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SUBJECT: Provides results of analysis of design basis LOCA, as required by license condition re plants power uprate operating license amends 254 & 214.

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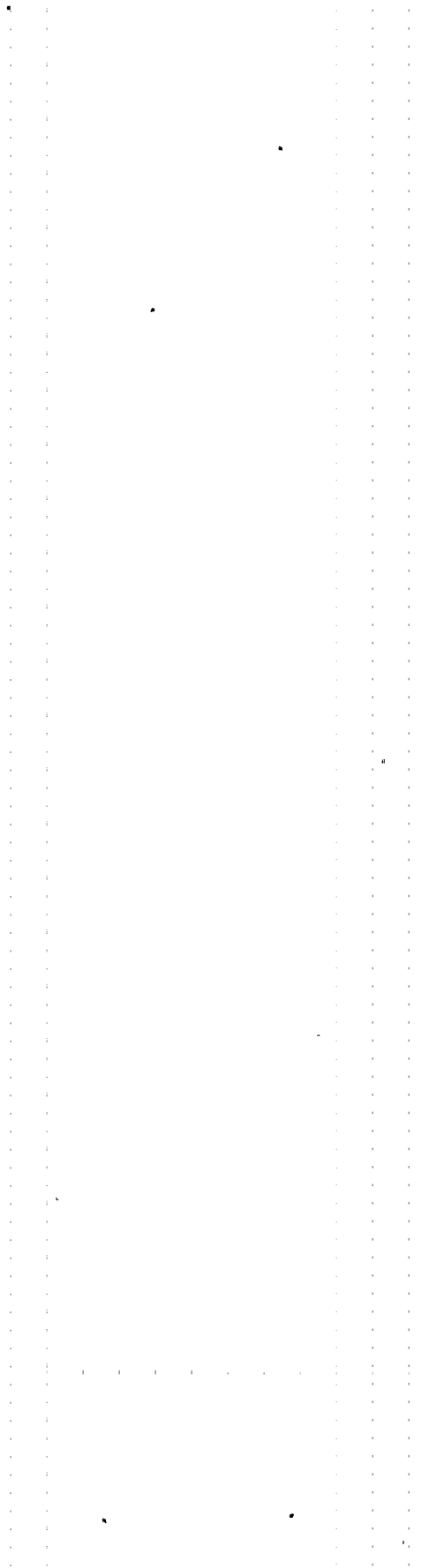
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Gentlemen:

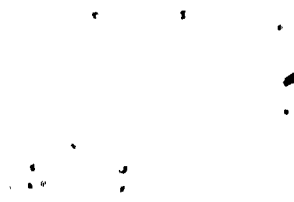
In the Matter of) Docket Nos.	50-260
Tennessee Valley Authority)	50-296

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)

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

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U. S. Nuclear Regulatory Commission

Page 2

March 30, 1999

maintain the ability to monitor radiological conditions 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."

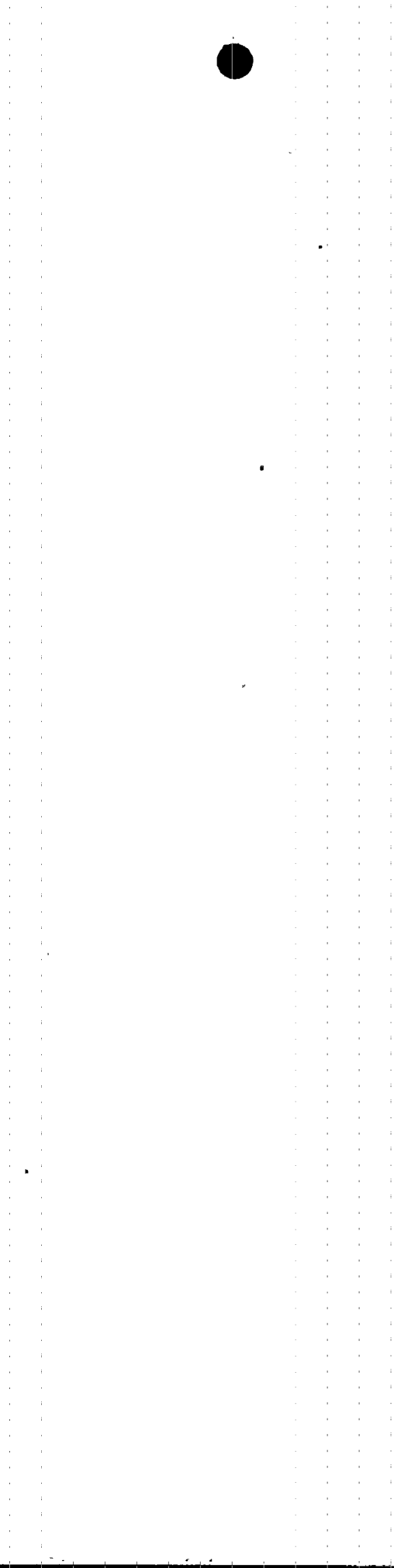
This letter provides the results of the analysis as required by the license condition.

