December 11, 2001

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

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 AND SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 — NOTICES OF CONSIDERATION OF ISSUANCE OF AMENDMENTS (TAC NOS. MB1884, MB2973 AND MB2974)

Dear Mr. Scalice:

The Commission has forwarded two Notices of Consideration of Issuance of Amendment to Facility Operating License, Proposed No Significant Hazards Consideration Determination, and Opportunity for Hearing, to the Office of the Federal Register for publication. Copies of these notices for Watts Bar (WBN) and Sequoyah (SQN) are enclosed for your information.

The notices relate to your applications of August 20, 2001, and September 21, 2001, to amend the WBN and SQN Technical Specifications, respectively, to allow WBN and SQN to provide incore irradiation services for the U.S. Department of Energy (DOE). These changes would allow Tennessee Valley Authority (TVA) to insert tritium-producing burnable absorber rods (TPBARs) into the WBN and SQN reactor cores to support DOE in maintaining its tritium inventory for national defense purposes. These amendments permit TVA to insert up to 2304 TPBARs for WBN and up to 2256 TPBARs for SQN into the reactor cores.

Sincerely,

/RA/
L. Mark Padovan, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-390, 50-327 and 50-328

Enclosures: Federal Register Notices (2)

cc w/enclosures: See next page

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UNITED STATES NUCLEAR REGULATORY COMMISSION

TENNESSEE VALLEY AUTHORITY

DOCKET NOS. 50-390

NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE, PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION, AND OPPORTUNITY FOR A HEARING

The U.S. Nuclear Regulatory Commission (NRC or the Commission) is considering issuance of an amendment to Facility Operating License No. NPF-90 issued to the Tennessee Valley Authority (TVA or the licensee) for operation of the Watts Bar Nuclear Plant (WBN), Unit 1, located in Rhea County, Tennessee.

The proposed amendment would change Technical Specifications (TSs) to allow WBN to provide incore irradiation services for the U.S. Department of Energy (DOE). This change would allow TVA to insert up to 2304 tritium-producing burnable absorber rods (TPBARs) into the reactor core to support DOE in maintaining the nation's tritium inventory for national defense purposes. Each WBN core contains 193 fuel assemblies and each fuel assembly contains 264 fuel rods. In this amendment request, TVA proposes to insert up to 24 TPBARs in selected fuel assemblies (adjacent to but not in place of the 264 fuel rods). The TPBARS absorb neutrons and are similar to (and would replace) normal burnable neutron absorber rods that serve to shape neutron flux in the core. The TPBARs contain no fissile material and will be installed in fuel assemblies where burnable absorber rods are normally placed in selected fuel assemblies. Therefore, the TPBARs would fill the same role as burnable absorber rods in the operation of the reactor. However, most of the neutron absorber (lithium) in the TPBARs still

remains at the end of core life as compared to normal burnable neutron absorbers (boron or gadolinium). Therefore, the proposed license amendment involves increasing the required boron concentration for both the cold-leg accumulators (TS 3.5.1) and the refueling water storage tank (TS 3.5.4), removing the Region 2 burnup credit racks in the spent fuel pool and clarifying fuel storage restrictions (TSs 3.7.15 and 4.3.3), adding a limit on the number of TPBARs that can be irradiated (TS Section 4.2.1), and implementing a TPBAR consolidation activity. This submittal also provides proposed revisions to the associated TS Bases to modify the switchover time for containment sump to hot leg recirculation (TS B3.5.2) and to modify the hydrogen recombiner section to properly describe the possible sources of hydrogen gas (TS B3.6.7). The uranium-235 (U-235) enrichment of fuel assemblies containing TPBARs must be increased to no more than 4.95 weight percent to compensate for the higher neutron absorbing properties of the lithium-7 in the TPBARs. The NRC has previously approved maximum U-235 fuel enrichments of 5.0 weight percent for WBN Unit 1. Five percent enrichment is the NRC's upper limit for reactor licensing. Therefore, enrichments resulting from the proposed amendment are bounded by the current WBN Operating License and licensing basis.

Before issuance of the proposed license amendments, the Commission will have made findings required by the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations.

The Commission has made a proposed determination that the amendment request involves no significant hazards consideration. Under the Commission's regulations in 10 CFR 50.92, this means that operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. As

required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration in its application dated August 20, 2001, which is presented below:

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

1. TS 3.5.1 - Cold Leg Accumulator - Boron Concentration Increase

The accumulator boron concentration does not affect any initiating event for accidents currently evaluated in the Updated Final Safety Analysis Report (UFSAR). The increased concentrations will not adversely affect the performance of any system or component which is placed in contact with the accumulator water. The integrity and operability of the stainless steel surfaces in the accumulator and affected Nuclear Steam Supply System (NSSS) components/systems will be maintained. The decrease in solution pH is small and will not degrade the stainless steel. Also, the integrity of the Class 1E instrumentation and control equipment will be maintained since the lower sump pH, resulting from the increased boron concentrations, is still within the applicable equipment qualification limits. These limits are set to preclude the possibility of chloride[-]induced stress corrosion cracking and assure that there is no significant degradation of polymer materials. The design, material and construction standards of all components which are placed in contact with the accumulator water remain unaffected. Therefore, the possibility [probability] of an accident has not been [significantly] increased.

The consequences of an accident previously evaluated in the UFSAR will not be [significantly] increased. The change in the concentrations increase the amount of boron in the sump during a Loss of Coolant Accident (LOCA). The increased boron in the sump is sufficient to maintain the core in a subcritical condition. Testing has indicated that TPBARs can experience cladding breach at Large Break LOCA (LBLOCA) conditions if the cladding temperature and internal pressure of the TPBARs reach limiting values. Consequently, the post-LOCA critical boron calculations account[~~ed~~] for the potential loss of a $LiAlO_2$ [lithium aluminate] pencil, as well as partial leaching of lithium from the remaining pencils. Based on conservative assumptions, the calculations confirm that the tritium production core will remain subcritical following a LOCA. Also, a revised hot leg switchover time has been calculated and will be implemented in the plant Emergency Operating Procedures (EOPs). Thus, there will be no boron precipitation in the core following a LBLOCA.

The only non-LOCA event that assumes accumulator actuation is the Major Rupture of a Main Steamline event, however, it assumes a minimum amount of boron. Furthermore, there is no impact on the SGTR [steam generator tube rupture] event since the accumulators are not assumed to be actuated,

and the SLB [steam line break] M&E [mass and energy] release evaluation relies on control rods for shutdown margin and assumes a minimum boron concentration.

In addition, the increase in accumulator boron concentrations and subsequent slight decrease in containment sump and spray pH does not impact the LOCA dose evaluation since the analysis of record does not credit sump pH as an input or assumption regarding volatile iodine removal efficiencies. Therefore, the present analysis remains bounding. Also, the slight decrease in sump, core and spray fluid pH has been evaluated to not significantly impact the corrosion rate (and subsequent generation of Hydrogen) of Aluminum and Zinc inside containment. Further, the decreased sump, core and spray fluid pH has been evaluated to not affect the amount of hydrogen generated from the post-LOCA radiolytic decomposition of the sump and core solution. The likelihood of containment failure due to hydrogen deflagration is therefore not impacted by pH changes.

In view of the preceding, it is concluded that the proposed change will not [significantly] increase the radiological [probability or] consequences of an accident previously evaluated in the FSAR.

