



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II**

245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

September 14, 2017

Mr. Joseph W. Shea  
Vice President, Nuclear Licensing  
Tennessee Valley Authority  
1101 Market Street, LP 3D-C  
Chattanooga, TN 37402-2801

**SUBJECT: NOTICE OF ENFORCEMENT DISCRETION FOR TENNESSEE VALLEY  
AUTHORITY (CAC NO. MG0229, MG0230, AND MG0231, NOED NO. 17-2-01)**

Dear Mr. Shea:

By letters dated September 12 and 14, 2017 (ADAMS Accession Nos. ML17255A950 and ML17257A185), Tennessee Valley Authority (TVA) requested that the U.S. Nuclear Regulatory Commission (NRC) exercise discretion to not enforce compliance with the actions required in Browns Ferry Nuclear Plant (BFN) Unit 1, 2, and 3, Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.0.3, as directed by TS 3.8.7 "Distribution Systems – Operating" for Units 1 and 2, and TS 3.6.4.3 "Standby Gas Treatment (SGT) System" for Units 1, 2, and 3. Your letter documented information previously discussed with the NRC in a telephone conference on September 10, 2017, at 4:30 p.m. Central Daylight Time (CDT). The principal NRC staff members who participated in the telephone conference are listed in the Enclosure. The staff determined that the information in your letter requesting the Notice of Enforcement Discretion (NOED) was consistent with your oral request. The NRC first became aware of the potential for this NOED request on September 10, 2017, at 1:32 p.m. CDT.

Your staff requested that a NOED be granted pursuant to the NRC's policy regarding exercise of discretion for an operating power reactor, set out in Section 3.8 of the Enforcement Policy, and that the NOED be effective for an additional 12 hours and nine minutes (until 10:00 a.m. CDT on September 11, 2017, for entering Mode 2) with subsequent entries into Mode 3 and Mode 4 extended by 12 hours and nine minutes as well. Without enforcement discretion, TS LCO 3.0.3 would require that BFN Units 1, 2, and 3 enter Mode 2 by 9:51 p.m. CDT on September 10, 2017, with subsequent entries into Modes 3 and 4. This letter documents our telephone conversation on September 10, 2017, when we orally granted this NOED request. We understand that the condition causing the need for this NOED was corrected, allowing BFN Units 1, 2, and 3 to exit from TS LCO 3.0.3 and from this NOED at 9:10 p.m. CDT on September 10, 2017.

Summary

On September 9, 2017, at 3:20 p.m. CDT, the Unit 1 and 2 A control bay (CB) chiller was declared inoperable in support of maintenance activities due to a high water temperature alarm caused by a faulty thermistor. On September 10, 2017, at 11:51 a.m. CDT, the B CB chiller was

declared inoperable due to a fault code for phase reversal protection on compressor A, due to a faulty capacitor. The Unit 1 and 2 CB chillers provide cooling water required to support the operability of the: control room air conditioning (A/C), electrical board room A/C, and 4 kilovolt (kV) shutdown boards. Additionally, the 4 kV shutdown boards are required to support the standby gas treatment (SGT) system, and control room emergency ventilation (CREV) system. At least one of the Unit 1 and 2 CB chillers is required operable to ensure the operability of their supported equipment. Loss of both Unit 1 and 2 CB chillers resulted in declaring the supported systems inoperable. Because the Unit 1 and 2 CB chillers supply cooling water to the Unit 1 and 2 electric board rooms' A/C, Technical Requirements Manual (TRM) LCO 3.7.6, Condition B (declare the affected electrical equipment in the board rooms inoperable), was entered. 4 kV shutdown boards A, B, C, and D were declared inoperable as required by TRM LCO 3.7.6.

As a result of the A, B, C, and D shutdown boards being declared inoperable, Unit 1 entered TS LCO 3.8.7 Condition F (one or more required Unit 1/2 or Unit 3 AC or DC boards inoperable), Unit 2 entered Condition G (one or more required Unit 1 or 3 AC or DC boards inoperable), and Unit 3 entered Condition G (one or more Unit 1 or 2 AC or DC boards inoperable), all of which require affected SGT and CREV subsystems to be declared inoperable. The A Train of CREV, as well as, the A and B Trains of SGT were declared inoperable as required. As a result of the inoperable A and B Trains of SGT, Units 1, 2, and 3 entered TS LCO 3.6.4.3 Condition D (two or three trains of SGT inoperable), requiring immediate entry into TS LCO 3.0.3. TS LCO 3.0.3 requires initiation, within one hour, of actions to place all three units in Mode 2 within 10 hours, Mode 3 in 13 hours, and Mode 4 in 37 hours.

