



Tennessee Valley Authority, 1101 Market Street, LP 5A, Chattanooga, Tennessee 37402-2801

August 8, 2008

10 CFR 52.80

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

In the Matter of)
Tennessee Valley Authority)

Docket Numbers 52-014 and 52-015

**BELLEFONTE COMBINED LICENSE APPLICATION – RESPONSE TO
ENVIRONMENTAL REPORT REQUEST FOR ADDITIONAL INFORMATION -
HYDROLOGY**

Reference: Letter from Mallecia Hood (NRC) to Ashok S. Bhatnaker (TVA), Request for Additional Information Regarding the Environmental Review of the Combined License Application for Bellefonte Nuclear Plant, Units 3 and 4, dated July 11, 2008 [ML081840493].

This letter provides the Tennessee Valley Authority's (TVA) response to eight of the Nuclear Regulatory Commission's (NRC) request for additional information (RAI) items included in the reference letter.

The status of the NRC requests related to Hydrology is provided in the enclosure. The enclosure also provides a response to seven of these requests and one subpart of an additional request, as well as identifying any associated changes that will be made in a future revision of the BLN application.

As discussed with the NRC's environmental project manager responsible for the review of the BLN ER, the data provided on the attached CD-ROM (Attachment 5.2-4A) is of a nature that it is not easily converted to PDF output files. Furthermore, it is TVA's understanding that converting the information to PDF output files would not serve the underlying purpose of this submittal; i.e., providing the raw, unprocessed data to enable the reviewers to independently validate the applicant's simulations and analyses. The data provided in Attachment 5.2-4A is also provided in Table 5.2-X1 in the response to RAI 5.2-4 in the enclosure to this letter.

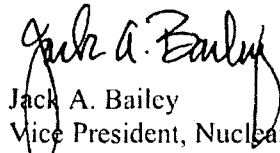
If you should have any questions, please contact Thomas Spink at 1101 Market Street, LP5A, Chattanooga, Tennessee 37402-2801, by telephone at (423) 751-7062, or via email at tespink@tva.gov.

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NRC

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I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 8th day of Aug, 2008.

A handwritten signature in black ink, appearing to read "Jack A. Bailey". The signature is written in a cursive style with a large, looped initial "J".

Jack A. Bailey
Vice President, Nuclear Generation Development
Nuclear Generation Development & Construction

Enclosure and Attachments:
See Page 3

Enclosure:

Response to Environmental Report Requests for Additional Information - Hydrology

Attachments:

- 5.2-4A. U.S. Environmental Protection Agency, STORET Database, Water Temperature Data for Alabama, Website, <ftp://ftp.epa.gov/storet/exports/>, accessed July 23, 2008. (Data on CD-ROM)
- 5.2-4B. Tennessee Valley Authority, New Figure 5.2-X1, Water Temperature Sampling Location Map, No date. (Entire document)
- 5.2-4C. U.S. Drought Monitor, Statistics for the Southeast Region, Website, http://www.drought.unl.edu/dm/DM_tables.htm, accessed May 29, 2008. (Entire document - continuous data sheets)
- 5.2-4D. Tennessee Valley Authority, Widows Creek Fossil Plant Daily Average Intake Temperatures, 2000 to 2006, No date. (Entire document – continuous data sheets)
- 5.3-3(4)A. Tennessee Valley Authority, Tennessee River Cross Section Location, No date. (Entire document)
- 5.3-3(4)B. Tennessee Valley Authority, Tennessee River Cross Section at the Barge Dock, No date. (Entire document)
- 5.3-3(4)C. Tennessee Valley Authority, BLN Flow Rate Response (August 16, 1988), No date. (Entire document)
- 5.3-3(4)D. Tennessee Valley Authority, BLN Flow Rate Response (June 21, 2006), No date. (Entire document)
- 5.3-3(4)E. Tennessee Valley Authority, BLN Flow Rate Response (March 30, 2006), No date. (Entire document)
- 5.3-3(4)F. Tennessee Valley Authority, Reverse Flow Occurrence >18,000 cfs, No date. (Entire document)

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cc (Enclosure and Attachments):

M. A. Hood, NRC/HQ

cc (w/o Enclosure and Attachments):

S.P. Frantz, Morgan Lewis

R.C. Grumbir, NuStart

P.S. Hastings, NuStart

R.H. Kitchen, PGN

M.C. Kray, NuStart

A.M. Monroe, SCE&G

C.R. Pierce, SNC

L. Reyes, NRC/RII

R.F. Smith-Kevern, DOE/HQ

G.A. Zinke, NuStart

ENCLOSURE
RESPONSE TO ENVIRONMENTAL REPORT REQUESTS FOR ADDITIONAL INFORMATION
HYDROLOGY

**RESPONSE TO ENVIRONMENTAL REPORT
REQUESTS FOR ADDITIONAL
INFORMATION**

HYDROLOGY

TVA Letter Dated: August 8, 2008

Responses to Environmental Report Requests for Additional Information – Hydrology

This enclosure provides the status of the 22 requests for additional information (RAI) related to Hydrology and provides the BLN responses to seven of these requests and one subpart to one request (RAI 5.3-3, Subpart 4).

Status of Requests for Additional Information Related to Hydrology

<u>RAI Number</u>	<u>Date of TVA Response</u>
• 2.3-1	August 4, 2008. (Reference 1)
• 2.3-2	August 4, 2008. (Reference 1)
• 2.3-3	This letter – see following pages.
• 2.3-4	This letter – see following pages.
• 2.3-5	August 4, 2008. (Reference 1)
• 3.3-1	August 4, 2008. (Reference 1)
• 3.6-1	August 4, 2008. (Reference 1)
• 3.6-2	August 4, 2008. (Reference 1)
• 5.2-1	August 4, 2008. (Reference 1)
• 5.2-2	This letter – see following pages.
• 5.2-3	August 4, 2008. (Reference 1)
• 5.2-4	This letter – see following pages.
• 5.2-5	Future – expected submittal by August 11, 2008.
• 5.3-1	August 4, 2008. (Reference 1)
• 5.3-2	Future – expected submittal by August 11, 2008.
• 5.3-3 (4)	This letter – see following pages.
• 5.3-3 (1), (2), (3)	Future – expected submittal by August 11, 2008.
• 5.3-4	This letter – see following pages.
• 5.3-5	Future – expected submittal by August 11, 2008.
• 5.3-6	This letter – see following pages.
• 5.3-7	This letter – see following pages.
• 5.3-8	Future – expected submittal by August 11, 2008.
• 6.6-1	August 4, 2008. (Reference 1)

Reference:

Letter from Jack A. Bailey (TVA) to NRC Document Control Desk, “Bellefonte Combined License Application – Response to Environmental Report Request for Additional Information – Hydrology,” dated August 4, 2008.

TVA Letter Dated: August 8, 2008

Responses to Environmental Report Requests for Additional Information – Hydrology

NRC Review of the BLN Environmental Report**NRC Environmental Category: HYDROLOGY****NRC RAI NUMBER: 2.3-3**

Comment on the alternative conceptual model and pathway suggested by the groundwater depression observed between Unit 3 and Town Creek. Explain why it was excluded from the plausible alternative conceptual models and pathways evaluated in the ER.

BLN RESPONSE:

The conceptual model describes a physical representation of interpreted, actual groundwater conditions. As discussed in the BLN response to RAI 2.3-2 provided in the referenced TVA letter dated August 4, 2008, the conceptual model of groundwater transport was based on an assumed worst-case, straight-line (single-fracture) flow, with groundwater levels between a well near the location of Unit 3 and Town Creek. This assessment allows simplifying the unknown, complex fractures and conduits into a simple, conservative system that could be analyzed. As such, the apparent groundwater depression, which appears in the drier periods, is removed from the conceptual model analysis, as it would represent a slowing or perturbation of the transport time and distance; therefore, producing a less conservative analysis. Following the same reasoning, groundwater flows of water drawn into the bedrock would also follow a longer pathway, and therefore, result in a less conservative analysis.

Reference:

Letter from Jack A. Bailey (TVA) to NRC Document Control Desk, "Bellefonte Combined License Application - Response to Environmental Report Request for Additional Information – Hydrology," dated August 4, 2008.

This response is PLANT-SPECIFIC.

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

None.

ATTACHMENTS:

None.

TVA Letter Dated: August 8, 2008

Responses to Environmental Report Requests for Additional Information – Hydrology

NRC Review of the BLN Environmental Report**NRC Environmental Category: HYDROLOGY****NRC RAI NUMBER: 2.3-4**

Provide the reference source and the laboratory or field data for the hydraulic properties used to represent the backfill material.

BLN RESPONSE:

Based on a discussion with the NRC staff on July 14, 2008, a clarification to this RAI was provided by the reviewer, requesting the following supplemental information:

Charlie Kincaid indicates this information is needed to support the background information (horizontal conductivity) that was provided in response to H-07 and H-08. NOTE: These will be old documents that may not meet ADAMS document standards, but the best available copies will be made available at NuStart's contractor's offices in WA for audit.

The clarification is addressed as follows:

TVA's documentation of existing fill material in the ERCW pipeline trench made available for NRC review at NuStart's contractors' offices. The following list of documents is included:

Drawings:

<u>Title</u>	<u>Date</u>	<u>Drawing Number</u>
Location Grid for Borrow Soils Investigation	--	88-C-10E0101-9Y-01 ^{R0}
Location Grid for Borrow Soils Investigation	--	88-C-10E0101-9Y-02 ^{R2}
Mechanical Essential Raw Cooling Water	3-27-76	88-M-7YW0401-KE-01 ^{R13}
Mechanical Essential Raw Cooling Water	3-27-76	88-M-7YW0401-KE-02 ^{R10}
Mechanical Essential Raw Cooling Water	3-27-76	88-M-7YW0401-KE-03 ^{R7}
Mechanical Essential Raw Cooling Water	3-27-76	88-M-7YW0401-KE-04 ^{R8}
Mechanical Essential Raw Cooling Water	3-27-76	88-M-7YW0401-KE-05 ^{R6}
Mechanical Essential Raw Cooling Water	3-27-76	88-M-7YW0401-KE-06 ^{R4}
Mechanical Essential Raw Cooling Water	3-27-76	88-M-7YW0401-KE-07 ^{R2}
Mechanical Essential Raw Cooling Water	3-27-76	88-M-4-7YW0401-KE-08
Mechanical Essential Raw Cooling Water	3-27-76	88-M-7YW0401-KE-09 ^{R3}
Earthfill Compaction Control Data Borrow Area H (2 Sheets)	4-07-87	88-C-8YA0908-YI-01 ^{R0}
Earthfill Compaction Control Data Borrow Area J (2 Sheets)	8-12-88	88-C-8YA0908-YI-02 ^{R0}

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Responses to Environmental Report Requests for Additional Information – Hydrology

<u>Title</u>	<u>Date</u>	<u>Drawing Number</u>
Earthfill Compaction Control Data Borrow Area L (2 Sheets)	8-12-88	88-C-8YA0908-YI-03 ^{R0}
Borrow and Spoil Areas	11-13-80	88-PC-107N101 ^{R2}

In addition to the above-listed drawings, the information available for review also includes an sample of a completed compaction test report for the ERCW piping, an enlargement of the Note section from Drawing 88-M-7YW0401-KE-01 (for clarity), a photograph of the ERCW pipeline construction, and the specification and procedure applicable to TVA's fill process. These are copies of old construction documents and are of limited clarity.

This response is PLANT-SPECIFIC.

Reference:

NRC Communication Summary, "Summary of Telecommunication with Tennessee Valley Authority to Discuss Clarification on Request for Additional Information (RAI) for Bellefonte Units 3 and 4."
Contact: Mallecia Hood (DSER/NRO), dated July 28, 2008 [ML082070062].

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

None.

ATTACHMENTS:

None.

NRC Review of the BLN Environmental Report

NRC Environmental Category: HYDROLOGY

NRC RAI NUMBER: 5.2-2

Discuss and provide references for any studies reviewed in development of the ER associated with the impacts of climate change on water supply.

BLN RESPONSE:

No specific studies of climate change were utilized in development of the ER sections pertinent to impacts of the proposed BLN nuclear units on water supply. The current knowledge of climate change is improving but still contains a great amount of uncertainty. Further, confidence in regional descriptions of future climate changes is low because:

- Although human activities would continue to contribute to emissions of greenhouse gases, it is unknown at what time, and where, measurable or substantive change to other climatic measures and their consequent effects would occur.
- The tools associated with assessing potential climate change are imperfect and often contradictory when applied at a regional level, and the insights available from past trends and changes is also limited.

Using TVA's long-term hydrologic data, the TVA's River Operations Study (ROS) evaluated the effects of a robust range of integrated operating alternatives for multi-purpose management of the Tennessee River system. Adequate water supply is an identified objective of TVA reservoir operations and an integral part of TVA's Environmental Policy established by the TVA Board of Directors in May 2008. TVA's integrated multi-purpose planning and operation of the river system affords flexibility in responding to extreme hydrologic conditions, including conditions that might be caused by climate change.

This response is PLANT-SPECIFIC.

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

None.

ATTACHMENTS:

None.

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Responses to Environmental Report Requests for Additional Information – Hydrology

NRC Review of the BLN Environmental Report**NRC Environmental Category: HYDROLOGY****NRC RAI NUMBER: 5.2-4**

Describe the origin, measurement methods, instrumentation, etc., for the temperature data collected from 1974 to 1990. Provide the data.

Are there data from the Widows Creek facility, upriver of Bellefonte, on temperature of Guntersville Reservoir in the vicinity? If available, provide these data.

BLN RESPONSE:

The water temperature data from 1974 to 1990 were collected by TVA and submitted to the U.S. Environmental Protection Agency (EPA) for storage in the EPA STORET database. The data were subsequently retrieved from EPA STORET and are provided on CD-ROM as Attachment 5.2-4A, which also includes a summary of water temperature measurements for each available river station data location between Tennessee River mile (TRM) 396.8 and TRM 375.2. Water temperature was measured in-situ at the river miles and depths indicated using multi-parameter Hydrolab instruments, which utilize thermistor thermometers. The thermometer in each Hydrolab instrument is standardized to within 0.2°C (0.36°F) in accordance with TVA Quality Assurance procedures.

Widows Creek Fossil Plant (WCF) records daily temperature readings at the H-6 intake, located at TRM 407.0, at an approximate depth of 20 feet below surface. As part of the Vital Signs monitoring program, TVA collects temperature data at various depths at three points on the Tennessee River in the Bellefonte region between the months of April and October. The nearest downstream location is at TRM 375.2, where temperature data is collected at depths between 1 foot and approximately 36 feet below the surface. These two long-term temperature monitoring stations (WCF and TRM 375.2) bracket the BLN site, which is situated between approximately TRM 391 and TRM 394, as shown in Attachment 5.2-4B. ER Section 5.2 is revised to include Attachment 5.2-4B as a new figure (currently designated as Figure 5.2-X1).

Water temperatures collected at a 20-foot depth at the WCF intake from 2000 through 2006 were compared to corresponding water temperature data collected at a 16 to 19-foot depth interval at TRM 375.2 during the seasonal data range (new Table 5.2-X1). Water temperature values at TRM 375.2 were subtracted from those at the WCF intake, such that negative values indicate the WCF intake temperature was lower than the temperature at TRM 375.2. From January 2000 to August 2006, the differences between the WCF intake (TRM 407.0) water temperature and that at TRM 375.2 ranged from 5.00°F warmer to 2.61°F cooler, with 62 percent of temperature differences less than 2°F warmer (new Table 5.2-X2). ER Section 5.2 is revised to include Tables 5.2-X1 and 5.2-X2. The monthly (2000 to 2006) maximum and minimum temperature differences are shown in the following table:

Maximum/Minimum Difference between WCF and TRM 375.2 Temperatures

Month	Max °F	Min °F
April	0.92	-5.00
May	2.61	-2.99
June	0.74	-1.62
July	2.23	-2.12
August	0.90	-2.36
September	0.29	-2.07
October	-0.05	-1.85

On average, the Tennessee River data showed an increase in temperature of 0.90°F, from the WCF intake to TRM 375.2. Given the approximate midpoint location of the BLN site, this translates to an average increase in temperature of 0.45°F from the WCF intake to the BLN site.

TVA Vital Signs temperature data is collected from April to October only; therefore, comparisons of Vital Signs temperature data at TRM 375.2 to the WCF intake temperatures could not be performed for the late fall and winter months.

Based on the minimal change in temperature observed between the WCF intake and TRM 375.2, and the near midpoint location of the BLN between these two sampling locations, the intake temperature at the WCF is considered representative of the Tennessee River temperature at the BLN site.

The southeastern United States, including northeastern Alabama, has been under moderate to severe summer drought conditions since 2006. Similar drought conditions occurred during the summers of 2000 and 2002 (Attachment 5.2-4C). Temperature data from the WCF encompasses these previous drought years. The highest river temperatures generally occur between mid-July and mid-August. The highest recorded temperature (87.69°F) at WCF, between January 1, 2000 and May 4, 2008 (excluding August 29, 2006 through April 29, 2007 when data were not available) occurred on August 4, 2002 (Attachment 5.2-4D). Comparison to temperatures recorded from the non-drought years of 2003 and 2004 shows summer river temperatures were only 5 to 7°F lower than those recorded during the maximum drought year 2002. Similarly, summer river temperatures during the current drought (since 2006) are generally 1 to 2°F lower than those recorded during the maximum drought year 2002. Therefore, the current and subsequent droughts appear to have a minimal effect on river temperatures, and river temperatures collected previous to the current drought are considered representative of site conditions.

This response is PLANT-SPECIFIC.

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

1. Change COLA Part 3, ER Chapter 5, Subsection 5.2.2.2.2, beginning with the second paragraph by inserting two new paragraphs, as follows:

River temperature data collected from 1974 to 1990 and from 2000 to 2006 (1991 to 1999 data not available) at Guntersville Reservoir, near the BLN site, were used to establish low,

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mean, and high ambient temperatures. Widows Creek Fossil Plant (WCF) records daily temperature readings at the H-6 intake, located at Tennessee River Mile (TRM) 407.0, at an approximate depth of 20 ft. below surface. As part of the Vital Signs monitoring program, TVA collects temperature data at various depths at three points on the Tennessee River in the Bellefonte region between the months of April and October. The nearest downstream location is at TRM 375.2, where temperature data are collected at depths between 1 ft. and approximately 36 ft. below the surface. These two long-term temperature monitoring stations (WCF and TRM 375.2) bracket the BLN site, which is situated at approximately TRM 391 (Figure 5.2-X1).

Intake temperatures from WCF (2000 through 2006) were compared to corresponding TRM 375.2 water temperature data collected at the 16 to 19-ft. depth interval during the seasonal data range. Results are presented in Table 5.2-X1. From January 2000 to August 2006, the differences between the WCF intake (TRM 407.0) water temperature and that at TRM 375.2 ranged from 5.00° F warmer to 2.61° F cooler, with 62 percent of temperature differences less than 2° F warmer (Table 5.2-X2). On average, the Tennessee River data showed an increase in temperature of 0.90° F, from the WCF intake to TRM 375.2. Given the approximate midpoint location of the BLN, this translates to an average increase in temperature of 0.45° F from the WCF intake to the BLN site.

Based on the minimal change in temperature observed between the WCF intake and TRM 375.2, and the near midpoint location of the BLN between these two sampling locations, the intake temperature at the WCF is considered representative of the Tennessee River temperature at the BLN site.

Long-term daily flow records in the river data were obtained from the South Pittsburg USGS gauge station located upstream of TVA simulation of flow at the BLN site developed from Nickajack Dam and Guntersville Dam discharge data. The flow records were used to synthesize a 3630-year record of monthly low, mean, and high flows at the BLN site.

