TENNESSEE VALLEY AUTHORITY
1101 Market Street, Chattanooga, Tennessee 37402

CNL-26-016

June 2, 2026

10 CFR 50.90

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

Sequoyah Nuclear Plant, Units 1 and 2
Renewed Facility Operating License Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 50-328

Watts Bar Nuclear Plant, Units 1 and 2
Facility Operating License Nos. NPF-90 and NPF-96
NRC Docket Nos. 50-390 and 50-391

Subject: **TVA Fleet Application to Revise Technical Specifications to Adopt TSTF-471-A, Revision 1, "Eliminate use of term CORE ALTERATIONS in ACTIONS and Notes," (SQN-TS-26-01 and WBN-TS-26-01)**

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.90, “Application for amendment of license, construction permit, or early site permit,” Tennessee Valley Authority (TVA) is submitting a request for an amendment to Renewed Facility Operating License Nos. DPR-77 and DPR-79 for the Sequoyah Nuclear Plant (SQN), Units 1 and 2, and Facility Operating License Nos. NPF-90 and NPF-96 for the Watts Bar Nuclear Plant (WBN), Units 1 and 2, respectively.

TVA requests adoption of Technical Specifications Task Force (TSTF)-471-A, Revision 1, "Eliminate use of term CORE ALTERATIONS in ACTIONS and Notes," which is an approved change to the Standard Technical Specifications (STS), into the SQN Units 1 and 2 Technical Specifications (TS), and the WBN Units 1 and 2 TS. TSTF-471-A eliminates the defined term “CORE ALTERATIONS” from the Westinghouse STS (NUREG-1431).

The enclosure provides a description and assessment of the proposed changes. A model application for TSTF-471 was not developed and the enclosure follows the format for a typical license amendment.” Attachment 1 provides the existing SQN Unit 1 TS pages marked to show the proposed changes. Attachment 2 provides the existing SQN Unit 2 TS pages marked to show the proposed changes. Attachment 3 provides the existing WBN Unit 1 TS pages marked to show the proposed changes. Attachment 4 provides the

existing WBN Unit 2 TS pages marked to show the proposed changes. Attachment 5 provides the proposed TS Bases changes for SQN Unit 1 for information only. Attachment 6 provides the proposed TS Bases changes for SQN Unit 2 for information only. Attachment 7 provides the proposed TS Bases changes for WBN Unit 1 for information only. Attachment 8 provides the proposed TS Bases changes for WBN Unit 2 for information only. Changes to the existing TS Bases are provided for information only and will be implemented under the TS Bases Control Program.

TVA requests that the amendment be reviewed under the Consolidated Line Item Improvement Process (CLIIP). Approval of the proposed amendment is requested within 6 months of completion of the Nuclear Regulatory Commission acceptance review. Once approved, the amendment shall be implemented within 120 days.

TVA has determined that there are no significant hazards considerations associated with the proposed change. In accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosure to the Tennessee Department of Environment and Conservation.

There are no new regulatory commitments contained in this letter. Please address any questions regarding this request to Amber V. Aboulfaida, Senior Manager, Fleet Licensing, at avaboulfaida@tva.gov.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 2nd day of June 2026.

Respectfully,

Fegley, Damon Allan
Digitally signed by Fegley, Damon Allan
Date: 2026.06.02 15:23:18 -04'00'

Damon A. Fegley
General Manager, Nuclear Regulatory Affairs & Emergency Preparedness

Enclosure: Description and Assessment

cc (Enclosure):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Sequoyah Nuclear Plant
NRC Project Manager - Sequoyah Nuclear Plant
NRC Senior Resident Inspector - Watts Bar Nuclear Plant
NRC Project Manager - Watts Bar Nuclear Plant
Director, Division of Radiological Health - Tennessee Department of Environment and Conservation

Enclosure

Description and Assessment

Subject: TVA Fleet Application to Revise Technical Specifications to Adopt TSTF-471-A, Revision 1, "Eliminate use of term CORE ALTERATIONS in ACTIONS and Notes," (SQN TS-26-01 and WBN TS-26-01)

