



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

January 27, 2012

10 CFR 50.4  
10 CFR 50.90

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

Sequoyah Nuclear Plant, Unit 2  
Facility Operating License No. DPR-79  
Docket No. 50-328

**Subject: Response to NRC Request for Additional Information Regarding the Proposed Technical Specification Changes to Allow Use of Shield Building Dome Penetrations During Modes 1 Through 4 (TAC NO. ME7026)**

- Reference:**
1. Letter from TVA to NRC, "Application for Temporary Change to Technical Specifications to Allow Use of Penetrations in Shield Building Dome During Modes 1 through 4; and Request for Specific Usage of Alternate Source Term Methodology for Calculating Radiation Doses Associated with the Proposed Temporary Change to Technical Specifications (TS-SQN-2011-03)," dated August 31, 2011
  2. Letter from TVA to NRC, "Request for Expedited Review of a Licensing Amendment Request Supporting the Sequoyah Nuclear Plant, Unit 2, Steam Generator Replacement Project," dated November 28, 2011
  3. Letter from NRC to TVA, "Sequoyah Nuclear Plant, Unit 2 - Request for Additional Information Regarding The Propopsed [sic] Technical Specification Changes to Allow Use of Shield Building Dome Penetrations During Modes 1 through 4 (TAC NO. ME7026)," dated December 29, 2011

DO30  
NRC

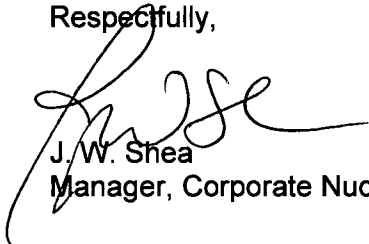
U.S. Nuclear Regulatory Commission  
Page 2  
January 27, 2012

By letter dated August 31, 2011 (Reference 1), the Tennessee Valley Authority (TVA) submitted a request for amendment to the Technical Specifications (TSs) for Sequoyah Nuclear Plant (SQN), Unit 2. The amendment request proposed to allow SQN, Unit 2, to open one of the penetration hatches in the Shield Building dome for up to five hours per day, six days per calendar week while in Modes 1 through 4 during Unit 2 Cycle 18 from receipt of Nuclear Regulatory Commission (NRC) approval for the request until entering Mode 5 at the start of Unit 2 refueling outage 18 (U2R18). The U2R18 refueling outage is scheduled to commence in the fall of 2012. In a letter dated November 28, 2011 (Reference 2), TVA requested that the NRC expedite their review of the Reference 1 amendment request for approval by May 1, 2012 to support work in advance of the U2R18 refueling outage to facilitate the Steam Generator Replacement Project. By letter dated December 29, 2011 (Reference 3), the NRC forwarded a request for additional information (RAI) regarding the proposed changes to the TSs and noted that it had previously agreed that a response would be provided within 30 days from the date of the letter. Enclosure 1 to this letter provides the TVA response to the NRC RAI. Enclosure 2 provides a list of regulatory commitments included in this submittal. No changes have been made to the enclosure and attachments of the Reference 1 request for amendment to the TSs.

If you have any questions, please contact Clyde Mackaman at (423) 751-2834.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 27<sup>th</sup> day of January 2012.

Respectfully,



J. W. Shea  
Manager, Corporate Nuclear Licensing

Enclosures:

1. Response to Request for Additional Information Regarding the Proposed Technical Specification Changes to Allow Use of Shield Building Dome Penetrations During Modes 1 Through 4
2. Regulatory Commitments

cc (Enclosures):

NRC Regional Administrator - Region II  
NRC Senior Resident Inspector - Sequoyah Nuclear Plant  
Director, Division of Radiological Health, Tennessee State Department of  
Environment and Conservation

## ENCLOSURE 1

### TENNESSEE VALLEY AUTHORITY SEQUOYAH NUCLEAR PLANT UNIT 2

#### RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING THE PROPOSED TECHNICAL SPECIFICATION CHANGES TO ALLOW USE OF SHIELD BUILDING DOME PENETRATIONS DURING MODES 1 THROUGH 4

##### **NRC Question 1**

*Define the term, "Dedicated individuals." Will they be assigned unrelated duties? Where will they be stationed?*

##### **TVA Response**

The term "dedicated individuals", in this case, refers to the Steam Generator Replacement Project (SGRP) individuals who have received formal training with respect to their duties to perform the Shield Building dome hatch closure mission. These individuals will have no other duties and will be responsible for ensuring the hatch is closed in response to any Unit 2 reactor trip. The dedicated individuals will be stationed in the Control Room Habitability area, adjacent to the Main Control Room during each period the hatch is opened. The dedicated individuals will travel the path from the Control Room Habitability area to the open Shield Building dome hatch as described on page E-16 of the Enclosure to the Reference 1 letter.

##### **NRC Question 2**

*In the LAR it is stated that "Since the individuals are dedicated to this mission, there is no impact on plant staffing requirements." Please clarify. Is the normal control room staff going to be augmented with additional staff, or will members of the normal control room staff be used as "Dedicated individuals"? The NRC staff's understanding is that the normal plant staff will be augmented; and augmentation is an impact.*

##### **TVA Response**

The normal plant staff is augmented by SGRP personnel for the steam generator replacement activities. Since the dedicated individuals designated for the Shield Building dome hatch closure mission are personnel provided by and are part of the SGRP staff as described in the response to NRC Question 1, there is no impact to the station Operations staff and they are not considered augmented staff to the normal Control Room staff.

