED | 2 @ 95% | 10:00 To 16:00 | 2 CLOSED 2 OPEN 6" | | 2028.1 |
| 3-1 | | | " | " | | NONE | " | | |
| 3-2 | 10:25 | 23.3° | 7.81 | 10:35 | 2 @ 90% | 10:00 To 16:00 | " | 2021.9 | 2028.1 |
| 3-3 | 10:55 | 24.6° | 7.63 | 11:10 | 2 @ 80% | 10:35 To 20:00 | " | 2021.8 | 2028.1 |
| 3-4 | 11:40 | 24.5° | 7.65 | 11:50 | 2 @ 78% | 11:15 To 14:10 | " | 2021.7 | 2028.1 |
| 3-5 | | | | | | NONE | " | 2021.9 | |
| 3-6 | 10:25 | 17.8° | 8.52 | 10:35 | 2 @ 78% | 10:00 To 13:00 | " | 2021.8 | 2028.1 |
| 3-7 | | | STATION | UNATTENDED | 2 @ 80% | 10:00 To 13:00 | " | | 2028.1 |
| 3-8 | | | " | " | | NONE | " | | |
| 3-9 | 10:30 | 20.4° | 8.33 | 10:35 | 2 @ 76% | 10:00 To 13:00 | " | 2021.7 | 2028.1 |
| 3-10 | | | | | | NONE | " | 2021.7 | |
| 3-11 | 08:50 | 21.6° | 7.78 | 08:55 | 2 @ 95% | 08:25 To 10:30 | " | 2021.7 | 2028.1 |
| 3-12 | | | | | | NONE | " | 2021.7 | |
| 3-13 | | | | | | | " | 2022.2 | 2028.1 |
| 3-14 | | | STATION | UNATTENDED | | NONE | " | | |
| 3-15 | | | " | " | | NONE | " | | |
| 3-16 | 10:30 | 19.7° | 7.70 | 10:35 | 6.52 | 10:00 To 13:22 | " | 2021.8 | 2028.1 |
| 3-17 | | | | | | NONE | " | 2021.9 | |
| 3-18 | | | | | | NONE | " | 2021.8 | |
| 3-19 | | | | | | NONE | " | 2021.8 | |

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

| DATE | INSTRUMENT CALIBRATION | | DO MEASUREMENTS | | NO. UNITS GENERATING | TIMES OF GENERATION | SLUICE GATE POSITION | NON-OPERATING TAILRACE ELEV | OPERAT TAILRA ELEV | | |
|-------|------------------------|-----------|-----------------|----------------------|----------------------|---------------------|----------------------|-----------------------------|-----------------------|-----------|--------|
| | TIME | TEMP °C | DO (mg/l) | DOWNSTREAM FROM WEIR | | | | | | DO (mg/l) | |
| 20-04 | 10:30 | 22.4° | 7.64 | 10:35 | 17.1° | 6.48 | 2 @ 100% | 10:00 To 13:00 | 2 CLOSED 2 OPEN 6" | 2022.3 | 2028.2 |
| 21 | — | — | — | STATION | UNATTENDED | — | — | NONE | " | — | — |
| 22 | — | — | — | — | — | — | — | NONE | " | — | — |
| 23 | 10:30 | 18.8° | 7.85 | 10:35 | 17.7° | 6.31 | 2 @ 100% | 10:00 To 13:10 | " | 2022.4 | 2028.2 |
| 24 | — | — | — | — | — | — | — | NONE | " | 2022.1 | — |
| 25 | — | — | — | — | — | — | — | NONE | " | 2021.9 | — |
| 26 | — | — | — | — | — | — | — | NONE | " | 2021.9 | — |
| 8-27 | 10:30 | 21.8° | 7.42 | 10:35 | 17.0° | 6.49 | 2 @ 85% | 10:00 To 20:00 | " | 2021.8 | 2028.1 |
| 8-28 | — | — | — | STATION | UNATTENDED | — | 2 | 11:00 To 14:30 | " | — | 2028.1 |
| 8-29 | — | — | — | " | — | — | 2 | 09:30 To 12:30 | " | — | 2028.1 |
| 8-30 | 08:45 | 22.1° | 7.72 | 08:50 | 17.5° | 6.21 | 2 @ 90% | 08:10 To 14:10 | " | 2022.0 | 2028.1 |
| 8-31 | — | — | — | — | — | — | — | NONE | " | 2023.5 | — |
| 9-1 | — | — | — | — | — | — | — | NONE | " | 2022.5 | — |
| 9-2 | — | No One | As | STATION | — | — | 2 @ 90% | 15:00 To 18:00 | " | 2022.2 | 2028.1 |
| 9-3 | — | — | — | " | — | — | 2 @ 90% | 10:00 To 18:00 | " | 2022.2 | 2028.1 |
| 9-4 | — | STATION | UNATTENDED | — | — | — | 2 | 10:00 To 15:03 | " | — | 2028.1 |
| 9-5 | — | " | " | " | — | — | — | — NONE | " | — | — |
| 9-6 | — | " | " | " | — | — | 2 | 10:10 To 13:12 | " | — | 2028.1 |
| 9-7 | 13:20 | 23.6° | 7.49 | 13:25 | 19.8° | 7.09 | 2 @ 95% | 12:45 To 16:30 | " | 2021.8 | 2028.1 |
| 9-8 | — | INCREMENT | WEATHER | — | — | — | 2 @ 95% | 10:00 To 14:10 | " | 2021.9 | 2028.1 |