2. TS 3.5.4 and the associated TS Bases Page - Refueling Water Storage Tank (RWST) - Boron Concentration Increase

The RWST boron concentration does not affect any initiating event for accidents currently evaluated in the UFSAR. The increased concentration will not adversely affect the performance of any system or component which is placed in contact with the RWST water. The integrity and operability of the stainless steel surfaces in the RWST and affected NSSS components/systems will be maintained. The decrease in solution pH is small and will not degrade the stainless steel. Also, the integrity of the Class 1E instrumentation and control equipment will be maintained since the lower sump pH, resulting from the increased boron concentrations, is still within the applicable equipment qualification limits. These limits are set to preclude the possibility of chloride[-induced stress corrosion cracking and assure that there is no significant degradation of polymer materials. The design, material and construction standards of all components which are placed in contact with the RWST water remain unaffected. Therefore, the probability of an accident has not changed.

The consequences of an accident previously evaluated in the UFSAR will not be [significantly] increased. The change in the concentrations increases the amount of boron in the sump following a LOCA. The increased boron in the sump is sufficient to maintain the core in a subcritical condition. This analysis assumes partial leaching. Testing has indicated that TPBARs can experience cladding breach at LBLOCA conditions if the cladding temperature and internal pressure of the TPBARs reach limiting values. Consequently, the post-LOCA critical boron calculations accounted for the potential loss of a $LiAlO_2$ pencil, as well as partial leaching of lithium from the

remaining pencils. Based on conservative assumptions, the calculations confirm that the tritium production core will remain subcritical following a LOCA. Also, a revised hot leg switchover time has been calculated and will be implemented in the plant EOPs. Thus, there will be no boron precipitation in the core following a LOCA.

The Inadvertent Operation of Emergency Core Cooling System (ECCS) event is the only non-LOCA event which assumes the maximum RWST boron concentration, and an evaluation has shown that the proposed increase does not cause an adverse impact on this transient.

The Steam Line Break (SLB) mass and energy (M&E) release evaluation relies on control rods for shutdown margin and assumes a minimum boron concentration. For the Steam Generator Tube Rupture (SGTR) event, the increased boron concentration will help maintain adequate shutdown margin, which will be evaluated as part of the reload process.

In addition, the increase in RWST boron concentrations and subsequent slight decrease in containment sump and spray pH does not impact the LOCA dose evaluation. While higher pH helps maintain volatile iodine in solution and lower pH drives the equilibrium to favor volatile iodine in a gaseous state, the change in sump pH is not sufficient to result in any measurable change in post LOCA releases.

Furthermore, current radiological analyses do not take credit for volatile iodine removal efficiencies based on sump pH. Therefore, since the change in pH is minimal, and no credit is taken in release analysis, the present analysis remains bounding. Also, the slight decrease in sump, core and spray fluid pH has been evaluated to not significantly impact the corrosion rate (and subsequent generation of Hydrogen) of Aluminum and Zinc inside containment and the present analysis remains bounding. Further, the decreased sump, core and spray fluid pH has been evaluated to not affect the amount of hydrogen generated from the radiolytic decomposition of the sump and core solution and therefore will not challenge containment integrity.

In view of the preceding, it is concluded that the proposed change will not [significantly] increase the radiological probability or consequences of an accident previously evaluated in the FSAR.

3. TS 3.7.15 and the associated TS Bases Pages - Plant Systems/Spent Fuel Assembly Storage

The Region 2 burnup credit racks described in TS section 4.3.3 are not currently installed in the plant. Since the time that these racks were licensed, TVA has determined not to install or utilize this storage option. Therefore, since they are not installed, there is no [significant] increase in the probability or consequences of an accident previously evaluated.

4. TS 4.2.1 - Design Features/Reactor Core/Fuel Assemblies

The insertion of TPBARs into the WBN reactor core does not adversely affect reactor neutronic or thermal-hydraulic performance; therefore, they do not significantly increase the probability of accidents or equipment malfunctions while in the reactor. The neutronic behavior of the TPBARS mimics that of standard burnable absorbers with only slight differences which are accommodated in the core design. The reload safety analysis performed for WBN Unit 1 prior to each refueling cycle will confirm that any minor effects of TPBARS on the reload core will be within fuel design limits.

As described in the [Department of Energy's] TPC [Tritium Production Core] Topical [Report, NDP-98-181, Revision 1], the TPBAR design is robust to all accident conditions except the large break LOCA where the rods are susceptible to failure. However, the failure of TPBARs has been determined to have an insignificant effect on the thermal hydraulic response of the core to this event, and analysis has shown that the core will remain subcritical following a LOCA.

The impacts of TPBARs on the radiological consequences for all evaluated events are very small, and they remain within [well below]10 CFR 100 regulatory limits. The additional offsite doses due to tritium are small with respect to LOCA source terms and are well within regulatory limits.

The TPBAR could result in an increase in combustible gas released to the containment in a large break LOCA. This increase was found to be approximately 1474 scf [standard cubic feet] which remains within the capability of the recombiners.

Analysis has shown that TPBARs are not expected to fail during Condition I through IV events [as described in Chapter 15 of the UFSAR, Condition I being normal operation and operational transients, Condition II being faults of moderate frequency, Condition III being infrequent faults, and Condition IV being limiting faults]. TPBARs may fail during a LBLOCA or as a result of fuel handling accident. The radiological consequences of these events are [well] within 10 CFR 100 limits. Therefore, there is no significant increase in the [probability or] consequences of these previously evaluated accidents.

5. TS 4.3.3 - Design Features/Fuel Storage/Capacity

The Region 2 burnup credit racks described in this TS section are not currently installed in the plant. Since the time that these racks were licensed, TVA has determined not to install or utilize this storage option. Due to the deletion of the Region 2 racks, the additional detail provided clarifies existing storage restrictions. Therefore, since they are not installed, there is no [significant] increase in the probability or consequences of an accident previously evaluated.

6. TS Bases 3.5.2 - Emergency Core Cooling Systems/ECCS Operating

   Due to the increase of the boron concentration in the RWST and the accumulators, initial mixed boron concentrations are higher and the precipitation concentration is reached sooner. As a result, the hot leg switchover is being shortened. However, the time being shortened does not change the switchover function. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

7. TS Bases 3.6.7 - Hydrogen Recombiners

   This change is administrative in nature and involves only identifying another source of hydrogen gas (tritium) to the bases. The functions for the hydrogen recombiners remain the same. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

8. TPBAR Consolidation Activity

   TPBAR consolidation and associated handling activities are designed to be consistent with the existing fuel handling and heavy load handling processes and equipment currently utilized at the facility, and are designed to preclude increased probability of an accident previously evaluated.

   Consequences of a fuel handling accident for fuel containing TPBARs is evaluated and does not result in exceeding [or even approaching] 10 CFR Part 100 limits for off-site dose. All consolidation and heavy load handling activities are designed such that the current fuel handling accident scenario remains bounding. Therefore the consequences of an accident previously evaluated remains within acceptable limits.

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

1. TS 3.5.1 - Cold Leg Accumulator - Boron Concentration Increase

   The change to the accumulator concentration does not cause the initiation of any accident nor create any new credible limiting single failure. The change does not result in a condition where the design, material, and construction standards of the accumulators and other potentially affected NSSS components, that were applicable prior to the changes, are altered. The integrity and operability of the stainless steel surfaces in the accumulator and affected NSSS components/systems will be maintained. The decrease in solution pH is small and will not degrade the stainless steel. Also, the integrity of the Class 1E instrumentation and control equipment will be maintained during a LOCA since the lower sump pH, resulting from the increased boron concentrations, is still within the applicable equipment qualification limits. These limits are set to preclude the possibility of

chloride[-]induced stress corrosion cracking and assure that there is no significant degradation of polymer materials.

The changes in the concentrations increase the amount of boron in the sump following a LOCA. The increased boron in the sump is sufficient to maintain the core in a subcritical condition. Also, a revised hot leg switchover time has been calculated and will be implemented in the plant EOPs. Thus, there will be no boron precipitation in the core following a LOCA.