### **NRC Question 3**

*In the LAR it is stated, "At the open hatch, the individuals, clear material and rigging and close the hatch (33 seconds)." If we assume that the crane is in mid-load (i.e., has just touched a load down and is ready to either release the load or retract the load back up through the hatch), will the 33-second duration still be valid?*

### **TVA Response:**

A Liebherr Crawler crane will be utilized to move materials from the ground and will stage the materials on the Unit 2 Shield Building dome. The materials will then be moved manually and attached to a winch system above the hatch penetration. The Liebherr crane will not be utilized to lower material through the penetration into the Annulus.

The rigging of material into the Annulus through the hatch penetration will be performed locally at the hatch penetration by a rigging team using an electric or manual winch system. This system will be anchored with a block and tackle system. The block and tackle system will be configured to allow the dedicated individuals the ability to lower the most limiting size and weight material, including the winch system, at any load position into the penetration without relying on external power. This was the method used in the action timing verification process to determine the 33 second duration.

### **NRC Question 4**

*When will training be complete? For example, will training be complete prior to opening a hatch in the manner proposed in this LAR?*

### **TVA Response**

Training for the dedicated individuals designated for the Shield Building dome hatch closure mission will be completed prior to opening either of the 18 inch hatches. This training will be conducted as part of the pre-job brief and documented in the SGRP work implementing documents in accordance with the site's work control process.

Control Room Operator training associated with alignment of the Emergency Gas Treatment System (EGTS) will be completed prior to opening either of the 18 inch hatches. Training of the Control Room Operators with respect to the procedure revisions, interim procedure revisions, and new procedures will be conducted either through training classes, "hands-on" training, or required reading or a combination of these training methods. This training will also be completed prior to opening either of the 18 inch Shield Building dome hatches.

### **NRC Question 5**

*When will procedure changes be complete? For example, will procedure changes be complete prior to initiation of training?*

### **TVA Response**

Upon approval of the LAR, work implementing documents for the dedicated individuals will be prepared and approved in accordance with the site's work control process. Training for the dedicated individuals will be completed after preparation of the work implementing documents.

Also, upon approval of the LAR, procedure revisions needed to align the EGTS to allow opening the 18 inch hatch will be implemented. Training for Control Room Operators will be conducted for these procedure revisions, interim procedure revisions, and new procedures either through training classes, "hands-on" training, or required reading or a combination of these training methods. The training will be completed after preparation of the procedure revisions, interim procedure revisions, and new procedures.

### **NRC Question 6**

*Were there any human factors lessons learned from the Watts Bar Nuclear Plant experience with the proposed configuration in 2005/2006? If yes, describe.*

### **TVA Response:**

There were no human factors lessons learned for the use of the 18 inch Shield Building dome hatches documented in the 2005/2006 Watts Bar Steam Generator Replacement Project database or in the 2005/2006 Watts Bar Station Lessons Learned database.

### **NRC Question 7**

*Was at least one crew (with the assumed crew augmentation) used in the verification and validation of the proposed manual actions? If not, what plans have been made to assure that a representative sample of personnel are included in verification and validation processes?*

### **TVA Response:**

As previously discussed in the response to NRC Question 2, the augmentation of the normal plant staff does not involve the Control Room staff. Verification and validation of the actions required to close the Shield Building dome hatch in the event of a Unit 2 reactor trip were performed by two station individuals (one crew). The actions required to close the hatch were either performed by each station individual and timed or estimated as described on page E-16 of the Enclosure to the Reference 1 letter. An 80 percent confidence factor (i.e., action time/.80) was applied to each action performance time (increasing the action time) to account for inconsistencies in individual performances of the actions. Individuals selected to be trained as dedicated individuals will be provided by the SGRP with similar background and experience of station personnel used in the verification and validation process.

### **NRC Question 8**

*What communication methods are available to the dedicated individuals to communicate with the control room?*

### **TVA Response**

The dedicated individuals designated to close the Shield Building dome hatch in the event of a Unit 2 reactor trip will be stationed in the Control Room Habitability area adjacent to the Main Control Room and will be situated to respond to the plant announcement of a Unit 2 reactor trip over the station public address system. The dedicated individuals will notify the Main Control Room after the hatch is closed via 2-way radio communication or telephone, or face-to-face communication after returning to the Control Room Habitability area.

### **NRC Question 9**

*Please describe any changes to the simulator that are needed to support the proposed license amendment.*

### **TVA Response**

There are no changes to the station simulator needed to support the proposed license amendment. The Shield Building dome hatches are manually opened and closed and have no remote indication. No changes were made to the existing Shield Building ventilation or ventilation controls to support the proposed license amendment that would require changes to the station simulator.

### **NRC Question 10**

*Who will monitor the hourly and daily limits associated with the revised TSs? How will they monitor? What kind of documentation will be required?*

### **TVA Response**

Station Operations (on shift) will record, monitor and track the limits specified in the proposed revised Technical Specifications during implementation of the proposed license amendment. Operations will be notified by the field implementation team when the Shield Building dome hatch is opened and when it is closed. This will be recorded in a surveillance instruction which tracks compliance with the time limits.

Along with Operations, the SGRP will record Shield Building dome hatch open time in the SGRP work implementing documents as an additional barrier to exceeding the proposed hatch operations Technical Specifications limits.

**ENCLOSURE 2**

**TENNESSEE VALLEY AUTHORITY  
SEQUOYAH NUCLEAR PLANT  
UNIT 2**

**REGULATORY COMMITMENTS**

1. Work implementing documents and procedures supporting implementation of the amendment will be prepared and/or revised prior to opening either of the 18 inch Shield Building dome hatches.
2. Training will be conducted after the work implementing documents and procedures supporting implementation of the amendment have been prepared and/or revised and prior to opening either of the 18 inch Shield Building dome hatches.