



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 14, 2016

LICENSEE: Tennessee Valley Authority

FACILITY: Browns Ferry Nuclear Plant, Units 1, 2, and 3

SUBJECT: SUMMARY OF February 1, 2016, MEETING WITH TENNESSEE VALLEY AUTHORITY REGARDING A LICENSE AMENDMENT REQUEST TO MODIFY BROWNS FERRY TECHNICAL SPECIFICATIONS (TS) BY ADDING NEW TS 3.3.8.3 (CAC NOS. MF6738, MF6739, AND MF6740)

On February 1, 2016, a Category I public meeting was held between members of the U.S. Nuclear Regulatory Commission (NRC) and representatives of Tennessee Valley Authority (TVA, the licensee) at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. TVA submitted, on September 16, 2015, its license amendment request (LAR) to modify the Browns Ferry Nuclear Plant (BFN), Units 1 and 2 Technical Specifications (TSs) by adding new TS 3.3.8.3, "Emergency Core Cooling System Preferred Pump Logic, Common Accident Signal (CAS) Logic, and Unit Priority Re-Trip Logic," and Unit 3 TSs by adding new TS 3.3.8.3, "Common Accident Signal (CAS) Logic, and Unit Priority Re-Trip-Logic." The purpose of the meeting was for TVA to provide a description of logic functions and a summary of changes requested in the LAR, and for the NRC staff to discuss its draft request for additional information (RAI) and its preliminary concerns associated with pump logics, loss of power, and use of BFN probabilistic risk assessment (PRA) program with the TVA representative.

The meeting notice and agenda, dated December 23, 2015, is available in the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML16028A313. The licensee presented informational slides at the meeting. The presentation document provided by the licensee prior to the meeting and attached to the meeting notice, is publicly available under ADAMS Accession No. ML16028A096. A list of attendees is enclosed.

The overview of associated logic started with the history of the original design basis for the initial BFN Units 1, 2, 3 startup and operation, restart of each unit (following the extended shutdown of all three units), and development and modification of the three logic systems. TVA noted that BFN Safety Evaluation Report, Supplement 4 states that the system shall have capability to provide emergency power to accommodate any combination of accident signals (real or spurious), in all three units, in any order without operator action for the short term (0-10 minutes). The spurious accident signal is considered the design basis single failure for the event.

TVA staff provided an introduction and overview of the emergency core cooling system (ECCS) one-of-a-kind logic systems that are currently installed and working at the BFN Units 1, 2, and 3 for controlling ECCS loads during accidents and the focus of the LAR. These are the Preferred Pump Logic (PPL), CAS Logic, and Unit Priority Re-Trip Logic. The presentation included the

number of logic divisions, initiating signals for each logic, actions performed by the logic, and other characteristics and limitations and associated interactions with other systems.

Another logic system, the "Pre-Accident Signal," which anticipates an event and is redundant to the CAS logic, was also presented. The pre-accident signal (PAS) anticipates an accident and starts all eight BFN diesel generators for Unit 1 and 2 and Unit 3 so that they are ready for electrical loading when required by the load sequencing logic. This discussion specifically answered one of Instrumentation and Control Branch (EICB) draft RAI on why the PAS appeared in the Final Safety Analysis Report, but was not discussed in the LAR.

TVA explained that the subject logic systems were already in existence and have been in use for some time. Unit Priority Re-Trip Logic, which was added to support Unit 3 restart, is described in the current Bases for TS 3.8.1. Unit Priority Re-Trip Logic requires an existing CAS for actuation.

TVA also presented an overview of Unit 1/2 ECCS PPL. This logic is initiated by an accident signal in either Unit 1 or Unit 2. It assigns designated residual heat removal and core spray pumps to Unit 1 and Unit 2. It performs the same function with or without a loss of offsite power. It also blocks the manual restart of the pumps in non-accident unit for 60 seconds. Proposed TS 3.3.8.3 Action A is entered with one or more required ECCS PPL divisions inoperable. Proposed Condition A requires that the ECCS PPL division(s) be restored to operable within 7 days.