All systems, structures, and components previously required for the mitigation of an event remain capable of fulfilling their intended design function. The proposed change has no adverse affect on any safety-related system or component and does not challenge the performance or integrity of any safety related system. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

2. TS 3.5.4 and associated TS Bases Page - RWST - Boron Concentration Increase

The change to the RWST concentration does not cause the initiation of any accident nor create any new credible limiting single failure. The change does not result in a condition where the design, material, and construction standards of the RWST and other potentially affected NSSS components, that were applicable prior to the changes, are altered. The integrity and operability of the stainless steel surfaces in the RWST and affected NSSS components/systems will be maintained. The decrease in solution pH is small and will not degrade the stainless steel. Also, the integrity of the Class 1E instrumentation and control equipment will be maintained during a LOCA since the lower sump pH, resulting from the increased boron concentrations, is still within the applicable equipment qualification limits. These limits are set to preclude the possibility of chloride-induced stress corrosion cracking and assure that there is no significant degradation of polymer materials.

The changes in the concentrations increase the amount of boron in the sump following a LOCA. The increased boron in the sump is sufficient to maintain the core in a subcritical condition. Also, a revised hot leg switchover time has been calculated and will be implemented in the plant EOPs. Thus, there will be no boron precipitation in the core following a LOCA.

All systems, structures, and components previously required for the mitigation of an event remain capable of fulfilling their intended design function. The proposed change has no adverse affect on any safety-related system or component and does not challenge the performance or integrity of any safety[-]related system. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. TS 3.7.15 and associated TS Bases Pages - Plant Systems/Spent Fuel Assembly Storage

   The Region 2 burnup credit racks described in section 4.3.3 are not currently installed in the plant. Since the time that these racks were licensed, TVA has determined not to install or utilize this storage option. Therefore, since they are not installed, this change would not create the possibility of a new or different kind of accident from any accident previously evaluated.

4. TS 4.2.1 - Design Features/Reactor Core/Fuel Assemblies

   TPBARS have been designed to be compatible with existing Westinghouse 17x17 fuel assemblies and conventional Burnable Poison Rod Assembly (BPRA) handling tools, equipment, and procedures, and therefore, no new [or different kind of] accidents or equipment malfunctions are created by the handling of TPBARs. . . .

   TPBARs use materials with known and predictable performance characteristics and are compatible with pressurized water reactor (PWR) coolant. The TPBAR design has specifically included material similar to those used in standard burnable absorber rods with the exception of internal assemblies used in the production and retention of tritium. As described in the TPC Topical Report, these materials are compatible with the reactor coolant system (RCS) and core design. Therefore, no new [or different kind of] accidents or equipment malfunctions are created by the presence of the TPBARs in the RCS.

   Mechanical design criteria have been established to ensure that TPBARs will not fail during Condition I or II events. Analysis has shown that TPBARs, appropriately positioned in the core operate within the established thermal-hydraulic criteria. Due to the expected high reliability of TPBAR components the frequency of TPBAR cladding failures is very small, such that multiple adjacent TPBAR failures in limiting locations is not considered credible. In addition, analysis has shown that if a single TPBAR fails catastrophically in a high power location during normal operation and the lithium is leached out, the global reactivity increase is negligible and the local power peaking is small enough that DNBR [departure from nucleate boiling ratio] limits and fuel rod integrity are not challenged. Therefore, no new [or different kind of] accidents or equipment malfunctions are created by the presence of the TPBARs in the reactor.

   Analysis has shown that TPBARs will not fail during Condition III and IV events. TPBARs may fail during a cold leg large break loss-of-coolant-accident or as a result of a fuel handling accident. The radiological consequences of these events are within 10 CFR 100 limits. Therefore, there is no significant increase in consequences of these previously evaluated accidents.

TPBARs do not adversely affect reactor neutronic or thermal-hydraulic performance; therefore they do not create the possibility of accidents or equipment malfunctions of a [new or] different type than previously evaluated while in the reactor.

5. TS 4.3.3 - Design Features/Fuel Storage/Capacity

The Region 2 burnup credit racks described in this section are not currently installed in the plant. Since the time that these racks were licensed, TVA has determined not to install or utilize this storage option. Due to the deletion of the Region 2 racks, the additional detail provided clarifies existing storage restrictions. Therefore, since they are not installed, this change would not create the possibility of a new or different kind of accident from any accident previously evaluated.

6. Bases 3.5.2 - Emergency Core Cooling Systems/ECCS Operating

Due to the increase of the boron concentration in the RWST and the accumulators, initial mixed boron concentrations are higher and the precipitation concentration is reached sooner. As a result, the hot leg switchover value is being shortened. This time being shortened does not change the switchover function. Therefore, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

7. Bases 3.6.7 - Hydrogen Recombiners

This change is administrative in nature and only involves only identifying another source of hydrogen gas (tritium) to the bases. The functions for the hydrogen recombiners remain the same. Therefore, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

8. TPBAR Consolidation Activity -

The consolidation and handling activities are bounded by current fuel handling evaluations. Therefore, this proposed amendment does not create the possibility of a new or different kind of accident from any previously evaluated.

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

1. TS 3.5.1 - Cold Leg Accumulator - Boron Concentration Increase

The change does not invalidate any of the non-LOCA safety analysis results or conclusions, and all of the non-LOCA safety analysis acceptance criteria continue to be met. The licensing basis SBLOCA analyses does not credit the accumulator boron and is not affected by the proposed change.

Therefore, there is no reduction in the margin to the Peak clad temperature (PCT) limit for the SBLOCA. There is no increase in the Best Estimate LBLOCA PCT; therefore, there continues to be a high level of probability that the ECCS acceptance criteria limit is not exceeded with regard to the LBLOCA analysis. The increased boron concentration is sufficient to maintain subcriticality during the LBLOCA, and a post-LOCA long term core cooling analysis demonstrated that the post-LOCA sump boron concentration is sufficient to prevent recriticality. The revised hot leg switchover time, which will be implemented in the EOPs, will prevent boron precipitation. The licensing basis containment and SLB M&E releases remain bounding, and the SGTR event acceptance criteria continue to be met. Furthermore, the changes do not affect the safety[-]related performance of the accumulator or related NSSS components. Therefore, there is no significant reduction in the margin of safety.

2. TS 3.5.4 and associated TS Bases Page - RWST - Boron Concentration Increase

   The change does not invalidate any of the non-LOCA safety analysis results or conclusions, and all of the non-LOCA safety analysis acceptance criteria continue to be met. The licensing basis SBLOCA analyses does not credit the RWST boron and is not affected by the proposed change. Therefore, there is no reduction in the margin to the PCT limit for the SBLOCA. There is no increase in the Best Estimate LBLOCA PCT; therefore, there continues to be a high level of probability that the ECCS acceptance criteria limit is not exceeded with regard to the LBLOCA analysis. The increased boron concentration is sufficient to prevent recriticality. The revised hot leg switchover time, which will be implemented in the EOPs, will prevent boron precipitation. The licensing basis containment and SLB M&E releases remain bounding, and the SGTR event acceptance criteria continue to be met. Furthermore, the changes do not affect the safety[-]related performance of the RWST or related NSSS components. Therefore, there is no significant reduction in the margin of safety.

3. TS 3.7.15 and associated TS Bases Pages - Plant Systems/Spent Fuel Assembly Storage

   The Region 2 burnup credit racks described in section 4.3.3 are not currently installed in the plant. Since the time that these racks were licensed, TVA has determined not to install or utilize this storage option. Therefore, since they are not installed, this change would not involve a [significant] reduction in a margin of safety.

4. TS 4.2.1 - Design Features/Reactor Core/Fuel Assemblies

   TPBARs have been designed to be compatible with existing fuel assemblies. TPBARs do not adversely affect reactor neutronic or thermal-hydraulic performance. Analysis indicates that reactor core behavior and offsite doses

remain relatively unchanged. For these reasons, the proposed amendment does not involve a significant reduction in a margin of safety.