Additionally, as a result of the A, B, C, and D shutdown boards being declared inoperable, Units 1 and 2 entered TS LCO 3.8.7 Condition H and I respectively (two or more electrical power distribution subsystems inoperable that result in a loss of function), requiring immediate entry into TS LCO 3.0.3.

Your staff request estimated that A CB chiller repairs would be completed by September 10, 2017, at 11:15 p.m. CDT. Without enforcement discretion, action would have had to be initiated to place all three units in Mode 2 within 10 hours (i.e., by September 10, 2017, at 9:51 p.m. CDT). TVA requested enforcement discretion of TS LCO 3.0.3 to extend the time required to be in Mode 2 by an additional 12 hours and nine minutes, and that subsequent Mode 3 and Mode 4 entries be extended by 12 hours and nine minutes as well. This was to ensure adequate time for testing and an orderly and controlled return of the A CB chiller to operable status. Enforcement discretion was requested to avoid an unnecessary transient (three unit shutdown) without a corresponding health and safety benefit. The NRC determined that the requested NOED was appropriate to avoid an unnecessary transient as a result of compliance with TS LCO 3.0.3 and, thus, minimize potential safety consequences and operational risks (Inspection Manual Chapter (IMC) 0410, Section 03.03, Criterion b). The NRC's basis for the exercise of discretion was as follows:

- The failure of the A CB chiller was known to be a faulty thermistor. Because of the unexpected fault on the B compressor, the limiting condition of operation time was shortened from 30 days to 10 hours. Therefore, additional time was required to complete the maintenance, complete testing, and declare the chiller operable.

- The cause of the fault on the B CB chiller was not yet known, and the NOED was granted based on the expected return to service of the A CB chiller, not troubleshooting of the B CB chiller. However, restoration of either CB chiller would allow exiting TS LCO 3.0.3. Personnel were performing repairs on both CB chillers in parallel to replace these faulty components and complete the testing required to return either CB chiller to service.
- The repair activities and testing would not result in any transient or change in status to any of the three units.
- The following compensatory measures remained in place during the period of enforcement discretion:
  - No Unit 1 or 2 work was permitted in the switchyard and large maintenance vehicles were removed from or secured in the switchyard.
  - The emergency CB chiller was placed in service.
  - No hot work was permitted on Units 1 and 2.
  - The safe shutdown board room temperatures were monitored. Additional actions to prop doors open and install additional cooling fans were to be implemented in the event that these rooms began to heat up.
  - The NRC was to be notified of changing weather conditions due to possible effects of Hurricane Irma.

Your staff indicated that the calculated increase in Incremental Conditional Core Damage Probability (ICCDP) from the 12 hour and nine minute extension was 9.68E-09 for Units 1 and 2, and no increase for Unit 3. You indicated that the increase in Incremental Conditional Large Early Release Probability (ICLERP) was 1.99E-09 for Units 1 and 2, and no increase for Unit 3. These values are less than the 5E-7 and 5E-8 guidance thresholds, respectively, in Inspection Manual Chapter 0410, "Notices of Enforcement Discretion."

Your staff further stated that the noncompliance would not create undue risk to public health and safety, in that (1) it did not involve a significant increase in the probability or consequences of a previously evaluated accident scenario; (2) it did not create the possibility of a new or different kind of accident from those previously evaluated; (3) it did not involve a significant reduction in a margin of safety; and (4) it would not result in any significant changes in the types or quantities of effluents released from the facility. The BFN Plant Operations Review Committee (PORC) approved submission of the NOED request at approximately 4:15 p.m. CDT on September 10, 2017, prior to the verbal request for an NOED.

In consultation with the NRC Resident Inspection staff on site at the Browns Ferry Nuclear Plant, the NRC verified your staff's oral assertions, including the likely cause and compensatory measures. NRC staff also independently evaluated your staff's estimates for ICCDP and ICLERP.