Table of Contents

Contents

Attachments

1. Proposed TS Changes (Mark-Ups) for SQN Unit 1
2. Proposed TS Changes (Mark-Ups) for SQN Unit 2
3. Proposed TS Changes (Mark-Ups) for WBN Unit 1
4. Proposed TS Changes (Mark-Ups) for WBN Unit 2
5. Proposed TS Bases Page Changes (Mark-Ups) for SQN Unit 1 (For Information Only)
6. Proposed TS Bases Page Changes (Mark-Ups) for SQN Unit 2 (For Information Only)
7. Proposed TS Bases Page Changes (Mark-Ups) for WBN Unit 1 (For Information Only)
8. Proposed TS Bases Page Changes (Mark-Ups) for WBN Unit 2 (For Information Only)

1.0 SUMMARY DESCRIPTION

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.90, “Application for amendment of license, construction permit, or early site permit,” Tennessee Valley Authority (TVA) is submitting a request for an amendment to Renewed Facility Operating License Nos. DPR-77 and DPR-79 for the Sequoyah Nuclear Plant (SQN), Units 1 and 2, and Facility Operating License Nos. NPF-90 and NPF-96 for the Watts Bar Nuclear Plant (WBN), Units 1 and 2, respectively.

TVA requests adoption of Technical Specifications Task Force (TSTF)-471-A, Revision 1, "Eliminate use of term CORE ALTERATIONS in ACTIONS and Notes," which is an approved change to the Standard Technical Specifications (STS), into the SQN Units 1 and 2 Technical Specifications (TS), and the WBN Units 1 and 2 TS. TSTF-471-A eliminates the defined term “CORE ALTERATIONS” from the STS (NUREG-1431).

2.0 DETAILED DESCRIPTION

2.1 Background

The term “CORE ALTERATION” is defined in the SQN and WBN TS 1.1 and includes the movement of any fuel, sources, or reactivity control components, or other components affecting reactivity within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of Core Alterations shall not preclude completion of movement of a component to a safe position."

TSTF-471-A, Section 4.0, “Technical Analysis,” states:

> *The term “core alteration” does not appear in the Standard Review Plan or in Title 10 of the Code of Federal Regulations. Since CORE ALTERATIONS only occur when the reactor vessel head is removed, it only applies in MODE 6. There are only two accidents considered during MODE 6 for PWRs: a fuel handling accident and a boron dilution accident.*

TSTF-471-A, Section 4.0, further analyzes the above accidents and concludes by stating:

> *In summary, with the exception of suspending movement of [recently] irradiated fuel assemblies, there are no DBAs or transients that are initiated by, or mitigation affected by, suspension of CORE ALTERATIONS. Therefore, if all Required Actions that require suspension of CORE ALTERATIONS also require suspension of movement of [recently] irradiated fuel, suspension of CORE ALTERATIONS provides no safety benefit.*

Chapter 15 of the SQN and WBN Updated Final Safety Analysis Reports (UFSAR) addresses the results of a fuel handling accident (FHA). Suspension of core alterations, except for suspension of movement of irradiated fuel, will not prevent or impair the mitigation of an FHA. A boron dilution accident is initiated by a dilution source which results in the boron concentration dropping below that required to maintain the shutdown margin. With the exception of suspending movement of irradiated fuel assemblies, there are no design basis accidents (DBAs) or transients that are initiated by, or mitigation affected by, suspension of core alterations. If the TS Required Actions that require suspension of core alterations also require suspension of movement of irradiated fuel, suspension of core alterations provides no safety benefit.

2.2 Proposed Changes

The term “CORE ALTERATIONS” is being deleted from the following TS.

