



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

September 25, 2013

10 CFR 50.4
10 CFR 50.55a

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

Sequoyah Nuclear Plant, Units 1 and 2
Facility Operating License Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 328

Subject: Response to Request for Additional Information Regarding American Society of Mechanical Engineers Request for Alternative 11-SPT-1 (TAC Nos. MF2327 and MF2328)

- References:
1. Letter from TVA to NRC, "American Society of Mechanical Engineers Request for Alternative 11-SPT-1," dated June 26, 2013 [ML13178A280]
 2. Electronic Mail from NRC to TVA, "Sequoyah, Units 1 and 2, Requests for Additional Information (RAIs) for Relief Request 11-SPT-1 (TAC No. MF2327 and MF2328)," dated August 26, 2013 [ML13238A394]

By letter dated June 26, 2013 (Reference 1), Tennessee Valley Authority (TVA) proposed an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," as applicable to Sequoyah Nuclear Plant (SQN), Units 1 and 2. Specifically, TVA submitted Request for Alternative (RFA) 11-SPT-1 for Nuclear Regulatory Commission (NRC) approval of a proposed alternative to the requirement of ASME Code, Section XI, Subparagraph IWB-5222(b) to extend the pressure boundary to all Class 1 pressure retaining components during the system leakage test conducted at or near the end of the current third 10-year inspection interval for SQN, Units 1 and 2.

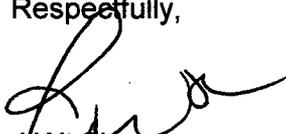
In the Reference 2 electronic mail (email) correspondence, dated August 26, 2013, the NRC transmitted a request for additional information (RAI) regarding RFA 11-SPT-1 for SQN, Units 1 and 2, and the proposed alternative for the pressure retaining boundaries during system leakage tests. The NRC requested that TVA provide the responses to the RAI questions within 30 days from the date of the email (i.e., by September 25, 2013).

U.S. Nuclear Regulatory Commission
Page 2
September 25, 2013

The enclosure to this letter contains TVA's responses to the Reference 2 RAI questions.

There are no new regulatory commitments contained in this letter. Please address any questions regarding this request to Clyde Mackaman at (423) 751-2834.

Respectfully,



J.W. Shea
Vice President, Nuclear Licensing

Enclosure:

Response to NRC Request for Additional Information (RAI)

cc (Enclosure):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Sequoyah Nuclear Plant

ENCLOSURE

**TENNESSEE VALLEY AUTHORITY (TVA)
SEQUOYAH NUCLEAR PLANT
UNITS 1 AND 2**

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION (RAI)

NRC Request

The NRC staff has reviewed RFA 11-SPT-1 and requests the following additional information.

NRC Questions

1. For justifications that the structural integrity or leak tightness of the subject components will be reasonably ensured without required extension in pressure retaining boundary during system leakage test, Section VI of RFA 11-SPT-1 states, in part,

“The proposed alternative testing methods would provide a level of assurance that the RCS pressure boundary is maintaining structural integrity at elevated pressure. Furthermore, the majority of welds encompassed by the boundaries described in Tables 1 through 4 falls into the population of welds that would be examined by the Risk Informed Inservice Inspection (RI-ISI) program. The RI-ISI program includes requirements for examinations that verify structural integrity of ASME Code Class 1 and 2 piping welds. During the 2nd and 3rd intervals at SQN, there have been 378 examinations performed on welds in the RI-ISI program, with no failures.”

- a. *Provide discussions on whether there has been any industry or plant specific operating experience regarding potential degradation of the welded connections in the subject piping and components due to known degradation mechanisms that would lead to leakage.*

TVA Response

NextEra Energy, Inc. conducted a survey of several nuclear facilities, including its Florida Power & Light Company affiliate St. Lucie and Turkey Point plants, and the NextEra Energy Point Beach plant, requesting information regarding known issues with stress corrosion cracking or fatigue in socket or butt welds in piping. The facilities responding indicated that they had not experienced any significant issues with these degradation mechanisms in similar piping configurations. TVA's Sequoyah Nuclear Plant (SQN) and Watts Bar Nuclear Plant participated in the survey (Reference: ADAMS Accession Number ML13192A326). As indicated in Section VI of Request for Alternative (RFA) 11-SPT-1, and referenced above, there have been 378 weld examinations performed in accordance with RI-ISI program requirements during the 2nd and 3rd intervals at SQN with no identified failures of welded connections (due to any degradation mechanisms) that would lead to leakage.

- b. *Identify which of the welds in Tables 1 through 4 that are included in the risk-informed inservice inspection program and which of those welds have been or will be examined in the current 10-year inspection interval.*

TVA Response

There are 1158 welds that are included in the SQN RI-ISI program for the piping segments described in Tables 1 through 4 of the RFA 11-SPT-1 submittal (Reference 1 of the cover letter for this submittal). See the following tabular breakdown of the RI-ISI program welds.

Affected Piping Segment Locations	Welds in SQN Unit 1	Welds in SQN Unit 2
Table 1: Safety Injection System (SIS)	351	334
Table 2: Chemical and Volume Control System (CVCS)	219	210
Table 3: Residual Heat Removal (RHR) System	11	11
Table 4: Reactor Coolant System (RCS)	11	11
Total Welds	592	566

SQN has examined a total of 164 RI-ISI program welds in Class 1 and Class 2 piping systems during the current 10-year inspection interval. An additional 46 RI-ISI program welds in Class 1 and Class 2 piping systems are scheduled to be examined by the end of the current 10-year inspection interval, for a total of 210 weld examinations. Of these 210 weld examinations, 55 are welds in the SIS, 51 are welds in the RCS, 19 are welds in the RHR System, and 15 are welds in the CVCS.

None of the weld examinations were performed or are scheduled to be performed on the piping segments in the RCS, RHR System, and CVCS described in Tables 2 through 4 of the RFA 11-SPT-1 submittal during the current 10-year inspection interval. For the piping segments in the SIS described in Table 1 of the RFA 11-SPT-1 submittal, seven welds have been examined and eight examinations performed (one weld was examined twice) in the current 10-year inspection interval, with two welds yet to be examined in the current inspection interval.

- c. *For the segments of piping for which relief is being requested, identify any pressure boundary leakage regardless of how it was identified (e.g. from the ASME Code, Section XI, Table IWB-2500-1, Category B-P pressure testing requirements, boric acid corrosion control program walkdowns, reactor restart walkdowns, etc.) during the current 10-year inservice inspection interval.*

TVA Response

A review of leaks identified under the SQN Corrective Action Program and boric acid leaks identified under the Boric Acid Corrosion Control Program was performed covering the current 10-year inservice inspection interval. Occurrences of identified pressure boundary leakage in the American Society of Mechanical Engineers (ASME) Code Class 1 piping of the piping segments described in Tables 1 through 4 of the RFA 11-SPT-1 submittal would have been identified and documented under at least one of these two programs. Based on the results of the review, no pressure boundary leaks were identified to have occurred during the current 10-year inspection interval that involved the piping segments described in Tables 1 through 4 of the RFA 11-SPT-1 submittal.