

August 10, 2006

Mr. Karl W. Singer
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNITS 2 AND 3 — REQUEST FOR
ADDITIONAL INFORMATION FOR EXTENDED POWER UPRATE - ROUND 8
TECHNICAL SPECIFICATION (TS-431) (TAC NOS. MC3743 AND MC3744)

Dear Mr. Singer:

By letter dated June 28, 2004, as supplemented by letters dated August 23, 2004, February 23, April 25, June 6, and December 19, 2005, February 1 and 28, March 7, 9, 23, and 31, April 13, May 5 and 11, June 12, 15, 23 and 27, and July 21, 2006, Tennessee Valley Authority (TVA, the licensee) submitted an amendment request for Browns Ferry Nuclear Plant, Units 2 and 3. The proposed amendments would change the Units 2 and 3 operating licenses to increase the maximum authorized power level from 3458 to 3952 megawatts thermal. This change represents an increase of approximately 15 percent above the current maximum authorized power level. The proposed amendments would also change the Units 2 and 3 licensing bases to revise the credit for overpressure from 3 pounds for short term and 1 pound for long term, to 3 pounds for the duration of a loss-of-coolant accident, and revise the maximum ultimate heat sink temperature.

A response to the enclosed request for additional information is needed before the Nuclear Regulatory Commission (NRC) staff can complete the review. The steam dryer questions (EEMB) in this request were provided on July 12, 2006, while the remaining questions (SBWB) provided July 20, 2006, are in support of an audit planned for August 8, 2006, at the site. These requests were discussed with your staff on August 2, 2006, and it was agreed that a response would be provided by August 18, 2006.

K. Singer

-2-

As stated in a letter dated August 8, 2006, some of the steam dryer questions contain information from Continuum Dynamics Incorporated Report No. 05-28P, Bounding Methodology to Predict Full Scale Steam Dryer Loads from In-Plant Measurements, Revision 1 (05-28P), which was requested withheld from public disclosure pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 2.390. However, information needed to complete the NRC staff's withholding review for this information has not been provided. Therefore, the NRC staff will release the information sought to be withheld after 30 days of this letter unless the information is withdrawn or amended consistent with the requirements of 10 CFR 2.390(b).

If you have any questions, please contact me at (301) 415-2315.

Sincerely,

/RA/

Eva A. Brown, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-260 and 50-296

Enclosures:

1. Non-proprietary Request for Additional Information
2. Proprietary Request for Additional Information

cc w/Enclosure 1 Only: See next page

As stated in a letter dated August 8, 2006, some of the steam dryer questions contain information from Continuum Dynamics Incorporated Report No. 05-28P, Bounding Methodology to Predict Full Scale Steam Dryer Loads from In-Plant Measurements, Revision 1 (05-28P), which was requested withheld from public disclosure pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 2.390. However, information needed to complete the NRC staff's withholding review for this information has not been provided. Therefore, the NRC staff will release the information sought to be withheld after 30 days of this letter unless the information is withdrawn or amended consistent with the requirements of 10 CFR 2.390(b).

If you have any questions, please contact me at (301) 415-2315.

Sincerely,

/RA/

Eva A. Brown, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-260 and 50-296

Enclosures:

1. Non-proprietary Request for Additional Information
2. Proprietary Request for Additional Information

cc w/Enclosure 1 Only: See next page

DISTRIBUTION:

PUBLIC	RidsNrrDorl (CHolden)	RidsNrrLACGoldstein
LPL2-2 R/F	RidsNrrDorlDpr	
RidsNrrDorlLpl2-2	RidsNrrDeEemb	RidsNrrDssScvb
RidsNrrLABClayton	TAlexion	
RidsNrrPMMChernoff	CWu	
RidsNrrPMEBrown	TScarborough	
RidsAcrsAcnwMailCenter	RidsNrrDssSbwb	
RidsRgn2MailCenter	THuang	
MZobler, OGC	LWard	

Package: ML062190265

Encl2: ML062140663

ADAMS ACCESSION NO.: ML062140657

NRR-088

OFFICE	LPL2-2/PM	LPL2-2/PM	LPL2-2/LA	SBWB/BC
NAME	EBrown	EBrown for MChernoff	CGoldstein	GCranston by memo
DATE	8/9/06	8/9/06	8/9/06	7/26/06
OFFICE	EEMB/BC	SCVB/BC	LPL2-2/BC	
NAME	KManoly by memo	RDennig by memo	LRaghavan	
DATE	7/27/06	7/26/2006	8/10/06	

OFFICIAL RECORD COPY

REQUEST FOR ADDITIONAL INFORMATION

EXTENDED POWER UPRATE

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 2 AND 3

DOCKET NOS. 50-260 AND 50-296

EEMB

46. [Redacted]

47. [Redacted]

48. [Redacted]

49. [Redacted]

