Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37384-2000

September 17, 2007

10 CFR 50.90

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

Gentlemen:

In the Matter of) Docket No. 50-328
Tennessee Valley Authority)

SEQUOYAH NUCLEAR PLANT (SQN) - UNIT 2 - EXIGENT TECHNICAL SPECIFICATION (TS) CHANGE 07-06, CONTAINMENT PURGE AND VENT SYSTEM OPERATION

In accordance with the provisions of 10 CFR 50.90, TVA is submitting a request for an amendment to SQN license DPR-79 for Unit 2. The proposed change is a one-time extension to the number of hours allowed for containment purge and vent operation. SQN TS Limiting Condition for Operation 3.6.1.9, "Containment Ventilation System," provides the requirements for SQN's containment ventilation system operation. The time for purge supply and exhaust valves to be open for either purging or venting is limited to less than or equal to 1000 hours per 365 days (beginning January 1st). In calendar year 2007, SQN Unit 2 experienced the need for increased containment purge and ventilation operation. This increase is attributed to increased concentrations of gaseous formaldehyde inside containment. For the purpose of maintaining air quality inside containment for personnel safety during containment entry, additional purge time is necessary for calendar year 2007.

A034

NRR

TVA estimates that Unit 2 will exceed 1000 hours of purge/vent system operation for the 2007 calendar year around October 15, 2007. For these reasons, TVA is requesting an additional 400 hours of purge/ventilation operation time be added to the 1000-hour limit.

The proposed change will ensure the air quality inside containment for conducting required maintenance and surveillance activities, while maintaining unit operation.

The isolation capability of SQN's purge valves for design basis accident mitigation (i.e., Emergency Core Cooling System [ECCS] performance and 10 CFR 100 offsite dose limits) remains unchanged. In addition, the SQN Unit 2 effluent release history from purge/vent operation, along with the design and isolation features of purge valves, provide assurance that with the proposed change, the plant will continue to operate well within 10 CFR 20 limits. Accordingly, for these reasons, TVA considers the proposed change to be acceptable for continued safe operation.

Because current projections indicate that SQN Unit 2 purge and vent operation is expected to exceed the 1000-hour limit around October 15, 2007, TVA requests prompt review and approval for the proposed one-time TS change before October 12, 2007. TVA intends to pursue a permanent change to TS 3.6.1.9 in the near future.

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). The SQN Plant Operations Review Committee and the Nuclear Safety Review Board have reviewed this proposed change and determined that operation of SQN Unit 2 in accordance with the proposed change will not endanger the health and safety of the public. Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Tennessee State Department of Public Health.

There are no regulatory commitments in this submittal. If you have any questions about this change, please contact me at (423) 843-7170.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 17th day of September, 2007.

Sincerely,

Glenn W. Morris

Glenn W. Morris
Manager, Site Licensing and
Industry Affairs

Enclosures:
1. TVA Evaluation of the Proposed Changes
2. Proposed Technical Specifications Changes (mark-up)

Enclosures
cc (Enclosures):
Mr. Brendan T. Moroney, Senior Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop 08G-9a
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2739

Mr. Lawrence E. Nanney, Director
Division of Radiological Health
Third Floor
L&C Annex
401 Church Street
Nashville, Tennessee 37243-1532

ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY (TVA)
SEQUOYAH NUCLEAR PLANT (SQN)
UNIT 2
DOCKET NO. 50-328

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE TSC 07-06
DESCRIPTION AND EVALUATION OF THE PROPOSED CHANGE

1.0 SUMMARY DESCRIPTION

TVA proposes a one-time change to TS Limiting Condition for Operation (LCO) 3.6.1.9, "Containment Ventilation System," to allow for an increase to the current 1000-hour limit for operation of the containment ventilation system with purge isolation valves open.

SQN LCO 3.6.1.9 currently states in part:

> "Operation with purge supply or exhaust isolation valves open for either purging or venting shall be limited to less than or equal to 1000 hours per 365 days. The 365 day cumulative time period will begin every January 1."

TVA's proposed change provides a footnote to the 1000-hour limit that reads; "400 additional hours is allowed for calendar year 2007 for operation of the containment ventilation system with purge isolation valves open."