SQN

- 1.1
- 3.3.7 Condition D and Required Action D.2
- Table 3.3.7-1 [Note (a)]
- 3.8.2 Required Actions A.2.2 and B.2
- 3.9.3 Required Action A.1 (replaced with “positive reactivity additions”)
- 3.9.8 Applicability, Required Action A.1, and Surveillance Requirement (SR) 3.9.8.1

WBN

- 1.1
- 3.8.2 Required Actions A.2.1 and B.1
- 3.8.5 Required Action B.2.1
- 3.8.8 Required Action A.2.1
- 3.8.10 Required Action A.2.1
- 3.9.1 Required Action A.1
- 3.9.2 Required Action A.1
- 3.9.3 Required Action A.1

Corresponding changes are also being made to the SQN and WBN TS Bases. Attachment 1 provides the existing SQN Unit 1 TS pages marked to show the proposed changes. Attachment 2 provides the existing SQN Unit 2 TS pages marked to show the proposed changes. Attachment 3 provides the existing WBN Unit 1 TS pages marked to show the proposed changes. Attachment 4 provides the existing WBN Unit 2 TS pages marked to show the proposed changes. Attachment 5 provides the proposed TS Bases changes for SQN Unit 1 for information only. Attachment 6 provides the proposed TS Bases changes for SQN Unit 2 for information only. Attachment 7 provides the proposed TS Bases changes for WBN Unit 1 for information only. Attachment 8 provides the proposed TS Bases changes for WBN Unit 2 for information only. Changes to the existing TS Bases are provided for information only and will be implemented under the TS Bases Control Program.

2.3 Variations from TSTF-471-A

SQN Units 1 and 2

Consistent with the intent of TSTF-471-A, the term “CORE ALTERATIONS” is being deleted from the following SQN TS that are not contained in the Westinghouse STS markups in TSTF-471-A:

- TS 3.3.7, “CREVS Actuation Instrumentation,” Condition D, Required Action D.2, and TS Table 3.3.7-1, Note (a).
- TS 3.9.8, “Decay Time.” The term “CORE ALTERATIONS” is being replaced with “movement of irradiated fuel assemblies within the containment,” which is consistent with WBN TS 3.9.10, “Decay Time,” and Westinghouse STS 3.9.7, “Refueling Cavity Water Level.” SQN TS 3.9.8 ensures that the fission product inventories assumed in the FHA analysis are met.

The following SQN TS that are being revised have different TS Required Action numbers than what is in TSTF-471-A

- TSTF-471-A revises Westinghouse STS 3.8.2 Required Actions A.2.1 and B.1, which are numbered A.2.2 and B.2 in the SQN TS.

TSTF-471-A revises the following Westinghouse STS, but the corresponding SQN TS do not contain the term “CORE ALTERATIONS.”

- TSTF-471-A revises Westinghouse STS 3.8.5, “DC Sources - Shutdown.” SQN TS 3.8.5 does not contain the term “CORE ALTERATIONS.”
- TSTF-471-A revises Westinghouse STS 3.8.8, “Inverters - Shutdown.” SQN TS 3.8.8 does not contain the term “CORE ALTERATIONS.”
- TSTF-471-A revises Westinghouse STS 3.8.10, “Distribution Systems - Shutdown.” SQN TS 3.8.10 does not contain the term “CORE ALTERATIONS.”
- TSTF-471-A revises Westinghouse STS 3.9.1, “Boron Concentration.” SQN TS 3.9.1 does not contain the term “CORE ALTERATIONS.”
- TSTF-471-A revises Westinghouse STS 3.9.2, “Unborated Water Source Isolation Valves.” SQN TS 3.9.2 does not contain the term “CORE ALTERATIONS.”

WBN Units 1 and 2

TSTF-471-A revises Westinghouse STS 3.9.3, Required Action A.1, to change Suspend CORE ALTERATIONS” to “Suspend positive reactivity additions.” WBN TS 3.9.3, Required Actions A.1 and A.2 currently state:

> *A.1 Suspend CORE ALTERATIONS.*
>
> *AND*
>
> *A.2 Suspend positive reactivity additions.*

Consistent with the TSTF-471-A revision to Westinghouse STS 3.9.3, TVA is deleting the current WBN TS 3.9.3 Required Action A.1 and retaining existing Required Action A.2 (renumbered as A.1).

Additionally, TVA has submitted a license amendment request (LAR) to adopt TSTF-286 (ML25237A197, dated August 25, 2025).