50. [Redacted]

51. [Redacted]

52. [Redacted]

53. [Redacted]

- 54. []
[]
- 55. []
[]
- 56. []
[]
[]
[]
- 57. []
[]
[]
[]
- 58. []
[]
[]
[]
- 59. []
[]
[]
- 60. []
[]
[]
[]
[]
- 61. []
[]
[]
[]
- 62. []
[]
[]
[]
[]

- 63. []
- 64. []
- 65. []
- 66. []
- 67. []
- 68. []
- 69. []
- 70. []
- 71. []
- 72. []
- 73. []
- 74. []

75. [_____

_____]

76. [_____

_____]

77. [_____

_____]

78. [_____

_____]

79. [_____

_____]

80. [_____
_____]

81. [_____

_____]

82. [_____

_____]

83.

84.

ACVB

- 57. Discuss which break flow model (Moody, HEM) is used for containment peak pressure at uprated conditions.
- 58. Address whether the only difference between the values of Updated Final Safety Analysis Report (UFSAR) peak drywell pressure of 50.6 pounds per square inch gage (psig) and the current method of 47.7 psig is due to the difference in LAMB models discussed in note (3) of Table 4-1 of Enclosure 4 of the June 25, 2004, submittal, NEDC-33047P, DRF 0000-0011-1328, Revision 2, Browns Ferry Units 2 and 3 Safety Analysis Report for Extended Power Uprate (EPU). Discuss whether the use of LAMB model output for the current method at uprated conditions is the same as that used for the Vermont Yankee EPU.
- 59.
 - a. Provide a technical manual or a description of the MULTIFLOW program for calculating pressure losses in piping systems which is used for the EPU Net Positive Suction Head (NPSH) calculations.
 - b. Discuss what, if any, conservatism is included in the MULTIFLOW calculations.
 - c. Enclosure 6 of the March 23, 2006, submittal contains MD-Q0999-970046, NPSH Evaluation of Browns Ferry residual heat removal and core spray pumps. Page 12, states that a piping roughness value of 1.5E-4 ft was selected, which corresponds to condensate quality water. Justify why this is acceptable for suppression pool water, and address whether this a significant assumption.

SBWB

- 58. Describe the process followed by Tennessee Valley Authority to implement Long Term (L/T) Solutions including approved methodologies used, hardware modifications, and any interface between fuel vendors.

59. Address where Browns Ferry Nuclear Plant (BFN) is today in the implementation schedule and what is its implementation status. Address the affect, if any, of multiple fuel vendors.
60. Describe the BFN Technical Specifications affected by the L/T Solution implementation. Identify the related tech spec operability requirements.
61. Discuss the BFN experience with the period-based detection algorithm (PBDA) in response to noise and Solution III setpoint adjustment. Describe what actions are taken during cycle reload confirmations if the calculated setpoints are lower than expected. Describe the acceptance testing process used during the Solution III testing process. Include a description of PBDA results where false alarms were detected.
62. Describe any changes for the backup stability implementation (e.g. interim collective actions) associated with different fuel vendor's calculating method. Discuss whether BFN uses cycle-specific calculations for backup stability or generic regions. Describe any Solution-III hardware implementation issues such as: location of the new hardware, periodic testing procedures, and signal response quality.
63. Describe the implications for operator training with respect to handling false alarms.
64. Describe what is the effect, if any, of the EPU upgrade on anticipated transient without scram and Emergency Operating Instructions.

BROWNS FERRY NUCLEAR PLANT

Mr. Karl W. Singer
Tennessee Valley Authority
cc:

Mr. Ashok S. Bhatnagar, Senior Vice President
Nuclear Operations
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Larry S. Bryant, Vice President
Nuclear Engineering & Technical Services
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Brian O'Grady, Site Vice President
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35609

Mr. Robert J. Beecken, Vice President
Nuclear Support
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

General Counsel
Tennessee Valley Authority
ET 11A
400 West Summit Hill Drive
Knoxville, TN 37902

Mr. John C. Fornicola, Manager
Nuclear Assurance and Licensing
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Bruce Aukland, Plant Manager
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35609

Mr. Robert G. Jones, General Manager
Browns Ferry Site Operations
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35609

Mr. Glenn W. Morris, Manager
Corporate Nuclear Licensing
and Industry Affairs
Tennessee Valley Authority
4X Blue Ridge
1101 Market Street
Chattanooga, TN 37402-2801

Mr. William D. Crouch, Manager
Licensing and Industry Affairs
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35609

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
Browns Ferry Nuclear Plant
10833 Shaw Road
Athens, AL 35611-6970

State Health Officer
Alabama Dept. of Public Health
RSA Tower - Administration
Suite 1552
P.O. Box 303017
Montgomery, AL 36130-3017

Chairman
Limestone County Commission
310 West Washington Street
Athens, AL 35611