On the basis of the NRC staff's evaluation of TVA's request, we concluded that granting this NOED is consistent with the NRC's Enforcement Policy and staff guidance and would have no adverse impact on public health and safety or the environment. Therefore, as communicated orally to your staff at 5:46 p.m. CDT on September 10, 2017, we exercised enforcement discretion to not enforce compliance with TS LCO 3.0.3 requirements that Browns Ferry Nuclear Plant, Units 1, 2, and 3, be in Mode 2 by 9:51 p.m. CDT on September 10, 2017. Unit 1, 2, and 3

Mode 2 entry was extended by 12 hours and nine minutes, as were subsequent mode changes required by TS LCO 3.0.3, to allow completion of maintenance on the A CB chiller. The additional period of 12 hours and nine minutes provided by the NOED expired at 10:00 a.m. CDT on September 11, 2017.

Your staff subsequently informed the NRC that TVA completed repairs to the B CB chiller such that the condition causing the need for this NOED was corrected (i.e. either CB chiller operable), allowing Units 1, 2, and 3 to exit TS LCO 3.0.3, and this NOED, at 9:10 p.m. CDT on September 10, 2017. Therefore TVA did not utilize the 12 hours and nine minutes of enforcement discretion that was granted in this NOED.

In addition, as discussed during the telephone conference on September 10, 2017, the NRC staff agreed with your determination that a follow-up Technical Specification amendment was not necessary.

As stated in the NRC Enforcement Policy, enforcement action may be taken to the extent that violations were involved for the root cause that led to the noncompliance for which this NOED was necessary.

Sincerely,

*/RA/*

Joel T. Munday, Director  
Division of Reactor Projects

Docket: 50-259, 260, 296  
License: DPR-33, DPR-52, DPR-68

Enclosure:  
List of Participants

cc: Distribution via ListServ

SUBJECT: NOTICE OF ENFORCEMENT DISCRETION FOR TENNESSEE VALLEY  
 AUTHORITY (CAC NO. MG0229, MG0230, AND MG0231, NOED NO. 17-2-01)  
September 14, 2017

**DISTRIBUTION:**

- C. Haney, RII
- L. Dudes, RII
- J. Munday, RII
- M. Franke, RII
- A. Gody, RII
- M. Miller, RII
- M. Kowal, RII
- D. Dumbacher, RII
- A. Ruh, RII
- A. Blamey, RII
- A. Masters, RII
- C. Rapp, RII
- S. Ninh, RII
- J. Seat, RII
- R. Hannah, RII
- J. Ledford, RII
- J. Bowen, NRR
- A. Boland, NRR/DORL
- K. Brock, NRR/DORL
- P. Holahan, OE
- B. Beasley, NRR
- F. Saba, NRR
- OEWEBResource
- Public

**ADAMS Accession No ML17257A390**

OFFICE	RII:DRP	RII: DRP	RII:EICS	RII:DRP	HQ:NRR/DORL	RII:DRP
NAME	JSeat	DDumbacher	MKowal	ABlamey	KBrock	JMunday
DATE	9/14/2017	9/13/2017	9/14/2017	9/14/2017	9/14/2017	9/14/2017

**OFFICIAL RECORD COPY**

## LIST OF KEY NRC PERSONNEL

### NRC Region II

Joel Munday, Director, Division of Reactor Projects  
Mark Franke, Deputy Director, Division of Reactor Projects  
Alan Blamey, Chief, Reactor Projects Branch 6  
David Dumbacher, Browns Ferry Senior Resident  
Scott Freeman, Senior Reactor Analyst

### NRC Office of Nuclear Reactor Regulation

Kathy Brock, Deputy Director, Division of Operating Reactor Licensing (DORL)  
Undine Shoop, Chief, Plant Licensing Branch II-2  
Farideh Saba, Browns Ferry Senior Project Manager  
Ed Miller, Project Manager  
Michael Waters, Chief, Instrumentation & Controls Branch  
Tania Navedo Martinez, Chief, Electrical Engineering Branch  
Robert Dennig, Chief, Balance of Plant Branch  
Sunil Weerakkody, Chief, Probabilistic Risk Analysis Operations and Human Factors Branch  
Ching Ng, Reliability and Risk Analyst