2.0 DETAILED DESCRIPTION

TVA's proposed change to LCO 3.6.1.9 provides a one-time increase in the current TS purge limit of 1000 hours per 365 days. The increase would add 400 hours to the current limit and would be effective for the remainder of calendar year 2007. The proposed increase is necessary to allow additional purge system operation time for the purpose of maintaining safe concentration levels of gaseous formaldehyde inside containment for personnel entry to perform maintenance and surveillance activities during operation.

Routine entries into containment to perform surveillance and maintenance activities require additional purge system operation to reduce the level of gaseous formaldehyde prior to entry. Based on the current rate of purge system

operation for these activities, TVA is projecting 1000 hours to be exceeded around October 15, 2007. TVA projects the purge and vent operation time estimates for the remainder of calendar year 2007 to be slightly greater than a total of 1200 hours. Therefore, TVA is requesting a one-time change to increase the purge system operation limit from 1000 hours to 1400 hours for calendar year 2007, which includes a contingency of a little less than 200 hours to account for any unexpected changes in formaldehyde levels. TVA's request for an additional 400 hours will preclude TS action requirements that include unit shutdown.

Currently, SQN has installed a High-Efficiency Particulate Air (HEPA) and charcoal filter bank in upper containment to aid in the removal of formaldehyde gas. This has been effective in reducing the overall concentration of formaldehyde inside containment. TVA has evaluated the concentration of formaldehyde released to the environment and determined that with the addition of 400 hours, concentrations released to the environment remain well below environmental notification limits as provided in the Comprehensive Environmental Response, Compensation, Liability Act (100 pounds in a 24-hour period).

It should be noted that TVA is planning activities for the Unit 2 Cycle 15 refueling outage (Spring 2008) to identify and repair formaldehyde sources. Although the specific cause for the increased levels of formaldehyde cannot be fully determined at this time, TVA is conducting an investigation to determine the source(s). TVA believes the potential sources of formaldehyde formation to be glycol, reactor coolant pump oil, or snubber oil. It is noted that the low formaldehyde concentration (less than 10 parts per million) inside containment has not affected plant equipment or resulted in any observable equipment corrosion.

SQN began full power operation in September 1980 for Unit 1 and in September 1981 for Unit 2. At that time, SQN TSs limited purge and ventilation system operation to 90 hours per calendar year. During the first year of operation, the 90-hour time limit was determined to place unnecessary restrictions on the plant's capacity factor. Subsequently, TVA evaluated plant design features, surveillance programs, and participated in in-situ testing of containment purge valves (valves similar in design to the SQN purge valves) at D.C. Cook Nuclear plant. This information provided the basis for a license amendment that supported increasing SQN's purge operation time limit to 1000 hours per calendar year. The amendment was

approved for Unit 1 first under NRC letter dated April 15, 1981. Unit 2 was approved by separate letter dated December 23, 1982.

The basis for SQN's 1000-hour limit is discussed in the staff's April 15, 1981 letter, approving the license amendment. The 1000-hour limit is based on the reliability of SQN's purge valves as it conforms to the provisions of Branch Technical Position CSB 6-4, "Containment Purging during Normal Plant Operations." That is, the valves satisfy certain operability criteria and the associated dose criteria. The staff stated in the safety evaluation that at least 1000 hours per year is justified for purging and venting operation in order to:

a) Limit for safety reasons, pressure buildup in containment during normal operations; and

b) Promote as low as reasonably achievable exposure from airborne radioactivity to personnel entering containment during normal operation to perform safety-related maintenance and surveillance.

In addition, the staff stated in the safety evaluation the 1000 hours per year did not result in a significant environmental impact.

