Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

February 19, 2010

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

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

Subject: **Nine-Month Supplemental Response to NRC Generic Letter 2008-01: Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems**

References:
1. NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," dated January 11, 2008
2. TVA letter to NRC, "Initial Response to NRC Generic Letter 2008-01: Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," dated May 9, 2008
3. TVA letter to NRC, "Revised Initial Response to NRC Generic Letter 2008-01: Managing Gas Accumulation Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," dated June 6, 2008
4. TVA letter to NRC, "Revised Commitment for NRC Generic Letter 2008-01: Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," dated July 11, 2008
5. TVA letter to NRC, "Nine-Month Response to NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," dated October 11, 2008
6. Letter from NRC to TVA, "Sequoyah Nuclear Plant, Units1 and 2 – Generic Letter 2008-01, 'Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems,' Proposed Alternative Course of Action (TAC Nos. MD7879 and D7880)," dated July 23, 2008

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The purpose of this letter is to provide the Tennessee Valley Authority's (TVA's) nine-month supplemental (post-outage) response to NRC Generic Letter (GL) 2008-01 (Reference 1), for Sequoyah Nuclear Plant (SQN), Unit 2. TVA's initial responses and the "Nine-Month" response were provided in References 2, 3, 4, and 5 above. NRC acceptance review of the June 6, 2008, "Revised Initial Response," is provided in Reference 6.

The NRC issued GL 2008-01 to request that each licensee evaluate the licensing basis, design, testing, and corrective actions for the emergency core cooling, decay heat removal, and containment spray systems to ensure that gas accumulation is maintained less than the amount that challenges operability of these systems, and that appropriate action is taken when conditions adverse to quality are identified.

This supplemental response is being submitted within 90 days of start-up from the outage in which the deferred actions were completed (SQN, Unit 2 Refueling Outage 16). Start-up from Refueling Outage 16 occurred on November 24, 2009. GL 2008-01 response activities that remain to be accomplished, such as the long-term items identified in Reference 6, are considered to be confirmatory.

TVA concludes that the subject SQN Unit 2 systems are operable and that Unit 2 is currently in compliance with the licensing basis documentation and applicable regulations, including 10 CFR 50 Appendix B, "Quality Assurance Criteria for Nuclear Plants and Fuel Reprocessing Plants," Criteria III, V, XI, XVI, and XVII, with respect to the concerns outlined in GL 2008-01 regarding managing gas accumulation in these systems.

There are no new regulatory commitments contained in this letter.

If you have any questions about this response, please contact Beth A. Wetzel at (423) 843-7170.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on the 19th day of February, 2010.

Respectfully,

R. M. Krich
Vice President
Nuclear Licensing

Enclosure
Nine-Month Supplemental (Post-Outage) Response to Nuclear Regulatory Commission (NRC) Generic Letter 2008-01

cc: (See page 3)

Enclosure
cc (Enclosure):

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

ENCLOSURE

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN) UNIT 2

NINE-MONTH SUPPLEMENTAL (POST-OUTAGE) RESPONSE TO NUCLEAR REGULATORY COMMISSION (NRC) GENERIC LETTER 2008-01

ENCLOSURE

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN) UNIT 2

NINE-MONTH SUPPLEMENTAL (POST-OUTAGE) RESPONSE TO NUCLEAR REGULATORY COMMISSION (NRC) GENERIC LETTER 2008-01

This enclosure provides the Nine-Month Supplemental (Post Outage) Response to Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," (Reference 1) for actions that were deferred until the next refueling outage as requested by the NRC.

The following information is provided in this enclosure.

a) A description of the results of evaluations that were performed pursuant to GL 2008-01 on the previously incomplete activities, such as system piping walkdowns at SQN, Unit 2 (see Section A of this enclosure).

b) A description of any additional corrective actions determined necessary to assure system operability and compliance with the quality assurance criteria in Sections III, V, XI, XVI, and XVII of Appendix B to 10 CFR Part 50, the licensing basis, and operating license with respect to the subject systems, including a schedule and a basis for that schedule (see Section B1 of this enclosure).

c) A summary of any changes or updates to previous corrective actions, including any schedule change and the basis for the change (see Section B2 of this enclosure).

The original conclusions documented in the nine-month response (Reference 5) with respect to the licensing basis evaluation, testing evaluations, and corrective action evaluations have not changed. This supplement will only discuss the results of design evaluation reviews conducted during the recent refueling outage associated with previously uncompleted activities.

A. EVALUATION RESULTS

1. Design Basis Documents

As discussed in TVA's nine-month response to GL 2008-01 (Reference 5), the SQN, Unit 2 design basis has been reviewed with respect to gas accumulation in the safety injection system (SIS), and residual heat removal system (RHRS). There were no issues or actions identified from this previous design basis document review that require a refueling outage to investigate or complete. There have been no changes to design basis documents with respect to gas accumulation since TVA's nine-month response to GL 2008-01. There have been no changes to the void acceptance criteria given in TVA's nine-month response to GL 2008-01.

2. Confirmatory Walkdowns

In accordance with the requirements of GL 2008-01, measurements have been performed of the nominally horizontal piping in the emergency core cooling systems for the piping inside Unit 2 containment. The measurements determined the slope of the installed piping. The survey team ensured that the general piping configuration agreed with the design drawings. No discrepancies in piping configuration were identified.