5. TS 4.3.3 - Design Features/Fuel Storage/Capacity

   The Region 2 burnup credit racks described in section 4.3.3 are not currently installed in the plant. Since the time that these racks were licensed, TVA has determined not to install or utilize this storage option. Due to the deletion of the Region 2 racks, the additional detail provided clarifies existing storage restrictions and does not reduce the margin of safety in existing storage requirements. Therefore, since they are not installed, this change would not involve a [significant] reduction in a margin of safety.

6. Bases 3.5.2 - Emergency Core Cooling Systems/ECCS Operating

   Due to the increase of the boron concentration in the RWST and the accumulators, initial mixed boron concentrations are higher and the precipitation concentration is reached sooner. As a result, the hot leg switchover value is being shortened. This time being shortened does not change the switchover function. Therefore, this change does not involve a [significant] reduction in the margin of safety.

7. Bases 3.6.7 - Hydrogen Recombiners

   This change is administrative in nature and only involves only identifying another source of hydrogen gas (tritium) in the bases. The functions for the hydrogen recombiners remain the same. Therefore, this change does not involve a [significant] reduction in the margin of safety.

8. TPBAR Consolidation Activity

   The changes do not significantly affect the safety[-]related performance of any plant operations, system, structures, or components. The consolidation activity is bounded by current fuel handling evaluations. Therefore, there is no [does not involve a] significant reduction in the margin of safety.

The NRC staff has reviewed the no significant hazards consideration analysis provided by TVA with respect to the three criteria listed in 10 CFR 50.92(c). The staff's safety evaluation is in its early stages and will require several months to complete. However, in terms of 10 CFR 50.92(c), the staff finds that the TVA application addresses all applicable accidents discussed in the UFSAR, including LOCAs, SGTRs, and fuel handling considerations. Insertion of the TPBARS for the purpose of producing tritium (which is sealed inside the TPBARs) requires a higher degree of fuel enrichment with U-235. Because the TPBARs neither contain fissile

material nor replace normal reactor fuel, and because the TPBARs will not adversely affect reactor neutronic or thermal-hydraulic performance, their presence in the core should have no effect upon the probability or consequences of previously analyzed accidents, including fuel handling accidents. For the same reasons, the possibility of a new or different kind of accident would not be expected to result from irradiation of the TPBARS in the WBN reactor core. TVA's analysis of a possible reduction in safety margins addressed PCT limits resulting from an SBLOCA and the increased boron concentration to maintain subcriticality.

Based on the NRC staff's review of the analysis provided by the licensee, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

The Commission is seeking public comments on this proposed determination. Any comments received within 30 days after the date of publication of this notice will be considered in making any final determination.

Written comments may be submitted by mail to the Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and should cite the publication date and page number of this FEDERAL REGISTER notice. Written comments may also be delivered to Room 6D59, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, from 7:30 a.m. to 4:15 p.m. Federal workdays. Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland.

The filing of requests for hearing and petitions for leave to intervene is discussed below.

By January 16, 2002, the licensee may file a request for a hearing with respect to issuance of the amendment to the subject facility operating license

and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written request for a hearing and a petition for leave to intervene. Requests for a hearing and a petition for leave to intervene shall be filed in accordance with the Commission's "Rules of Practice for Domestic Licensing Proceedings" in 10 CFR Part 2. Interested persons should consult a current copy of 10 CFR 2.714, which is available at the Commission's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland, or electronically on the Internet at the NRC Web site http://www.nrc.gov/NRC/CFR/index.html. If there are problems in accessing the document, contact the Public Document Room Reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr@nrc.gov. If a request for a hearing or petition for leave to intervene is filed by the above date, the Commission or an Atomic Safety and Licensing Board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition; and the Secretary or the designated Atomic Safety and Licensing Board will issue a notice of hearing or an appropriate order.

As required by 10 CFR 2.714, a petition for leave to intervene shall set forth with particularity the interest of the petitioner in the proceeding, and how that interest may be affected by the results of the proceeding. The petition should specifically explain the reasons why intervention should be permitted with particular reference to the following factors: (1) the nature of the petitioner's right under the Act to be made party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order which may be entered in the proceeding on the petitioner's interest. The petition should also identify the specific aspect(s) of the subject matter of the proceeding as to which petitioner wishes to intervene. Any person who has filed a petition for leave to intervene or who has been admitted as a party may amend the petition without requesting leave

of the Board up to 15 days prior to the first prehearing conference scheduled in the proceeding, but such an amended petition must satisfy the specificity requirements described above.

Not later than 15 days prior to the first prehearing conference scheduled in the proceeding, a petitioner shall file a supplement to the petition to intervene which must include a list of the contentions which are sought to be litigated in the matter. Each contention must consist of a specific statement of the issue of law or fact to be raised or controverted. In addition, the petitioner shall provide a brief explanation of the bases of the contention and a concise statement of the alleged facts or expert opinion which support the contention and on which the petitioner intends to rely in proving the contention at the hearing. The petitioner must also provide references to those specific sources and documents of which the petitioner is aware and on which the petitioner intends to rely to establish those facts or expert opinion. Petitioner must provide sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact. Contentions shall be limited to matters within the scope of the amendment under consideration. The contention must be one which, if proven, would entitle the petitioner to relief. A petitioner who fails to file such a supplement which satisfies these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing, including the opportunity to present evidence and cross-examine witnesses.

If a hearing is requested, the Commission will make a final determination on the issue of no significant hazards consideration. The final determination will serve to decide when the hearing is held.

If the final determination is that the amendment request involves no significant hazards consideration, the Commission may issue the amendment and make it immediately effective, notwithstanding the request for a hearing. Any hearing held would take place after issuance of the amendment.

If the final determination is that the amendment request involves a significant hazards consideration, any hearing held would take place before the issuance of any amendment.

A request for a hearing or a petition for leave to intervene must be filed with the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff, or may be delivered to the Commission's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland, by the above date. A copy of the petition should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to General Counsel, Tennessee Valley Authority, ET 11A, 400 West Summit Hill Drive, Knoxville, TN 37902, attorney for the licensee.

Nontimely filings of petitions for leave to intervene, amended petitions, supplemental petitions and/or requests for hearing will not be entertained absent a determination by the Commission, the presiding officer or the presiding Atomic Safety and Licensing Board that the petition and/or request should be granted based upon a balancing of the factors specified in 10 CFR 2.714(a)(1)(i)-(v) and 2.714(d).

Further details with respect to this action may be found in the application for amendment dated August 20, 2001, which is available for public inspection at the Commission's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible from the Agencywide Documents Access and Management Systems (ADAMS) Public Electronic Reading Room, or electronically on the Internet at the NRC Web site http://www.nrc.gov/NRC/CFR/index.html. Persons who do

not have access to ADAMS, or who encounter problems in accessing the documents located in ADAMS, should contact the NRC Public Document Room Reference staff by telephone at 1-800-397-4209, 301-415-4737 or by e-mail to pdr@nrc.gov.

Dated at Rockville, Maryland, this 11th day of December 2001.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

L. Mark Padovan, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

7590-01-P

UNITED STATES NUCLEAR REGULATORY COMMISSION

TENNESSEE VALLEY AUTHORITY

DOCKET NOS. 50-327 AND 50-328

NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE, PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION, AND OPPORTUNITY FOR A HEARING

The U.S. Nuclear Regulatory Commission (NRC or the Commission) is considering issuance of an amendment to Facility Operating License Nos. DRP-77 and DRP-79 issued to the Tennessee Valley Authority (TVA or the licensee) for operation of the Sequoyah Nuclear Plant (SQN), Units 1 and 2, located in Soddy-Daisy, Tennessee.