2. Change COLA Part 3, ER Chapter 5, by inserting **Figure 5.2-X1** (provided as Attachment 5.2-4B to this enclosure), Water Temperature Sampling Location Map, in the appropriate location near the end of the chapter.
3. Change COLA Part 3, ER Chapter 5, by adding **Table 5.2-X1** and **Table 5.2-X2**, as follows:

Table 5.2-X1
Temperature Comparison Table
Widows Creek Fossil Plant (WCF) to TRM 375.2
(Sheet X of 11)

<u>Date</u>	<u>TRM 375.2</u>		<u>WCF</u> <u>Temp</u> <u>(°F)</u>	<u>Temperature</u> <u>Difference</u> <u>(°F)</u>	<u>Projected</u> <u>Temperature</u> <u>at BLN</u> <u>(TRM 391)</u> <u>(°F)</u>
	<u>Depth</u>	<u>Temp</u>			
	<u>(ft.)</u>	<u>(°F)</u>			
<u>4/17/2000</u>	<u>1.0</u>	<u>61.88</u>			
<u>4/17/2000</u>	<u>4.9</u>	<u>61.88</u>			
<u>4/17/2000</u>	<u>9.8</u>	<u>61.34</u>			

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Table 5.2-X1
Temperature Comparison Table
Widows Creek Fossil Plant (WCF) to TRM 375.2
(Sheet X of 11)

<u>Date</u>	<u>TRM 375.2</u>		<u>WCF Temp (°F)</u>	<u>Temperature Difference (°F)</u>	<u>Projected Temperature at BLN (TRM 391) (°F)</u>
	<u>Depth</u>	<u>Temp</u>			
	<u>(ft.)</u>	<u>(°F)</u>			
<u>4/17/2000</u>	<u>13.1</u>	<u>61.16</u>			
<u>4/17/2000</u>	<u>19.7</u>	<u>61.16</u>	<u>61.27</u>	<u>0.11</u>	<u>61.21</u>
<u>4/17/2000</u>	<u>26.2</u>	<u>61.16</u>			
<u>4/17/2000</u>	<u>33.8</u>	<u>61.16</u>			
<u>5/11/2000</u>	<u>1.0</u>	<u>76.28</u>			
<u>5/11/2000</u>	<u>4.9</u>	<u>73.94</u>			
<u>5/11/2000</u>	<u>9.8</u>	<u>73.58</u>			
<u>5/11/2000</u>	<u>13.1</u>	<u>73.58</u>			
<u>5/11/2000</u>	<u>19.7</u>	<u>73.04</u>	<u>73.96</u>	<u>0.92</u>	<u>73.50</u>
<u>5/11/2000</u>	<u>26.2</u>	<u>72.50</u>			
<u>5/11/2000</u>	<u>29.9</u>	<u>72.50</u>			
<u>5/11/2000</u>	<u>33.1</u>	<u>72.32</u>			
<u>6/16/2000</u>	<u>1.0</u>	<u>82.04</u>			
<u>6/16/2000</u>	<u>4.9</u>	<u>82.04</u>			
<u>6/16/2000</u>	<u>9.8</u>	<u>82.04</u>			
<u>6/16/2000</u>	<u>13.1</u>	<u>82.04</u>			
<u>6/16/2000</u>	<u>19.7</u>	<u>82.04</u>	<u>81.30</u>	<u>-0.74</u>	<u>81.67</u>
<u>6/16/2000</u>	<u>26.2</u>	<u>82.04</u>			
<u>6/16/2000</u>	<u>31.2</u>	<u>81.86</u>			
<u>6/16/2000</u>	<u>34.4</u>	<u>81.86</u>			
<u>7/18/2000</u>	<u>1.0</u>	<u>87.62</u>			
<u>7/18/2000</u>	<u>4.9</u>	<u>86.72</u>			
<u>7/18/2000</u>	<u>9.8</u>	<u>86.54</u>			
<u>7/18/2000</u>	<u>13.1</u>	<u>86.54</u>			
<u>7/18/2000</u>	<u>19.7</u>	<u>86.54</u>	<u>86.25</u>	<u>-0.29</u>	<u>86.40</u>
<u>7/18/2000</u>	<u>26.2</u>	<u>86.36</u>			
<u>7/18/2000</u>	<u>32.8</u>	<u>86.18</u>			
<u>7/18/2000</u>	<u>34.4</u>	<u>86.18</u>			
<u>8/17/2000</u>	<u>1.0</u>	<u>86.18</u>			
<u>8/17/2000</u>	<u>4.9</u>	<u>85.46</u>			
<u>8/17/2000</u>	<u>9.8</u>	<u>85.28</u>			
<u>8/17/2000</u>	<u>13.1</u>	<u>85.28</u>			
<u>8/17/2000</u>	<u>19.7</u>	<u>85.28</u>	<u>83.70</u>	<u>-1.58</u>	<u>84.49</u>
<u>8/17/2000</u>	<u>26.2</u>	<u>85.28</u>			
<u>8/17/2000</u>	<u>32.8</u>	<u>85.28</u>			
<u>8/17/2000</u>	<u>34.4</u>	<u>85.28</u>			

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Table 5.2-X1
Temperature Comparison Table
Widows Creek Fossil Plant (WCF) to TRM 375.2
(Sheet X of 11)

<u>Date</u>	<u>TRM 375.2</u>		<u>WCF Temp (°F)</u>	<u>Temperature Difference (°F)</u>	<u>Projected Temperature at BLN (TRM 391) (°F)</u>
	<u>Depth (ft.)</u>	<u>Temp (°F)</u>			
9/19/2000	1.0	78.98			
9/19/2000	4.9	78.26			
9/19/2000	9.8	78.08			
9/19/2000	13.1	78.08			
9/19/2000	19.7	78.08	78.37	0.29	78.22
9/19/2000	26.2	77.90			
9/19/2000	32.8	77.54			
9/19/2000	34.4	77.54			
4/16/2001	1.0	66.83			
4/16/2001	4.9	66.76			
4/16/2001	9.8	66.54			
4/16/2001	13.1	66.47			
4/16/2001	19.7	66.34	61.34	-5.00	63.86
4/16/2001	26.2	66.29			
4/16/2001	32.8	66.27			
4/16/2001	35.1	66.27			
5/14/2001	1.0	74.75			
5/14/2001	4.9	73.38			
5/14/2001	9.8	72.93			
5/14/2001	13.1	72.90			
5/14/2001	19.7	72.79	72.30	-0.49	72.55
5/14/2001	23.0	72.54			
5/14/2001	26.2	69.69			
5/14/2001	32.8	68.63			
5/14/2001	34.4	68.68			
6/18/2001	1.0	83.16			
6/18/2001	4.9	81.90			
6/18/2001	9.8	81.55			
6/18/2001	13.1	81.46			
6/18/2001	19.7	81.34	81.05	-0.29	81.19
6/18/2001	26.2	81.25			
6/18/2001	32.8	80.94			
6/18/2001	35.4	80.83			
7/16/2001	1.0	84.02			
7/16/2001	4.9	82.71			
7/16/2001	9.8	82.45			

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Table 5.2-X1
Temperature Comparison Table
Widows Creek Fossil Plant (WCF) to TRM 375.2
(Sheet X of 11)

<u>Date</u>	<u>TRM 375.2</u>		<u>WCF</u> <u>Temp</u> <u>(°F)</u>	<u>Temperature</u> <u>Difference</u> <u>(°F)</u>	<u>Projected</u> <u>Temperature</u> <u>at BLN</u> <u>(TRM 391)</u> <u>(°F)</u>
	<u>Depth</u>	<u>Temp</u>			
	<u>(ft.)</u>	<u>(°F)</u>			
<u>7/16/2001</u>	<u>13.1</u>	<u>82.40</u>			
<u>7/16/2001</u>	<u>19.7</u>	<u>82.38</u>	<u>83.43</u>	<u>1.04</u>	<u>82.90</u>
<u>7/16/2001</u>	<u>26.2</u>	<u>82.35</u>			
<u>7/16/2001</u>	<u>32.8</u>	<u>82.35</u>			
<u>7/16/2001</u>	<u>34.4</u>	<u>82.36</u>			
<u>8/22/2001</u>	<u>1.0</u>	<u>84.70</u>			
<u>8/22/2001</u>	<u>4.9</u>	<u>84.27</u>			
<u>8/22/2001</u>	<u>9.8</u>	<u>83.98</u>			
<u>8/22/2001</u>	<u>13.1</u>	<u>83.84</u>			
<u>8/22/2001</u>	<u>19.7</u>	<u>83.77</u>	<u>83.32</u>	<u>-0.45</u>	<u>83.54</u>
<u>8/22/2001</u>	<u>26.2</u>	<u>83.75</u>			
<u>8/22/2001</u>	<u>32.8</u>	<u>83.71</u>			
<u>8/22/2001</u>	<u>34.4</u>	<u>83.71</u>			
<u>9/19/2001</u>	<u>1.0</u>	<u>79.30</u>			
<u>9/19/2001</u>	<u>4.9</u>	<u>79.27</u>			
<u>9/19/2001</u>	<u>9.8</u>	<u>79.18</u>			
<u>9/19/2001</u>	<u>13.1</u>	<u>79.18</u>			
<u>9/19/2001</u>	<u>19.7</u>	<u>79.11</u>	<u>78.73</u>	<u>-0.38</u>	<u>78.92</u>
<u>9/19/2001</u>	<u>26.2</u>	<u>79.03</u>			
<u>9/19/2001</u>	<u>32.8</u>	<u>78.94</u>			
<u>9/19/2001</u>	<u>33.8</u>	<u>78.93</u>			
<u>10/18/2001</u>	<u>1.0</u>	<u>68.18</u>			
<u>10/18/2001</u>	<u>4.9</u>	<u>67.82</u>			
<u>10/18/2001</u>	<u>9.8</u>	<u>67.59</u>			
<u>10/18/2001</u>	<u>13.1</u>	<u>67.48</u>			
<u>10/18/2001</u>	<u>19.7</u>	<u>67.37</u>	<u>67.32</u>	<u>-0.05</u>	<u>67.34</u>
<u>10/18/2001</u>	<u>26.2</u>	<u>67.35</u>			
<u>10/18/2001</u>	<u>32.8</u>	<u>67.33</u>			
<u>10/18/2001</u>	<u>34.4</u>	<u>67.32</u>			
<u>4/23/2002</u>	<u>1.0</u>	<u>70.97</u>			
<u>4/23/2002</u>	<u>4.9</u>	<u>70.57</u>			
<u>4/23/2002</u>	<u>9.8</u>	<u>70.30</u>			
<u>4/23/2002</u>	<u>16.4</u>	<u>70.16</u>	<u>69.31</u>	<u>-0.85</u>	<u>69.74</u>
<u>4/23/2002</u>	<u>26.2</u>	<u>70.14</u>			
<u>4/23/2002</u>	<u>29.5</u>	<u>70.12</u>			
<u>4/23/2002</u>	<u>35.1</u>	<u>70.11</u>			

Table 5.2-X1
Temperature Comparison Table
Widows Creek Fossil Plant (WCF) to TRM 375.2
(Sheet X of 11)

<u>Date</u>	<u>TRM 375.2</u>		<u>WCF</u> <u>Temp</u> <u>(°F)</u>	<u>Temperature</u> <u>Difference</u> <u>(°F)</u>	<u>Projected</u> <u>Temperature</u> <u>at BLN</u> <u>(TRM 391)</u> <u>(°F)</u>
	<u>Depth</u>	<u>Temp</u>			
	<u>(ft.)</u>	<u>(°F)</u>			
<u>5/29/2002</u>	<u>1.0</u>	<u>75.96</u>			
<u>5/29/2002</u>	<u>4.9</u>	<u>74.50</u>			
<u>5/29/2002</u>	<u>9.8</u>	<u>73.29</u>			
<u>5/29/2002</u>	<u>19.7</u>	<u>71.89</u>	<u>74.50</u>	<u>2.61</u>	<u>73.18</u>
<u>5/29/2002</u>	<u>26.2</u>	<u>71.04</u>			
<u>5/29/2002</u>	<u>32.8</u>	<u>71.02</u>			
<u>5/29/2002</u>	<u>36.4</u>	<u>71.15</u>			
<u>6/25/2002</u>	<u>1.0</u>	<u>82.78</u>			
<u>6/25/2002</u>	<u>4.9</u>	<u>82.71</u>			
<u>6/25/2002</u>	<u>9.8</u>	<u>82.72</u>			
<u>6/25/2002</u>	<u>16.4</u>	<u>82.72</u>	<u>83.46</u>	<u>0.74</u>	<u>83.09</u>
<u>6/25/2002</u>	<u>23.0</u>	<u>82.71</u>			
<u>6/25/2002</u>	<u>29.5</u>	<u>82.69</u>			
<u>6/25/2002</u>	<u>36.1</u>	<u>82.69</u>			
<u>7/31/2002</u>	<u>1.0</u>	<u>86.97</u>			
<u>7/31/2002</u>	<u>4.9</u>	<u>86.92</u>			
<u>7/31/2002</u>	<u>9.8</u>	<u>86.88</u>			
<u>7/31/2002</u>	<u>16.4</u>	<u>86.67</u>	<u>86.56</u>	<u>-0.11</u>	<u>86.61</u>
<u>7/31/2002</u>	<u>23.0</u>	<u>86.63</u>			
<u>7/31/2002</u>	<u>29.5</u>	<u>86.61</u>			
<u>7/31/2002</u>	<u>34.1</u>	<u>86.61</u>			
<u>8/29/2002</u>	<u>1.0</u>	<u>86.88</u>			
<u>8/29/2002</u>	<u>1.3</u>	<u>86.88</u>			
<u>8/29/2002</u>	<u>4.9</u>	<u>85.19</u>			
<u>8/29/2002</u>	<u>5.2</u>	<u>85.19</u>			
<u>8/29/2002</u>	<u>9.8</u>	<u>84.45</u>			
<u>8/29/2002</u>	<u>13.1</u>	<u>84.43</u>			
<u>8/29/2002</u>	<u>13.5</u>	<u>84.43</u>			
<u>8/29/2002</u>	<u>19.7</u>	<u>84.43</u>	<u>85.33</u>	<u>0.90</u>	<u>84.88</u>
<u>8/29/2002</u>	<u>25.9</u>	<u>84.42</u>			
<u>8/29/2002</u>	<u>26.2</u>	<u>84.42</u>			
<u>8/29/2002</u>	<u>32.8</u>	<u>84.42</u>			
<u>8/29/2002</u>	<u>35.8</u>	<u>84.40</u>			
<u>9/26/2002</u>	<u>1.0</u>	<u>78.73</u>			
<u>9/26/2002</u>	<u>4.9</u>	<u>78.69</u>			
<u>9/26/2002</u>	<u>9.8</u>	<u>78.73</u>			

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Table 5.2-X1
Temperature Comparison Table
Widows Creek Fossil Plant (WCF) to TRM 375.2
(Sheet X of 11)

<u>Date</u>	<u>TRM 375.2</u>		<u>WCF Temp (°F)</u>	<u>Temperature Difference (°F)</u>	<u>Projected Temperature at BLN (TRM 391) (°F)</u>
	<u>Depth</u>	<u>Temp</u>			
	<u>(ft.)</u>	<u>(°F)</u>			
<u>9/26/2002</u>	<u>16.4</u>	<u>78.66</u>	<u>78.06</u>	<u>-0.59</u>	<u>78.36</u>
<u>9/26/2002</u>	<u>23.0</u>	<u>78.62</u>			
<u>9/26/2002</u>	<u>29.5</u>	<u>78.62</u>			
<u>9/26/2002</u>	<u>33.8</u>	<u>78.53</u>			
<u>4/8/2003</u>	<u>1.0</u>	<u>63.68</u>			
<u>4/8/2003</u>	<u>4.9</u>	<u>63.54</u>			
<u>4/8/2003</u>	<u>9.8</u>	<u>63.34</u>			
<u>4/8/2003</u>	<u>13.1</u>	<u>62.67</u>			
<u>4/8/2003</u>	<u>19.7</u>	<u>62.58</u>	<u>58.15</u>	<u>-4.43</u>	<u>60.38</u>
<u>4/8/2003</u>	<u>26.2</u>	<u>62.51</u>			
<u>4/8/2003</u>	<u>32.8</u>	<u>62.51</u>			
<u>4/8/2003</u>	<u>35.1</u>	<u>62.51</u>			
<u>5/20/2003</u>	<u>1.0</u>	<u>68.54</u>			
<u>5/20/2003</u>	<u>4.9</u>	<u>68.52</u>			
<u>5/20/2003</u>	<u>9.8</u>	<u>68.54</u>			
<u>5/20/2003</u>	<u>13.1</u>	<u>68.56</u>			
<u>5/20/2003</u>	<u>16.4</u>	<u>68.58</u>	<u>65.59</u>	<u>-2.99</u>	<u>67.09</u>
<u>5/20/2003</u>	<u>23.0</u>	<u>68.56</u>			
<u>5/20/2003</u>	<u>29.5</u>	<u>68.58</u>			
<u>5/20/2003</u>	<u>32.8</u>	<u>68.54</u>			
<u>5/20/2003</u>	<u>35.1</u>	<u>68.50</u>			
<u>6/9/2003</u>	<u>1.0</u>	<u>76.64</u>			
<u>6/9/2003</u>	<u>4.9</u>	<u>74.66</u>			
<u>6/9/2003</u>	<u>9.8</u>	<u>73.94</u>			
<u>6/9/2003</u>	<u>13.1</u>	<u>73.94</u>			
<u>6/9/2003</u>	<u>19.7</u>	<u>73.76</u>	<u>72.73</u>	<u>-1.03</u>	<u>73.25</u>
<u>6/9/2003</u>	<u>26.2</u>	<u>73.76</u>			
<u>6/9/2003</u>	<u>32.8</u>	<u>73.76</u>			
<u>6/9/2003</u>	<u>34.4</u>	<u>73.76</u>			
<u>7/7/2003</u>	<u>1.0</u>	<u>78.62</u>			
<u>7/7/2003</u>	<u>4.9</u>	<u>78.26</u>			
<u>7/7/2003</u>	<u>9.8</u>	<u>78.28</u>			
<u>7/7/2003</u>	<u>13.1</u>	<u>78.19</u>			
<u>7/7/2003</u>	<u>19.7</u>	<u>78.19</u>	<u>80.42</u>	<u>2.23</u>	<u>79.30</u>
<u>7/7/2003</u>	<u>26.2</u>	<u>78.19</u>			
<u>7/7/2003</u>	<u>32.8</u>	<u>78.19</u>			

Table 5.2-X1
Temperature Comparison Table
Widows Creek Fossil Plant (WCF) to TRM 375.2
(Sheet X of 11)

<u>Date</u>	<u>TRM 375.2</u>		<u>WCF Temp (°F)</u>	<u>Temperature Difference (°F)</u>	<u>Projected Temperature at BLN (TRM 391) (°F)</u>
	<u>Depth (ft.)</u>	<u>Temp (°F)</u>			
<u>7/7/2003</u>	<u>36.4</u>	<u>78.19</u>			
<u>8/12/2003</u>	<u>1.0</u>	<u>82.90</u>			
<u>8/12/2003</u>	<u>4.9</u>	<u>82.40</u>			
<u>8/12/2003</u>	<u>9.8</u>	<u>82.15</u>			
<u>8/12/2003</u>	<u>13.1</u>	<u>82.15</u>			
<u>8/12/2003</u>	<u>19.7</u>	<u>82.09</u>	<u>79.74</u>	<u>-2.36</u>	<u>80.92</u>
<u>8/12/2003</u>	<u>26.2</u>	<u>82.09</u>			
<u>8/12/2003</u>	<u>32.8</u>	<u>82.08</u>			
<u>8/12/2003</u>	<u>35.4</u>	<u>82.11</u>			
<u>9/9/2003</u>	<u>1.0</u>	<u>83.14</u>			
<u>9/9/2003</u>	<u>4.9</u>	<u>82.20</u>			
<u>9/9/2003</u>	<u>9.8</u>	<u>82.11</u>			
<u>9/9/2003</u>	<u>13.1</u>	<u>82.06</u>			
<u>9/9/2003</u>	<u>19.7</u>	<u>81.90</u>	<u>79.83</u>	<u>-2.07</u>	<u>80.87</u>
<u>9/9/2003</u>	<u>26.2</u>	<u>81.79</u>			
<u>9/9/2003</u>	<u>32.8</u>	<u>81.77</u>			
<u>9/9/2003</u>	<u>35.4</u>	<u>81.77</u>			
<u>10/6/2003</u>	<u>1.0</u>	<u>71.69</u>			
<u>10/6/2003</u>	<u>4.9</u>	<u>71.67</u>			
<u>10/6/2003</u>	<u>9.8</u>	<u>71.60</u>			
<u>10/6/2003</u>	<u>13.1</u>	<u>71.56</u>			
<u>10/6/2003</u>	<u>19.7</u>	<u>71.58</u>	<u>69.73</u>	<u>-1.85</u>	<u>70.66</u>
<u>10/6/2003</u>	<u>26.2</u>	<u>71.56</u>			
<u>10/6/2003</u>	<u>32.8</u>	<u>71.55</u>			
<u>10/6/2003</u>	<u>36.1</u>	<u>71.56</u>			
<u>4/5/2004</u>	<u>1.0</u>	<u>59.50</u>			
<u>4/5/2004</u>	<u>4.9</u>	<u>59.41</u>			
<u>4/5/2004</u>	<u>9.8</u>	<u>59.36</u>			
<u>4/5/2004</u>	<u>16.4</u>	<u>59.34</u>	<u>59.13</u>	<u>-0.22</u>	<u>59.23</u>
<u>4/5/2004</u>	<u>23.0</u>	<u>59.32</u>			
<u>4/5/2004</u>	<u>29.5</u>	<u>59.32</u>			
<u>4/5/2004</u>	<u>33.1</u>	<u>59.34</u>			
<u>5/3/2004</u>	<u>1.0</u>	<u>68.72</u>			
<u>5/3/2004</u>	<u>4.9</u>	<u>68.76</u>			
<u>5/3/2004</u>	<u>9.8</u>	<u>68.67</u>			
<u>5/3/2004</u>	<u>13.1</u>	<u>68.65</u>			