Background

On July 31, 1992 (Reference 3), TVA submitted the corrective actions to resolve the identified deficiencies in the Control Room Emergency Ventilation (CREV) system. By letter dated August 10, 1994 (Reference 4), TVA described the methodology used to determine atmospheric dispersion used in the control room dose analysis submitted on July 31, 1992. By letter dated October 1, 1997 (Reference 2), TVA requested a license amendment to allow BFN to operate Units 2 and 3 at the uprated power level of 3458 megawatts thermal.

In a February 18, 1998 letter (Reference 5), the staff requested additional information concerning both TVA's request for Power Uprate Operation and resolution of the CREV issues discussed by the July 31, 1992 letter. By letters dated April 1, 1998 (Reference 6), and May 1, 1998 (Reference 7), TVA provided the requested information. As part of that reply, TVA provided a copy of Revision 8 of TVA calculation, Control Room and Offsite Doses Due to a Loss-of-Coolant Accident. In that revision to the calculation, although not part of the BFN license basis, TVA voluntarily included the dose contribution from the Main Steam Isolation Valves in the assessment of control room operator dose. The current BFN design and licensing basis considers MSIV leakage as a component of the total containment leakage, all of which is assumed to leak into the secondary containment enclosure. It is not considered as a bypass path from secondary containment directly into the turbine building.

In a May 7, 1998 letter (Reference 8), NRC requested additional information regarding the dose analysis provided by TVA in the May 1, 1998 letter. Specifically, NRC requested that TVA include the affects of MSIV leakage to the turbine building with regard to control room dose, exclusion area boundary (EAB) dose, and low population zone (LPZ) dose. In addition, NRC requested an assessment of control room



dose, EAB dose, and LPZ dose due to leakage from Emergency Core Cooling Systems (ECCS) consistent with NRC Standard Review Plan Chapter 15.6.5, Appendix B.

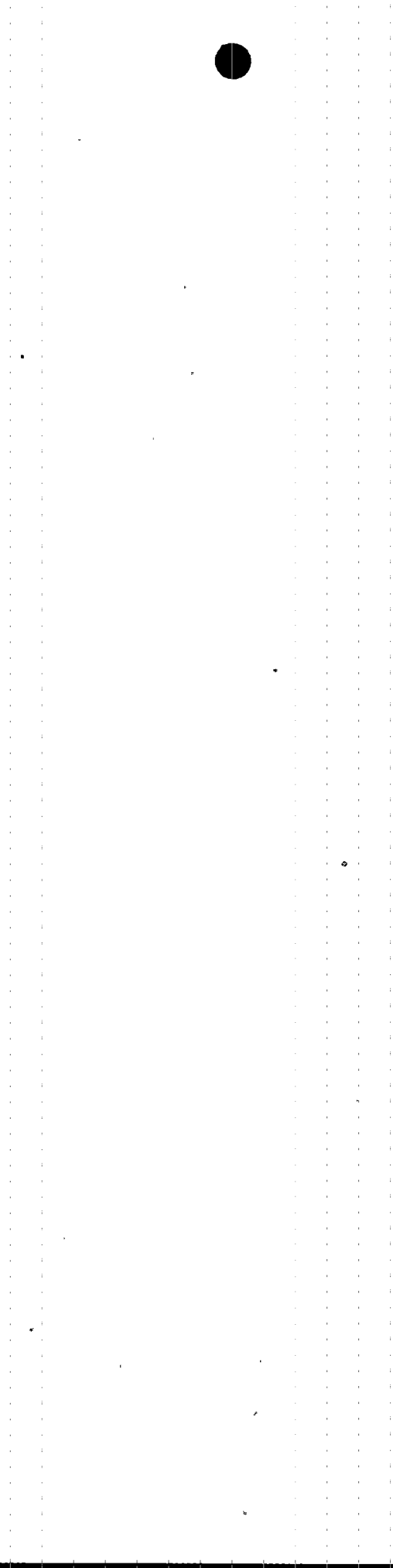
BFN was not licensed to the Standard Review Plan and as a result, MSIV and ECCS leakages are not currently part of the licensing basis. Therefore, the previously stated operating license condition was agreed to by TVA, and issued as part of the September 8, 1998, power uprate license amendment.

