

February 2, 2004

Mr. J. A. Scalice
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 1, 2, AND 3 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO A REVISION IN THE NUMBER OF EMERGENCY CORE COOLING SYSTEMS REQUIRED IN RESPONSE TO A POTENTIAL LOSS-OF-COOLANT ACCIDENT (TAC NOS. MB8423, MB8424, AND MB8425)

Dear Mr. Scalice:

By letter dated April 11, 2003, the Tennessee Valley Authority submitted an application to revise the Technical Specifications (TSs) for the Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3. The proposed revision is related to the planned restart of BFN Unit 1, which will require modifications to eliminate the potential for overloading a shutdown board shared between Units 1 and 2 or a diesel generator when both units are in service. These modifications require a revision to TS Table 3.3.5.1-1, which will reduce the actual number of emergency core cooling subsystems available to mitigate the consequences of a potential loss-of-coolant accident.

The U.S. Nuclear Regulatory Commission staff has reviewed your submittal and finds that a response to the enclosed request for additional information is needed before we can complete the review. This request was discussed with Mr. T. Abney of your staff on January 29, 2004, and it was agreed that a response would be provided within 30 days of receipt of this letter. If you have any questions, please contact me at (301) 415-1496.

Sincerely,

/RA/

Kahtan N. Jabbour, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-259, 50-260, and 50-296

Enclosure: Request for Additional Information

cc w/encl: See next page

February 2, 2004

Mr. J. A. Scalice
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 1, 2, AND 3 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO A REVISION IN THE NUMBER OF EMERGENCY CORE COOLING SYSTEMS REQUIRED IN RESPONSE TO A POTENTIAL LOSS-OF-COOLANT ACCIDENT (TAC NOS. MB8423, MB8424, AND MB8425)

Dear Mr. Scalice:

By letter dated April 11, 2003, the Tennessee Valley Authority submitted an application to revise the Technical Specifications (TSs) for the Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3. The proposed revision is related to the planned restart of BFN Unit 1, which will require modifications to eliminate the potential for overloading a shutdown board shared between Units 1 and 2 or a diesel generator when both units are inservice. These modifications require a revision to TS Table 3.3.5.1-1, which will reduce the actual number of emergency core cooling subsystems available to mitigate the consequences of a potential loss-of-coolant accident.

The U.S. Nuclear Regulatory Commission staff has reviewed your submittal and finds that a response to the enclosed request for additional information is needed before we can complete the review. This request was discussed with Mr. T. Abney of your staff on January 29, 2004, and it was agreed that a response would be provided within 30 days of receipt of this letter. If you have any questions, please contact me at (301) 415-1496.

Sincerely,

/RA/
Kahtan N. Jabbour, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-259, 50-260, and 50-296

Enclosure: Request for Additional Information

Distribution: (See attached list)

ADAMS Accession No. ML040310022

*See previous concurrence

OFFICE	PDII-2 / PM	PDII-2 / LA	EEIB / SC	SRXB / SC	SPSB / SC	PDII-2 / SC
NAME	KJabbour	BClayton	AMarinos*	FAkstulewicz*	MRubin*	AHowe
DATE	2/2/04	2/2/04	1/29/04	1/30/04	01/30/04	2/2/04

OFFICIAL RECORD COPY

DISTRIBUTION FOR BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO A REVISION IN THE NUMBER OF EMERGENCY CORE COOLING SYSTEMS REQUIRED IN RESPONSE TO A POTENTIAL LOSS-OF-COOLANT ACCIDENT (TAC NOS. MB8423, MB8424, AND MB8425)

Dated: February 2, 2004

Distribution:

PUBLIC

PDII-2 R/F

RidsNrrDlpmLpdii-2 (AHowe)

RidsNrrLABClayton (Hard Copy)

RidsNrrPMKJabbour (Hard Copy)

RidsOgcRp

RidsAcrsAcnwMailCenter

RidsRgnIIMailCenter (SCahill)

DLPM DPR

GThomas

MRubin

FAkstulewicz

SDinsmore

AMarinos

HGarg

ZAbdullahi

REQUEST FOR ADDITIONAL INFORMATION
RELATED TO PROPOSED TECHNICAL SPECIFICATION REVISION
EMERGENCY CORE COOLING (ECC) SYSTEMS
TENNESSEE VALLEY AUTHORITY (TVA)
BROWNS FERRY NUCLEAR PLANT (BFN), UNITS 1, 2, AND 3
DOCKET NOS. 50-259, 50-260, AND 50-296