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Table 5.2-X1
Temperature Comparison Table
Widows Creek Fossil Plant (WCF) to TRM 375.2
(Sheet X of 11)

<u>Date</u>	<u>TRM 375.2</u>		<u>WCF Temp (°F)</u>	<u>Temperature Difference (°F)</u>	<u>Projected Temperature at BLN (TRM 391) (°F)</u>
	<u>Depth</u>	<u>Temp</u>			
	<u>(ft.)</u>	<u>(°F)</u>			
<u>5/3/2004</u>	<u>19.7</u>	<u>68.34</u>	<u>66.81</u>	<u>-1.53</u>	<u>67.58</u>
<u>5/3/2004</u>	<u>26.2</u>	<u>68.27</u>			
<u>5/3/2004</u>	<u>32.8</u>	<u>68.23</u>			
<u>5/3/2004</u>	<u>35.1</u>	<u>68.27</u>			
<u>6/7/2004</u>	<u>1.0</u>	<u>79.65</u>			
<u>6/7/2004</u>	<u>4.9</u>	<u>79.56</u>			
<u>6/7/2004</u>	<u>9.8</u>	<u>79.56</u>			
<u>6/7/2004</u>	<u>13.1</u>	<u>79.56</u>			
<u>6/7/2004</u>	<u>19.7</u>	<u>79.54</u>	<u>78.26</u>	<u>-1.28</u>	<u>78.90</u>
<u>6/7/2004</u>	<u>26.2</u>	<u>79.54</u>			
<u>6/7/2004</u>	<u>32.8</u>	<u>79.52</u>			
<u>6/7/2004</u>	<u>34.8</u>	<u>79.52</u>			
<u>7/15/2004</u>	<u>1.0</u>	<u>84.38</u>			
<u>7/15/2004</u>	<u>4.9</u>	<u>82.58</u>			
<u>7/15/2004</u>	<u>9.8</u>	<u>82.22</u>			
<u>7/15/2004</u>	<u>13.1</u>	<u>82.22</u>			
<u>7/15/2004</u>	<u>19.7</u>	<u>82.04</u>	<u>80.85</u>	<u>-1.19</u>	<u>81.45</u>
<u>7/15/2004</u>	<u>26.2</u>	<u>82.04</u>			
<u>7/15/2004</u>	<u>32.8</u>	<u>82.04</u>			
<u>7/15/2004</u>	<u>35.4</u>	<u>82.04</u>			
<u>8/12/2004</u>	<u>1.0</u>	<u>82.54</u>			
<u>8/12/2004</u>	<u>4.9</u>	<u>82.58</u>			
<u>8/12/2004</u>	<u>9.8</u>	<u>82.58</u>			
<u>8/12/2004</u>	<u>13.1</u>	<u>82.56</u>			
<u>8/12/2004</u>	<u>19.7</u>	<u>82.56</u>	<u>80.55</u>	<u>-2.02</u>	<u>81.56</u>
<u>8/12/2004</u>	<u>26.2</u>	<u>82.53</u>			
<u>8/12/2004</u>	<u>32.8</u>	<u>82.51</u>			
<u>8/12/2004</u>	<u>33.8</u>	<u>82.51</u>			
<u>9/9/2004</u>	<u>1.0</u>	<u>80.51</u>			
<u>9/9/2004</u>	<u>4.9</u>	<u>80.01</u>			
<u>9/9/2004</u>	<u>9.8</u>	<u>79.86</u>			
<u>9/9/2004</u>	<u>13.1</u>	<u>79.75</u>			
<u>9/9/2004</u>	<u>19.7</u>	<u>79.66</u>	<u>78.48</u>	<u>-1.19</u>	<u>79.07</u>
<u>9/9/2004</u>	<u>26.2</u>	<u>79.63</u>			
<u>9/9/2004</u>	<u>32.8</u>	<u>79.63</u>			
<u>9/9/2004</u>	<u>35.4</u>	<u>79.63</u>			

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Table 5.2-X1
Temperature Comparison Table
Widows Creek Fossil Plant (WCF) to TRM 375.2
(Sheet X of 11)

<u>Date</u>	<u>TRM 375.2</u>		<u>WCF Temp (°F)</u>	<u>Temperature Difference (°F)</u>	<u>Projected Temperature at BLN (TRM 391) (°F)</u>
	<u>Depth</u>	<u>Temp</u>			
	<u>(ft.)</u>	<u>(°F)</u>			
10/7/2004	1.0	73.22			
10/7/2004	4.9	73.22			
10/7/2004	9.8	73.24			
10/7/2004	16.4	73.22	71.53	-1.69	72.38
10/7/2004	23.0	73.20			
10/7/2004	29.5	73.22			
10/7/2004	33.5	73.20			
4/7/2005	1.0	60.57			
4/7/2005	4.9	60.40			
4/7/2005	9.8	60.33			
4/7/2005	16.4	60.22	58.08	-2.14	59.16
4/7/2005	23.0	60.19			
4/7/2005	29.5	60.19			
4/7/2005	35.1	60.19			
5/4/2005	1.0	64.78			
5/4/2005	4.9	64.76			
5/4/2005	9.8	64.67			
5/4/2005	16.4	64.58	63.25	-1.33	63.92
5/4/2005	23.0	64.54			
5/4/2005	29.5	64.49			
5/4/2005	35.4	64.51			
6/2/2005	1.0	73.58			
6/2/2005	4.9	73.47			
6/2/2005	9.8	73.20			
6/2/2005	16.4	73.02	71.40	-1.62	72.22
6/2/2005	23.0	72.99			
6/2/2005	29.5	72.95			
6/2/2005	35.4	72.91			
7/7/2005	1.0	83.26			
7/7/2005	4.9	83.30			
7/7/2005	9.8	83.17			
7/7/2005	16.4	83.03	80.91	-2.12	81.97
7/7/2005	23.0	82.99			
7/7/2005	29.5	82.96			
7/7/2005	34.4	82.96			
8/4/2005	1.0	86.11			

TVA Letter Dated: August 8, 2008

Responses to Environmental Report Requests for Additional Information – Hydrology

Table 5.2-X1
Temperature Comparison Table
Widows Creek Fossil Plant (WCF) to TRM 375.2
(Sheet X of 11)

<u>Date</u>	<u>TRM 375.2</u>		<u>WCF Temp (°F)</u>	<u>Temperature Difference (°F)</u>	<u>Projected Temperature at BLN (TRM 391) (°F)</u>
	<u>Depth</u>	<u>Temp</u>			
	<u>(ft.)</u>	<u>(°F)</u>			
<u>8/4/2005</u>	<u>4.9</u>	<u>85.37</u>			
<u>8/4/2005</u>	<u>9.8</u>	<u>85.28</u>			
<u>8/4/2005</u>	<u>16.4</u>	<u>85.23</u>	<u>83.80</u>	<u>-1.42</u>	<u>84.52</u>
<u>8/4/2005</u>	<u>23.0</u>	<u>85.05</u>			
<u>8/4/2005</u>	<u>29.5</u>	<u>84.97</u>			
<u>8/4/2005</u>	<u>34.4</u>	<u>84.94</u>			
<u>9/8/2005</u>	<u>1.0</u>	<u>83.12</u>			
<u>9/8/2005</u>	<u>4.9</u>	<u>82.24</u>			
<u>9/8/2005</u>	<u>9.8</u>	<u>81.81</u>			
<u>9/8/2005</u>	<u>16.4</u>	<u>81.73</u>	<u>81.12</u>	<u>-0.61</u>	<u>81.43</u>
<u>9/8/2005</u>	<u>23.0</u>	<u>81.70</u>			
<u>9/8/2005</u>	<u>29.5</u>	<u>81.37</u>			
<u>9/8/2005</u>	<u>36.1</u>	<u>81.27</u>			
<u>10/13/2005</u>	<u>1.0</u>	<u>76.66</u>			
<u>10/13/2005</u>	<u>4.9</u>	<u>75.87</u>			
<u>10/13/2005</u>	<u>9.8</u>	<u>75.63</u>			
<u>10/13/2005</u>	<u>16.4</u>	<u>75.58</u>	<u>74.28</u>	<u>-1.30</u>	<u>74.93</u>
<u>10/13/2005</u>	<u>23.0</u>	<u>75.52</u>			
<u>10/13/2005</u>	<u>29.5</u>	<u>75.49</u>			
<u>10/13/2005</u>	<u>34.8</u>	<u>75.45</u>			
<u>4/13/2006</u>	<u>1.0</u>	<u>65.86</u>			
<u>4/13/2006</u>	<u>4.9</u>	<u>63.25</u>			
<u>4/13/2006</u>	<u>9.8</u>	<u>62.85</u>			
<u>4/13/2006</u>	<u>13.1</u>	<u>62.82</u>			
<u>4/13/2006</u>	<u>19.7</u>	<u>62.78</u>	<u>63.70</u>	<u>0.92</u>	<u>63.24</u>
<u>4/13/2006</u>	<u>26.2</u>	<u>62.85</u>			
<u>4/13/2006</u>	<u>32.8</u>	<u>62.85</u>			
<u>4/13/2006</u>	<u>36.1</u>	<u>62.92</u>			
<u>5/15/2006</u>	<u>1.0</u>	<u>69.55</u>			
<u>5/15/2006</u>	<u>4.9</u>	<u>69.55</u>			
<u>5/15/2006</u>	<u>9.8</u>	<u>69.51</u>			
<u>5/15/2006</u>	<u>16.4</u>	<u>69.46</u>	<u>68.20</u>	<u>-1.26</u>	<u>68.83</u>
<u>5/15/2006</u>	<u>23.0</u>	<u>69.49</u>			
<u>5/15/2006</u>	<u>29.5</u>	<u>69.40</u>			
<u>5/15/2006</u>	<u>34.1</u>	<u>69.46</u>			
<u>6/13/2006</u>	<u>1.0</u>	<u>80.82</u>			

TVA Letter Dated: August 8, 2008

Responses to Environmental Report Requests for Additional Information – Hydrology

Table 5.2-X1
Temperature Comparison Table
Widows Creek Fossil Plant (WCF) to TRM 375.2
(Sheet X of 11)

<u>Date</u>	<u>TRM 375.2</u>		<u>WCF Temp (°F)</u>	<u>Temperature Difference (°F)</u>	<u>Projected Temperature at BLN (TRM 391) (°F)</u>
	<u>Depth</u>	<u>Temp</u>			
	<u>(ft.)</u>	<u>(°F)</u>			
6/13/2006	4.9	80.82			
6/13/2006	9.8	80.82			
6/13/2006	16.4	80.82	79.30	-1.51	80.06
6/13/2006	23.0	80.76			
6/13/2006	29.5	80.67			
6/13/2006	34.1	80.64			
7/18/2006	1.0	86.94			
7/18/2006	4.9	86.32			
7/18/2006	10.2	86.22			
7/18/2006	13.1	86.20			
7/18/2006	19.7	86.18	85.06	-1.12	85.63
7/18/2006	26.2	86.05			
7/18/2006	26.2	86.05			
7/18/2006	32.8	86.02			
7/18/2006	36.1	86.00			
8/15/2006	1.0	87.13			
8/15/2006	4.9	86.94			
8/15/2006	9.8	86.86			
8/15/2006	16.4	86.83	85.75	-1.08	86.29
8/15/2006	23.0	86.70			
8/15/2006	29.5	86.59			
8/15/2006	35.1	86.41			
9/15/2006	1.0	79.90			
9/15/2006	4.9	79.88			
9/15/2006	9.8	79.79			
9/15/2006	16.4	79.66			
9/15/2006	23.0	79.59			
9/15/2006	29.5	79.25			
9/15/2006	33.8	79.16			
<u>WCF - TRM 375.2 Average Difference:</u>				<u>-0.90</u>	

TVA Letter Dated: August 8, 2008

Responses to Environmental Report Requests for Additional Information – Hydrology

Table 5.2-X2
Temperature Difference (WCF - TRM 375.2) Occurrence by Month, 2000 to 2006

<u>By Number of Occurrences</u>	<u>Total</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>
TRM 375.2 > 2° Cooler	<u>2</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
TRM 375.2 1 - 2° Cooler	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
TRM 375.2 0 - 1° Cooler	<u>6</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>
TRM 375.2 0 - 2° Warmer	<u>28</u>	<u>1</u>	<u>4</u>	<u>6</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
TRM 375.2 2 - 4° Warmer	<u>6</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>0</u>
TRM 375.2 > 4° Warmer	<u>2</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Total Readings</u>	<u>45</u>	<u>6</u>	<u>7</u>	<u>7</u>	<u>7</u>	<u>7</u>	<u>6</u>	<u>4</u>

<u>Percentage</u>	<u>Total</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>
TRM 375.2 > 2° Cooler	<u>4.44%</u>	<u>--</u>	<u>50.00%</u>	<u>--</u>	<u>50.00%</u>	<u>--</u>	<u>--</u>	<u>--</u>
TRM 375.2 1 - 2° Cooler	<u>2.22%</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>100.00%</u>	<u>--</u>	<u>--</u>	<u>--</u>
TRM 375.2 0 - 1° Cooler	<u>13.33%</u>	<u>33.33%</u>	<u>16.67%</u>	<u>16.67%</u>	<u>--</u>	<u>16.67%</u>	<u>16.67%</u>	<u>--</u>
TRM 375.2 0 - 2° Warmer	<u>62.22%</u>	<u>3.57%</u>	<u>14.29%</u>	<u>21.43%</u>	<u>14.29%</u>	<u>14.29%</u>	<u>14.29%</u>	<u>14.29%</u>
TRM 375.2 2 - 4° Warmer	<u>13.33%</u>	<u>16.67%</u>	<u>16.67%</u>	<u>0.00%</u>	<u>16.67%</u>	<u>33.33%</u>	<u>16.67%</u>	<u>--</u>
TRM 375.2 > 4° Warmer	<u>4.44%</u>	<u>100.00%</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>

ATTACHMENTS:

The following documents are provided as Attachments 5.2-4A through 5.2-4D to this enclosure:

- 5.2-4A. U.S. Environmental Protection Agency, STORET Database, Water Temperature Data for Alabama, Website, <ftp://ftp.epa.gov/storet/exports/>, accessed July 23, 2008. (Data on CD-ROM)
- 5.2-4B. Tennessee Valley Authority, New Figure 5.2-X1, Water Temperature Sampling Location Map, August 2008. (Entire document)
- 5.2-4C. U.S. Drought Monitor, Statistics for the Southeast Region, Website, http://www.drought.unl.edu/dm/DM_tables.htm, accessed May 29, 2008. (Entire document - continuous data sheets)
- 5.2-4D. Tennessee Valley Authority, Widows Creek Fossil Plant Daily Average Intake Temperatures, 2000 to 2006, No date.. (Entire document - continuous data sheets)

NRC Review of the BLN Environmental Report**NRC Environmental Category: HYDROLOGY****NRC RAI NUMBER: 5.3-3 (4)**

Provide an analysis of the potential for discharge from the diffuser to re-enter the intake canal and be drawn back into the proposed facility. Also analyze the potential for discharge to be drawn into Town Creek.

BLN RESPONSE:

The discharge diffuser is located approximately 4800 feet downstream (towards Guntersville Dam) of the intake channel inlet and approximately 9400 feet from the confluence of Town Creek and the Tennessee River (Guntersville Reservoir). In order to determine flow velocity of the Guntersville Reservoir, a cross-sectional area of the river channel near the discharge diffuser was developed from the data obtained during the September 2006 bathymetric survey. The location of the cross-section is depicted in Attachment 5.3-3(4)A, and the channel cross-section is shown in Attachment 5.3-3(4)B. The flow velocity (in feet per second) was then calculated by dividing the flow rate (in cubic feet per second [cfs]) by the cross-sectional area (in square feet [ft²]). The flow velocity was calculated for each hour of the reversal and considered as a linear function between hourly data points.

To determine the distance a discrete slug of water would travel from the discharge diffuser, various flow reversal occurrences between 1978 and 2007 were graphed, and the distance was calculated using the corresponding flow velocity throughout the reversal, as shown in Attachments 5.3-3(4)C through 5.3-3(4)E. The discharge was assumed to occur at or near the beginning the flow reversal, and no mixing was considered. The maximum reversal occurrence (August 16, 1988; 19,738 cfs) resulted in a slug of water from the discharge header traveling approximately 5250 feet upstream before returning to the normal flow direction downstream, as shown in Attachment 5.3-3(4)C. This distance exceeds the 4800 feet to the intake channel inlet, but is less than the distance to the inlet to Town Creek. Further analysis of other flow reversals resulted in the determination that a reversal exceeding 18,000 cfs would have the possibility of returning water from the discharge header to the inlet of the intake channel. Reverse flows greater than 18,000 cfs have occurred only eight times between 1978 and 2007, as shown in Attachment 5.3-3(4)F, the last one occurring in 1995.

No reverse flows capable of returning effluent discharged from the diffusers have occurred since changing reservoir operation in 2004 (Attachment 5.3-3(4)F). As reverse flows in the range of this magnitude are rare, it is unlikely that the effluent discharged from the diffuser would cycle back to the plant intake or Town Creek during a reversal event. However, because operation of the dams has been shown to be capable of producing reverse flows that may return discharged effluent to the plant intake, administrative controls are expected be established to monitor the flow reversal phenomenon at the BLN site to preclude discharging of radiological effluent during a large flow rate reversal.

This response is SITE-SPECIFIC.

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

1. Change COLA Part 3, ER Chapter 2, Subsection 2.3.1.2.3, by inserting the following paragraph at the end of the subsection:

Further analysis of other flow reversals resulted in the determination that a reversal exceeding 18,000 cfs would have the possibility of returning water from the discharge header to the inlet of the intake channel. Reverse flows greater than 18,000 cfs have occurred only eight times between 1978 and 2007, the last one in 1995. No reverse flows capable of returning effluent discharged from the diffusers have occurred since changing reservoir operation in 2004. As reverse flows in the range of this magnitude are rare, it is unlikely that the effluent discharged from the diffuser would cycle back to the plant intake or Town Creek during a reversal event.

2. Change COLA Part 3, ER Chapter 2, Subsection 5.2.2.9, by inserting the following paragraph at the end of the subsection:

No reverse flows capable of returning effluent discharged from the diffusers have occurred since changing reservoir operation in 2004 (Subsection 2.3.1.2.3). As reverse flows in the range of this magnitude are rare, it is unlikely that the effluent discharged from the diffuser would cycle back to the plant intake or Town Creek during a reversal event. However, as operation of the dams has been shown capable of producing reverse flows that may return discharged effluent to the plant intake, administrative controls are expected be established to monitor the flow reversal phenomenon at the BLN to preclude discharging of radiological effluent during a large flow rate reversal.