Analysis Methodology

TVA utilized the methodology and assumptions previously submitted in the May 1, 1998 letter, with the exception of the following changes:

- The X/Q values were calculated in accordance with ARCON96.
- Simultaneous contamination of both control room ventilation intakes was not considered credible based on meteorological conditions and the actual physical location of the two control room intakes.
- ECCS leakage was considered in accordance with the guidance from SRP 15.6.5, Appendix B, "Radiological Consequences of a Design Basis Loss-of-Coolant-Accident: Leakage from Engineered Safety Feature Components Outside Containment". A 5 gallon per minute leakrate into the reactor building was used.
- The source term inventory was updated to include a 5% power uprate and the end of life inventory for 1400 Effective Full Power Days (24 month fuel cycle), as determined by the ORIGEN computer code.
- MSIV leakage effects were calculated in accordance with NEDC-31858P, "BWROG Report for Increasing MSIV Leakage Rate Limits and Elimination of Leakage Control Systems". The BFN Technical Specification limit leakrate of 11.5 standard cubic feet per hour per valve was used.

As required by NEDC-31858P, the analysis for MSIV leakage assumed seismically rugged main steam lines which provides a path for MSIV leakage to the condenser. Modifications to the main steam lines will be required to validate this assumption.



Analysis Results

The analysis results indicate the following doses in the Main Control Rooms, at the exclusion area boundary (EAB) and the low population zone (LPZ) in roentgen equivalent man (rem):

	Control Rooms	2-hour EAB Offsite	30-day LPZ Offsite
Thyroid	4.059	5.837	50.92
Gamma	0.6716	0.1664	0.3461
Beta	0.04753	0.1005	0.3502

These doses are well within the allowable doses prescribed by 10 CFR 50 Appendix A, GDC-19 (control room dose) and 10 CFR 100 (offsite dose).

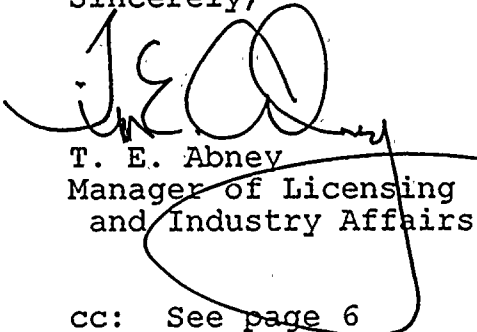
Conclusions

As stated above, the analysis results are based on the assumption of seismically rugged steam lines. Modifications will be required to validate this assumption. As required by the license condition, these modifications will be completed by Spring 2000 for Unit 3 and Spring 2001 for Unit 2.