SQN's operating experience shows that purge operation time for a calendar year typically remains well below the 1000-hour TS limit. However, Unit 2 experienced an increase in the purge/ventilation system operation time for calendar year 2007 following its return to full power after the Cycle 14 refueling outage. The increased purge and vent operation is necessary to reduce concentrations of gaseous formaldehyde inside containment prior to personnel entry and for continued pressure control inside the containment building. Current projections indicate that Unit 2 will exceed the TS limit of 1000 hours of purge/ventilation system operation for the 2007 calendar year around October 15, 2007. Compliance with the TS limit of 1000 hours may result in an unnecessary unit shutdown. Venting and purging of the containment building continues to be necessary to reduce the concentration of formaldehyde to allow required containment entry. For this reason, TVA is requesting an additional 400 hours of purge/ventilation operation time be added to the 1000-hour limit to allow continued safe operation of the plant for calendar year 2007.

3.0 TECHNICAL EVALUATION

SQN's 1000-hour purge time limit is based on the qualification of SQN's purge valves and their reliability to close under accident conditions as required by Branch Technical Position Containment System Branch (CSB) 6-4, "Containment Purging during Normal Plant Operations."

Following issuance of SQN's full power license in the early 1980s, SQN's containment ventilation system and purge valves were upgraded and further qualified to conform with NUREG-0737, "Section II.E.4.2 for Containment Isolation Dependability." Plant modifications were performed to install stops on the purge valves that limited valve opening to 50 degrees open. This modification, and the addition of debris screens in conjunction with testing and analysis, provided assurance that the valves would close when required under design basis accident conditions, and fully addressed the NRC concern related to purge valve reliability.

A full discussion of SQN's Reactor Building Purge Ventilation System and its design features are provided in Section 9.4.7 of SQN's Updated Final Safety Analysis Report.

SQN's Offsite Dose Calculation Manual (ODCM) contains the 10 CFR 20 limits that are associated with allowable gaseous effluent releases from the plant. SQN's gaseous release history has been well below the limits of 10 CFR 20. Last year's 2006 effluent release report shows that the total activity levels for gaseous effluent releases were less than one percent of the 10 CFR 20 limits. TVA has evaluated the proposed increase in purge operation of 400 hours and has determined that under expected effluent release levels, the activity should also remain below one percent of the 10 CFR 20 limits for 2007.

TVA's proposed change does not require a physical change to the plant. The purge valve actuation isolation times remain unchanged. Accordingly, the site boundary dose limits of 10 CFR 100 will not be exceeded in the event of an accident during containment purge operations.

Based on the above discussion, TVA's proposed one-time change to extend purge and ventilation system operation time by 400 hours for the 2007 calendar year will not be a significant departure from current requirements. Existing operational and design basis accident analysis margins continue to ensure that safe operation of the plant over the remainder of calendar year 2007 would not be compromised.

4.0 REGULATORY EVALUATION

TVA proposes a one-time modification to the SQN Unit 2 TS to revise LCO 3.6.9.1 to allow for a one-time increase in the 1000-hour limit for containment purge system operation. The cumulative 1000-hour limit is based on a calendar year time clock that begins January 1. For the calendar year 2007, SQN Unit 2 has experienced an increase in the containment purge system operation because of gaseous formaldehyde buildup inside containment. TVA is requesting an additional 400 hours of purge operation time be added to the 1000-hour limit for calendar year 2007. This would allow continued safe operation of SQN Unit 2 through the end of calendar year 2007.

TVA has concluded that operation of SQN Unit 2 in accordance with the proposed one-time change to the TSs does not involve a significant hazards consideration. TVA's conclusion is based on its evaluation, in accordance with 10 CFR 50.91(a)(1), of the three standards set forth in 10 CFR 50.92(c).

4.1 Applicable Regulatory Requirements/Criteria

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The Commission's regulatory requirements related to the content of the TS are contained in Title 10, Code of Federal Regulations (10 CFR), Section 50.36. The TS requirements in 10 CFR 50.36 include the following categories: (1) safety limits, limiting safety systems settings and control settings, (2) limiting conditions for operation, (3) surveillance requirements (SRs), (4) design features, and (5) administrative controls. Regulatory requirements associated with SQN's containment purge and ventilation system are based on Branch Technical Position CSB 6-4, "Containment Purging during Normal Plant Operations," and NUREG-0737. The Sequoyah air cleanup equipment is designed in accordance with accepted engineered safety feature design practices and is in general agreement with Regulatory Guide 1.140.