ATTACHMENTS:

The following figures are provided as Attachments 5.3-3(4)A through 5.3-3(4)F to this enclosure:

- | | |
|------------|---|
| 5.3-3(4)A. | Tennessee Valley Authority, Tennessee River Cross Section Location, No date. (Entire Document) |
| 5.3-3(4)B. | Tennessee Valley Authority, Tennessee River Cross Section at the Barge Dock, No date. (Entire Document) |
| 5.3-3(4)C. | Tennessee Valley Authority, BLN Flow Rate Response (August 16, 1988), No date. (Entire Document) |
| 5.3-3(4)D. | Tennessee Valley Authority, BLN Flow Rate Response (June 21, 2006), No date. (Entire Document) |
| 5.3-3(4)E. | Tennessee Valley Authority, BLN Flow Rate Response (March 30, 2006), No date. (Entire Document) |
| 5.3-3(4)F. | Tennessee Valley Authority, Reverse Flow Occurrence >18,000 cfs, No date. (Entire Document) |

NRC Review of the BLN Environmental Report**NRC Environmental Category: HYDROLOGY****NRC RAI NUMBER: 5.3-4**

Provide further discussion of diffuser length (i.e., 45', 75', and 120') versus discharge rate. The application states that the normal plant release will be in the 25-50 cfs range. Explain whether this implies use of the 45' diffuser to achieve the desired port velocity. Describe the various operational modes of the diffuser. Relate these to the parameterization of the CORMIX simulations used to characterize diffuser operation.

BLN RESPONSE:

The discharge velocities discussed in Chapter 3 were based on Bellefonte Units 1 and 2 data. Subsection 3.4.2.2 is revised, as noted below, to state that discharge velocity for the diffusers is determined by CORMIX software simulation results based on the diffuser configuration and the discharge flow. CORMIX uses diffuser length, number of diffuser ports, diffuser port size, and diffuser port configuration to determine the discharge velocity. Additional CORMIX software runs were performed using half flows through the 45-foot and the 75-foot diffuser sections, and results were found to be bounded by the 120-foot plumes.

It is unlikely that only one diffuser would be placed in service during normal plant operation, but data provided in Subsection 5.3.2.1 support this discharge. Cleaning and inspection of the diffusers would normally be performed during outages when only half of the discharge flow is present and one diffuser leg is in service. Operational modes of the diffusers are determined during normal plant operations.

The results of the CORMIX software simulations are discussed in the BLN responses to RAIs 5.25, 5.3-3(2), 5.3-3(3), 5.3-5, and 5.3-8.

This response is PLANT-SPECIFIC.

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

Change COLA Part 3, ER Chapter 3, Subsection 3.4.2.2, third paragraph, as follows:

At the end of the blowdown pipe is a submerged, multiport diffuser. The diffuser discharge is split into two pipes of different lengths, one 45 ft. long and the other 75 ft. long. The porting configuration is the same for both diffusers. The results of the CORMIX software simulations determines the discharge velocity for the diffusers, based on the diffuser configuration and the discharge flow. The 45-ft. diffuser is ~~one~~ designed to handle maximum flows of 25 to 50 cfs (11,221–22,442 gpm) and the ~~other~~ 75-ft. diffuser is designed for a maximum flow of to handle flows from 51 to 100 cfs (22,442–44,883 gpm). ~~These pipes are designed to achieve a nominal port exit velocity of 10 fps at flow rates of 35 cfs (15,700 gpm) and 70 cfs (31,418 gpm), respectively. This gives a range of discharge velocities for either pipe of 7.1 to 14.3 fps. The total port area required is 3.5 ft² for the large leg. The ports are positioned to discharge at an angle of 22 °degrees from the horizontal, which preclude scour problems.~~

ATTACHMENTS:

None.

TVA Letter Dated: August 8, 2008

Responses to Environmental Report Information Needs – Hydrology

NRC Review of the BLN Environmental Report

NRC Environmental Category: HYDROLOGY

NRC RAI NUMBER: 5.3-6

Regarding CORMIX simulations, explain how ambient river water temperatures were selected. Identify the data set used to develop the values and indicate the date and location of the data.

BLN RESPONSE:

River temperatures at the Widows Creek Fossil Plant (WCF) from 2000 to 2008 were analyzed to determine the conservative river temperatures to be used in the CORMIX simulations. Temperatures were recorded at the WCF H-6 intake at approximately 20 feet below the water surface. As discussed in the BLN response to RAI 5.2-4 (included in this letter), the WCF intake temperatures closely approximate the river temperatures at the BLN site. Intake temperature data from 2000 to 2008 indicate the highest recorded temperature at the WCF intake was 87.7°F, an average intake temperature of 65.7°F, and the lowest recorded intake temperature of 39.1°F.

Based on these temperature results, the maximum and minimum temperatures (90.0°F and 39.2°F, respectively) selected for the CORMIX simulations of the diffuser discharge at the BLN are considered to be conservative for the actual recorded temperature values and appropriate for the CORMIX simulations. Average river temperature cases were not considered in the new CORMIX simulations, because it was determined that the results of such simulations would be bounded by the high and low river temperature cases, as no meaningful conclusions were drawn from any of the previous simulation runs that assumed average river temperature.

This response is PLANT-SPECIFIC.

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

None.

ATTACHMENTS:

None.

NRC Review of the BLN Environmental Report**NRC Environmental Category: HYDROLOGY****NRC RAI NUMBER: 5.3-7**

- (1) Using the Guntersville Dam discharge record, calculate the 7Q10.
- (2) Using the Nickajack Dam discharge record, calculate the 7Q10.
- (3) Describe how these values compare to the 7Q10 derived from the South Pittsburg gage.

BLN RESPONSE:

Based on a discussion with the NRC staff on July 14, 2008, a clarification to this RAI was provided by the reviewer, requesting the following supplemental information:

In addition to the 7Q10 determination being performed for the reservoir near the site, this question also asks for 7Q10 at both dams (Guntersville and Nickajack). During the discussion Charlie Kincaid confirmed this is what he needs.

The clarification is addressed as follows:

TVA compiled hourly dam discharge flow rates for both Nickajack and Guntersville Dams from 1976 to 2007. These hourly discharge values were used to calculate the daily average flow rates by averaging the 24 hourly flow values for each day from January 1, 1976 to December 31, 2007. The daily average flow values were then used to compute the 7Q10 flow at each dam. Based on these calculations, the 7Q10 flow for the Nickajack Dam discharge is 5130 cfs, and the 7Q10 flow for the Guntersville Dam discharge is 6160 cfs. A previous 7Q10 flow of 10,500 cfs had been calculated at the U.S. Geological Survey South Pittsburg Stream Gauge at Tennessee River mile 418.1.

The Nickajack Dam discharge 7Q10 flow is significantly less than the 7Q10 flow calculated from the South Pittsburg gauge data (48 percent). The difference in 7Q10 flow values is in part due to the input flow from the Sequatchie River (confluence between Nickajack Dam and the South Pittsburg Gauge). The Nickajack Dam is located approximately 6 river miles upstream of the South Pittsburg Gauge with drainage from the Sequatchie River entering approximately 2 miles downstream of Nickajack Dam. In addition, the difference in time periods monitored may have influenced the differences in calculated 7Q10 values between these two locations.

Daily average flows, generated using recorded discharge data from 1976 to 2007 at Nickajack Dam, were examined and applied to the BLN site as a conservative estimate for the 7Q10 flow rate. In application to the BLN site, the Nickajack Dam flow releases are conservative in that they do not account for flow introduced to the Guntersville Reservoir from the Sequatchie River and several minor direct-flow watercourses. Therefore, the 7Q10 estimate is less than would be determined for a location downstream of the dam.

Reference:

NRC Communication Summary, "Summary of Telecommunication with Tennessee Valley Authority to Discuss Clarification on Request for Additional Information (RAI) for Bellefonte Units 3 and 4."
Contact: Mallecia Hood (DSER/NRO), dated July 28, 2008 [ML082070062].

This response is PLANT-SPECIFIC.

Enclosure

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TVA Letter Dated: August 8, 2008

Responses to Environmental Report Information Needs – Hydrology

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

The BLN COL Application ER changes associated with this response are provided in the response to RAIs 5.3-2 / 5.3-3(1).

ATTACHMENTS:

None.

ATTACHMENT 5.2-4A
U.S. ENVIRONMENTAL PROTECTION AGENCY
STORET DATABASE - WATER TEMPERATURE DATA FOR ALABAMA
WEBSITE, [FTP://FTP.EPA.GOV/STORET/EXPORTS/](ftp://ftp.epa.gov/storet/exports/)
ACCESSED JULY 23, 2008

U.S. Environmental Protection Agency

STORET Database
Water Temperature Data for Alabama
Website <ftp://ftp.epa.gov/storet/exports/>

(Data on CD-ROM)

(Accessed July 23, 2008)

ATTACHMENT 5.2-4B
TENNESSEE VALLEY AUTHORITY
NEW FIGURE 5.2-X1, WATER TEMPERATURE SAMPLING LOCATION MAP
NO DATE

Tennessee Valley Authority

New Figure 5.2-X1 Water Temperature Sampling Location Map (1 page)

No Date

Bellefonte Nuclear Plant, Units 3 & 4
COL Application

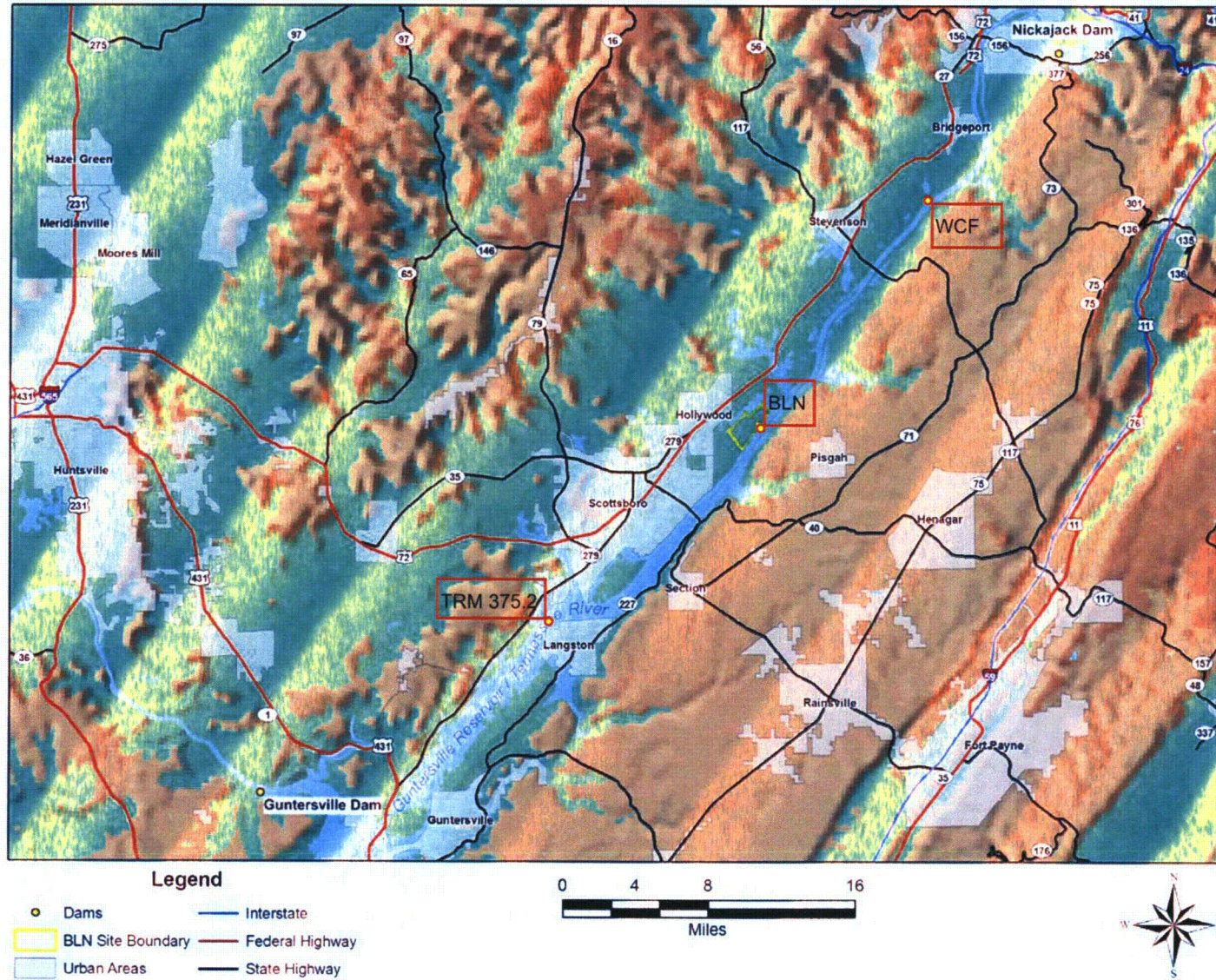


Figure 5.2-X1
Water Temperature Sampling Location Map

ATTACHMENT 5.2-4C
U.S. DROUGHT MONITOR
STATISTICS FOR THE SOUTHEAST REGION
WEBSITE, [HTTP://WWW.DROUGHT.UNL.EDU/DM/DM_TABLES.HTM](http://www.drought.unl.edu/dm/dm_tables.htm)
ACCESSED MAY 29, 2008

U.S. Drought Monitor

**Statistics for the Southeast Region
Website,
http://www.drought.unl.edu/dm/DM_tables.htm
(13 pages: cover sheet, continuous data sheets)**

Accessed May 29, 2008

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The data cutoff for Drought Monitor maps is Tuesday at 7 a.m. Eastern Standard Time. The maps, which are based on analysis of the data, are released each Thursday at 8:30 a.m. Eastern Time.

U.S. Drought Monitor

Southeast

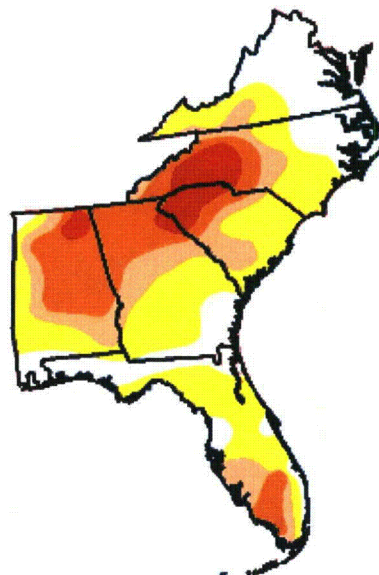
May 27, 2008

Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	25.5	74.5	39.7	23.9	5.9	0.0
Last Week (05/20/2008 map)	24.5	75.5	39.2	22.9	4.8	0.0
3 Months Ago (03/04/2008 map)	18.1	81.9	66.5	48.6	25.8	6.9
Start of Calendar Year (01/01/2008 map)	9.6	90.4	74.3	58.5	41.0	22.0
Start of Water Year (10/02/2007 map)	10.1	89.9	77.9	63.8	45.2	24.0
One Year Ago (05/29/2007 map)	10.3	89.7	82.6	47.6	27.6	0.0

Intensity:

 D0 Abnormally Dry	 D3 Drought - Extreme
 D1 Drought - Moderate	 D4 Drought - Exceptional
 D2 Drought - Severe	



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

<http://drought.unl.edu/dm>



Released Thursday, May 29, 2008

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For a .pdf version of the Southeast Region Drought Monitor, click [here](#).

To view tabular statistics for the Southeast Region, click [here](#).

For more information on the Drought Impact Reporter click [here](#).

For local details and impacts, please contact your [State Climatologist](#) or [Regional Climate Center](#).

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[Drought Monitor](#)[Forecasts](#)[What's New](#)[Current Conditions](#)[About Us](#)[Archive](#)[Contact Us](#)[Links](#)[Home](#)**Drought Conditions (Percent Area): Southeast**

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
05/27/08	25.52	74.48	39.72	23.85	5.90	0.00
05/20/08	24.51	75.49	39.16	22.94	4.81	0.00
05/13/08	30.35	69.66	40.21	23.50	8.25	0.00
05/06/08	26.41	73.59	43.57	23.25	8.93	0.00
04/29/08	27.28	72.72	42.94	22.12	8.56	0.00
04/22/08	26.62	73.38	47.78	24.73	8.87	0.00
04/15/08	29.04	70.96	50.29	29.27	8.87	0.00
04/08/08	29.60	70.40	50.29	29.27	11.51	0.00
04/01/08	23.83	76.17	59.42	39.21	17.93	0.00
03/25/08	24.77	75.23	57.52	38.08	17.99	0.00
03/18/08	23.82	76.18	58.51	40.47	18.76	0.28
03/11/08	23.82	76.18	57.96	40.31	18.78	1.63
03/04/08	18.09	81.91	66.53	48.57	25.75	6.89
02/26/08	18.09	81.91	66.21	48.58	27.15	8.94
02/19/08	8.60	91.41	72.45	54.44	34.50	18.87
02/12/08	7.97	92.03	73.24	54.80	36.33	19.79
02/05/08	8.00	92.00	71.78	54.81	36.31	19.79
01/29/08	7.26	92.74	72.81	57.78	39.15	21.32
01/22/08	6.32	93.68	73.77	54.49	37.39	20.22
01/15/08	3.86	96.14	75.88	58.54	40.37	20.20
01/08/08	9.59	90.41	75.07	58.48	40.96	22.01
01/01/08	9.61	90.39	74.26	58.48	40.96	22.00
12/25/07	9.04	90.97	76.88	62.34	47.83	36.24
12/18/07	9.10	90.90	78.34	63.00	47.94	36.24
12/11/07	8.62	91.38	79.27	63.17	47.94	36.24
12/04/07	12.27	87.73	77.89	59.66	45.16	31.54
11/27/07	13.04	86.96	76.17	58.04	43.48	27.77
11/20/07	11.26	88.74	75.60	55.41	41.65	27.19
11/13/07	11.26	88.74	73.59	53.83	36.33	23.11
11/06/07	13.82	86.19	67.70	48.61	32.68	20.45
10/30/07	14.80	85.20	66.70	46.33	31.28	18.53
10/23/07	13.56	86.44	73.61	64.34	50.00	31.35
10/16/07	11.12	88.88	81.07	71.26	51.18	32.60
10/09/07	12.79	87.21	79.71	68.19	47.72	25.95
10/02/07	10.13	89.87	77.91	63.78	45.24	24.02

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09/25/07	10.38	89.62	76.74	58.97	40.98	15.49
09/18/07	8.24	91.76	76.71	58.13	41.73	15.86
09/11/07	5.73	94.27	80.62	62.71	44.72	19.17
09/04/07	6.13	93.87	75.92	54.50	34.71	15.79
08/28/07	2.66	97.34	82.61	59.97	40.66	22.56
08/21/07	2.41	97.59	86.21	60.54	40.94	23.61
08/14/07	2.41	97.59	84.73	55.18	31.27	18.81
08/07/07	2.41	97.59	78.14	42.85	26.42	14.06
07/31/07	2.51	97.49	80.42	43.34	21.82	6.01
07/24/07	2.51	97.49	77.79	39.87	17.73	3.35
07/17/07	4.12	95.88	76.72	39.04	17.73	4.54
07/10/07	4.11	95.89	71.75	38.16	18.09	4.55
07/03/07	7.14	92.86	65.51	40.09	23.14	7.55
06/26/07	3.05	96.95	68.40	42.75	26.36	8.08
06/19/07	8.31	91.69	66.82	44.96	29.53	7.98
06/12/07	10.88	89.12	66.51	47.01	23.22	7.12
06/05/07	11.23	88.78	68.09	39.95	24.05	3.94
05/29/07	10.33	89.67	82.58	47.59	27.65	0.00
05/22/07	14.84	85.16	72.48	46.20	25.55	0.00
05/15/07	14.81	85.19	65.58	36.38	19.27	0.00
05/08/07	13.47	86.54	60.46	36.19	18.74	0.00
05/01/07	25.46	74.54	60.05	34.75	16.59	0.00
04/24/07	31.25	68.75	57.21	28.47	8.53	0.00
04/17/07	31.60	68.40	41.27	16.58	1.83	0.00
04/10/07	11.57	88.43	46.86	10.17	1.67	0.00
04/03/07	12.22	87.78	42.82	12.07	1.67	0.00
03/27/07	10.67	89.33	30.09	9.71	0.68	0.00
03/20/07	20.23	79.77	26.01	2.22	0.00	0.00
03/13/07	24.86	75.14	24.83	1.79	0.00	0.00
03/06/07	62.99	37.01	9.14	0.00	0.00	0.00
02/27/07	53.12	46.88	10.82	0.00	0.00	0.00
02/20/07	54.48	45.52	10.71	0.00	0.00	0.00
02/13/07	62.58	37.42	8.74	0.00	0.00	0.00
02/06/07	73.68	26.32	7.24	0.00	0.00	0.00
01/30/07	74.10	25.90	11.19	3.15	0.00	0.00
01/23/07	74.18	25.82	11.19	3.15	0.00	0.00
01/16/07	64.06	35.94	11.31	2.84	0.00	0.00
01/09/07	59.28	40.72	10.63	1.25	0.00	0.00
01/02/07	52.25	47.76	10.15	1.47	0.00	0.00
12/26/06	52.87	47.13	11.00	2.35	0.00	0.00