The surveys were performed by TVA engineering personnel. The walkdown data was evaluated for the purpose of determining the volume of potential gas voids that might exist because of slope or bow in the piping. Piping features such as elbows, tees, reducers, orifice plates, flow restrictors, valves, etc., were included in the evaluation. The SIS and RHRS cold leg injection piping inside containment were surveyed up to the secondary reactor coolant system (RCS) check valves.

The survey results are summarized as follows:

Unit 2A RHRS Pump Cold Leg Injection

A total potential void volume of 1.09 cubic feet exists. Most of this volume, 0.67 cubic feet, is in two high spots in the No. 1 fan room.

Unit 2B RHRS Pump Cold Leg Injection

A total potential void volume of 0.79 cubic feet exists. A potential void of 0.42 cubic feet exists in three high points in the No. 4 accumulator room.

The total potential gas accumulation identified for the RHRS cold leg injection piping inside containment is 1.88 cubic feet. The piping surveys performed outside of containment determined the total potential void size of the RHRS piping outside of containment to be 5.5 cubic feet. Therefore, the total void potential identified is 7.38 cubic feet. The total potential void volume is less than the established acceptance criteria of 22 cubic feet of voiding in the RHRS discharge piping.

Unit 2 SIS

A total potential void volume of 1.31 cubic feet exists in the SIS cold leg discharge piping inside containment. The piping surveys determined the potential void size of the SIS piping outside of containment to be 1.42 cubic feet. Therefore, the total void potential identified is 2.73 cubic feet. The total potential void volume is less than the established acceptance criteria of 16 cubic feet of voiding in the SIS discharge piping.

Unit 2 SIS - Cold Leg Accumulator Tanks To RCS Loops

Walkdowns of the cold leg accumulator tanks to reactor coolant loops piping were not performed. The associated piping only contains check valves and there are no pumps required for operation. The cold leg accumulators consist

of tanks filled with borated water with a nominal cover gas pressure of 600 pounds per square inch gauge (psig). The gas pressure is such that should a loss of coolant accident occur and the RCS pressure reduce to below 600 psig, the check valves in the line would open and allow flow into the RCS. A water hammer is not credible since the pressure on both sides of the check valve would be essentially equal just prior to the cold leg accumulator injection.

3. Vent Valves

The survey of the emergency core cooling system (ECCS) and RHRS discharge piping in containment, and the subsequent evaluation of this survey data, confirmed that existing vents are adequate for ensuring this discharge piping is sufficiently full of water. Use of the existing vent valves during system fill and periodic venting, ensures that voiding in this discharge piping is maintained less than the amount that challenges the capability of the ECCS and RHRS to mitigate design basis accidents (DBAs) and maintain safe shutdown (SSD). Therefore, no additional vent valves are required to be added to this discharge piping and no changes to the utilization of existing vent valves is required.

4. Procedures

The survey of the ECCS and RHRS discharge piping in containment and the subsequent evaluation of this survey data did not identify the need to revise fill and vent procedures or periodic venting procedures. Use of the existing fill and vent procedures or periodic venting procedures ensures that voiding in this discharge piping is maintained less than the amount that challenges the capability of the ECCS and RHRS to mitigate DBAs and maintain SSD.

B. DESCRIPTION OF NECESSARY ADDITIONAL CORRECTIVE ACTIONS

1. Additional Corrective Actions

The survey of the SIS and RHRS discharge piping in containment, and the subsequent evaluation of this survey data, did not identify any conditions that require corrective actions to ensure that voiding in the discharge piping is maintained less than the amount that challenges the capability of the SIS and RHRS to mitigate DBAs and maintain SSD.

2. Corrective Action Updates

The following table from TVA's nine-month response to GL 2008-01 (Reference 5) has been updated to show the status of the SQN corrective actions:

Item Description	Date
1. TVA will evaluate adopting the revised Improved Standard Technical Specification (ISTS) Surveillance Requirement (SR) 3.5.2.3 (NUREG-1431) at SQN.	Within 6 months of NRC approval of the Traveler
2. The design change review checklist is revised to include an explicit item to determine if the design change introduces or increases the potential for gas accumulation beyond established acceptance criteria.	Complete
3. ~~The ECCS, DHR System, and Containment Spray System operating procedures are being revised to require UT inspection or dynamic venting of locations that could contain a significant void should this pipe be drained.~~	Deleted
4. Periodic venting procedures used to meet SR 3.5.2.3 are being revised to require that, for an extended gas release, a report is entered into the Corrective Action Program.	Complete

Corrective Action Item 3 (above) is deleted since the need to revise the SIS and RHRS operating procedures to add dynamic venting and ultrasonic test (UT) examination requirements have been determined to be unnecessary. This determination is based on the evaluations performed for GL 2008-01, which found that due to their configuration, the SIS and RHRS suction piping is self-venting so dynamic venting, additional vent valves, or UT examination is not necessary to ensure the suction piping of these systems is adequately filled.

CONCLUSION

TVA has evaluated the previously unevaluated portions of the applicable systems at SQN, Unit 2 that perform the functions described in GL 2008-01 and has concluded that these systems are operable as defined in the SQN, Unit 2 technical specifications and are in conformance with the applicable General Design Criteria, as stated in the Updated Final Safety Analysis Report.