The proposed amendments would change Technical Specifications (TSs) to allow SQN to provide incore irradiation services for the U.S. Department of Energy (DOE). This change would allow TVA to insert up to 2256 tritium-producing burnable absorber rods (TPBARs) into the reactor cores to support DOE in maintaining its tritium inventory for national defense purposes. Each SQN core contains 193 fuel assemblies and each fuel assembly contains 264 fuel rods. In this amendment request, TVA proposes to insert up to 24 TPBARs in selected fuel assemblies (adjacent to but not in place of the 264 fuel rods). The TPBARS absorb neutrons and are similar to (and would replace) normal burnable neutron absorber rods that serve to shape neutron flux in the core. The TPBARs contain no fissile material and will be installed in fuel assemblies where burnable absorber rods are normally placed in selected fuel assemblies. Therefore, the TPBARs would fill the same role as burnable absorber rods in the operation of the reactor. However, most of the neutron absorber (lithium) in the TPBARs still remains at the

end of core life as compared to normal burnable neutron absorbers (boron or gadolinium). Therefore, the proposed license amendments involve (1) revising the measurement range for the source range neutron monitors specified in TS Table 3.3-9, (2) increasing the required boron concentration for both the cold leg accumulators (TS 3/4.5.1) and the refueling water storage tank (RWST) (TS 3/4.5.5), (3) deleting the boron concentration and spent fuel storage requirements and associated Bases for the cask pit pool in TS Section 3/4.7.14 and Section 5.6, (4) establishing a limit on the number of TPBARs that can be irradiated in TS Section 5.3.1, (5) providing storage requirements for spent fuel assemblies that contain TPBARs after irradiation in TS Section 5.6 and the Bases for TS Section 3/4.7.13, and (6) implementing a TPBAR consolidation activity. This submittal also provides proposed revisions to the associated TS Bases in Section 3/4.6.4 regarding combustible gas control. Changes (1) and (2) above are necessary because the uranium-235 (U-235) enrichment of fuel assemblies containing TPBARs must be increased (to no more than 4.95 weight percent) to compensate for the higher neutron absorbing properties of the lithium-7 in the TPBARs. The NRC has previously approved maximum U-235 fuel enrichments of 4.95 ± 0.05 weight percent for SQN Units 1 and 2. Five percent enrichment is the NRC's upper limit for reactor licensing. Therefore, enrichments resulting from the proposed amendments are bounded by the current SQN Operating License and licensing basis.

Before issuance of the proposed license amendments, the Commission will have made findings required by the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations.

The Commission has made a proposed determination that the amendment request involves no significant hazards consideration. Under the Commission's regulations in 10 CFR 50.92, this means that operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident

previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration in its application dated September 21, 2001, which is presented below:

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

1. TS Table 3.3-9 - Remote Shutdown Monitoring Instrumentation - Revised Source Range Monitor Range

The backup source range monitors are for indication of unit shutdown conditions only and do not perform any trip or mitigation functions. The monitors are not active components such that they could initiate a postulated accident and are not considered a contributor to accident generation. Therefore, the lowering of the indication range for this monitor will not increase the probability of an accident.

Since the monitor has only an indication function, it does not serve to mitigate postulated accidents. While the indications from this monitor can help to identify changing core conditions and promote actions to prevent undesired conditions, this is not a mitigation function credited in the accident analysis and is considered a diverse capability of the plant instrumentation system. Therefore, the proposed change will not impact any credited accident mitigation functions, and by improving shutdown monitoring capability, will not [involve a significant] increase [in] the [probability or] consequences of an accident [previously evaluated].

2. TS 3/4.5.1 - Cold Leg Injection Accumulators - Boron Concentration Increase

The accumulator boron concentration does not affect any initiating event for accidents currently evaluated in the Updated Final Safety Analysis Report (UFSAR). The increased concentrations will not adversely affect the performance of any system or component which is placed in contact with the accumulator water. The integrity and operability of the stainless steel surfaces in the accumulator and affected nuclear steam supply system (NSSS) components/systems will be maintained. The decrease in solution pH is small and will not degrade the stainless steel. Also, the integrity of the Class 1E instrumentation and control equipment will be maintained since the lower sump pH, resulting from the increased boron concentrations, is still within the applicable equipment qualification limits. These limits are set to preclude the possibility of chloride[-]induced stress corrosion cracking and assure that there is no significant degradation of polymer materials. The design, material and construction standards of all components which are placed in contact with the

accumulator water remain unaffected. Therefore, the possibility [probability] of an accident has not been increased.

The consequences of an accident previously evaluated in the UFSAR will not be increased. The change in the concentrations increase the amount of boron in the sump during a loss-of-coolant accident (LOCA). The increased boron in the sump is sufficient to maintain the core in a subcritical condition. Testing has indicated that TPBARs can experience cladding breach at Large Break LOCA (LBLOCA) conditions if the cladding temperature and internal pressure of the TPBARs reach limiting values. Consequently, the post-LOCA critical boron calculations account[~~ed~~] for the potential loss of a $LiAlO_2$ [lithium aluminate] pencil, as well as partial leaching of lithium from the remaining pencils. Based on conservative assumptions, the calculations confirm that the tritium production core will remain subcritical following a LOCA. Also, a revised hot leg switchover time has been calculated and will be implemented in the plant emergency operating procedures (EOPs). Thus, there will be no added post-LOCA long-term cooling problems associated with boron precipitation in the core following a large break LOCA (LBLOCA).

An evaluation of the non-LOCA events shows that the accumulators do not actuate. An increase in accumulator boron concentration would have no effect on either the steam line break (SLB) at hot zero power event, the feedwater line break event, or the spurious operation of safety injection (SI) system event (events in which an SI signal does occur). Therefore, there is no increase in consequences of the non-LOCA events associated with the proposed increase in accumulator boron concentration.

The accumulators are not assumed to actuate in the steam generator tube rupture (SGTR) event analysis, and the SLB mass and energy (M&E) release evaluation relies on control rods for shutdown margin and assumes a minimum boron concentration. In addition, the increase in accumulator boron concentrations and subsequent slight decrease in containment sump and spray pH does not impact the LOCA dose evaluation since the analysis of record does not credit sump pH as an input or assumption regarding volatile iodine removal efficiencies. Therefore, the present analysis remains bounding. Also, the slight decrease in sump, core and spray fluid pH has been evaluated to not significantly impact the corrosion rate (and subsequent generation of hydrogen) of aluminum and zinc inside containment. Further, the decreased sump, core and spray fluid pH has been evaluated to not affect the amount of hydrogen generated from the post-LOCA radiolytic decomposition of the sump and core solution. The likelihood of containment failure due to hydrogen deflagration is therefore not impacted by pH changes.

In view of the preceding, it is concluded that the proposed change in accumulator boron concentration will not increase the radiological [probability or] consequences of an accident previously evaluated in the UFSAR.

3. TS 3/4.5.5 - Refueling Water Storage Tank - Boron Concentration Increase

The RWST boron concentration does not affect any initiating event for accidents currently evaluated in the UFSAR. The increased concentration will not adversely affect the performance of any system or component which is placed in contact with the RWST water. The integrity and operability of the stainless steel surfaces in the RWST and affected NSSS components/systems will be maintained. The decrease in solution pH is small and will not degrade the stainless steel. Also, the integrity of the Class 1E instrumentation and control equipment will be maintained since the lower sump pH, resulting from the increased boron concentrations, is still within the applicable equipment qualification limits. These limits are set to preclude the possibility of chloride induced stress corrosion cracking and assure that there is no significant degradation of polymer materials. The design, material and construction standards of all components which are placed in contact with the RWST water remain unaffected. Therefore, the probability of an accident has not changed.