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12/19/06	52.16	47.84	12.44	2.35	0.00	0.00
12/12/06	63.57	36.43	10.15	1.66	0.00	0.00
12/05/06	75.27	24.73	8.59	1.66	0.00	0.00
11/28/06	78.91	21.09	8.59	1.66	0.00	0.00
11/21/06	70.45	29.55	11.25	0.00	0.00	0.00
11/14/06	53.62	46.38	22.60	0.00	0.00	0.00
11/07/06	53.62	46.38	19.97	0.00	0.00	0.00
10/31/06	48.08	51.92	21.83	0.00	0.00	0.00
10/24/06	44.25	55.75	28.25	0.00	0.00	0.00
10/17/06	43.04	56.96	35.64	0.00	0.00	0.00
10/10/06	46.81	53.20	38.55	0.00	0.00	0.00
10/03/06	47.02	52.98	33.19	0.00	0.00	0.00
09/26/06	52.54	47.46	23.10	0.00	0.00	0.00
09/19/06	52.61	47.39	28.30	0.00	0.00	0.00
09/12/06	42.30	57.70	33.96	24.24	1.06	0.00
09/05/06	34.95	65.05	36.64	25.31	1.06	0.00
08/29/06	23.78	76.22	47.58	25.31	1.06	0.00
08/22/06	18.15	81.85	49.56	27.69	4.52	0.00
08/15/06	22.02	77.98	41.74	23.03	4.52	0.00
08/08/06	31.69	68.31	47.55	23.58	7.34	0.00
08/01/06	37.96	62.05	43.88	21.96	7.77	0.00
07/25/06	38.12	61.89	42.98	20.45	7.77	0.00
07/18/06	38.13	61.87	40.70	16.71	7.77	0.00
07/11/06	48.94	51.06	32.87	8.56	2.91	0.00
07/04/06	45.95	54.06	31.66	4.56	0.14	0.00
06/27/06	45.92	54.08	26.50	1.38	0.14	0.00
06/20/06	35.34	64.66	30.94	4.23	0.14	0.00
06/13/06	28.34	71.66	40.91	2.93	0.14	0.00
06/06/06	34.59	65.41	31.28	3.71	0.00	0.00
05/30/06	38.88	61.12	26.12	2.70	0.00	0.00
05/23/06	48.20	51.80	25.43	2.59	0.00	0.00
05/16/06	45.06	54.94	24.56	2.26	0.00	0.00
05/09/06	20.85	79.16	24.35	1.28	0.00	0.00
05/02/06	19.69	80.31	25.04	1.28	0.00	0.00
04/25/06	19.59	80.42	26.78	5.41	0.00	0.00
04/18/06	19.00	81.00	28.40	6.12	0.00	0.00
04/11/06	25.81	74.20	25.58	4.09	0.00	0.00
04/04/06	17.56	82.44	20.71	2.15	0.00	0.00
03/28/06	44.48	55.52	20.44	2.15	0.00	0.00
03/21/06	59.97	40.03	8.90	0.00	0.00	0.00

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03/14/06	61.41	38.59	8.08	0.00	0.00	0.00
03/07/06	71.06	28.94	5.49	0.00	0.00	0.00
02/28/06	74.87	25.13	5.49	0.00	0.00	0.00
02/21/06	88.46	11.54	3.51	0.00	0.00	0.00
02/14/06	93.99	6.02	0.00	0.00	0.00	0.00
02/07/06	90.31	9.69	0.03	0.00	0.00	0.00
01/31/06	87.40	12.61	0.26	0.00	0.00	0.00
01/24/06	90.29	9.71	0.00	0.00	0.00	0.00
01/17/06	86.14	13.87	0.00	0.00	0.00	0.00
01/10/06	86.61	13.39	0.00	0.00	0.00	0.00
01/03/06	97.40	2.60	0.00	0.00	0.00	0.00
12/27/05	95.63	4.37	0.81	0.00	0.00	0.00
12/20/05	95.35	4.65	0.81	0.00	0.00	0.00
12/13/05	93.09	6.91	0.93	0.00	0.00	0.00
12/06/05	88.72	11.28	0.93	0.00	0.00	0.00
11/29/05	78.45	21.55	3.07	0.74	0.00	0.00
11/22/05	50.89	49.11	6.48	1.32	0.00	0.00
11/15/05	37.29	62.71	7.31	1.51	0.00	0.00
11/08/05	58.28	41.72	8.67	1.38	0.00	0.00
11/01/05	60.84	39.16	6.83	1.46	0.00	0.00
10/25/05	79.69	20.31	3.17	0.00	0.00	0.00
10/18/05	85.21	14.79	3.17	0.27	0.00	0.00
10/11/05	86.90	13.11	2.77	0.00	0.00	0.00
10/04/05	61.28	38.73	23.39	4.95	0.00	0.00
09/27/05	60.28	39.72	13.23	0.00	0.00	0.00
09/20/05	65.40	34.60	10.82	0.00	0.00	0.00
09/13/05	80.35	19.65	0.11	0.00	0.00	0.00
09/06/05	85.69	14.32	0.00	0.00	0.00	0.00
08/30/05	97.88	2.12	0.00	0.00	0.00	0.00
08/23/05	99.96	0.04	0.00	0.00	0.00	0.00
08/16/05	99.94	0.07	0.00	0.00	0.00	0.00
08/09/05	100.00	0.00	0.00	0.00	0.00	0.00
08/02/05	99.09	0.91	0.00	0.00	0.00	0.00
07/26/05	98.19	1.81	0.00	0.00	0.00	0.00
07/19/05	98.19	1.81	0.00	0.00	0.00	0.00
07/12/05	98.19	1.81	0.00	0.00	0.00	0.00
07/05/05	90.42	9.58	3.06	0.00	0.00	0.00
06/28/05	89.16	10.84	0.00	0.00	0.00	0.00
06/21/05	92.06	7.95	0.00	0.00	0.00	0.00
06/14/05	100.00	0.00	0.00	0.00	0.00	0.00

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06/07/05	95.83	4.17	0.00	0.00	0.00	0.00
05/31/05	93.28	6.72	0.24	0.00	0.00	0.00
05/24/05	93.84	6.16	0.00	0.00	0.00	0.00
05/17/05	94.00	6.00	0.00	0.00	0.00	0.00
05/10/05	100.00	0.00	0.00	0.00	0.00	0.00
05/03/05	100.00	0.00	0.00	0.00	0.00	0.00
04/26/05	100.00	0.00	0.00	0.00	0.00	0.00
04/19/05	100.00	0.00	0.00	0.00	0.00	0.00
04/12/05	100.00	0.00	0.00	0.00	0.00	0.00
04/05/05	100.00	0.00	0.00	0.00	0.00	0.00
03/29/05	95.10	4.90	0.00	0.00	0.00	0.00
03/22/05	86.46	13.54	0.00	0.00	0.00	0.00
03/15/05	82.54	17.46	0.00	0.00	0.00	0.00
03/08/05	82.35	17.65	0.00	0.00	0.00	0.00
03/01/05	94.26	5.74	0.00	0.00	0.00	0.00
02/22/05	89.64	10.36	0.00	0.00	0.00	0.00
02/15/05	91.25	8.75	0.00	0.00	0.00	0.00
02/08/05	95.97	4.03	0.00	0.00	0.00	0.00
02/01/05	95.97	4.03	0.00	0.00	0.00	0.00
01/25/05	97.00	3.00	0.00	0.00	0.00	0.00
01/18/05	97.00	3.00	0.00	0.00	0.00	0.00
01/11/05	97.00	3.00	0.00	0.00	0.00	0.00
01/04/05	97.00	3.00	0.00	0.00	0.00	0.00
12/28/04	97.00	3.00	0.00	0.00	0.00	0.00
12/21/04	96.16	3.84	0.00	0.00	0.00	0.00
12/14/04	97.49	2.51	0.00	0.00	0.00	0.00
12/07/04	100.00	0.00	0.00	0.00	0.00	0.00
11/30/04	100.00	0.00	0.00	0.00	0.00	0.00
11/23/04	97.51	2.49	0.00	0.00	0.00	0.00
11/16/04	100.00	0.00	0.00	0.00	0.00	0.00
11/09/04	100.00	0.00	0.00	0.00	0.00	0.00
11/02/04	100.00	0.00	0.00	0.00	0.00	0.00
10/26/04	100.00	0.00	0.00	0.00	0.00	0.00
10/19/04	100.00	0.00	0.00	0.00	0.00	0.00
10/12/04	100.00	0.00	0.00	0.00	0.00	0.00
10/05/04	100.00	0.00	0.00	0.00	0.00	0.00
09/28/04	100.00	0.00	0.00	0.00	0.00	0.00
09/21/04	100.00	0.00	0.00	0.00	0.00	0.00
09/14/04	100.00	0.00	0.00	0.00	0.00	0.00
09/07/04	100.00	0.00	0.00	0.00	0.00	0.00

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08/31/04	96.76	3.24	0.00	0.00	0.00	0.00
08/24/04	96.50	3.50	0.00	0.00	0.00	0.00
08/17/04	96.57	3.43	0.00	0.00	0.00	0.00
08/10/04	72.77	27.23	0.00	0.00	0.00	0.00
08/03/04	84.03	15.97	0.00	0.00	0.00	0.00
07/27/04	87.56	12.44	0.00	0.00	0.00	0.00
07/20/04	85.55	14.46	0.00	0.00	0.00	0.00
07/13/04	82.61	17.39	0.00	0.00	0.00	0.00
07/06/04	85.54	14.46	0.00	0.00	0.00	0.00
06/29/04	78.60	21.40	4.61	0.00	0.00	0.00
06/22/04	64.37	35.63	18.11	4.48	0.00	0.00
06/15/04	61.74	38.27	19.35	9.14	0.00	0.00
06/08/04	48.53	51.47	25.39	11.67	0.00	0.00
06/01/04	37.92	62.08	32.22	9.76	0.00	0.00
05/25/04	34.53	65.47	29.16	9.44	0.00	0.00
05/18/04	53.19	46.81	12.45	0.00	0.00	0.00
05/11/04	61.83	38.17	12.99	0.00	0.00	0.00
05/04/04	64.86	35.14	11.38	0.00	0.00	0.00
04/27/04	48.66	51.34	16.07	0.00	0.00	0.00
04/20/04	49.50	50.51	10.99	0.00	0.00	0.00
04/13/04	43.51	56.49	0.00	0.00	0.00	0.00
04/06/04	38.45	61.55	0.00	0.00	0.00	0.00
03/30/04	54.19	45.81	0.00	0.00	0.00	0.00
03/23/04	62.88	37.12	0.00	0.00	0.00	0.00
03/16/04	100.00	0.00	0.00	0.00	0.00	0.00
03/09/04	100.00	0.00	0.00	0.00	0.00	0.00
03/02/04	100.00	0.00	0.00	0.00	0.00	0.00
02/24/04	100.00	0.00	0.00	0.00	0.00	0.00
02/17/04	100.00	0.00	0.00	0.00	0.00	0.00
02/10/04	100.00	0.00	0.00	0.00	0.00	0.00
02/03/04	100.00	0.00	0.00	0.00	0.00	0.00
01/27/04	100.00	0.00	0.00	0.00	0.00	0.00
01/20/04	100.00	0.00	0.00	0.00	0.00	0.00
01/13/04	100.00	0.00	0.00	0.00	0.00	0.00
01/06/04	100.00	0.00	0.00	0.00	0.00	0.00
12/30/03	97.81	2.19	0.00	0.00	0.00	0.00
12/23/03	98.46	1.54	0.00	0.00	0.00	0.00
12/16/03	98.81	1.19	0.00	0.00	0.00	0.00
12/09/03	94.52	5.48	0.00	0.00	0.00	0.00
12/02/03	100.00	0.00	0.00	0.00	0.00	0.00

ATTACHMENT 5.2-4C

11/25/03	100.00	0.00	0.00	0.00	0.00	0.00
11/18/03	100.00	0.00	0.00	0.00	0.00	0.00
11/11/03	100.00	0.00	0.00	0.00	0.00	0.00
11/04/03	100.00	0.00	0.00	0.00	0.00	0.00
10/28/03	100.00	0.00	0.00	0.00	0.00	0.00
10/21/03	100.00	0.00	0.00	0.00	0.00	0.00
10/14/03	100.00	0.00	0.00	0.00	0.00	0.00
10/07/03	100.00	0.00	0.00	0.00	0.00	0.00
09/30/03	100.00	0.00	0.00	0.00	0.00	0.00
09/23/03	100.00	0.00	0.00	0.00	0.00	0.00
09/16/03	100.00	0.00	0.00	0.00	0.00	0.00
09/09/03	100.00	0.00	0.00	0.00	0.00	0.00
09/02/03	100.00	0.00	0.00	0.00	0.00	0.00
08/26/03	100.00	0.00	0.00	0.00	0.00	0.00
08/19/03	100.00	0.00	0.00	0.00	0.00	0.00
08/12/03	100.00	0.00	0.00	0.00	0.00	0.00
08/05/03	100.00	0.00	0.00	0.00	0.00	0.00
07/29/03	100.00	0.00	0.00	0.00	0.00	0.00
07/22/03	100.00	0.00	0.00	0.00	0.00	0.00
07/15/03	100.00	0.00	0.00	0.00	0.00	0.00
07/08/03	100.00	0.00	0.00	0.00	0.00	0.00
07/01/03	100.00	0.00	0.00	0.00	0.00	0.00
06/24/03	100.00	0.00	0.00	0.00	0.00	0.00
06/17/03	100.00	0.00	0.00	0.00	0.00	0.00
06/10/03	100.00	0.00	0.00	0.00	0.00	0.00
06/03/03	100.00	0.00	0.00	0.00	0.00	0.00
05/27/03	100.00	0.00	0.00	0.00	0.00	0.00
05/20/03	95.65	4.35	0.00	0.00	0.00	0.00
05/13/03	87.64	12.36	0.00	0.00	0.00	0.00
05/06/03	98.85	1.15	0.00	0.00	0.00	0.00
04/29/03	100.00	0.00	0.00	0.00	0.00	0.00
04/22/03	100.00	0.00	0.00	0.00	0.00	0.00
04/15/03	100.00	0.00	0.00	0.00	0.00	0.00
04/08/03	100.00	0.00	0.00	0.00	0.00	0.00
04/01/03	100.00	0.00	0.00	0.00	0.00	0.00
03/25/03	98.60	1.40	0.00	0.00	0.00	0.00
03/18/03	87.00	13.00	0.00	0.00	0.00	0.00
03/11/03	86.83	13.17	0.00	0.00	0.00	0.00
03/04/03	73.59	26.41	0.00	0.00	0.00	0.00
02/25/03	73.02	26.98	0.00	0.00	0.00	0.00

ATTACHMENT 5.2-4C

02/18/03	72.97	27.03	1.80	0.00	0.00	0.00
02/11/03	72.46	27.54	1.74	0.00	0.00	0.00
02/04/03	75.44	24.56	1.15	0.00	0.00	0.00
01/28/03	82.33	17.67	1.08	0.00	0.00	0.00
01/21/03	83.12	16.88	1.05	0.00	0.00	0.00
01/14/03	82.74	17.27	0.00	0.00	0.00	0.00
01/07/03	82.53	17.47	0.00	0.00	0.00	0.00
12/31/02	79.37	20.63	0.00	0.00	0.00	0.00
12/24/02	69.36	30.64	1.60	0.00	0.00	0.00
12/17/02	69.25	30.75	1.84	0.00	0.00	0.00
12/10/02	62.18	37.82	11.89	0.00	0.00	0.00
12/03/02	60.54	39.46	12.74	0.00	0.00	0.00
11/26/02	60.23	39.77	13.05	0.00	0.00	0.00
11/19/02	60.38	39.62	13.08	0.00	0.00	0.00
11/12/02	54.16	45.85	22.57	2.58	0.00	0.00
11/05/02	48.03	51.97	33.21	13.66	0.00	0.00
10/29/02	45.25	54.75	36.63	20.39	1.13	0.00
10/22/02	45.58	54.42	41.53	21.63	2.31	0.00
10/15/02	36.94	63.06	46.72	27.61	6.46	0.00
10/08/02	33.92	66.08	54.09	42.49	20.42	7.93
10/01/02	40.22	59.78	49.10	37.66	13.23	3.07
09/24/02	30.67	69.33	55.90	40.89	16.22	2.67
09/17/02	26.61	73.39	58.64	43.87	24.84	2.67
09/10/02	19.52	80.48	64.94	46.30	28.59	9.31
09/03/02	24.20	75.80	58.24	43.56	26.37	9.72
08/27/02	27.20	72.80	61.63	49.91	32.15	15.35
08/20/02	27.41	72.60	63.49	51.27	35.80	18.46
08/13/02	28.15	71.85	62.78	49.63	33.65	16.06
08/06/02	29.09	70.91	57.83	44.36	31.37	11.08
07/30/02	20.47	79.53	60.87	39.61	27.81	8.01
07/23/02	18.56	81.44	69.38	52.81	29.27	4.58
07/16/02	19.04	80.96	70.96	50.14	27.24	4.50
07/09/02	18.64	81.37	73.96	51.58	27.20	4.50
07/02/02	18.67	81.33	73.06	51.80	26.88	4.41
06/25/02	15.41	84.59	73.59	52.64	26.67	4.18
06/18/02	15.19	84.81	72.83	50.64	24.09	2.76
06/11/02	6.22	93.78	72.75	52.00	19.42	0.00
06/04/02	7.03	92.97	70.22	48.09	18.23	0.00
05/28/02	5.84	94.17	69.99	47.96	17.09	0.00
05/21/02	6.64	93.36	69.29	46.39	15.96	0.00