As stated in 10 CFR 50.59(c)(1)(i), a licensee is required to submit a license amendment pursuant to 10 CFR 50.90 if a change to the TS is required. Furthermore, the requirements of 10 CFR 50.59 necessitate that U.S. Nuclear Regulatory Commission (NRC) approve the TS changes before the changes are implemented. TVA's submittal meets the requirements of 10 CFR 50.59(c)(1)(i) and 10 CFR 50.90.

4.2 Precedent

TVA's proposed change is similar in nature to previous license amendments that were approved for San Onofre Nuclear Generating Station (Unit 3) and the Donald C. Cook Nuclear Plant (Units 1 and 2) by NRC letters dated March 13, 1994 and June 23, 1995, respectively. The license amendments for San Onofre and Cook modified the containment ventilation TS to allow increased purge operation for respirable air quality considerations and for plant personnel exposure considerations.

4.3 Significant Hazards Consideration

1. The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

   TVA's proposed change is not considered to be a significant departure from the current requirements. The containment purge and ventilation system is qualified and designed to isolate in the event of a design basis accident. The probability of occurrence of an accident is not increased as the increase in purge/ventilation system operation does not affect the system's capability for purge valve closure or containment isolation. The increase in system operation for the remainder of calendar year 2007 would continue to be governed by the limits of 10 CFR 20. In addition, purge system isolation capability remains unchanged. Consequently, the 10 CFR 100 limits for site boundary dose would not be exceeded in the event of an accident during containment purge operation. Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

   The possibility for a new or different kind of accident from any accident previously evaluated does not exist as a result of the proposed increase in purge/ventilation system operation time. The system design remains unchanged for performing isolation of containment for accident

mitigation and does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed amendment does not involve a significant reduction in a margin of safety.

   The proposed increase in purge system operation is an increase that does not affect existing safety margins. Additional purge operation time will also continue to comply with effluent release limits in 10 CFR 20. In addition, the proposed change does not increase the risk for an accident because no physical changes to the plant are being made and design features associated with purge system isolation remain unchanged. Accordingly, TVA concludes that the margin of safety has not been reduced.

4.4 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

The proposed change does not involve a significant hazards consideration, a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite, or a significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b) and TVA's environmental review process, an environmental assessment of the proposed change is not required.

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN)
UNIT 2

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE 07-06
MARKED PAGES

I. **AFFECTED PAGE LIST**

3/4 6-15

II. **MARKED PAGES**

See attached.

CONTAINMENT SYSTEMS

CONTAINMENT VENTILATION SYSTEM ##

LIMITING CONDITION FOR OPERATION

3.6.1.9 One pair (one purge supply line and one purge exhaust line) of containment purge system lines may be open; the containment purge supply and exhaust isolation valves in all other containment purge lines shall be closed. Operation with purge supply or exhaust isolation valves open for either purging or venting shall be limited to less than or equal to 1000 hours per 365 days. The 365 day cumulative time period will begin every January 1.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With a purge supply or exhaust isolation valve open in excess of the above cumulative limit, or with more than one pair of containment purge system lines open, close the isolation valve(s) in the purge line(s) within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With a containment purge supply and/or exhaust isolation valve having a measured leakage rate in excess of 0.05 La, restore the inoperable valve to OPERABLE status or isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange within 24 hours. Verify** the affected penetration flow path is isolated once per 31 days for isolation devices outside containment and prior to entering Mode 4 from Mode 5 if not performed within the previous 92 days for isolation devices inside containment. Otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.9.1 The position of the containment purge supply and exhaust isolation valves shall be determined at least once per 31 days.

4.6.1.9.2 The cumulative time that the purge supply and exhaust isolation valves are open over a 365 day period shall be determined at least once per 7 days.

4.6.1.9.3 At least once per 3 months, each containment purge supply and exhaust isolation valve shall be demonstrated OPERABLE by verifying that the measured leakage rate is less than or equal to 0.05 L_a.*

* Enter the ACTION of LCO 3.6.1.1, "Primary Containment" when purge valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

** Isolation devices in high radiation areas may be verified by use of administrative means. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.

400 additional hours is allowed for calendar year 2007 for operation of the containment ventilation system with purge isolation valves open.