DEEP CREEK STATION
DISSOLVED OXYGEN MONITORING LOG

(Instrument Calibrated to 2000 ft. MSL)

| DATE | INSTRUMENT CALIBRATION | | | DO MEASUREMENTS | | | NO. UNITS GENERATING | TIMES OF GENERATION | SLUICE GATE POSITION | NON-OPERATING TAILRACE ELEV | OPERATING TAILRACE ELEV |
|------|------------------------|-----------|------------|----------------------|---------|-----------|----------------------|---------------------|-----------------------|-----------------------------|-------------------------|
| | CAL. READINGS | | | DOWNSTREAM FROM WEIR | | | | | | | |
| | TIME | TEMP °C | DO (mg/l) | TIME | TEMP °C | DO (mg/l) | | | | | |
| 9-04 | — | No ONE | 7.76 | Station | — | — | 2 | 20:24 To 24:00 | 2 Closed 2 Open 6" | 2024.2 | — |
| 9-10 | 13:30 | 20.8° | 7.76 | 13:35 | 18.0° | 6.27 | 2 @ 95% | 13:00 To 18:00 | " | 2023.4 | 2028.5 |
| 9-11 | — | No ONE | At Station | At Station | — | — | 2 | 10:00 To 20:00 | " | — | 2028.5 |
| 9-12 | — | " | " | " | " | — | 2 | 11:00 To 21:00 | " | — | 2028.2 |
| 9-13 | 10:30 | 19.5° | 7.73 | 10:35 | 18.4° | 6.40 | 2 @ 100% | 10:00 To 19:00 | " | 2022.4 | 2028.2 |
| 9-14 | 11:30 | 18.4° | 7.85 | 11:40 | 18.9° | 6.79 | 2 @ 100% | 11:00 To 18:00 | " | 2022.2 | 2028.2 |
| 9-15 | 12:30 | 20.3° | 7.78 | 12:35 | 19.2° | 7.22 | 2 @ 100% | 12:00 To 18:00 | " | 2022.2 | 2028.2 |
| 9-16 | 12:30 | 21.1° | 7.69 | 12:35 | 19.1° | 7.73 | 2 @ 100% | 12:00 To 19:00 | " | 2022.0 | 2028.2 |
| 9-17 | — | INCREMENT | WEATHER | WEATHER | — | — | 2 @ 100% | 10:00 To 13:00 | " | 2022.3 | 2028.2 |
| 9-18 | — | No ONE | At Station | At Station | — | — | 2 | 11:00 To 22:00 | " | — | 2028.5 |
| 9-19 | — | " | " | " | " | — | 2 | 15:00 To 21:00 | " | — | 2028.2 |
| 9-20 | 10:35 | 16.2° | 8.27 | 10:40 | 18.5° | 6.78 | 2 @ 100% | 10:00 To 13:00 | " | 2022.6 | 2028.2 |
| 9-21 | 10:10 | 17.3° | 7.94 | 10:25 | 18.7° | 6.88 | 2 @ 100% | 09:50 To 13:00 | " | 2022.4 | 2028.2 |
| 9-22 | 10:25 | 16.7° | 8.66 | 10:35 | 18.4° | 7.03 | 2 @ 100% | 10:00 To 15:00 | " | 2022.3 | 2028.2 |
| 9-23 | 10:20 | 16.9° | 8.30 | 10:30 | 18.2° | 6.99 | 2 @ 100% | 10:00 To 15:00 | " | 2022.2 | 2028.2 |
| 9-24 | 10:20 | 16.5° | 8.29 | 10:30 | 18.5° | 7.05 | 2 @ 100% | 10:00 To 16:00 | " | 2022.2 | 2028.2 |
| 9-25 | — | No ONE | At Station | At Station | — | — | 2 | 10:00 To 16:00 | " | — | 2028.2 |
| 9-26 | — | " | " | " | " | — | 2 | 15:00 To 21:10 | " | — | 2028.5 |
| 9-27 | 10:30 | 21.5 | 8.16 | 10:35 | 18.6° | 7.21 | 2 @ 100% | 10:00 To 16:15 | " | 2022.1 | 2028.2 |
| 9-28 | — | INCREMENT | WEATHER | WEATHER | — | — | 2 @ 100% | 10:00 To 14:00 | " | 2022.1 | 2028.2 |