ATTACHMENT 5.2-4C

05/14/02	6.74	93.27	69.05	42.69	15.32	0.00
05/07/02	7.67	92.34	56.89	41.21	15.19	0.00
04/30/02	8.93	91.07	58.55	41.51	18.80	0.00
04/23/02	19.97	80.04	53.60	37.90	14.97	0.00
04/16/02	29.71	70.29	52.47	38.72	16.37	0.00
04/09/02	22.17	77.83	55.53	39.74	14.34	0.00
04/02/02	21.12	78.88	55.44	39.49	12.92	0.00
03/26/02	15.62	84.38	62.32	52.68	19.01	0.00
03/19/02	14.43	85.57	63.06	53.47	19.03	0.00
03/12/02	15.44	84.56	64.83	55.45	23.44	0.00
03/05/02	21.35	78.65	58.06	44.96	14.13	0.00
02/26/02	18.97	81.03	59.88	46.88	14.83	0.00
02/19/02	20.88	79.12	57.60	40.33	11.98	0.00
02/12/02	33.28	66.73	56.74	40.32	11.71	0.00
02/05/02	26.67	73.33	58.27	37.91	11.97	0.00
01/29/02	27.30	72.70	58.60	34.28	9.82	0.00
01/22/02	26.28	73.72	60.44	37.32	10.10	0.00
01/15/02	23.87	76.13	62.85	41.13	10.83	0.00
01/08/02	18.09	81.91	64.28	43.70	11.82	0.00
01/01/02	20.25	79.75	63.26	44.94	12.40	0.00
12/25/01	20.13	79.87	56.05	40.36	6.04	0.00
12/18/01	26.54	73.46	56.05	41.28	4.36	0.00
12/11/01	27.13	72.87	55.76	37.68	3.75	0.00
12/04/01	24.03	75.97	58.80	49.25	9.13	0.00
11/27/01	24.03	75.97	58.80	40.46	0.00	0.00
11/20/01	23.70	76.31	58.84	40.03	0.00	0.00
11/13/01	23.70	76.31	56.62	22.87	0.00	0.00
11/06/01	23.66	76.34	48.92	17.04	0.00	0.00
10/30/01	28.25	71.75	42.32	10.47	0.00	0.00
10/23/01	39.13	60.87	23.09	2.69	0.00	0.00
10/16/01	59.26	40.74	12.92	1.13	0.00	0.00
10/09/01	60.21	39.80	11.87	0.00	0.00	0.00
10/02/01	70.59	29.41	5.23	0.00	0.00	0.00
09/25/01	75.54	24.46	1.75	0.00	0.00	0.00
09/18/01	73.13	26.87	3.13	1.13	0.00	0.00
09/11/01	78.18	21.82	4.70	1.13	0.00	0.00
09/04/01	79.48	20.52	5.43	1.13	0.00	0.00
08/28/01	75.00	25.00	6.82	2.45	0.00	0.00
08/21/01	81.25	18.75	5.08	2.02	0.00	0.00
08/14/01	77.83	22.17	7.18	1.89	0.00	0.00

ATTACHMENT 5.2-4C

08/07/01	76.54	23.47	6.66	1.40	0.00	0.00
07/31/01	65.48	34.52	15.86	3.23	0.00	0.00
07/24/01	53.63	46.37	16.68	4.60	0.76	0.00
07/17/01	55.60	44.40	18.55	11.71	2.44	0.00
07/10/01	61.60	38.40	19.57	14.05	6.93	0.00
07/03/01	52.83	47.17	30.02	17.21	7.81	0.00
06/26/01	48.34	51.66	35.42	22.41	10.18	0.00
06/19/01	48.34	51.66	35.42	22.57	12.74	0.00
06/12/01	44.37	55.63	45.24	29.55	13.23	1.01
06/05/01	31.87	68.13	56.02	33.58	16.48	4.19
05/29/01	12.61	87.39	62.57	35.05	17.15	5.09
05/22/01	7.80	92.20	61.79	36.77	18.18	5.12
05/15/01	7.43	92.58	68.76	40.21	20.14	4.82
05/08/01	7.43	92.58	61.62	31.71	18.62	2.81
05/01/01	34.30	65.70	50.49	25.79	13.46	2.81
04/24/01	29.77	70.23	50.24	25.40	13.46	2.81
04/17/01	30.97	69.03	50.24	24.16	13.46	2.81
04/10/01	31.09	68.91	49.74	23.20	12.32	2.16
04/03/01	26.20	73.80	51.18	23.20	12.32	1.89
03/27/01	21.12	78.88	56.83	30.65	15.33	6.75
03/20/01	19.97	80.03	60.29	30.65	15.79	7.18
03/13/01	19.35	80.65	62.46	31.79	16.61	7.43
03/06/01	20.92	79.08	63.83	40.18	17.30	7.43
02/27/01	13.22	86.78	73.31	42.96	18.13	7.70
02/20/01	12.23	87.77	73.31	42.89	17.96	6.71
02/13/01	11.69	88.31	66.46	39.72	16.87	6.44
02/06/01	13.51	86.49	58.96	34.76	10.75	3.52
01/30/01	11.73	88.28	54.56	30.75	9.31	3.63
01/23/01	20.71	79.29	56.08	31.33	9.31	3.63
01/16/01	21.63	78.37	66.44	38.63	13.72	3.50
01/09/01	23.02	76.98	66.44	38.63	12.46	3.48
01/02/01	23.02	76.98	66.07	37.85	8.60	3.48
12/26/00	23.02	76.98	68.05	48.81	8.67	3.74
12/19/00	21.46	78.54	68.65	50.00	7.78	3.15
12/12/00	14.61	85.39	70.94	58.10	9.60	2.62
12/05/00	11.66	88.34	71.37	57.34	7.37	1.43
11/28/00	11.66	88.34	70.12	57.00	6.31	0.00
11/21/00	3.92	96.08	71.85	59.81	17.40	0.00
11/14/00	3.06	96.94	73.91	62.17	37.32	3.04
11/07/00	4.77	95.23	74.16	60.80	43.42	4.23

ATTACHMENT 5.2-4C

10/31/00	6.56	93.45	73.06	60.70	44.47	11.92
10/24/00	18.23	81.77	62.56	47.42	25.82	10.30
10/17/00	27.55	72.45	61.54	39.89	20.97	8.91
10/10/00	39.27	60.73	51.44	33.48	17.25	4.79
10/03/00	41.33	58.67	49.72	31.62	16.89	5.69
09/26/00	41.11	58.89	49.72	30.33	16.89	5.69
09/19/00	36.63	63.37	52.45	38.43	27.88	12.77
09/12/00	34.04	65.96	56.36	49.07	31.68	12.43
09/05/00	32.45	67.55	56.10	47.75	32.19	17.48
08/29/00	31.27	68.73	58.70	49.79	36.66	21.31
08/22/00	30.96	69.04	58.87	49.76	36.37	20.74
08/15/00	30.05	69.95	60.26	49.70	34.35	18.09
08/08/00	28.10	71.90	64.87	53.07	35.62	18.14
08/01/00	26.30	73.70	67.60	57.15	39.65	21.00
07/25/00	24.00	76.00	69.90	60.29	42.39	22.89
07/18/00	18.35	81.65	74.56	64.81	47.85	20.64
07/11/00	21.64	78.36	72.16	61.90	41.15	17.25
07/04/00	19.47	80.54	70.68	56.81	37.33	13.22
06/27/00	16.28	83.72	77.00	60.18	41.13	13.97
06/20/00	23.06	76.94	69.38	57.51	38.86	13.77
06/13/00	22.66	77.34	68.59	56.02	39.60	12.67
06/06/00	24.36	75.64	63.83	47.35	22.24	0.00
05/30/00	23.81	76.19	64.96	45.29	20.25	0.00
05/23/00	22.92	77.08	59.92	42.77	12.26	0.00
05/16/00	29.12	70.88	55.16	42.33	10.52	0.00
05/09/00	32.50	67.51	51.30	32.93	0.00	0.00
05/02/00	34.48	65.52	48.77	29.33	0.00	0.00
04/25/00	34.48	65.52	47.36	26.39	0.00	0.00
04/18/00	33.50	66.50	49.78	29.12	0.00	0.00
04/11/00	26.66	73.34	49.45	22.66	0.00	0.00
04/04/00	18.18	81.82	48.80	23.14	0.00	0.00
03/28/00	21.38	78.62	52.97	22.97	0.00	0.00
03/21/00	19.28	80.73	55.08	24.27	0.00	0.00
03/14/00	19.09	80.91	55.67	23.06	0.00	0.00
03/07/00	22.14	77.86	50.53	21.52	0.00	0.00
02/29/00	26.04	73.96	44.57	18.50	0.00	0.00
02/22/00	44.15	55.85	37.73	8.68	0.00	0.00
02/15/00	42.90	57.10	37.93	9.27	0.00	0.00
02/08/00	41.51	58.49	37.93	9.27	0.00	0.00
02/01/00	41.51	58.49	36.40	9.23	0.00	0.00

ATTACHMENT 5.2-4C

01/25/00	36.41	63.59	43.88	15.12	0.00	0.00
01/18/00	28.01	71.99	45.69	14.94	0.00	0.00
01/11/00	28.37	71.63	45.90	14.94	0.00	0.00
01/04/00	27.73	72.27	43.09	19.43	0.00	0.00

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ATTACHMENT 5.2-4D
TENNESSEE VALLEY AUTHORITY
WIDOWS CREEK FOSSIL PLANT
DAILY AVERAGE INTAKE TEMPERATURES, 2000 – 2006
NO DATE

Tennessee Valley Authority

**Widows Creek Fossil Plant
Daily Average Intake Temperatures
2000 – 2006
(9 pages: continuous data sheets)**

No Date

ATTACHMENT 5.2-4D

RAI 5.2-4 Attachment 'Widows Creek Fossil Plant Daily Average Intake Temperatures

2000-2006	normal to dry		normal to dry		dry		wet		wet		normal		dry		<<< summer meteorology comment
	2000		2001		2002		2003		2004		2005		2006		
date	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	
1-Jan	9.88		5.00		8.96		8.38		7.93		8.17		7.86		
2-Jan	10.37		4.57		8.70		8.58		7.87		8.41		9.14		
3-Jan	10.95		5.03		8.28		8.27		8.30		8.64		8.72		
4-Jan	10.96		4.77		8.04		7.99		9.01		9.08		8.73		
5-Jan	9.81		5.80		8.14		7.88		9.39		9.33		8.84		
6-Jan	9.81		5.84		8.13		7.67		9.03		9.72		8.56		
7-Jan	9.60		6.41		8.30		7.44		8.17		9.76		8.47		
8-Jan	9.50		6.29		7.33		7.28		7.82		9.96		8.83		
9-Jan	9.73		5.71		7.58		7.52		7.46		10.01		9.17		
10-Jan	10.13		5.05		5.03		7.63		6.98		9.94		9.44		
11-Jan	10.34		5.26		8.04		7.28		6.59		10.15		9.13		
12-Jan	10.49		5.21		8.78		6.87		6.42		10.48		9.07		
13-Jan	11.18		5.19		9.29		6.64		6.64		10.71		9.95		
14-Jan	10.66		5.88		8.65		6.65		6.97		11.02		8.52		
15-Jan	10.52		5.56		7.85		6.47		7.32		10.53		8.19		
16-Jan	10.48		6.28		7.68		6.29		7.41		10.18		8.16		
17-Jan	10.64		6.41		8.35		6.13		7.32		9.33		8.57		
18-Jan	10.65		6.60		8.52		5.61		7.56		8.70		8.86		
19-Jan	10.05		8.21		8.68		5.14		7.27		8.03		8.55		
20-Jan	9.71		7.93		8.92		5.48		6.81		7.71		8.66		
21-Jan	9.71		7.13		9.38		5.81		6.51		7.92		15.23		
22-Jan	8.55		7.07		9.16		5.61		6.50		8.03		16.42		
23-Jan	8.88		6.86		9.38		5.63		6.12		7.39		17.14		
24-Jan	8.16		6.57		10.12		5.65		6.06		7.02		15.49		
25-Jan	7.39		6.29		9.96		5.67		6.49		6.94		14.56		
26-Jan	6.78		6.11		9.72		5.69		7.30		7.45		10.44		
27-Jan	6.36		6.33		9.59		5.72		7.19		7.69		9.08		
28-Jan	6.03		6.26		8.94		5.74		6.48		7.39		6.00		
29-Jan	6.60		6.46		9.28		5.76		6.22		7.12		5.47		
30-Jan	6.54		7.06		10.26		5.78		6.17		7.03		5.01		
31-Jan	6.38		7.21		10.38		5.80		6.06		7.01		3.94		
1-Feb	6.18		7.40		11.66		5.82		6.12		7.26		5.64		
2-Feb	6.01		7.08		10.97		5.84		6.23		7.32		8.96		
3-Feb	6.22		6.88		10.57		5.87		6.22		7.29		9.32		
4-Feb	6.25		6.86		10.35		5.89		6.02		7.42		9.22		
5-Feb	6.55		7.01		9.76		5.91		6.59		7.54		8.72		
6-Feb	6.47		7.14		9.36		5.93		7.90		7.76		8.21		
7-Feb	6.80		7.58		9.16		5.95		7.60		7.88		8.07		
8-Feb	6.62		8.32		9.17		5.97		6.73		8.02		8.04		
9-Feb	6.90		8.67		9.33		5.99		6.63		8.37		8.14		

ATTACHMENT 5.2-4D

date	2000		2001		2002		2003		2004		2005		2006	
	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375
10-Feb	7.55		8.98		9.51		6.14		6.92		8.31		8.14	
11-Feb	7.74		8.60		9.40		6.00		6.77		8.18		8.04	
12-Feb	8.12		8.57		9.31		6.09		6.70		8.07		7.57	
13-Feb	8.12		8.76		9.49		6.07		6.94		8.31		7.36	
14-Feb	8.12		9.12		9.60		6.13		7.12		8.29		7.32	
15-Feb	9.49		9.67		9.90		6.66		7.14		8.70		8.01	
16-Feb	9.64		10.77		10.35		6.77		6.93		8.99		8.72	
17-Feb	10.01		10.71		10.78		6.88		6.97		9.08		9.57	
18-Feb	10.57		9.68		10.19		7.02		7.14		8.97		8.67	
19-Feb	10.68		9.49		10.26		6.91		7.31		8.82		7.87	
20-Feb	10.11		9.44		11.47		7.16		7.35		8.87		7.64	
21-Feb	9.97		9.47		11.17		7.62		7.74		9.23		7.79	
22-Feb	9.76		9.48		10.78		8.78		7.85		10.52		8.32	
23-Feb	9.95		9.50		10.60		8.97		7.93		10.72		9.06	
24-Feb	10.58		10.31		11.42		8.89		8.07		10.58		9.14	
25-Feb	11.35		10.59		11.54		8.86		8.08		10.44		9.31	
26-Feb	12.11		10.86		9.96		8.30		8.12		10.22		8.78	
27-Feb	12.48		10.76		9.68		7.90		8.01		9.81		8.47	
28-Feb	12.18		10.74		9.36		7.99		8.03		9.54		8.79	
29-Feb	12.32		10.74		9.36		7.99		8.24		9.54		8.79	
1-Mar	12.52		10.88		10.08		8.81		9.16		8.84		9.91	
2-Mar	12.50		10.99		9.74		8.57		8.99		8.87		10.12	
3-Mar	12.33		11.11		9.21		8.77		9.41		8.96		10.08	
4-Mar	12.65		10.96		9.47		9.24		9.45		9.19		10.12	
5-Mar	13.20		10.54		10.03		9.59		9.49		9.39		10.36	
6-Mar	13.89		10.33		10.73		9.73		9.54		9.50		10.57	
7-Mar	14.99		10.35		10.96		9.94		9.59		9.69		10.96	
8-Mar	13.62		10.59		12.44		10.29		10.04		9.52		11.66	
9-Mar	13.94		11.08		11.49		10.13		10.54		9.64		12.09	
10-Mar	14.06		12.45		10.89		10.33		10.84		9.77		13.13	
11-Mar	14.47		12.37		11.59		10.62		11.08		9.82		13.78	
12-Mar	14.08		11.70		11.41		10.92		10.86		10.17		13.72	
13-Mar	13.62		11.75		11.83		11.06		10.76		10.54		13.27	
14-Mar	13.55		12.17		12.23		11.08		11.00		10.39		12.86	
15-Mar	13.84		12.15		12.80		11.39		11.12		10.13		12.93	
16-Mar	13.78		12.04		13.25		11.60		11.64		9.94		13.24	
17-Mar	13.74		12.44		13.22		11.74		11.84		10.01		13.18	
18-Mar	13.94		12.02		14.15		12.19		12.34		10.07		12.93	
19-Mar	14.17		11.12		14.01		12.61		12.84		10.74		12.07	
20-Mar	13.39		10.50		13.57		12.83		13.08		11.17		11.91	
21-Mar	12.99		10.92		13.24		13.65		13.58		11.18		11.97	
22-Mar	13.40		11.52		12.46		13.40		12.72		11.38		12.48	
23-Mar	13.72		11.83		12.67		13.43		12.40		11.60		12.03	

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date	2000		2001		2002		2003		2004		2005		2006	
	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375
24-Mar	13.95		11.63		13.17		13.41		12.96		11.98		11.91	
25-Mar	14.69		11.24		13.40		13.67		13.19		12.76		11.99	
26-Mar	15.29		11.16		13.38		13.98		14.01		13.72		11.67	
27-Mar	15.18		11.11		13.42		14.74		15.88		13.74		11.96	
28-Mar	15.00		11.40		13.87		14.56		15.51		12.63		12.40	
29-Mar	14.62		11.86		14.38		13.96		16.73		13.21		13.00	
30-Mar	15.04		12.14		13.59		13.56		16.52		14.07		13.74	
31-Mar	15.58		12.92		13.33		14.07		15.12		14.36		14.26	
1-Apr	16.93		12.53		13.01		14.72		14.20		14.01		14.59	
2-Apr	17.13		12.94		14.04		14.85		14.11		13.54		14.86	
3-Apr	15.72		13.00		14.19		14.90		14.94		13.93		14.06	
4-Apr	14.48		13.52		13.82		16.12		16.26		14.26		14.73	
5-Apr	14.38		14.22		14.15		16.59		15.07	15.19	14.33		14.84	
6-Apr	14.64		15.46		14.40		16.10		14.44		14.53		15.15	
7-Apr	15.29		16.55		14.69		15.29		15.76		14.49	15.68	15.61	
8-Apr	15.14		16.55		15.65		14.53	16.99	16.20		14.77		14.71	
9-Apr	14.76		16.72		16.69		13.79		17.42		15.32		14.89	
10-Apr	14.79		16.69		15.98		13.97		18.36		15.78		15.31	
11-Apr	14.88		16.94		15.85		14.41		16.95		15.77		16.06	
12-Apr	15.24		16.78		15.85		14.79		17.34		15.68		16.76	
13-Apr	15.24		16.57		16.24		15.01		15.01		15.94		17.61	17.10
14-Apr	14.99		16.76		16.65		15.12		14.59		16.22		18.20	
15-Apr	15.46		16.76		17.03		15.52		16.15		16.79		19.13	
16-Apr	15.68		16.30	19.08	18.57		15.67		15.68		17.35		18.83	
17-Apr	16.26	16.20	16.11		18.80		16.17		17.34		17.28		19.16	
18-Apr	16.05		16.11		19.19		16.72		18.32		17.78		19.49	
19-Apr	16.05		16.11		19.93		17.14		18.51		17.86		19.33	
20-Apr	16.05		16.83		20.49		17.58		17.03		18.07		19.41	
21-Apr	16.05		17.30		20.19		17.71		17.07		19.11		19.69	
22-Apr	16.23		18.23		20.29		17.64		17.81		19.00		19.01	
23-Apr	16.23		18.45		20.73	21.20	17.31		18.19		17.85		19.01	
24-Apr	16.23		19.01		21.39		17.00		19.03		17.16		19.83	
25-Apr	16.25		18.03		20.52		17.12		19.87		16.95		20.72	
26-Apr	16.57		17.74		20.49		17.64		19.12		16.89		19.50	
27-Apr	16.88		18.69		20.93		18.03		19.06		16.69		19.71	
28-Apr	17.19		20.85		20.05		18.36		19.03		17.14		19.79	
29-Apr	17.44		22.48		20.12		18.48		19.37		17.02		19.26	
30-Apr	18.17		20.95		19.91		19.07		19.57		16.81		19.23	
1-May	18.15		20.68		20.28		18.99		20.39		17.07		19.28	
2-May	18.33		20.60		20.01		19.33		20.50		17.22		19.77	
3-May	18.42		21.06		19.03		19.71		19.34	20.19	17.47		19.93	
4-May	18.98		21.53		19.10		19.84		19.18		17.36	18.10	19.99	
5-May	19.48		21.47		18.81		19.42		19.72		17.33		19.91	

