



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609

April 3, 2000

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

Gentlemen:

In the Matter of) Docket Nos. 50-260
Tennessee Valley Authority) 50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - RESOLUTION OF CONTROL ROOM EMERGENCY VENTILATION (CREV) SYSTEM ISSUES WITH REGARD TO LICENSE CONDITION ASSOCIATED WITH UNITS 2 AND 3 POWER UPRATE OPERATING LICENSE AMENDMENTS 254 AND 214 - (TAC NOS. M99711 AND M99712)

The purpose of this letter is to provide the results of a reanalysis of the radiological consequences of a design basis loss of coolant accident. The applicability to BFN of a computer code used to calculate top of stack dose contribution had been questioned by NRC. The revised results remain well within the allowable doses prescribed by 10 CFR 50 Appendix A, GDC-19 and 10 CFR 100. This letter corrects information previously provided to the Staff on March 30, 1999.

Background

In a September 8, 1998 letter (Reference 1), NRC issued a license amendment to allow operation of BFN Units 2 and 3 at 3458 megawatts thermal power. As part of the amendment, NRC added the following license condition: "TVA will perform an analysis of the design basis loss-of-coolant accident to confirm compliance with General Design Criterion (GDC)-19, and offsite limits considering main steam isolation valve leakage and emergency core cooling system leakage. The results of this analysis will be submitted to the NRC for its review and approval by March 31, 1999. Following NRC approval, any required modifications will be implemented during the refueling outages scheduled for Spring 2000 for Unit 3 and Spring 2001 for Unit 2. TVA will maintain the ability to monitor radiological conditions

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during emergencies and administer potassium-iodide to control room operators to maintain doses within GDC-19 guidelines. This ability will be maintained until the required modifications, if any, are complete."

In a letter dated March 30, 1999 (Reference 2), TVA provided the results of the analysis required by the above license condition. The results indicated the dose in the Main Control Rooms (MCR), the exclusion area boundary (EAB), and low population zone (LPZ) with a Main Steam Isolation Valve (MSIV) per valve leakrate of 11.5 standard cubic feet per hour (SCFH). This analysis assumed that the main steam lines provide a pathway for the MSIV leakage to the main condenser. On August 3, 1999 (Reference 3), NRC issued a Safety Evaluation addressing the Control Room Emergency Ventilation System power uprate license condition.

In a September 28, 1999 letter (Reference 4), TVA requested a change in the Units 2 and 3 TS Surveillance Requirement (SR) to increase the allowed MSIV leakage. In a subsequent Request For Additional Information, NRC questioned the use of ARCON96 methodology to address elevated stacks in close proximity to intakes under light wind conditions. TVA agreed that using ARCON96 to calculate the dose from the top of the stack provided inconsistent results. TVA resolved this issue by providing additional information in a letter dated February 4, 2000 (Reference 5).

Additionally, TVA reviewed the data provided in the March 30, 1999 letter, and determined that the dose contribution from the top of the stack was inaccurate. TVA has reanalyzed the contribution from the top of the stack with a MSIV leakrate of 11.5 SCFH and determined that the dose to the main control room is slightly higher than that provided to the staff in the March 30, 1999 letter. The results of the revised analysis are provided in the following table.

Due to the concerns with the ability of ARCON96 methodology to model stack releases at BFN, TVA reverted to the guidance provided in Regulatory Guide 1.145, Atmospheric Dispersion Models For Potential Accident Consequences Assessments at Nuclear Power Plants, and Regulatory Guide 1.111, Methods For Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases From Light-Water-Cooled Reactors.

The top of the stack to control bay doses reported in the March 30, 1999 letter, have been replaced by utilizing Regulatory Guides 1.145 and 1.111 along with

actual BFN meteorological data for a period of 11 years. TVA also restricted the data to the sector from the offgas stack to the control room intakes in accordance with the Regulatory Guides. ARCON96 methodology continues to be utilized to estimate the ground level releases.

Analysis Results

The analysis results indicate the following doses in the Main Control Rooms, at the EAB and the LPZ in roentgen equivalent man (rem):

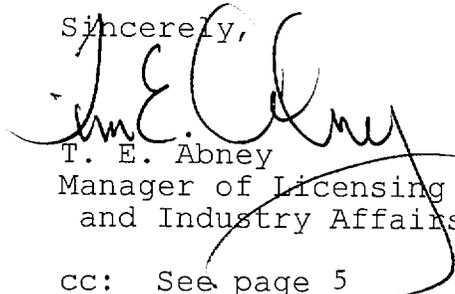
	Control Rooms	2-hour EAB Offsite	30-day LPZ Offsite
Thyroid	4.404	5.837	50.71
Gamma	0.6727	0.1664	0.3456
Beta	0.05647	0.1005	0.3491

Conclusions

The re-analyzed doses provided in the above table are well within the allowable doses prescribed by 10 CFR 50 Appendix A, GDC-19 (control room dose) and 10 CFR 100 (offsite dose). Hence, the Staff's conclusion published in the August 3, 1999, Safety Evaluation regarding the radiological consequences analyses resulting from power uprate remain valid. These doses have been superseded by the Staff's approval on March 14, 2000 (Reference 6), the dose analysis submitted in support of TS-399 and no further action by the Staff is needed. There are no commitments contained in this letter.

If you have any questions, please telephone me at (256) 729-2636.

Sincerely,


T. E. Abney
Manager of Licensing
and Industry Affairs

cc: See page 5

REFERENCES

1. NRC letter to TVA dated September 8, 1998, Issuance of Amendments Power Uprate - Browns Ferry Plant Units 2 and 3
2. TVA letter to NRC Dated March 30, 1999, Browns Ferry Nuclear Plant (BFN) - Resolution of Control Room Emergency Ventilation (CREV) System Issues With Regard To License Condition Associated With Units 2 And 3 Power Uprate Operating License Amendments 254 and 214
3. NRC letter to TVA dated August 3, 1999, Safety Evaluation Supplement, Browns Ferry Nuclear Plant - Units 2 and 3 - Radiological Dose Calculations Associated With Power Uprate License Amendment Nos. 254 and 214
4. TVA letter to NRC dated September 28, 1999, Browns Ferry Nuclear Plant - Units 2 and 3 - Technical Specifications (TS) Change 399 - Increased Main Steam Isolation Valve (MSIV) Leakage Rate Limits and Exemption From Appendix J
5. TVA letter to NRC dated February 4, 2000, Units 2 And 3 - Response To Request For Additional Information Regarding Technical Specifications (TS) Change No. 399 - Increased Main Steam Isolation Valve (MSIV) Leakage Rate Limits And Exemption From 10 CFR 50 Appendix J - Revised TS Pages For Increased MSIV Leakage Limits
6. NRC letter to TVA dated March 14, 2000, Browns Ferry Nuclear Plant - Units 2 and 3 Issuance of Amendments Regarding Limits on Main Steam Isolation valve Leakage

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cc: Mr. William O. Long, Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

Mr. Paul E. Fredrickson, Branch Chief
U.S. Nuclear Regulatory Commission
Region II
61 Forsyth Street, S. W.
Suite 23T85
Atlanta, Georgia 30303

NRC Resident Inspector
Browns Ferry Nuclear Plant
10833 Shaw Road
Athens, Alabama 35611