Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-14-222

December 19, 2014

10 CFR 50.4

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Browns Ferry Nuclear Plant, Units 1, 2, and 3
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68
NRC Docket Nos. 50-259, 50-260, and 50-296

Subject: **Tennessee Valley Authority's Browns Ferry Nuclear Plant First Six-Month Status Report in Response to the June 6, 2013 Commission Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Order Number EA-13-109)**

References:

1. NRC Order Number EA-13-109, Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, dated June 6, 2013 (ML13143A334)

2. NRC Interim Staff Guidance JLD-ISG-2013-02, "Compliance with Order EA-13-109, Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," Revision 0, dated November 2013 (ML13304B836)

3. NEI 13-02, "Industry Guidance for Compliance with NRC Order EA-13-109 BWR Mark I & II Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," Revision 0, dated November 2013 (ML13316A853)

4. Letter from TVA to NRC, "Tennessee Valley Authority's Phase 1 Overall Integrated Plan in Response to June 6, 2013 Commission Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident (Order Number EA-13-109)," dated June 30, 2014 (ML14181B169)

On June 6, 2013, the Nuclear Regulatory Commission (NRC) issued an order (Reference 1) to Tennessee Valley Authority (TVA). Reference 1 was immediately effective and directs TVA to install a reliable hardened venting capability for pre-core damage and under severe accident conditions, including those involving a breach of the reactor vessel by molten core debris. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of a phase 1 overall integrated plan pursuant to Section IV, Condition D. Reference 2 endorses industry guidance document Nuclear Energy Institute (NEI) 13-02, Revision 0 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 provided the TVA overall integrated plan (OIP) for Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3.

Reference 1 requires submission of a status report at six-month intervals following submittal of the overall integrated plan. Reference 3 provides direction regarding the content of the status reports. The purpose of this letter is to provide the first six-month status report pursuant to Section IV, Condition D of Reference 1, that delineates progress made in implementing the requirements of Reference 1. The Enclosure provides an update of milestone accomplishments since submittal of the BFN OIP, including any changes to the compliance method, schedule, or need for relief and the basis, if any.

There are no new regulatory commitments resulting from this submittal. Should you have any questions concerning the content of this letter, please contact Kevin Casey at (423) 751-8523.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 19th day of December 2014.

Respectfully,

J. W. Shea
Vice President, Nuclear Licensing

Enclosure: Tennessee Valley Authority Browns Ferry Nuclear Plant's First Six-Month Status Report for the Implementation of Order EA-13-109, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions"

cc (Enclosure):

NRR Director - NRC Headquarters
NRO Director - NRC Headquarters
NRR JLD Director - NRC Headquarters
NRC Regional Administrator - Region II
NRR Project Manager - Browns Ferry Nuclear Plant
NRR JLD Project Manager - Browns Ferry Nuclear Plant
NRC Senior Resident Inspector - Browns Ferry Nuclear Plant

ENCLOSURE

TENNESSEE VALLEY AUTHORITY BROWNS FERRY NUCLEAR PLANT'S FIRST SIX MONTH STATUS REPORT FOR THE IMPLEMENTATION OF ORDER EA-13-109, "ORDER MODIFYING LICENSES WITH REGARD TO RELIABLE HARDENED CONTAINMENT VENTS CAPABLE OF OPERATION UNDER SEVERE ACCIDENT CONDITIONS"

Introduction

Browns Ferry Nuclear Plant (BFN) developed an Overall Integrated Plan (OIP) (Reference 5 of this Enclosure), documenting the installation of a Hardened Containment Vent System (HCVS) that provides a reliable hardened venting capability for pre-core damage and under severe accident conditions, including those involving a breach of the reactor vessel by molten core debris, in response to Reference 1. This enclosure provides an update of milestone accomplishments since submittal of the Phase 1 OIP, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

Milestone Accomplishments

The following milestone has been completed since the development of the OIP (Reference 5), and is current as of December 05, 2014 for the first status report.

- A conceptual design meeting was held on November 14, 2014 to implement phase 1 of the order for all three units at Browns Ferry.

Milestone Schedule Status

The following provides an update to Attachment 2 of the Overall Integrated Plan. It provides the activity status of each item, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed. There are currently no revised milestone target completion dates.

Activity Status updates are shown in bold type.

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Phase 1 HCVS Milestone Table			
Submit Overall Integrated Plan	Jun 2014	Complete	
Submit 6 Month Updates:			
Update 1	Dec 2014	**Complete**	
Update 2	Jun 2015	Not Started	
Update 3 [Simultaneous with Phase 2 OIP]	Dec 2015	Not Started	
Update 4	Jun 2016	Not Started	
Update 5	Dec 2016	Not Started	
Update 6	Jun 2017	Not Started	
Update 7	Dec 2017	Not Started	
Modifications:			
Hold preliminary/conceptual design meeting	Nov 2014	**Complete**	
Unit 1 Design Engineering On-site/Complete	Jan 2016	Not Started	
Unit 1 Implementation Outage	Nov 2016	Not Started	
Unit 1 Walk Through Demonstration/Functional Test	Nov 2016	Not Started	
Unit 2 Design Engineering On-site/Complete	Jun 2016	Not Started	
Unit 2 Walk Through Demonstration/Functional Test	Apr 2017	Not Started	
Unit 2 Implementation Outage	Mar 2017	Not Started	
Unit 3 Design Engineering On-site/Complete	Jul 2017	Not Started	
Unit 3 Walk Through Demonstration/Functional Test	Apr 2018	Not Started	
Unit 3 Implementation Outage	Mar 2018	Not Started	
Procedure Changes Active		Not Started	
Operations Procedure Changes Developed	Jul 2016	Not Started	
Site Specific Maintenance Procedure Developed	Jul 2016	Not Started	
Procedure Changes Active	Nov 2016	Not Started	