The consequences of an accident previously evaluated in the UFSAR will not be increased. The change in the RWST boron concentration increases the amount of boron in the sump following a LOCA. The increased boron in the sump is sufficient to maintain the core in a subcritical condition. Testing has indicated that TPBARs can experience cladding breach at Large Break LOCA (LBLOCA) conditions if the cladding temperature and internal pressure of the TPBARs reach limiting values. Consequently, the post-LOCA critical boron calculations accounted for the potential loss of a $LiAlO_2$ pencil, as well as partial leaching of lithium from the remaining pencils. Based on conservative assumptions, the calculations confirm that the tritium production core will remain subcritical following a LOCA. Also, a revised hot leg switchover time has been calculated and will be implemented in the plant EOPs. Thus, there will be no added post-LOCA long-term cooling problems associated with boron precipitation in the core following a LOCA.

An evaluation of the non-LOCA events indicates that an SI initiation occurs in the SLB at hot zero power event, the feedwater line break event, and the spurious operation of the SI system event. An increase in the RWST boron concentration would effectively reduce the return to power subsequent to a SLB. Boration is not credited in the feedwater line break analysis and the proposed boron increase is conservatively bounded by the boron inputs to the spurious SI system operation analysis. Therefore, there is no increase in consequences of the non-LOCA events associated with the proposed increase in RWST boron concentration.

The SLB M&E release evaluation relies on control rods for shutdown margin and assumes a minimum boron concentration. For the SGTR, the boron concentration in the accumulators and the RWST are not modeled. In addition, the increase in RWST boron concentrations and subsequent slight decrease in containment sump and spray pH does not impact the LOCA dose evaluation. While higher pH helps maintain volatile iodine in solution and lower pH drives the equilibrium to favor volatile iodine in a gaseous state, the change

in sump pH is not sufficient to result in any measurable change in post-LOCA releases.

Furthermore, current radiological analyses do not take credit for volatile iodine removal efficiencies based on sump pH. Therefore, since the change in pH is minimal, and no credit is taken in release analysis, the present analysis remains bounding. Also, the slight decrease in sump, core and spray fluid pH has been evaluated to not significantly impact the corrosion rate (and subsequent generation of hydrogen) of aluminum and zinc inside containment and the present analysis remains bounding. Further, the decreased sump, core and spray fluid pH has been evaluated to not affect the amount of hydrogen generated from the radiolytic decomposition of the sump and core solution and therefore will not challenge containment integrity.

In view of the preceding, it is concluded that the proposed change in RWST boron concentration will not increase the radiological [probability or] consequences of an accident previously evaluated in the UFSAR.

4. TS 3/4.7.14 and Bases - Cask Pit Pool Minimum Boron Concentration - Deletion of Requirements

   This change removes the provisions that allow and support the storage of spent fuel in the cask pit pool. By eliminating this provision, the potential for criticality events associated with stored fuel in the cask pit pool is no longer credible. Not having boron concentration requirements for the cask pit for storage considerations is acceptable based on the removal of TS provisions that would allow such storage. The boron concentration requirement is not considered a contributor to accident generation and therefore, this deletion does not increase the potential [probability] for accident generation because spent fuel will not be stored in this location. Likewise, the consequences of an accident [previously evaluated] will not be [significantly] increased because the dose generation source, in the form of spent fuel stored in the cask pit, will not be allowed.

5. TS 5.3.1 - Design Features/Reactor Core/Fuel Assemblies

   The insertion of TPBARs into the SQN reactor core does not adversely affect reactor neutronic or thermal-hydraulic performance; therefore, they do not significantly increase the probability of accidents or equipment malfunctions while in the reactor. The neutronic behavior of the TPBARS mimics that of standard burnable absorbers with only slight differences which are accommodated in the core design. The reload safety analysis performed for SQN Units 1 and 2 prior to each refueling cycle will confirm that any minor effects of TPBARS on the reload core will be within fuel design limits.

   As described in the [Department of Energy's] tritium production core (TPC) topical [report, NDP-98-181, Revision 1], the TPBAR design is robust to all accident conditions except the large break LOCA (LBLOCA) where the rods are susceptible to failure. However, the failure of TPBARs has been

determined to have an insignificant effect on the thermal hydraulic response of the core to this event, and analysis has shown that the core will remain subcritical following a LOCA.

The impacts of TPBARs on the radiological consequences for all evaluated events are very small, and they remain within [well below] 10 CFR 100 regulatory limits. The additional offsite doses due to tritium are small with respect to LOCA source terms and are well within regulatory limits.

The TPBAR[s] could result in an increase in combustible gas released to the containment in a LBLOCA. This increase was found to be approximately 1495 scf which remains within the capability of the recombiners.

Analysis has shown that TPBARs are not expected to fail during Condition I through IV events [as described in Chapter 15 of the UFSAR, Condition I being normal operation and operational transients, Condition II being faults of moderate frequency, Condition III being infrequent faults, and Condition IV being limiting faults] with the exception of a LBLOCA and a fuel handling accident. The radiological consequences of these events are [well] within 10 CFR 100 limits. Therefore, there is no significant increase in the [probability or] consequences of these previously evaluated accidents.

6. TS 5.6 and TS 3/4.7.13 Bases - Design Features/Fuel Storage and Spent Fuel Pool Minimum Boron Concentration - Revised Storage Requirements for Fuel Assemblies Containing TPBARs

   A specified amount of soluble boron is needed in the spent fuel pool to provide margin to criticality sufficient to mitigate the effects of the most serious spent fuel pool accident condition. Previous spent fuel pool criticality safety analyses (for Type A fuel) [spent fuel that has not hosted TPBARs] determined the required amount of soluble boron to be 700 parts per million (ppm). The new spent fuel pool criticality safety analysis accounting for storage of Type T fuel [spent fuel that has hosted TPBARS] confirmed that 700 ppm soluble boron still provides the required margin to criticality. Therefore, there is no significant increase in the consequences of previously evaluated accidents postulated for the spent fuel pool. Additionally, the administrative controls for loading the spent fuel pool are not changed and will continue to maintain acceptable storage configurations consistent with the analysis. Therefore, the proposed change will not [involve a significant] increase [in] the probability [or consequences] of an accident [previously evaluated].

7. TPBAR Consolidation Activity

   TPBAR consolidation and associated handling activities are designed to be consistent with the existing fuel handling and heavy load handling processes and equipment currently utilized at the facility, and are designed to preclude increased probability of an accident previously evaluated.

Consequences of a fuel handling accident for fuel containing TPBARs is evaluated and does not result in exceeding [or even approaching]10 CFR Part 100 limits for off-site dose. All consolidation and heavy load handling activities are designed such that the current fuel handling accident scenario remains bounding. Therefore the [probability or] consequences of an accident previously evaluated [will not be significantly increased] remains within acceptable limits.

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

1. TS Table 3.3-9 - Remote Shutdown Monitoring Instrumentation - Revised Source Range Monitor Range

   The backup source range monitors are for indication of unit shutdown conditions only and do not perform any trip or mitigation functions. The monitors are not active components such that they could initiate a postulated accident and are not considered a contributor to accident generation. Therefore, the lowering of the indication range for this monitor will not create the possibility of a new or different kind of accident [from any accident previously evaluated].

2. TS 3/4.5.1 - Cold Leg Injection Accumulators - Boron Concentration Increase

   The change to the accumulator concentration does not cause the initiation of any accident nor create any new credible limiting single failure. The change does not result in a condition where the design, material, and construction standards of the accumulators and other potentially affected NSSS components, that were applicable prior to the changes, are altered. The integrity and operability of the stainless steel surfaces in the accumulator and affected NSSS components/systems will be maintained. The decrease in solution pH is small and will not degrade the stainless steel. Also, the integrity of the Class 1E instrumentation and control equipment will be maintained during a LOCA since the lower sump pH, resulting from the increased boron concentrations, is still within the applicable equipment qualification limits. These limits are set to preclude the possibility of chloride[-]induced stress corrosion cracking and assure that there is no significant degradation of polymer materials.