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date	2000		2001		2002		2003		2004		2005		2006	
	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375
6-May	20.20		21.73		18.84		18.37		19.75		17.39		20.52	
7-May	20.96		21.86		19.64		17.57		20.45		17.93		20.50	
8-May	21.44		21.39		20.17		17.88		21.09		18.16		20.20	
9-May	20.90		21.64		20.23		18.68		22.06		18.42		20.16	
10-May	22.68		21.55		21.18		19.22		22.82		18.99		20.06	
11-May	23.31	22.80	21.72		21.23		19.00		22.14		19.34		19.94	
12-May	22.32		21.89		21.03		18.86		22.14		20.26		19.92	
13-May	22.67		22.82		20.80		18.78		22.19		20.39		20.41	
14-May	22.97		22.39	22.66	21.07		18.96		22.37		20.52		20.61	
15-May	22.93		22.63		21.30		19.41		22.28		21.12		20.11	20.81
16-May	22.94		23.42		21.33		19.64		23.08		20.90		19.14	
17-May	23.02		24.05		21.48		19.72		22.98		20.90		19.52	
18-May	23.74		24.23		20.85		19.15		23.96		20.92		19.75	
19-May	23.35		24.15		20.56		18.78		25.10		20.99		20.05	
20-May	23.34		24.09		20.08		18.66	20.32	24.82		21.48		20.67	
21-May	23.45		24.24		20.56		18.61		24.51		21.72		21.37	
22-May	23.71		23.92		20.95		18.95		24.96		22.02		21.04	
23-May	23.91		23.82		21.75		19.24		25.96		22.32		20.97	
24-May	23.77		23.16		23.03		19.47		25.93		22.16		21.96	
25-May	23.83		23.50		23.07		19.67		25.43		22.06		21.98	
26-May	23.89		24.02		23.22		19.93		25.57		22.10		22.28	
27-May	24.20		24.48		23.50		20.17		25.88		22.18		22.75	
28-May	24.56		23.99		23.66		20.47		25.41		22.45		23.48	
29-May	24.24		23.74		23.61	22.16	20.81		25.65		22.68		23.98	
30-May	24.63		23.97		23.45		21.03		25.46		22.42		24.42	
31-May	25.28		24.17		23.81		21.56		25.90		22.02		24.59	
1-Jun	25.69		24.04		24.29		21.33		25.23		21.97		24.84	
2-Jun	25.37		24.15		24.50		21.17		25.19		21.89	22.79	24.55	
3-Jun	25.76		23.96		25.32		21.54		25.21		22.30		25.38	
4-Jun	25.79		23.65		25.51		21.64		25.52		22.66		25.14	
5-Jun	26.04		23.91		25.60		21.67		25.87		23.12		25.16	
6-Jun	25.35		24.13		26.12		21.66		25.53		22.92		24.57	
7-Jun	24.95		24.48		26.59		22.13		25.70	26.41	23.40		25.24	
8-Jun	25.35		24.45		26.91		22.52		26.19		23.46		25.09	
9-Jun	25.80		24.70		27.19		22.63	23.20	26.42		24.06		25.37	
10-Jun	26.18		25.21		26.99		22.69		26.70		24.10		25.98	
11-Jun	26.40		24.87		27.13		22.81		26.51		24.22		26.49	
12-Jun	26.54		25.42		27.32		23.07		26.70		24.45		26.55	
13-Jun	26.90		26.19		27.17		23.36		27.05		24.60		26.28	27.12
14-Jun	26.65		26.39		27.07		23.93		26.50		25.19		26.79	
15-Jun	27.21		26.62		27.33		23.88		26.81		25.94		27.26	
16-Jun	27.39	27.80	26.64		27.25		24.10		26.67		25.82		27.24	
17-Jun	27.16		27.12		27.80		23.98		26.90		26.37		26.98	

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date	2000		2001		2002		2003		2004		2005		2006	
	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375
18-Jun	27.48		27.25	27.41	28.18		23.77		27.11		25.88		26.88	
19-Jun	27.38		27.57		28.37		23.57		27.45		25.89		26.78	
20-Jun	27.43		27.64		28.21		23.76		27.65		26.03		27.17	
21-Jun	27.75		27.83		28.07		23.72		27.63		26.12		27.58	
22-Jun	28.03		27.54		28.04		23.73		28.09		26.12		27.89	
23-Jun	27.64		27.17		27.87		24.09		27.41		26.26		27.79	
24-Jun	27.29		27.01		27.97		24.54		27.33		26.26		27.84	
25-Jun	27.79		27.07		28.59	28.18	24.82		26.91		26.63		27.84	
26-Jun	27.72		27.03		28.84		24.88		25.98		27.10		27.76	
27-Jun	28.35		25.56		28.40		25.46		25.70		26.97		27.84	
28-Jun	27.90		27.11		28.46		26.02		25.68		27.05		27.85	
29-Jun	28.07		27.12		29.40		25.49		25.50		26.93		27.84	
30-Jun	28.28		27.29		29.71		24.87		25.34		27.44		27.94	
1-Jul	28.50		27.77		29.21		23.86		24.90		27.34		28.07	
2-Jul	28.90		28.18		29.88		23.74		24.22		27.78		28.72	
3-Jul	29.01		28.02		29.77		24.03		24.37		28.06		28.25	
4-Jul	29.13		27.84		29.68		24.30		24.51		28.04		28.56	
5-Jul	29.22		27.65		29.85		24.33		24.97		27.87		28.37	
6-Jul	29.10		27.47		30.19		24.32		25.15		27.62		28.33	
7-Jul	29.55		28.10		29.97		24.57		25.41		27.17	28.35	27.74	
8-Jul	29.33		28.33		29.59		24.98		25.44		27.34		27.72	
9-Jul	29.67		28.98		29.95		25.22		25.95		27.18		27.97	
10-Jul	29.46		28.59		30.01		25.10		26.44		26.87		28.09	
11-Jul	30.01		28.60		29.89		25.11		26.97		26.36		28.08	
12-Jul	30.03		28.79		29.79		25.44		26.90		26.04		28.39	
13-Jul	30.00		29.04		29.47		25.53		26.84		25.76		28.25	
14-Jul	30.22		28.85		29.32		25.49		27.14		25.79		28.46	
15-Jul	30.00		29.23		29.43		25.57		27.14	27.80	25.84		28.74	
16-Jul	30.00		28.57	27.99	29.84		25.72		27.29		25.87		28.88	
17-Jul	29.80		28.70		29.81		25.84		27.34		26.19		29.48	
18-Jul	30.14	30.30	29.13		29.61		26.17		27.49		26.42		29.48	30.10
19-Jul	30.04		28.93		29.96		27.01		27.45		26.67		29.79	
20-Jul	30.10		29.04		30.65		26.91		27.63		26.83		29.83	
21-Jul	29.90		29.42		30.57		26.59		27.89		26.54		30.08	
22-Jul	29.84		29.68		30.35		26.32		27.71		27.37		29.44	
23-Jul	29.75		29.62		30.06		26.18		28.24		28.01		30.01	
24-Jul	29.25		29.40		30.25		26.24		28.66		28.34		29.48	
25-Jul	29.64		29.38		30.04		26.93		29.11		28.62		29.54	
26-Jul	29.57		29.29		30.42		26.94		28.83		29.54		29.51	
27-Jul	29.36		29.31		30.07		26.90	25.66	27.99		28.54		29.82	
28-Jul	29.22		29.70		30.15		26.88		27.53		28.61		29.17	
29-Jul	28.87		29.48		30.59		26.89		27.55		28.77		28.86	
30-Jul	28.51		29.05		30.56		26.87		27.75		28.82		28.84	

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date	2000		2001		2002		2003		2004		2005		2006	
	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375
31-Jul	28.54		28.75		30.31	30.17	26.99		27.77		29.35		29.23	
1-Aug	28.51		28.68		30.62		27.14		28.61		28.71		29.59	
2-Aug	28.51		28.92		30.53		27.18		28.04		28.53		29.67	
3-Aug	28.60		28.76		30.48		26.98		28.04		28.58		29.93	
4-Aug	28.79		28.79		30.94		27.07		28.18		28.78	29.57	29.88	
5-Aug	28.98		29.01		30.80		26.77		28.08		28.90		30.11	
6-Aug	28.70		28.58		30.70		26.74		27.85		28.73		30.11	
7-Aug	28.78		28.39		30.19		26.46		27.82		28.54		30.20	
8-Aug	29.10		28.72		30.00		26.53		28.07		28.35		30.39	
9-Aug	29.20		28.89		30.17		26.61		27.35		28.16		30.26	
10-Aug	30.45		28.39		30.17		26.67		27.53		28.26		30.19	
11-Aug	29.08		28.30		29.89		26.54		27.32		28.31		29.63	
12-Aug	28.80		27.80		29.62		26.52	27.83	26.97	28.09	28.35		29.84	
13-Aug	28.67		27.68		29.51		26.76		26.57		28.59		29.67	
14-Aug	28.53		27.50		29.17		26.80		26.59		29.03		29.88	
15-Aug	28.66		27.81		29.14		26.91		26.60		28.80		29.86	30.46
16-Aug	28.56		28.05		29.39		27.26		26.21		28.77		29.60	
17-Aug	28.72	29.60	28.25		29.38		27.50		26.14		29.02		29.72	
18-Aug	28.90		28.32		29.43		27.70		26.17		28.81		29.76	
19-Aug	28.89		28.53		29.21		27.78		26.43		29.05		29.52	
20-Aug	28.69		28.43		29.34		28.02		26.41		29.57		29.56	
21-Aug	28.21		28.19		29.42		28.05		26.25		29.65		29.33	
22-Aug	28.13		28.51	28.76	29.65		28.40		26.65		29.25		29.26	
23-Aug	28.43		28.65		30.01		27.92		26.47		29.09		29.46	
24-Aug	28.36		28.70		29.92		28.13		26.72		28.98		29.22	
25-Aug	28.17		29.12		29.47		28.24		26.60		29.02		29.10	
26-Aug	27.85		29.07		29.48		28.16		26.62		29.01		29.71	
27-Aug	27.54		28.89		29.20		27.76		26.93		29.52		29.62	
28-Aug	27.50		28.68		29.10		28.39		27.12		29.86		29.41	
29-Aug	28.11		28.66		29.63	29.13	27.99		26.94		28.84			
30-Aug	28.53		28.43		29.47		28.10		26.98		27.72			
31-Aug	28.12		28.01		29.68		28.09		27.06		27.65			
1-Sep	27.84		27.78		29.64		28.02		26.98		27.24			
2-Sep	27.96		27.55		29.87		27.96		26.85		27.49			
3-Sep	28.14		26.33		29.58		27.73		26.71		27.43			
4-Sep	28.40		26.32		30.05		27.55		26.66		27.64			
5-Sep	28.67		27.05		29.72		27.28		26.79		27.47			
6-Sep	28.09		26.79		29.57		27.22		26.67		27.14			
7-Sep	27.49		27.03		29.53		26.85		26.21		26.99			
8-Sep	27.15		27.44		29.17		26.66		25.85		27.29	27.63		
9-Sep	26.81		27.53		29.41		26.57	27.72	25.82	26.48	26.93			
10-Sep	27.07		27.54		28.85		26.54		25.76		27.04			
11-Sep	27.04		27.12		29.22		26.49		25.58		27.18			

ATTACHMENT 5.2-4D

date	2000		2001		2002		2003		2004		2005		2006	
	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375
12-Sep	26.79		27.05		28.84		26.58		25.63		27.19			
13-Sep	26.92		25.10		28.73		26.49		25.59		27.08			
14-Sep	27.16		25.62		28.09		26.21		25.64		27.04			
15-Sep	26.98		24.62		28.19		25.81		25.54		27.08			
16-Sep	26.48		24.49		28.94		25.78		25.31		27.04			26.48
17-Sep	25.93		24.25		28.00		25.92		24.62		27.23			
18-Sep	25.74		24.95		27.83		25.61		22.97		26.87			
19-Sep	25.76	25.60	25.96	26.17	27.76		25.88		22.04		26.88			
20-Sep	25.73		26.24		27.29		25.78		21.88		26.88			
21-Sep	25.55		25.02		27.37		25.01		21.74		26.79			
22-Sep	25.91		25.63		27.40		24.74		21.96		27.27			
23-Sep	25.75		25.96		27.03		24.46		22.66		27.11			
24-Sep	26.18		25.43		26.83		24.52		22.80		26.95			
25-Sep	25.32		21.98		26.11		24.59		23.01		26.57			
26-Sep	24.52		20.08		25.59	25.92	24.49		23.02		26.25			
27-Sep	23.83		22.02		25.08		24.14		23.05		26.47			
28-Sep	24.15		24.13		25.01		23.78		23.13		26.36			
29-Sep	23.83		23.69		24.86		23.32		22.91		26.09			
30-Sep	23.68		23.50		24.84		23.06		22.69		25.27			
1-Oct	24.57		22.84		24.44		22.51		22.67		25.88			
2-Oct	24.30		22.69		24.54		21.99		22.72		26.17			
3-Oct	23.86		22.67		25.13		21.73		22.89		25.55			
4-Oct	23.65		22.49		25.14		21.54		22.74		25.34			
5-Oct	23.86		22.59		24.96		21.26		22.37		25.26			
6-Oct	23.68		21.99		25.28		20.96	21.99	21.99		25.38			
7-Oct	22.59		21.28		25.02		21.09		21.96	22.90	24.92			
8-Oct	21.69		20.96		24.82		21.02		21.87		24.31			
9-Oct	20.89		20.96		24.48		21.15		21.62		24.08			
10-Oct	20.40		21.51		24.28		21.05		21.52		23.51			
11-Oct	20.03		22.51		25.68		21.28		21.54		23.61			
12-Oct	20.13		23.11		25.49		21.22		21.62		23.49			
13-Oct	19.71		23.70		24.35		21.34		21.33		23.49	24.21		
14-Oct	19.52		23.44		23.58		21.07		20.89		23.43			
15-Oct	19.36		21.52		23.47		21.92		20.39		23.51			
16-Oct	19.45		20.02		23.06		20.61		19.88		23.32			
17-Oct	19.44		18.56		22.39		20.51		19.57		22.65			
18-Oct	19.50		19.62	19.65	22.01		20.59		19.49		22.42			
19-Oct	19.40		20.03		21.71		21.18		19.18		22.40			
20-Oct	19.47		20.31		21.48		20.21		18.66		22.63			
21-Oct	19.78		20.89		21.30		20.01		18.97		22.34			
22-Oct	20.13		21.25		21.22		19.77		19.16		22.20			
23-Oct	19.92		21.67		21.06		19.63		19.22		20.13			
24-Oct	20.05		21.97		21.19		19.56		19.45		20.87			

ATTACHMENT 5.2-4D

date	2000		2001		2002		2003		2004		2005		2006	
	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375
25-Oct	20.08		20.97		20.69		19.72		19.63		20.32			
26-Oct	20.22		20.14		20.56		19.40		19.72		19.94			
27-Oct	20.26		19.90		20.67		18.81		19.90		19.32			
28-Oct	20.26		17.11		20.73		18.71		20.04		18.77			
29-Oct	20.23		16.80		20.56		18.61		20.20		18.48			
30-Oct	20.23		16.93		20.04		18.64		19.90		18.43			
31-Oct	20.26		17.36		19.46		18.71		20.05		18.09			
1-Nov	20.16		18.41		19.12		18.87		20.23		17.72			
2-Nov	20.00		18.84		18.42		18.78		20.05		17.56			
3-Nov	20.10		18.46		18.21		18.74		20.11		17.27			
4-Nov	20.93		18.14		17.86		18.97		19.74		17.18			
5-Nov	21.18		17.25		17.72		19.21		18.64		17.34			
6-Nov	19.25		16.22		17.16		19.05		18.00		17.86			
7-Nov	19.24		15.95		16.68		18.58		17.90		17.67			
8-Nov	19.27		15.85		16.49		18.15		17.82		17.60			
9-Nov	18.66		16.30		16.07		18.16		17.43		17.94			
10-Nov	17.32		15.70		16.67		17.79		17.02		17.76			
11-Nov	16.92		16.16		16.88		17.63		16.63		17.71			
12-Nov	17.01		16.03		16.70		17.51		16.51		17.25			
13-Nov	16.45		15.72		16.59		16.12		15.88		17.90			
14-Nov	15.91		15.33		16.37		15.97		15.58		17.44			
15-Nov	15.20		15.16		15.99		16.08		15.28		17.75			
16-Nov	15.09		16.96		15.52		16.02		15.10		17.37			
17-Nov	14.52		16.50		14.90		15.72		15.06		16.13			
18-Nov	13.86		17.46		14.25		15.47		15.02		15.58			
19-Nov	13.63		17.83		14.02		14.86		15.05		15.18			
20-Nov	12.80		14.89		13.96		14.79		15.18		15.12			
21-Nov	12.41		19.06		14.01		14.75		15.36		14.84			
22-Nov	11.97		19.00		13.64		14.85		15.20		14.31			
23-Nov	12.69		19.00		12.99		14.93		15.23		13.31			
24-Nov	12.70		18.94		12.73		14.36		15.02		12.83			
25-Nov	11.86		18.86		12.58		13.98		14.45		12.51			
26-Nov	11.83		16.86		12.72		12.67		13.62		12.23			
27-Nov	11.39		16.94		12.14		12.07		13.06		13.30			
28-Nov	11.55		17.02		11.28		12.41		13.09		15.03			
29-Nov	11.88		17.46		11.09		12.06		13.19		13.00			
30-Nov	11.45		17.02		11.14		11.76		13.16		12.26			
1-Dec	11.15		16.52		10.58		11.59		12.83		11.79			
2-Dec	11.75		16.53		10.43		11.42		12.29		11.31			
3-Dec	11.50		16.16		10.56		11.03		12.22		10.94			
4-Dec	10.40		16.31		10.02		10.71		12.34		11.49			
5-Dec	10.91		16.53		9.73		10.33		12.27		10.89			
6-Dec	10.66		16.61		9.38		9.98		12.23		10.71			

ATTACHMENT 5.2-4D

date	2000		2001		2002		2003		2004		2005		2006	
	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375	WC	TRM375
7-Dec	10.79		16.95		8.89		9.94		12.38		10.39			
8-Dec	11.03		17.07		8.54		9.79		12.84		10.01			
9-Dec	11.38		16.72		9.14		9.89		12.51		9.74			
10-Dec	11.71		16.42		8.28		9.54		12.16		9.47			
11-Dec	12.55		16.60		8.41		9.28		11.85		9.22			
12-Dec	11.07		16.96		8.46		9.09		11.29		8.99			
13-Dec	9.72		16.94		8.47		8.99		11.17		8.92			
14-Dec	10.37		16.44		8.37		8.86		10.89		8.67			
15-Dec	10.43		16.38		8.19		8.92		10.23		8.54			
16-Dec	12.29		15.76		8.02		9.05		9.51		8.53			
17-Dec	9.94		16.06		8.19		8.76		9.95		8.42			
18-Dec	8.50		15.72		8.43		8.56		9.87		10.12			
19-Dec	8.30		15.24		8.83		8.48		9.67		8.18			
20-Dec	7.80		14.94		9.18		8.07		9.09		7.77			
21-Dec	7.63		15.26		8.93		7.99		8.57		7.79			
22-Dec	7.25		16.11		8.86		8.03		8.49		7.59			
23-Dec	7.27		17.22		8.73		7.95		8.49		7.27			
24-Dec	7.76		16.46		8.69		8.23		8.07		7.83			
25-Dec	6.94		15.61		8.51		8.18		7.56		8.26			
26-Dec	6.52		14.87		7.87		7.89		7.46		7.62			
27-Dec	6.40		12.70		7.58		7.69		7.23		7.52			
28-Dec	6.22		13.98		7.54		7.82		7.09		8.48			
29-Dec	5.99		14.10		7.37		8.02		7.12		8.12			
30-Dec	5.54		13.21		7.56		8.07		7.38		7.91			
31-Dec	5.09		12.06		7.90		7.94		7.77		8.17			

ATTACHMENT 5.3-3(4)A
TENNESSEE VALLEY AUTHORITY
TENNESSEE RIVER CROSS SECTION LOCATION
NO DATE

Tennessee Valley Authority

Tennessee River Cross Section Location
(1 page)