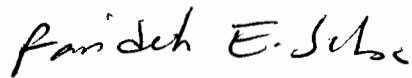
TVA staff continued its presentation by providing an overview of the LAR. The licensee discussed the proposed or relocated ACTIONS and COMPLETION TIMES applicable to ECCS PPL divisions, CAS logic, and Unit Priority Re-Trip logic in the proposed TS 3.3.8.3. The proposed TS 3.3.8.3 limiting condition for operation (LCO) for BFN Units 1 and 2 requires two divisions of ECCS PPL be operable in Modes 1, 2, and 3. BFN Units 1, 2, and 3 current TS 3.8.1, "AC Sources – Operating," LCO 3.8.1b requires two divisions of CAS logic available in Modes 1, 2, and 3. The proposed LAR relocates CAS logic from TS 3.8.1 to the new TS 3.3.8.3. Explicit requirements for Unit Priority Re-Trip Logic are not provided in the current TS. Unit Priority Re-Trip logic is currently described for BFN Units 1, 2, and 3 in the Bases for TS 3.8.1. As Unit Priority Re-Trip works in conjunction with CAS, the licensee provided its associated requirements in TS 3.3.8.3. In addition TS Table 3.3.5.1-1 is revised to refer to TS 3.3.8.3 Conditions when a related ECCS function is inoperable. The proposed TS 3.3.8.3 consolidates the three logic systems, requirements, conditions, and surveillance test in one location for easier, safer, and more efficient operation. TVA stated that the proposed LAR does not modify the function or design of the subject logic systems.

The PRA analysis performed for this LAR was also presented, which provides the basis and justification for the increase in Completion Time from 24 hours to 7 days for the PPL. The licensee explained that this evaluation is only applicable to BFN Units 1 and 2, since BFN Unit 3 does not use PPL logic. TVA staff provided an overview of the PRA model, including PPL modeling, and stated that the CAS or Unit Priority Re-trip logic are not explicitly modeled. NRC staff inquired about the impact of the PPL outage on the plant response and a general discussion on this topic followed. RAIs regarding the PRA analysis supporting this LAR will be sent to the licensee.

The draft RAI from EICB was presented and discussed. The NRC staff agreed that some of the draft RAI items were clarified or answered sufficiently during the meeting and can be withdrawn. The preliminary question from the Electrical Engineering Branch regarding emergency diesel loading as it relates to ECCS logic was also discussed. Revised/Additional questions from Electrical Engineering Branch will be sent to the licensee.

There were no members of the public in attendance at the meeting or by telephone. Public Meeting Feedback forms were not received.

Please direct any inquiries to me at 301-415-1447 or Farideh.Saba@nrc.gov.



Farideh E. Saba, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

Enclosure:
List of Attendees

cc w/encl: Distribution via Listserv

LIST OF ATTENDEES

FEBRUARY 1, 2016, PUBLIC MEETING WITH TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3

LICENSE AMENDMENT REQUEST REGARDING ADDITION OF TS 3.3.8.3

Name	Organization
Farideh Saba	Nuclear Regulatory Commission
Margaret Chernoff	NRC
Robert Beaton	NRC
Eugene Eagle	NRC
Mihaela Biro	NRC
Vijay Goel	NRC
Tania Martinez-Navedo	NRC
Daniel O'Neal	NRC
Edward Schrull	Tennessee Valley Authority
Clinton Szabo	TVA
Timothy Hayes	TVA
Charles Dollar	TVA
Eric Browne	TVA

Enclosure

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/RA/

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ADAMS Accession No: ML16043A277 NRC-001 * By an email ** Per Jack Zimmerman (BC)

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DATE	02/18/16	02/17/16	02/24/16	02/23/16	02/18/16	03/14/16	03/14/16