November 26, 2002

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 2 AND 3 — ISSUANCE OF AMENDMENTS REGARDING EXTENSION OF SURVEILLANCE CALIBRATION INTERVAL FOR AREA TEMPERATURE MONITORING INSTRUMENTATION OF THE MAIN STEAM VALVE VAULT (TAC NOS. MB6196 AND MB6197)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment Nos. 277 and 236 to Facility Operating Licenses Nos. DPR-52 and DPR-68 for the Browns Ferry Nuclear Plant, Units 2 and 3, respectively. These amendments consist of changes to the Technical Specification (TS) in response to your application dated August 20, 2002.

These amendments would revise TS Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation," Functional Unit 5.a, Reactor Water Cleanup System Isolation, Main Steam Valve Vault Area Temperature - High, to extend the frequency of the channel calibration surveillance requirement from the current 122 days to 24 months, and revise applicable Bases.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

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. 50-260 and 50-296

Enclosures: 1. Amendment No. 277 to License No. DPR-52
2. Amendment No. 236 to License No. DPR-68
3. Safety Evaluation

cc w/encls: See next page

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* No major changes to SE
** See previous concurrence

ADAMS ACCESSION NUMBER:ML023310327(Letter)

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TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 277
License No. DPR-52

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated August 20, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-52 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 277, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance completion of Browns Ferry Unit 2 refueling outage currently scheduled for early 2003.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Allen G. Howe, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: November 26, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 277

FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Replace the following pages of the Appendix A Technical Specifications and associated Bases with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE	INSERT
3.3-61	3.3-61
B 3.3-201	B 3.3-201

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.236
License No. DPR-68

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated August 20, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-68 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 236, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days from the completion of Brown Ferry Unit 3 refueling outage currently scheduled in the spring of 2004.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/
Allen G. Howe, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: November 26, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 236

FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

Replace the following pages of the Appendix A Technical Specifications and associated Bases with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE	INSERT
3.3-61	3.3-61
B 3.3-201	B 3.3-201

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 277 TO FACILITY OPERATING LICENSE NO. DPR-52

AND AMENDMENT NO. 236 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 2, AND 3

DOCKET NOS. 50-260 AND 50-296

1.0 INTRODUCTION

By letter dated August 20, 2002, the Tennessee Valley Authority (the licensee) submitted a request for changes to the Browns Ferry Nuclear Plant (BFN), Units 2 and 3, Technical Specifications (TS). The requested changes would revise TS Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation," Functional Unit 5.a, Reactor Water Cleanup (RWCU) System Isolation, Main Steam Valve Vault (MSVV) Area Temperature - High, to extend the frequency of the channel calibration surveillance requirement (SR) from the current 122 days to 24 months, and revise applicable Bases.

2.0 EVALUATION

The proposed TS changes are related to a design change which removes the four bimetallic temperature switches located in the MSVV area from the logic circuit of the Main Steam Tunnel Temperature - High primary containment isolation system (PCIS) function, and instead uses a signal from the four RWCU temperature elements (which are also located in the same area) for this function. The licensee stated that this design change is planned under 10 CFR 50.59 and will be implemented in the next refueling outages of BFN Units 2 and 3. Specifically, the proposed changes are as follows:

> In Table 3.3.6.1-1, Primary Containment Isolation Instrumentation, Functional Unit 5.a, Main Steam Valve Vault Area Temperature - High, for Units 2 and 3, replace the SR 3.3.6.1.4 with SR 3.3.6.1.5.
>
> The TS Bases for Table 3.3.6.1.1-1, Functional Unit 1.d, Main Steam Tunnel Temperature - High, are being revised to add an informational description related the design change.

2.1 Regulatory Evaluation

The MSVV houses the main steam isolation valves, feedwater injection valves, and other system piping. The main steam line system piping and RWCU system piping traverse the

MSVV area. Leakage from these fluid systems (due to a pipe break) is detected using diverse signals for high-fluid flow and/or high-area temperature. If leakage is sensed, the applicable system piping is isolated automatically through the PCIS output signal. Separate temperature and flow instrumentation are employed for each main steam line isolation and RWCU line isolation system to detect leakage and generate the PCIS signal. In the current design the main steam line tunnel area temperature is monitored using 16 Fenwal brand bimetallic temperature switches. The bimetallic switches are arranged in four sets of four along the length of the main steam lines. Of these 16 temperature switches, four switches (17 A/B/C and D) are located in the MSVV, and provide for the main steam line break detection function in the MSVV area. RWCU leakage in the MSVV area is currently monitored using four loops of temperature-indicating switches (TISs), 69-834 A/B/C and D. Each temperature loop has Weed brand resistance temperature detectors (RTDs) coupled with Rosemont analog trip units (ATUs).