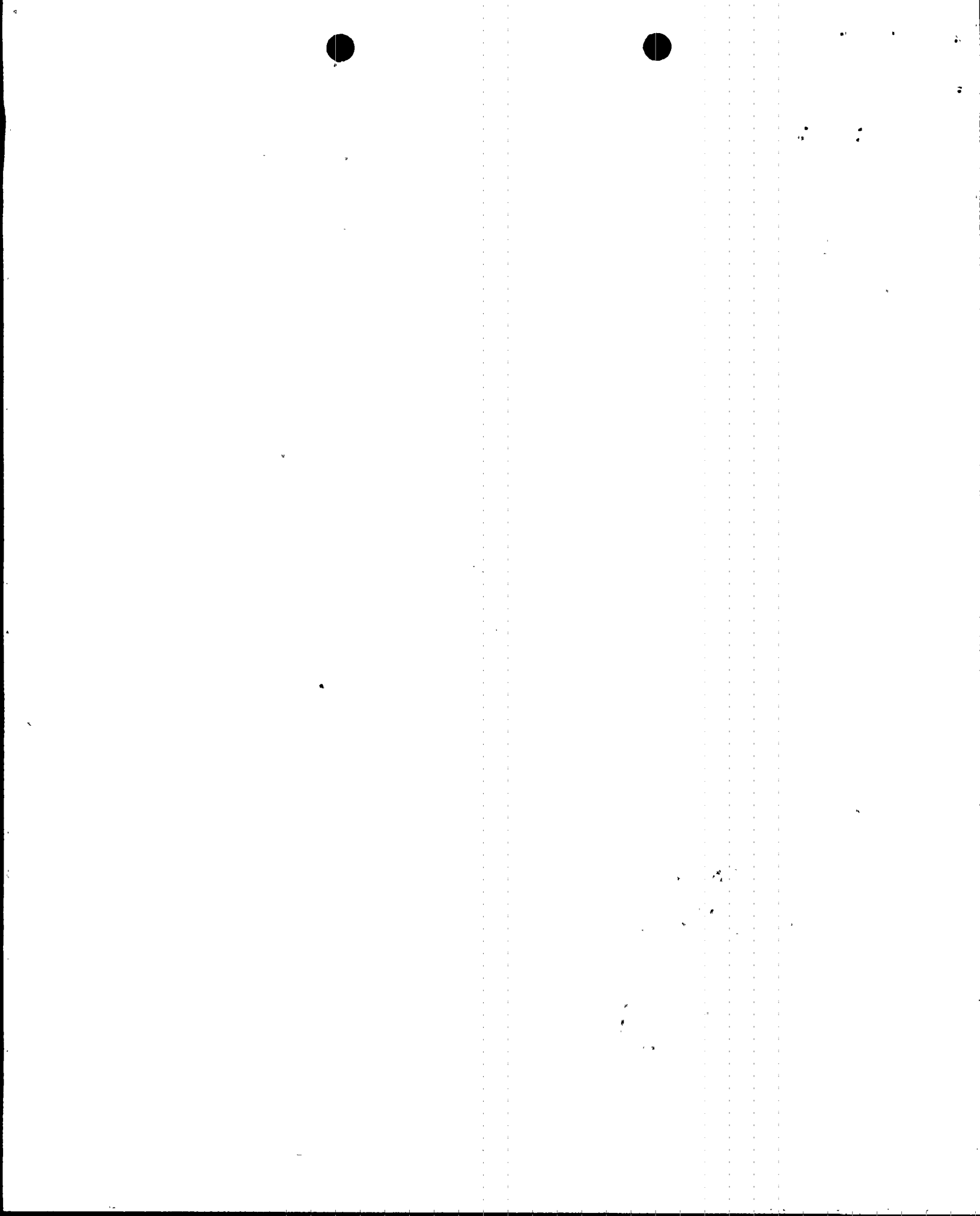
Further, as specified in the license condition until final approval of the analysis results, and implementation necessary modifications, TVA will maintain the ability to monitor radiological conditions during emergencies and administer potassium-iodide to control room operators.

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 6



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 October 1, 1997, Browns Ferry Nuclear Plant (BFN) Units 2 and 3 - Technical Specification Request For License Amendment For Power Uprate Operation
3. TVA letter to NRC dated July 31, 1992, Browns Ferry Nuclear Plant - Resolution of Control Room Emergency Ventilation System (CREV) Issues
4. TVA letter to NRC dated August 10, 1994, Browns Ferry Nuclear Plant - Response To Request For Additional Information Regarding The Control Room Emergency Ventilation System (CREVS)
5. NRC letter to TVA dated February 18, 1998, Browns Ferry Nuclear Plant Units 2 and 3 - Request For Additional Information Regarding Technical Specification Change TS-384 Request for a License Amendment For Power Uprate Operation And Resolution of Control Room Emergency Ventilation System Issues
6. TVA letter to NRC dated April 1, 1998, Browns Ferry Nuclear Plant - Response To Request For Additional Information (RAI) Regarding Units 2 and 3 Technical Specification (TS) Change - 384, - Request For License Amendment For Power Uprate Operation, and Resolution of Control Room Emergency Ventilation System (CREV) Issues
7. TVA letter to NRC dated May 1, 1998, Supplemental Response To Request For Additional Information (RAI) Regarding Units 2 and 3 Technical Specification (TS) Change - 384, - Request For License Amendment For Power Uprate Operation, and Resolution of Control Room Emergency Ventilation System (CREV) Issues
8. NRC letter to TVA dated May 7, 1998, Browns Ferry Nuclear Plant, Units 2 and 3: Request For Additional Information Relating To Technical Specification Change No. TS-384 - Power Uprate Operation



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U. S. Nuclear Regulatory Commission

Page 6

March 30, 1999

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