1. A bounding General Electric Company (GE) SAFER/GESTR loss-of-coolant accident (LOCA) analysis was performed for Units 1, 2, and 3. Please identify the differences, if any, among the three units that may impact the LOCA analysis. Confirm that the bounding analysis is valid even though there are differences between the units.
2. The requested modifications are planned to be implemented in February 2005. At the same time TVA is planning to load Framatome fuel in Unit 2, and it is our understanding that the LOCA analysis had been completed using the Framatome evaluation models. Please discuss the limiting case for the LOCA analysis.
3. Technical Specification (TS) Change 424 (revision in the number of ECC subsystems required in response to a LOCA) is requested for the three BFN units, including Unit 1. However, BFN Unit 1 is now defueled and TVA did not finalize the fuel type that will be used in this unit. The bounding analysis (i.e., GE SAFER/GESTR LOCA) submitted in support of the application assumes that BFN Unit 1 will contain GE fuel even though it is currently defueled. Confirm that Unit 1 will contain GE fuel when it will restart or if TVA plans to load Framatome fuel, please submit the Framatome LOCA analysis for Unit 1.
4. It is our understanding that the diesel generators will be loading only two residual heat removal pumps initially with the preferred pump logic assuming the spurious accident signal in the second unit. Please specify the time delay assumed to prevent overloading of the diesels and the time for the operator actions to start the remaining two pumps, if necessary.
5. On Page E1-8 of the application for TS Change 424, dated April 11, 2003, TVA stated that "Plant systems must be adequate to address accident signals, spurious and valid, in any order (i.e., valid signal followed by a spurious signal in one of the nonaccident units or a spurious signal from the nonaccident unit followed by a valid signal). The pump starting sequence described in the application is the preferred logic assuming a coincident LOCA signal in one unit, spurious LOCA signal in the second unit and loss-of-offsite power (LOOP). Please describe the pump starting sequence for scenarios before and after the LOCA.

Enclosure

6. The current Units 1 and 2 ECC system preferred pump logic was designed to initiate in the event of a potential LOCA coincident with LOOP and coupled with a spurious accident signal from the nonaccident unit. Please confirm that the five rows in the tables on pages E1-12, E1-13, E1-21, and E1-23 under the column with the heading "Assumed Failure" be interpreted as follows:

A LOCA coincident with a LOOP coupled with the loss of a battery

A LOCA coincident with a LOOP coupled with the opposite unit false LOCA signal

A LOCA coincident with a LOOP coupled with the failure of a LPCI injection valve

A LOCA coincident with a LOOP coupled with the loss of a diesel generator

A LOCA coincident with a LOOP coupled with the loss of a HPCI. If not, please describe the sequence of events modeled.

7. Although it appears they should be identical, there are differences between the tables on E1-21 and E1-23 in the number of low pressure coolant injection (LPCI) systems remaining after a diesel generator single failure. There are identical differences between the tables on pages E1-12 and E1-13, but the text on page E1-12 indicates that the table on page E1-12 is incorrect, insofar as it does not really reflect the current state of the plant. Please discuss these discrepancies.
8. Describe the interlock logic that would detect the LOCA signal and initiate the alternative diesel loading.
9. Section 7.4.3.4.2 of the BFN Updated Final Safety Analysis Report states that the ECC system is initiated by (1) low vessel water level, or (2) low vessel pressure and high drywell pressure. Please confirm that there are no other signals that potentially may actuate the ECC system.
10. Discuss how the changes made to the logic for the ECC systems required in response to a LOCA conform to Title 10 *Code of Federal Regulations* (CFR) Section 50.55a(h)(2) requirements.
11. Discuss the conformance with respect to the separation and isolation of the logic systems including the planned isolation devices and cables that were used previously to cross-connect Divisions I and II.
12. Discuss the loading of the diesel with the new load. Is this loading different from the one approved previously by the Nuclear Regulatory Commission staff during Unit 2 restart after the 1985 shutdown? Please discuss the acceptability of the new diesel loading, if the loading is different from the one approved previously.

Mr. J. A. Scalice
Tennessee Valley Authority

BROWNS FERRY NUCLEAR PLANT

cc:

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

Mr. Robert G. Jones
Browns Ferry Unit 1 Plant Restart Manager
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35609

Mr. James E. Maddox, Vice President
Engineering & Technical Services
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Mark J. Burzynski, Manager
Nuclear Licensing
Tennessee Valley Authority
4X Blue Ridge
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Ashok S. Bhatnagar, Site Vice President
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35609

Mr. Timothy E. Abney, Manager
Licensing and Industry Affairs
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35609

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

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

Mr. Michael J. Fecht, Acting General Manager
Nuclear Assurance
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

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

Mr. Michael D. Skaggs, Plant Manager
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35609

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

Mr. Jon R. Rupert, Vice President
Browns Ferry Unit 1 Restart
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35609