UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 31, 2012

Mr. Joseph W. Shea
Manager, Corporate Nuclear Licensing
Tennessee Valley Authority
3R Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 – REQUEST FOR ADDITIONAL INFORMATION REGARDING USE OF THE UNIT STATION SERVICE TRANSFORMERS AS A POWER SUPPLY TO AN OFFSITE CIRCUIT (TAC NOS. ME8772 AND ME8773)

Dear Mr. Shea:

By letter dated May 23, 2012, you submitted an application for license amendment to revise the Sequoyah Nuclear Plant, Units 1 and 2 Technical Specifications 3/4.8.1 to include a surveillance requirement to demonstrate the required offsite circuits OPERABLE at least once per 18 months by manually and automatically transferring the power supply to a 6.9 kilovolts unit board from the normal supply to the alternate supply. This change is necessary as a result of the planned modifications to the plant design and operating configuration that will allow use of the unit station service transformers as a power supply to an offsite circuit.

The U.S. Nuclear Regulatory Commission staff is reviewing the submittal and has determined that additional information is required to complete its evaluation. This request was discussed with Mr. Clyde Mackaman of your staff on July 19, 2012, and it was agreed that a response would be provided within 30 days from the date of this letter.

If you have any questions regarding this matter, I can be reached at 301-415-1564.

Sincerely,

Siva P. Lingam

Siva P. Lingam, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-327 and 50-328

Enclosure: Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

REGARDING TECHNICAL SPECIFICATION CHANGES

TO ALLOW USE OF THE UNIT STATION SERVICE TRANSFORMERS

AS A POWER SUPPLY TO AN OFFSITE CIRCUIT

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

By letter dated May 23, 2012 (Agencywide Documents Access and Management System Accession No. ML12146A385), the Tennessee Valley Authority (the licensee or TVA), submitted a license amendment request (LAR) to revise the Sequoyah Nuclear Plant (SQN), Units 1 and 2, Technical Specifications (TS) 3/4.8.1 to include a surveillance requirement to demonstrate the required offsite circuits OPERABLE at least once per 18 months by manually and automatically transferring the power supply to a 6.9 kilovolts (kV) unit board from the normal supply to the alternate supply. This change is necessary as a result of the planned modifications to the plant design and operating configuration that will allow use of the unit station service transformers (USSTs) as a power supply to an offsite circuit. In order to complete its review of the above documents, the Nuclear Regulatory Commission (NRC) staff needs the following additional information:

1. The LAR states that the implementation of the Unit 2 USST modifications will enable the output of USST 2A to be aligned as the normal power supply to 6.9 kV Shutdown Board 2A-A via Unit Board 2B, and the output of USST 2B to be aligned as the normal power supply to 6.9 kV Shutdown Board 2B-B via Unit Board 2C, beginning with plant startup following the SQN Unit 2 refueling outage in the fall of 2012. Similarly, it states that implementation of the Unit 1 USST modifications will enable the output of USST 1A to be aligned as the normal power supply to 6.9 kV Shutdown Board 1A-A via Unit Board 1B, and the output of USST 1 B to be aligned as the normal power supply to 6.9 kV Shutdown Board 1 B-B via Unit Board 1C, beginning with plant startup following the SQN Unit 1 refueling outage in the fall of 2013.

   Provide the following:

   a. Summary of the analysis that concluded that the voltage requirements to the plant safety system buses and components are not affected by the proposed modifications.

   b. Summary of the transmission system study, including grid stability analysis performed by TVA, to determine if the SQN offsite power systems (161 kV and 500 kV) are adequate to meet General Design Criterion 17 requirements.

   c. The short circuit current ratings of the plant auxiliary electrical system breakers and buses that support the proposed modifications.

Enclosure

d. The failure modes of USST load tap changers on the Class 1E buses and equipment.

e. Verify that the capacities of USSTs are adequate for normal, anticipated operational occurrence, and accident loads.

2. The LAR states the proposed USST modifications will include installation of generator circuit breakers (GCBs) in the isolated phase bus between the generator and main bank transformer.

   Provide a detailed summary of the evaluation that shows that the new GCB ratings and capabilities are consistent with the conditions as defined in Institute of Electrical and Electronics Engineers Standard C37.013 and meet the performance tests and capabilities as stated in NUREG-0800, Section 8.2, Appendix A.

3. The LAR states that offsite power will normally be supplied from the USSTs to the 6.9 kV Unit Boards, and will automatically transfer to the alternate power supply to at least one circuit from the common station service transformers on a trip of the power circuit breakers (PCBs). The transfer occurs upon receipt of a PCB trip signal, whereby the Unit Board normal supply breaker opens and the alternate supply breaker closes.

   Provide a summary of the bus transfer study to determine the safety buses and loads will not be adversely affected by the transfer (design limits of equipment are not exceeded) including a single failure of bus transfer scheme or a worst-case failure of components in the plant auxiliary system.

4. The requirements for offsite alternating current (AC) power sources are specified in TS 3/4.8.1, "AC Sources, Operating." The Limiting Condition for Operation 3.8.1.1.a requires two physically independent circuits between the offsite transmission network and the onsite Class 1 E distribution system to be OPERABLE in MODES 1, 2, 3, and 4. The current TS 3.8.1.1.a is not clear regarding which independent power sources are required to maintain the two required OPERABLE power sources to the required onsite Class 1 E distribution system until the Unit 1 USST modifications are completed. The NRC staff requests the licensee to propose a license condition to establish this requirement.

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