   The changes in the concentrations increase the amount of boron in the sump following a LOCA. The increased boron in the sump is sufficient to maintain the core in a subcritical condition. Also, a revised hot leg switchover time has been calculated and will be implemented in the plant EOPs. Thus, there will be no boron precipitation in the core following a LOCA.

   All systems, structures, and components previously required for the mitigation of an event remain capable of fulfilling their intended design function. The proposed change has no adverse a[e]ffect on any safety-related system or component and does not challenge the performance or integrity of any

safety[-]related system. Therefore, the proposed increase in accumulator boron concentration does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. TS 3/4.5.5 - Refueling Water Storage Tank - Boron Concentration Increase

   The change to the RWST concentration does not cause the initiation of any accident nor create any new credible limiting single failure. The change does not result in a condition where the design, material, and construction standards of the RWST and other potentially affected NSSS components, that were applicable prior to the changes, are altered. The integrity and operability of the stainless steel surfaces in the RWST and affected NSSS components/systems will be maintained. The decrease in solution pH is small and will not degrade the stainless steel. Also, the integrity of the Class 1E instrumentation and control equipment will be maintained during a LOCA since the lower sump pH, resulting from the increased boron concentrations, is still within the applicable equipment qualification limits. These limits are set to preclude the possibility of chloride[-]induced stress corrosion cracking and assure that there is no significant degradation of polymer materials.

   The changes in the concentrations increase the amount of boron in the sump following a LOCA. The increased boron in the sump is sufficient to maintain the core in a subcritical condition. Also, a revised hot leg switchover time has been calculated and will be implemented in the plant EOPs. Thus, there will be no boron precipitation in the core following a LOCA.

   All systems, structures, and components previously required for the mitigation of an event remain capable of fulfilling their intended design function. The proposed change has no adverse affect on any safety-related system or component and does not challenge the performance or integrity of any safety[-]related system. Therefore, the proposed increase in RWST boron concentration does not create the possibility of a new or different kind of accident from any accident previously evaluated.

4. TS 3/4.7.14 and Bases - Cask Pit Pool Minimum Boron Concentration - Deletion of Requirements

   This change removes the provisions that allow and support the storage of spent fuel in the cask pit pool. By eliminating this provision, the potential for criticality events associated with stored fuel in the cask pit pool is no longer credible. The boron concentration requirement for the cask pit pool is not considered a contributor to accident generation and therefore, this deletion does not increase the [possibility of] potential for [a new or different kind of] accident [from any accident previously evaluated] generation because spent fuel will not be stored in this location.

5. TS 5.3.1 - Design Features/Reactor Core/Fuel Assemblies

   TPBARS have been designed to be compatible with existing fuel assemblies supplied by Framatome-ANP and its predecessor Framatome Cogema Fuels and with conventional Burnable Poison Rod Assembly (BPRA) handling tools, equipment, and procedures. Therefore, no new [or different kind of] accidents or equipment malfunctions are created by the handling of TPBARs. . . .

   TPBARs use materials with known and predictable performance characteristics and are compatible with pressurized water reactor coolant. The TPBAR design has specifically included material similar to those used in standard burnable absorber rods with the exception of internal assemblies used in the production and retention of tritium. As described in the TPC Topical Report, these materials are compatible with the reactor coolant system (RCS) and core design. Therefore, no new accidents or equipment malfunctions are created by the presence of the TPBARs in the RCS.

   Mechanical design criteria have been established to ensure that TPBARs will not fail during Condition I or II events. Analysis has shown that TPBARs, appropriately positioned in the core, operate within the established thermal-hydraulic criteria. Due to the expected high reliability of TPBAR components, the frequency of TPBAR cladding failures is very small, such that multiple adjacent TPBAR failures in limiting locations is not considered credible. In addition, analysis has shown that if a single TPBAR fails catastrophically in a high power location during normal operation and the lithium is leached out, the global reactivity increase is negligible and the local power peaking is small enough that DNBR [departure from nucleate boiling ratio] limits and fuel rod integrity are not challenged. Therefore, no new [or different kind of] accidents or equipment malfunctions are created by the presence of the TPBARs in the reactor.

   Analysis has shown that TPBARs will not fail during Condition III and IV events with the exception of a LBLOCA and a fuel handling accident. The radiological consequences of these events are within 10 CFR 100 limits. Therefore, there is no significant increase in consequences of these previously evaluated accidents.

   TPBARs do not adversely affect reactor neutronic [or] thermal-hydraulic performance, therefore they do not create the possibility of [new or different kinds of] accidents or equipment malfunctions of a different type [of accident] than previously evaluated while in the reactor.

6. TS 5.6 and TS 3/4.7.13 Bases - Design Features/Fuel Storage and Spent Fuel Pool Minimum Boron Concentration - Revised Storage Requirements for Fuel Assemblies Containing TPBARs

   The storage in the spent fuel pool of spent fuel that has contained TPBARs is not a fundamental change in the use of the spent fuel pool. Specific provisions have been made for burnup and cooling time requirements in allowable

configurations to ensure safe storage. The same administrative program to control storage requirements in the spent fuel pool will be utilized to handle Type A and Type T spent fuel. Therefore, the possibility of a new or different [kind of] accident than [any accident] previously evaluated has not been created.

7. TPBAR Consolidation Activity

   The consolidation and handling systems are designed to preclude the possibility of a consolidating and/or handling event which could damage more than 24 TPBARs. Therefore, this proposed amendment does not create the possibility of a new or different kind of accident from any [accident] previously evaluated.

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

1. TS Table 3.3-9 - Remote Shutdown Monitoring Instrumentation - Revised Source Range Monitor Range

   The backup source range monitors are for indication of unit shutdown conditions only and do not perform any trip or mitigation functions. The lowering of the monitor's range does allow improved indication of core conditions with the TPCs. While this monitor does not have any trip or accident mitigation functions, this change will improve the ability to assess the conditions of the unit such that necessary actions can be initiated to prevent undesired conditions. Therefore, the proposed change will not reduce [does not involve a significant reduction in] a margin of safety.

2. TS 3/4.5.1 - Cold Leg Injection Accumulators - Boron Concentration Increase

   The change does not invalidate any of the non-LOCA safety analysis results or conclusions, and all of the non-LOCA safety analysis acceptance criteria continue to be met. The licensing basis small break LOCA (SBLOCA) analysis does not credit the accumulator boron and is not affected by the proposed change. Therefore, there is no reduction in the margin to the peak clad temperature (PCT) limit for the SBLOCA. There is no increase in the LBLOCA PCT; therefore, the ECCS acceptance criteria limit, dictated by 10 CFR 50.46, is not exceeded with regard to the LBLOCA analysis. The increased boron concentration is sufficient to maintain subcriticality during the LBLOCA, and a post-LOCA long-term core cooling analysis demonstrated that the post-LOCA sump boron concentration is sufficient to prevent recriticality. The revised hot leg switchover time, which will be implemented in the EOPs, will prevent long-term cooling problems associated with boron precipitation in the reactor vessel and core. The licensing analyses for containment, equipment qualification, and environmental consequences remain bounding and applicable and the acceptance criteria of the related events continue to be met. The proposed increase in accumulator boron concentration, therefore, does not involve a significant reduction in a margin of safety.

