November 25, 2008

Mr. William R. Campbell, Jr.
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 — REQUEST FOR ADDITIONAL INFORMATION REGARDING GENERIC LETTER 2004-02, "POTENTIAL IMPACT OF DEBRIS BLOCKAGE DURING DESIGN BASIS ACCIDENTS AT PRESSURIZED-WATER REACTORS" (TAC NOS. MC4717 AND MC4718)

By letter dated February 29, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML080640205), Tennessee Valley Authority (the licensee) submitted a supplemental response to Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors," for the Sequoyah Nuclear Plant, Units 1 and 2 (Sequoyah).

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's submittals. The process involved detailed review by a team of approximately 10 subject matter experts, with a focus on the review areas described in the NRC's "Revised Content Guide for Generic Letter 2004-02 Supplemental Responses" (ADAMS Accession No. ML073110389). Based on these reviews, the staff has determined that additional information is needed in order to conclude there is reasonable assurance that GL 2004-02 has been satisfactorily addressed for Sequoyah. The enclosed document describes these requests for additional information (RAIs).

The NRC requests that the licensee respond to these RAIs within 90 days of the date of this letter. However, the NRC would like to receive only one response letter for all RAIs with exceptions stated below. If the licensee concludes that more than 90 days are required to respond to the RAIs, the licensee should request additional time, including a basis for why the extension is needed.

If the licensee concludes, based on its review of the RAIs, that additional corrective actions are needed for GL 2004-02, the licensee should request additional time to complete such corrective actions as needed. Criteria for such extension requests are contained in the NRC policy issue paper, SECY-06-0078, *Status of Resolution of GSI [Generic Safety Issue]-191, "Assessment of Debris Accumulation on Pressurized-Water Reactor Sump Performance,"* (ADAMS Accession No. ML053620174), and examples of previous requests and approvals can be found on the NRC's sump performance website, located at: http://www.nrc.gov/reactors/operating/ops-experience/pwr-sump-performance.html.

Any extension request should also include results of contingency planning that will result in near-term identification and implementation of any and all modifications needed to fully address GL 2004-02. The NRC strongly suggests that the licensee discuss such plans with the staff before formally transmitting an extension request.

The exception to the above response timeline is RAI 7 in the enclosure. The NRC staff considers in-vessel downstream effects to not be fully addressed at Sequoyah, as well as at other pressurized-water reactors. The licensee's submittal refers to the draft Westinghouse topical report, WCAP-16793-NP, "Evaluation of Long-Term Cooling Considering Particulate, Fibrous, and Chemical Debris in the Recirculating Fluid." At this time, the NRC staff has not issued a final safety evaluation (SE) for WCAP-16793-NP.

The licensee may demonstrate that in-vessel downstream effects issues are resolved for Sequoyah, by showing that the licensee's plant conditions are bounded by the final WCAP-16793-NP and the corresponding final NRC staff SE, and by addressing the conditions and limitations in the final SE. The licensee may also resolve RAI 7 by demonstrating, without reference to WCAP-16793-NP or the NRC staff SE, that in-vessel downstream effects have been addressed at Sequoyah. The specific issues raised in RAI 7 should be addressed regardless of the approach the licensee chooses to take.

The licensee should report how it has addressed the in-vessel downstream effects issue and the associated RAI referenced above within 90 days of issuance of the final NRC staff SE on WCAP-16793-NP. The NRC staff is currently developing a regulatory issue summary to inform licensees of the staff's expectations and plans regarding resolution of this remaining aspect of GSI-191.

If you have any questions, please contact me at 301-415-3974.

Sincerely,

/RA/

Brendan T. Moroney, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

Enclosure: Request for Additional Information

cc w/encl: Distribution via Listserv

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RidsRgn2MailCenter
RidsNrrDssSsib
RidsNrrDeEmcb
RidsNrrDciCsgb

ADAMS Accession No.: ML083230823

OFFICE	LPLII-2/PM	LPLII-2/PM	LPLII-2/LA	DSS/SSIB/BC (A)
NAME	TOrf	BMoroney	CSola	DHarrison
DATE	11/20/08	11/20/08	11/20/08	11/20/08
OFFICE	DE/EMCB/BC	DCI/CSGB/BC	LPLII-2/BC	
NAME	KManoly	AHiser	TBoyce	
DATE	11/19/08	11/20/08	11/25/08	

OFFICIAL RECORD COPY

REQUEST FOR ADDITIONAL INFORMATION

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

SUPPLEMENTAL RESPONSE DATED 02/29/2008 TO GENERIC LETTER (GL) 2004-02

1. Provide the test protocol used for head loss testing and a justification that shows the following aspects of the testing were conservative or prototypical:

   A. Addition of debris to the test flume prior to the starting of the recirculation pump.

   B. Concentration of debris in the test flume with respect to agglomeration and settling.

   C. The fibrous debris preparation and introduction with respect to prototypical sizing (transport and bed formation).

   D. Flume velocity and turbulence.

   E. Any near-field settling that occurred during the test.

   F. Test scaling including debris amounts and strainer flow velocity.

   G. How partial submergence of the strainer affects the scaling of flow and debris amounts.

2. Provide information that shows the applicability of the Performance Contracting Inc., clean strainer head loss correlation to pressurized-water reactor (PWR) strainers.

3. Clearly state the design inputs for the head loss testing and calculation and provide the basis for these inputs.

4. Provide the basis for the statement that a thin bed (1/8) inch of fiber cannot form on the strainer considering the design basis loading (200 pound latent debris) and design basis strainer size (1000 square feet).

5. Provide an evaluation of the performance of the strainer under partially submerged conditions.

6. Provide an evaluation that shows that flashing across or within the strainer will not occur.

7. The NRC staff considers in-vessel downstream effects to not be fully addressed at Sequoyah Nuclear Plant (SQN), as well as at other PWRs. The licensee's submittal for SQN refers to the draft Westinghouse topical report, WCAP-16793-NP. The NRC staff has not issued a final safety evaluation (SE) for WCAP-16793-NP. The licensee may demonstrate that in-vessel downstream effects issues are resolved for SQN by showing that

the plant conditions are bounded by the final WCAP-16793-NP and the corresponding final NRC staff SE, and by addressing the conditions and limitations in the final SE. The licensee may also resolve this item by demonstrating without reference to WCAP-16793-NP or the staff SE that in-vessel downstream effects have been addressed at SQN. In any event, the licensee should report how it has addressed the in-vessel downstream effects issue within 90 days of issuance of the final NRC staff SE on WCAP-16793-NP. The NRC staff is developing a regulatory issue summary to inform the industry of the staff's expectations and plans regarding resolution of this remaining aspect of NRC's GSI-191.

8. The 2004 Edition of the American Society of Mechanical Engineers (ASME) Code is not currently endorsed by the *Code of Federal Regulations*. Please provide justification and/or re-evaluation for discrepancies, if any, between the applicable portions of the 2004 Edition of the ASME Code that were used in the sump structural analysis and the respective Code Editions that are currently endorsed by the NRC in Title 10 of the *Code of Federal Regulations*, Section 50.55a, "Codes and standards."