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Phase 1 HCVS Milestone Table			
Training:			
Training Complete	Sep 2016	Not Started	
Completion			
Unit 1 HCVS Implementation	Dec 2016	Not Started	
Unit 2 HCVS Implementation	Apr 2017	Not Started	
Unit 3 HCVS Implementation	Mar 2018	Not Started	
Full Site HCVS Implementation	Mar 2018	Not Started	
Submit Completion Report [60 days after full site compliance]	Jun 2018	Not Started	

Changes to Compliance Method

The following is a list of changes made to the information provided in the OIP submitted by Reference 5. These changes meet the NEI 13-02 compliance method.

- On page 4 of 57, the extreme cold will screen in for applicable Extreme Hazards from NEI 12-06.
- On page 13 of 57, the Vent Path and Discharge will be revised so that the effluent will be discharged at an elevated release point and the velocity and spacing of each unit will provide compliance with the Order EA-13-109 requirements of separation.
- On page 15 of 57, the sentence describing the motive force and cycles of operation is being changed so that the HCVS Containment Isolation Valves (CIV's) will be operable for 24 hours.
- On page 18 of 57, a communication system will be utilized that uses hand held radios for communication between the main control room and the remote operating station.
- On page 21 of 57, the component qualification will be revised to denote that the HCVS piping and components will be routed in a seismically qualified structure or exterior to the reactor building wall.

Currently, there are no changes to the compliance method that would be considered an alternative to NEI 13-02.

Need for Relief/Relaxation and Basis for the Relief/Relaxation

BFN expects to comply with the order implementation date and no relief/relaxation is required at this time.

Open Items from Overall Integrated Plan and Interim Staff Evaluation

The following tables provide a summary of the open items documented in the Phase 1 OIP or the Interim Staff Evaluation (ISE) and the status of each item.

#	Overall Integrated Plan Phase 1 Open Item	Status
1	Perform an assessment of temperature and radiological conditions to ensure that operating personnel can safely access and operate controls at the Remote Operating Station based on time constraints listed in Attachment 2.	Open
2	Perform an evaluation for HCVS ability to operate from the MCR and has the ability to be supplied adequate amounts of pneumatic pressure for 24 hour actions.	Open
3	Perform an evaluation for FLEX portable generators and nitrogen cylinders use past 24 hour actions.	Open
4	Revise 1/2/3-EOI Appendix 13 to include venting for loss of DC power.	Open
5	Perform an evaluation for FLEX portable generators use for post 24 hour actions.	Open
6	Electrical load shedding will be performed in 1 hour of the event.	Closed - Calculation EDQ0009992013000202 Rev 1 has been issued to determine load shedding impact on the unit batteries.
7	The implementation of the HCVS DCN's will be staged so that there is no effect on the operating units.	Closed - A conceptual meeting was held in November 2014 and a staging plan was used to separate the existing HWWV from the HCVS.
8	The wetwell vent will be designed to remove 1% of rated thermal power at EPU conditions.	Closed - The existing wetwell vent (CLTP) and the HCVS (EPU) has been designed for 1% of rated thermal power at EPU conditions.

#	Overall Integrated Plan Phase 1 Open Item	Status
9	Implement the Harris Radio System for communication between the MCR and the ROS.	Revised - A communication system will be used that uses hand held radios for communication between the main control room and the remote operating station.

Interim Staff Evaluation Open Item	Status
None received to date	

Interim Staff Evaluation Impacts

There are no potential impacts to the Interim Staff Evaluation identified at this time.

References

The following references support the updates to the Phase 1 Overall Integrated Plan described in this enclosure.

1. NRC Order Number EA-13-109, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," dated June 6, 2013 (ML13143A334)

2. NEI 13-02, "Industry Guidance for Compliance with NRC Order EA-13-109, 'To Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," Revision 0, dated November 2013

3. NRC Interim Staff Guidance JLD-ISG-2013-02, "Compliance with Order EA-13-109, Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," Revision 0, dated November 2013 (ML13304B836)

4. NRC Endorsement of Industry "Hardened Containment Venting System (HCVS) Phase 1 Overall Integrated Plan Template (EA-13-109) Rev 0", (ML14128A219)

5. Letter from TVA to NRC, "Tennessee Valley Authority's Phase 1 Overall Integrated Plan in Response to June 6, 2013 Commission Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident (Order Number EA-13-109)," dated June 30, 2014 (ML14181B169)