3. TS 3/4.5.5 - Refueling Water Storage Tank - Boron Concentration Increase

   The change does not invalidate any of the non-LOCA safety analysis results or conclusions, and all of the non-LOCA safety analysis acceptance criteria continue to be met. The licensing basis SBLOCA analysis does not credit the RWST boron and is not affected by the proposed change. Therefore, there is no reduction in the margin to the PCT limit for the SBLOCA. There is no increase in the LBLOCA PCT; therefore, the ECCS acceptance criteria limit, dictated by 10 CFR 50.46, is not exceeded with regard to the LBLOCA analysis. The increased boron concentration is sufficient to prevent recriticality. The revised hot leg switchover time, which will be implemented in the EOPs, will prevent boron precipitation. The licensing analyses for containment, equipment qualification, and environmental consequences remain bounding and applicable and the acceptance criteria of the related events continue to be met. The proposed increase in RWST boron concentration, therefore, does not involve a significant reduction in a margin of safety.

4. TS 3/4.7.14 and Bases - Cask Pit Pool Minimum Boron Concentration - Deletion of Requirements

   This change removes the provisions that allow and support the storage of spent fuel in the cask pit pool. This change will not alter plant systems, operating methods, or plant setpoints that maintain the margin of safety. Boron concentration will continue to be properly maintained for the storage of spent fuel in the spent fuel pool as required by the analysis to control inadvertent criticality events. Therefore, this change will not reduce [does not involve a significant reduction in] the margin of safety.

5. TS 5.3.1 - Design Features/Reactor Core/Fuel Assemblies

   TPBARs have been designed to be compatible with existing fuel assemblies. TPBARs do not adversely affect reactor neutronic or thermal-hydraulic performance. Analysis indicates that reactor core behavior and offsite doses remain relatively unchanged. For these reasons, the proposed amendment does not involve a significant reduction in a margin of safety.

6. TS 5.6 and TS 3/4.7.13 Bases - Design Features/Fuel Storage and Spent Fuel Pool Minimum Boron Concentration - Revised Storage Requirements for Fuel Assemblies Containing TPBARs

   Addition of fuel assemblies containing TPBARs to the spent fuel pool is consistent with the pool design function. Specific provisions have been made as a result of reanalysis of spent fuel pool criticality safety analysis to limit storage configurations and burnup or cooling time requirements to those that will provide for safe storage of fresh and spent fuel. Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

7. TPBAR Consolidation Activity

   The changes do not affect the safety-related performance of any plant operations, system, structures, or components. Therefore, there is no [it does not involve a] significant reduction in the margin of safety.

The NRC staff has reviewed the no significant hazards consideration analysis provided by TVA with respect to the three criteria listed in 10 CFR 50.92(c). The staff's safety evaluation is in its early stages and will require several months to complete. However, in terms of 10 CFR 50.92(c), the staff finds that the TVA application addresses all applicable accidents discussed in the UFSAR, including LOCAs, SGTRs, and fuel handling considerations. Insertion of the TPBARS for the purpose of producing tritium (which is sealed inside the TPBARs) requires a higher degree of fuel enrichment with uranium-235. Because the TPBARs neither contain fissile material nor replace normal reactor fuel, and because the TPBARs will not adversely affect reactor neutronic or thermal-hydraulic performance, their presence in the core should have no effect upon the probability or consequences of previously analyzed accidents, including fuel handling accidents. For the same reasons, the possibility of a new or different kind of accident would not be expected to result from irradiation of the TPBARS in the SQN reactor cores. TVA's analysis of a possible reduction in safety margins addressed PCT limits resulting from an SBLOCA and the increased boron concentration to maintain subcriticality.

Based on the NRC staff's review of the analysis provided by the licensee, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

The Commission is seeking public comments on this proposed determination. Any comments received within 30 days after the date of publication of this notice will be considered in making any final determination.

Written comments may be submitted by mail to the Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory

Commission, Washington, DC 20555-0001, and should cite the publication date and page number of this FEDERAL REGISTER notice. Written comments may also be delivered to Room 6D59, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, from 7:30 a.m. to 4:15 p.m. Federal workdays. Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland.

The filing of requests for hearing and petitions for leave to intervene is discussed below.

By January 16, 2002, the licensee may file a request for a hearing with respect to issuance of the amendment to the subject facility operating license and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written request for a hearing and a petition for leave to intervene. Requests for a hearing and a petition for leave to intervene shall be filed in accordance with the Commission's "Rules of Practice for Domestic Licensing Proceedings" in 10 CFR Part 2. Interested persons should consult a current copy of 10 CFR 2.714, which is available at the Commission's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland, or electronically on the Internet at the NRC Web site http://www.nrc.gov/NRC/CFR/index.html. If there are problems in accessing the document, contact the Public Document Room Reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr@nrc.gov. If a request for a hearing or petition for leave to intervene is filed by the above date, the Commission or an Atomic Safety and Licensing Board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition; and the Secretary or the designated Atomic Safety and Licensing Board will issue a notice of hearing or an appropriate order.

As required by 10 CFR 2.714, a petition for leave to intervene shall set forth with particularity the interest of the petitioner in the proceeding, and how that interest may be affected by the results of the proceeding. The petition should specifically explain the reasons why intervention should be permitted with particular reference to the following factors: (1) the nature of the petitioner's right under the Act to be made party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order which may be entered in the proceeding on the petitioner's interest. The petition should also identify the specific aspect(s) of the subject matter of the proceeding as to which petitioner wishes to intervene. Any person who has filed a petition for leave to intervene or who has been admitted as a party may amend the petition without requesting leave of the Board up to 15 days prior to the first prehearing conference scheduled in the proceeding, but such an amended petition must satisfy the specificity requirements described above.

Not later than 15 days prior to the first prehearing conference scheduled in the proceeding, a petitioner shall file a supplement to the petition to intervene which must include a list of the contentions which are sought to be litigated in the matter. Each contention must consist of a specific statement of the issue of law or fact to be raised or controverted. In addition, the petitioner shall provide a brief explanation of the bases of the contention and a concise statement of the alleged facts or expert opinion which support the contention and on which the petitioner intends to rely in proving the contention at the hearing. The petitioner must also provide references to those specific sources and documents of which the petitioner is aware and on which the petitioner intends to rely to establish those facts or expert opinion. Petitioner must provide sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact. Contentions shall be limited to matters within the scope of the amendment under consideration. The contention must be one which, if proven, would entitle the petitioner to relief. A petitioner who fails to file such a supplement which

satisfies these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing, including the opportunity to present evidence and cross-examine witnesses.

If a hearing is requested, the Commission will make a final determination on the issue of no significant hazards consideration. The final determination will serve to decide when the hearing is held.

If the final determination is that the amendment request involves no significant hazards consideration, the Commission may issue the amendment and make it immediately effective, notwithstanding the request for a hearing. Any hearing held would take place after issuance of the amendment.

If the final determination is that the amendment request involves a significant hazards consideration, any hearing held would take place before the issuance of any amendment.

A request for a hearing or a petition for leave to intervene must be filed with the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff, or may be delivered to the Commission's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland, by the above date. A copy of the petition should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to General Counsel, Tennessee Valley Authority, ET 11A, 400 West Summit Hill Drive, Knoxville, TN 37902, attorney for the licensee.

Nontimely filings of petitions for leave to intervene, amended petitions, supplemental petitions and/or requests for hearing will not be entertained absent a determination by the

Commission, the presiding officer or the presiding Atomic Safety and Licensing Board that the petition and/or request should be granted based upon a balancing of the factors specified in 10 CFR 2.714(a)(1)(i)-(v) and 2.714(d).

Further details with respect to this action may be found in the application for amendment dated September 21, 2001, which is available for public inspection at the Commission's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible from the Agencywide Documents Access and Management Systems (ADAMS) Public Electronic Reading Room on the Internet at the NRC Web site, http://www.nrc.gov/NRC/ADAMS/index.html. Persons who do not have access to ADAMS, or who encounter problems in accessing the documents located in ADAMS, should contact the NRC Public Document Room Reference staff by telephone at 1-800-397-4209, 301-415-4737 or by e-mail to pdr@nrc.gov.

Dated at Rockville, Maryland, this 11 day of December 2001.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

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