Zebra Mussel Monitoring Report

(official use only - leave blank)
ZM Monitoring Network #:

- 1.) Carroll Thomas
(COLLECTOR'S NAME)
- 2.) Reliant Energy 3.) 301-387-6616
(COMPANY OR AFFILIATION) (PHONE NUMBER)
- 4.) 14 River View Terrace
(ADDRESS)
- 5.) Deep Creek Power Plant
(NAME OF STATION)

Physical / Chemical / and Biological Data

- 6.) _____ 7.) _____ 8.) _____
(STATION LATITUDE) (STATION LONGITUDE) (RIVER MILE INDEX)

9.) Date and time this data was collected (circle year, month, day, & hour)

Year: '98 '99 '00 '01 04

Month: 01 02 03 04 05 06 07 08 09 10 11 12

Day: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Hour: _____ (if before 7am) 07 08 09 10 11 12 (noon) 13 (1pm) 14 (2pm) 15 (3pm) 16 (4pm) 17 18 _____ (if after 6pm)

- 10.) 73° F 11.) _____ 12.) _____ 13.) _____
(TEMPERATURE °C) (pH) (DISSOLVED OXYGEN mg/l) (CONDUCTIVITY umhos/cm)

- 14.) _____ 15.) _____ 16.) _____ 17.) _____
(TOTAL CALCIUM mg/l) (SECCHI DEPTH meters) (CURRENT VELOCITY meters/sec) (WATER DEPTH meters)

18.) How far above the natural substrate is the sampler? (in meters) _____

19.) How many days was the sampler exposed to the water prior to collecting this data? 168

20.) Are zebra mussels present at this site? (NO) (YES) - if yes, comment below and notify the Zebra Mussel Monitoring Coordinator immediately.

21.) Other organisms observed on the sampler / site? (please list) _____

Pulled SAMPLER for year

22.) Comments (if more space is needed, continue on the back of this form): _____

MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION
SOURCE PROTECTION AND APPROPRIATION DIV
1800 WASHINGTON BOULEVARD
BALTIMORE, MARYLAND 21230

RECEIVED
JAN 27 2005

January 2005

Regarding Water Appropriation and Use Permit GA1992S009(03)

Make Name/Address Changes Below

RELIANT ENERGY
ATTN: WILLIAM FRIERS
225 GREENFIELD PARKWAY STE. 201
LIVERPOOL, NY 13088

Dear Permittee:

As a condition of your Maryland Water Appropriation and Use Permit you are required to report your water withdrawal every six months. Complete and return this form no later than 30 days after the date on which it is received.

If you have any questions concerning this form, please telephone the Water Supply Program at (410) 537-3590.

2004 SEMI-ANNUAL SURFACE WATER WITHDRAWAL REPORT

1. Check the method used to determine your withdrawal amounts:
() Flow Meter () Elapsed Time Indicator
(x) Other (Explain)

2. Enter the number of gallons of water withdrawn for each month.
- If you have multiple intakes under this permit, please add together the monthly totals for all intakes.
- Do not list continuous meter readings, hours pumped, or gallons in mgd.
- Indicate a "0" for each month with no withdrawal.

| | | | | | |
|---|------|-------------------|----------|------|-------------------|
| July | 2004 | <u>950 mg</u> | October | 2004 | <u>1,204.5 mg</u> |
| August | 2004 | <u>1,273.8 mg</u> | November | 2004 | <u>2,201.6 mg</u> |
| September | 2004 | <u>2,751.1 mg</u> | December | 2004 | <u>3,960.4 mg</u> |
| Total: <u>12,341.5 mg (million gallons)</u> | | | | | |

3. Please sign and date this form.

Submitted By: _____ Date: 1/28/05

Title: Reg Specialist/Biologist Telephone Number: (315) 641-1624

4. Make address corrections on the top of this form.
Please contact this office if ownership has changed.