In the proposed design change, the four bimetallic temperature switches (17 A/B/C and D) located in the MSVV for monitoring area temperature for the main steam line break isolation function will be removed from the main steam PCIS logic, and the signal from the RTD/ATU TIS-69-834 A/B/C and D loops, which is also used to monitor the MSVV area temperature for RWCU line break isolation, will be utilized instead to provide for both the main steam line isolation and the RWCU isolation PCIS logic. The licensee stated that because the bimetallic temperature switches and the RTDs are physically located in the same place, disconnecting the signal from the bimetallic switches and replacing it with the signal from RTD/ATU for the main steam line isolation function will not change the design objectives of this system. The licensee stated that since common instrumentation (RTD/ATU) will be employed (due to the proposed design change) to monitor the MSVV area temperature for both isolation functions, it is logical and desirable that the instrument calibration frequency for both functions served by this common instrumentation should be the same. Therefore, the licensee requests a revised calibration frequency for Function 5.a. The licensee stated that the proposed TS changes will minimize testing risks during normal plant operation.

In its submittal the licensee stated that the proposed changes do not require any exemptions or relief from any regulatory requirements, other than the proposed TS changes, and all previous regulatory commitments will continue to be followed. After the design change is implemented, performing the loop calibration during normal plant operation (on a 122-day cycle) could initiate a main steam line isolation. Resulting transients due to such a spurious isolation could challenge plant safety systems, and cause a hardship for the licensee. The licensee stated that the requested TS change will alleviate the hardship, and because the current frequency for the channel functional test will not be changed, any failure-related mechanism present in the instrument loop will be detected during these tests. The licensee's evaluation under 10 CFR 50.59 confirmed that the proposed TS modification will not increase the probability or consequences of an accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or result in a reduction in a margin of safety. For the proposed extension, the licensee has performed drift and setpoint calculations using its in-house methodology, which is based on the U.S. Nuclear Regulatory Commission (NRC) Generic Letter (GL) 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-month Fuel Cycle." The licensee's in-house drift and setpoint calculation methodology has been previously reviewed and approved by the staff via NRC inspection, and safety evaluations for other similar previous TS amendments.

2.2 Technical Evaluation

The current TS has two different channel calibration surveillance frequencies. For Functional Unit 1.d - MSVV Main Steam Tunnel Temperature - High (the main steam line isolation function), the current TS calibration frequency is 24 months, and for Functional Unit 5.a MSVV Area Temperature - High (the RWCU line isolation function) it is 122 days. The licensee stated that due to the proposed design change, both functional units will develop the actuation signal using the output from the common instrumentation (RTD/ATU) loop. Therefore, it is desirable that the calibration frequency for both functions be the same, either 122 days or 24 months. The licensee has selected a 24-month frequency for both functions because performing a loop calibration during plant operation at a 122-day interval could initiate main steam line isolation, which could result in transients that would challenge the safety systems. Extending the calibration interval 24 months will increase plant safety and alleviate potential hardship problems relating to spurious isolation of the main steam line. Therefore, the licensee has proposed to extend the calibration frequency for Function 5.a from its current 122 days to 24 months, making it the same as the calibration frequency of Function 1.a, which is also 24 months.

The current setpoint calculations for Functional Unit 5.a, which were previously based on a 122-day calibration interval, have been revised to justify an interval of 30 months (24 months plus 25 percent) to account for the maximum SR frequency extension allowed by TS SR 3.0.2. The licensee stated that its setpoint calculation methodology is based on the guidance provided in NRC GL 91-04, and is consistent with NRC Regulatory Guide 1.105, "Instrument Setpoints for Safety-Related Systems," Revision 2. The staff reviewed and approved the licensee's in-house setpoint calculation methodology in Inspection Report BFN 89-06 dated May 8, 1989, and also in the safety evaluation of TS Amendment 390, which extended the calibration interval of a large number of instruments to support 24-month fuel cycles. The revised calculations considered both historical plant and vendor-supplied drift data to evaluate the effects of increasing the calibration interval. The statistical analysis of instrumentation historical data indicated that there was no time-dependent variation in instrument drift. The results of the revised setpoint calculations demonstrated that the projected value of 30-month drift does not exceed the allowance provided in the setpoint calculations for both functions. Therefore, the reliability of protective instrumentation (to initiate isolation) will be preserved for the maximum allowable surveillance interval of 30 months. Also, because the existing 3-month frequency for the channel calibration test is not being changed, any failure-related mechanisms present in the loop will be detected during regular channel calibration. Therefore, the proposed 24-month calibration frequency for Functional Units 5.a and 1.d is acceptable. The revision to the Bases is acceptable because it is consistent with the proposed design change and TS changes. In addition, the licensee revisited the high-energy line break calculations to assess the impact of the high-energy line break environment on instrumentation setpoints. This assessment demonstrated that the physical location and response time of the RTDs are acceptable for the detection and generation of the required isolation signal (for a pipe break in the MSVV area) within the current TS allowable values of Functions 1.d and 5.a.

3.0 SUMMARY

Based on the above evaluation, the staff concluded that the proposed surveillance interval extension will alleviate the licensee's hardship due to a spurious isolation of the main steam line, and the license's setpoint calculation methodology is consistent with the guidance provided

in GL 91-04, and meets the applicable regulatory requirements. Therefore, the proposed TS changes are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Alabama State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (67 FR 63698). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) such activities will be conducted in compliance with the Commission's regulations; and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: S. V. Athavale, NRR

Date: November 26, 2002

cc:

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