No Date

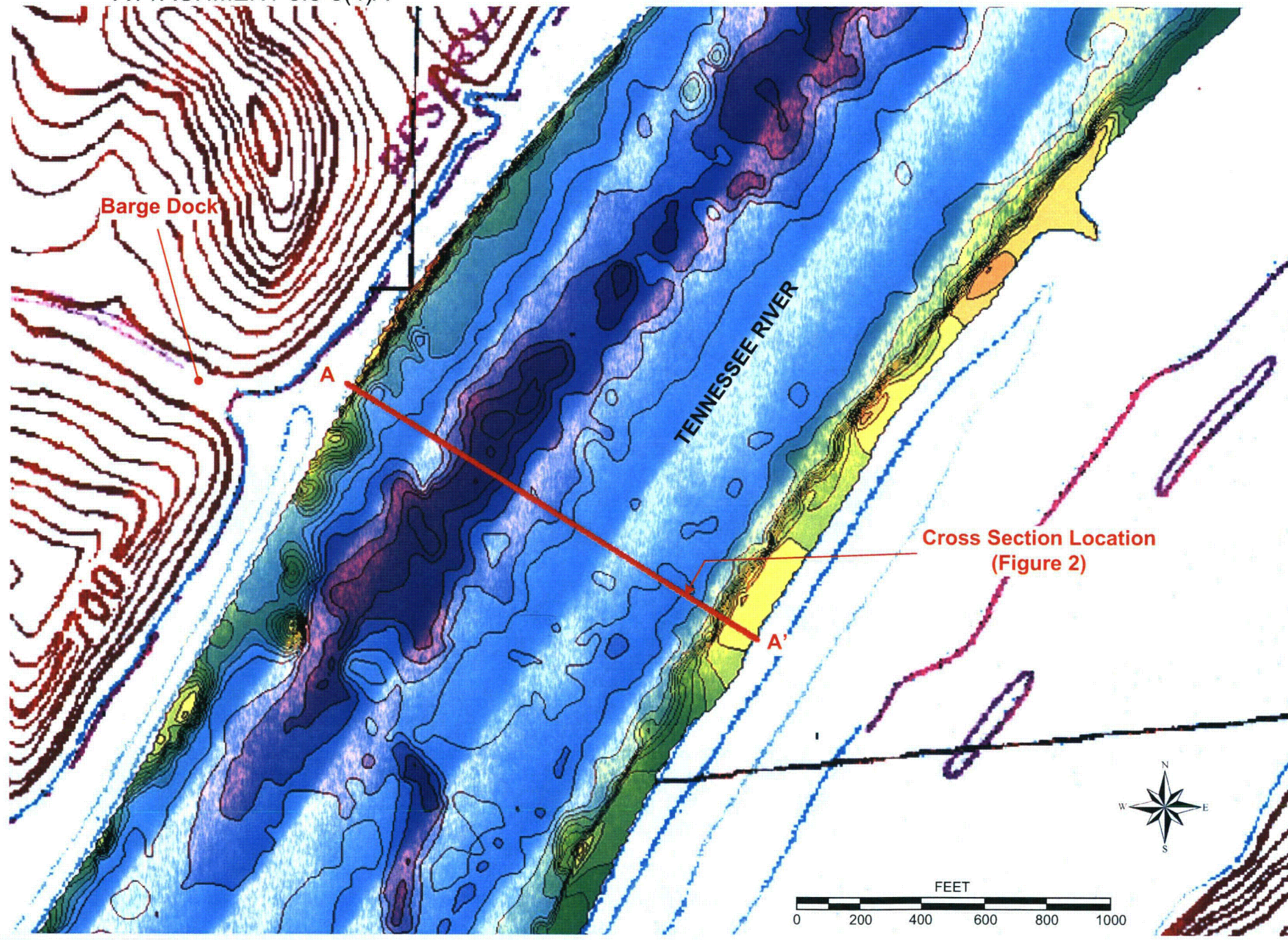


Figure 1 Tennessee River Cross Section Location

ATTACHMENT 5.3-3(4)B
TENNESSEE VALLEY AUTHORITY
TENNESSEE RIVER CROSS SECTION AT THE BARGE DOCK
NO DATE

Tennessee Valley Authority

**Tennessee River Cross Section
at the Barge Dock
(1 page)**

No Date

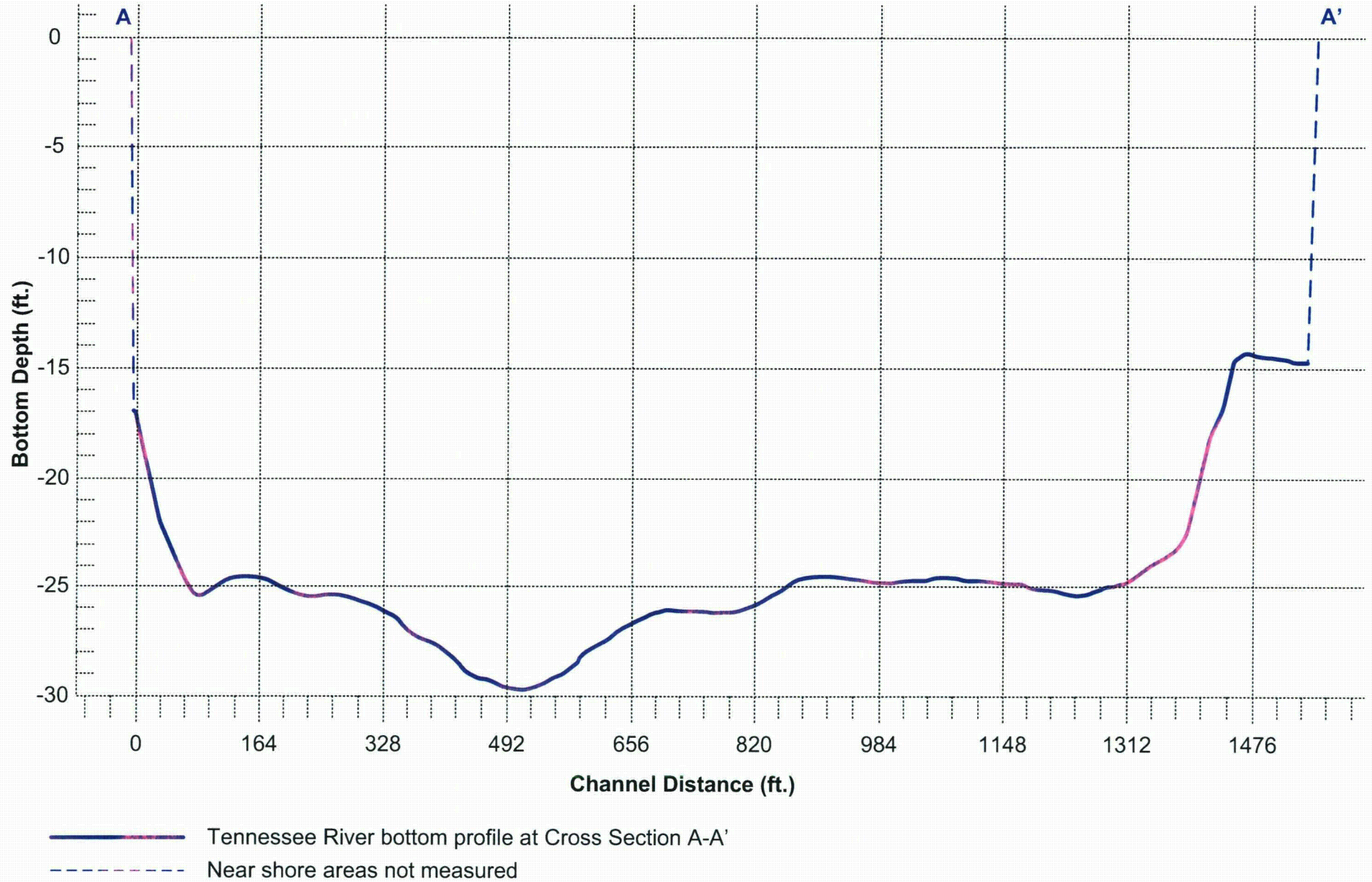


Figure 2 Tennessee River Cross Section at the Barge Dock

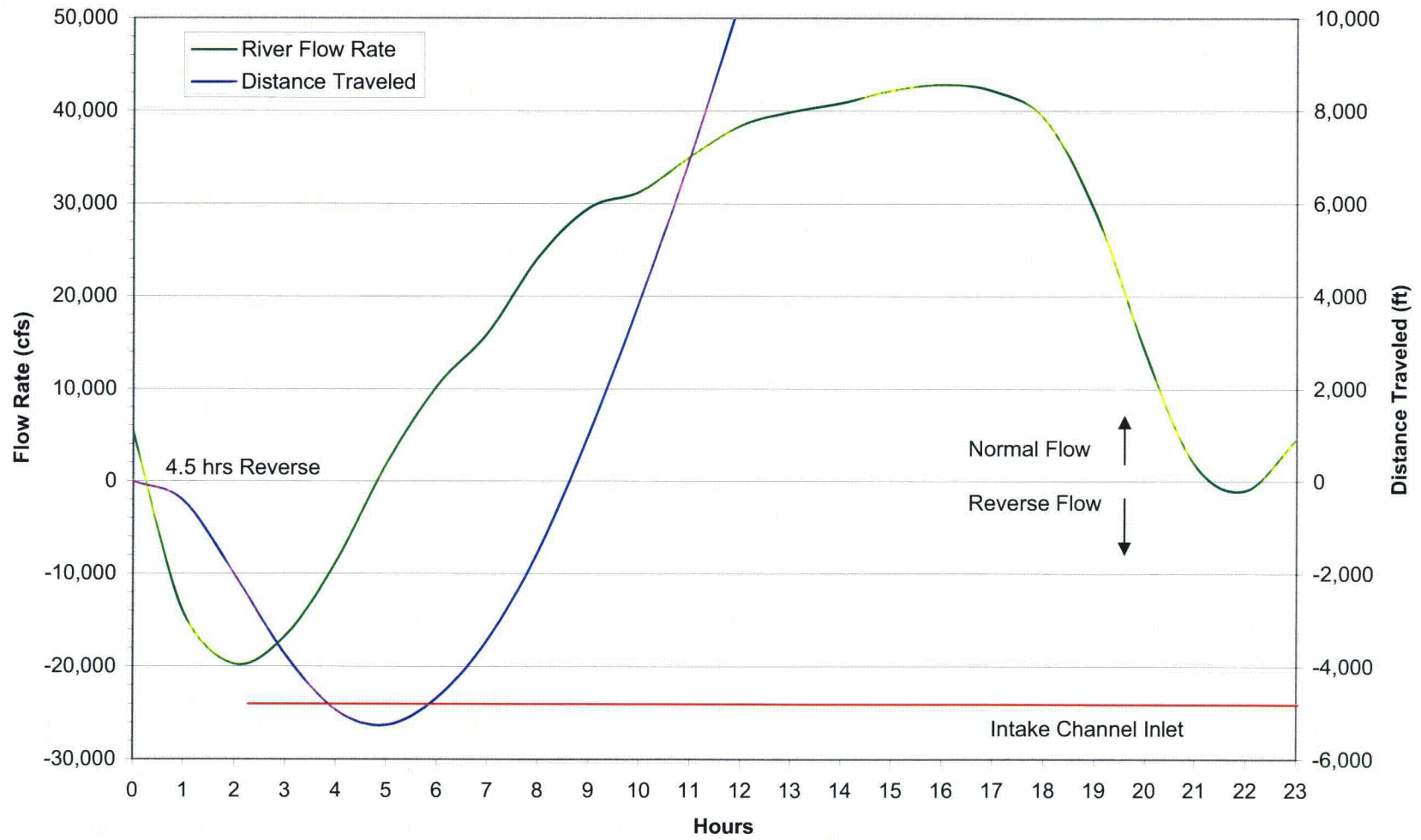
ATTACHMENT 5.3-3(4)C
TENNESSEE VALLEY AUTHORITY
BLN FLOW RATE RESPONSE (AUGUST 16, 1988)
NO DATE

Tennessee Valley Authority

BLN Flow Rate Response (August 16, 1988)
(1 page)

No Date

BLN Flow Rate Response (August 16, 1988)



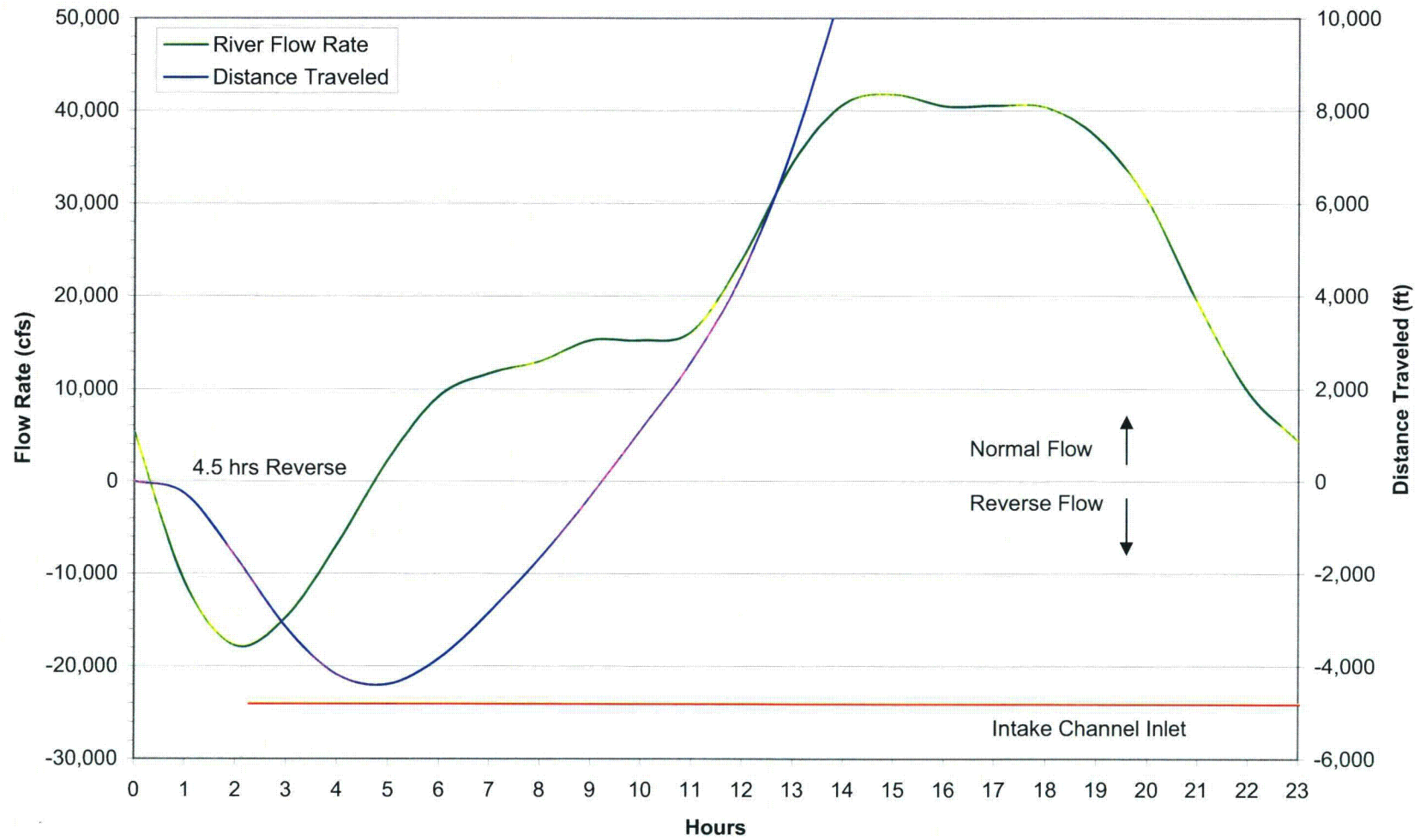
ATTACHMENT 5.3-3(4)D
TENNESSEE VALLEY AUTHORITY
BLN FLOW RATE RESPONSE (JUNE 21, 2006)
NO DATE

Tennessee Valley Authority

BLN Flow Rate Response (June 21, 2006)
(1 page)

No Date

BLN Flow Rate Response (June 21, 2006)



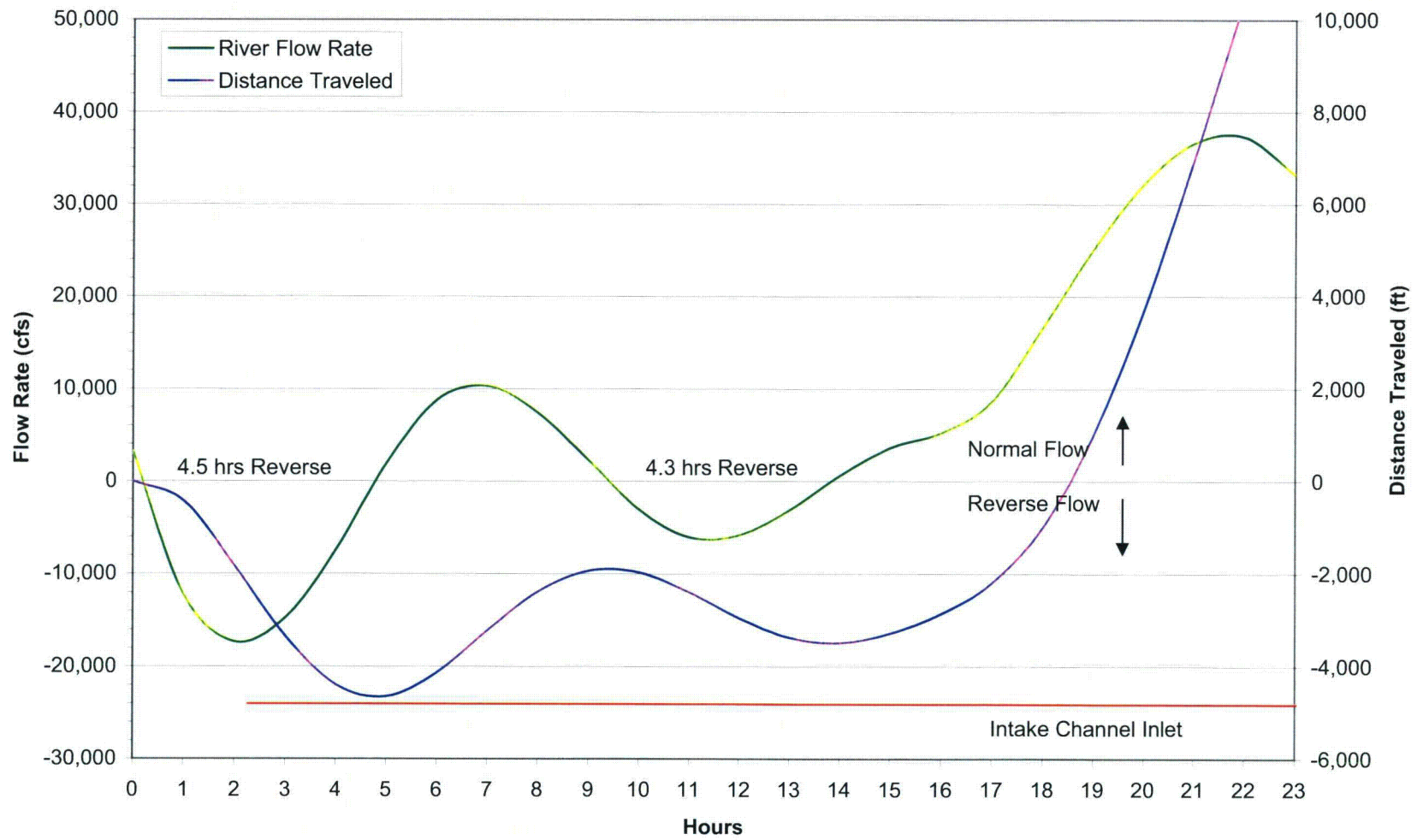
ATTACHMENT 5.3-3(4)E
TENNESSEE VALLEY AUTHORITY
BLN FLOW RATE RESPONSE (MARCH 30, 2006)
NO DATE

Tennessee Valley Authority

BLN Flow Rate Response (March 30, 2006)
(1 page)

No Date

BLN Flow Rate Response (March 30, 2006)



ATTACHMENT 5.3-3(4)F
TENNESSEE VALLEY AUTHORITY
REVERSE FLOW OCCURRENCES >18,000 CFS
NO DATE

Tennessee Valley Authority

**Reverse Flow Occurrence >18,000 cfs
(1 page)**

No Date

Flow Reversal Occurrence >18,000 cfs