Following adoption of both TSTF-286 and TSTF-471, WBN TS 3.9.3 will state:

> *A.1 Suspend positive reactivity additions.*
>
> *AND*
>
> *A.2 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1.*

This will align the WBN TS 3.9.3 with the SQN TS 3.9.3. TVA does not consider this LAR and the TSTF-286 LAR referenced above to be linked submittals in accordance with LIC-109, Revision 3, “Acceptance Review Procedures for Licensing Basis Changes.”

Additionally, current Westinghouse STS 3.9.3, Required Action A.2, states:

> A.2 ---------- NOTE ----------
> Fuel assemblies, sources, and reactivity control components may be moved if necessary to restore an inoperable source range neutron flux monitor or to complete movement of a component to a safe condition.
> ----------
> Suspend movement of fuel, sources, and reactivity control components within the reactor vessel.

The above Required Action A.2 of STS 3.9.3 along with the associated Note was added to the Westinghouse STS in TSTF-571-T, “Revise Actions for Inoperable Source Range Neutron Flux Monitor.” The Nuclear Regulatory Commission (NRC) has not approved TSTF-571-T and TVA has no current plans to adopt it.

2.4 NRC Approval

The NRC documented their approval of TSTF-471-A in a letter from Timothy J. Kobets to the Technical Specification Task Force dated December 7, 2006 (ML062860320). The NRC approval included a safety evaluation, which had no limitations or conditions.

3.0 Technical Evaluation

3.1 System Descriptions

Control Room Emergency Ventilation System (CREVS) Actuation Instrumentation (SQN TS 3.3.7)

The CREVS provides an enclosed control room environment from which the unit can be operated following an uncontrolled release of radioactivity. During normal operation, the Control Building Ventilation System provides control room ventilation. Upon receipt of an actuation signal, the CREVS initiates filtered ventilation and pressurization of the control room. This system is described in the Bases for Limiting Condition for Operation (LCO) 3.7.10, "Control Room Emergency Ventilation System (CREVS)." The actuation instrumentation consists of redundant radiation monitors in the air intake. A high radiation signal from any detector will initiate its associated train of the CREVS. The control room operator can also initiate CREVS trains by manual switches in the control room. The CREVS is also actuated by a safety injection (SI) signal. The SI Function is discussed in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation."

Alternating Current (AC) Sources - Shutdown (SQN and WBN TS 3.8.2)

The operability of the minimum AC sources during Modes 5 and 6 and during movement of irradiated fuel assemblies ensures that:

a. The unit can be maintained in the shutdown or refueling condition for extended periods,

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status, and

c. Adequate AC electrical power is provided to mitigate events postulated during shutdown, such as an FHA.

In general, when the unit is shut down, the TS requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or all onsite power is not required. This is because many DBAs that are analyzed in Modes 1, 2, 3, and 4 are deemed not credible in Modes 5 and 6 because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and result in minimal consequences. These limitations during shutdown conditions are reflected in the LCO for required systems.

Direct Current (DC) Sources - Shutdown (WBN TS 3.8.5)

Two 125 volt (V) vital DC electrical power subsystems (Train A and Train B), consist of two channels each. Each channel consisting of a battery bank, associated battery charger and the corresponding control equipment and interconnecting cabling supplying power to the associated DC bus within the channel; and one diesel (DG) DC electrical power subsystem for each DG, consisting of a battery, a dual battery charger assembly, and the corresponding control equipment and interconnecting cabling are required to be operable to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. Loss of any DC electrical power subsystem does not prevent the minimum safety function from being performed. An operable vital DC electrical power subsystem requires all required batteries and respective chargers to be operating and connected to the associated DC buses. The operability of the DC sources is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' operability.

Inverters - Shutdown (WBN TS 3.8.8)

The inverters ensure the availability of AC electrical power for the systems instrumentation required to shut down the reactor and maintain it in a safe condition after an AOO or a postulated DBA. Maintaining the required inverters operable ensures that the redundancy incorporated into the design of the reactor protection system (RPS) and ESFAS instrumentation and controls is maintained. The inverters ensure an uninterruptible supply of AC electrical power to the AC vital buses even if the 6.9 kilovolt (kV) shutdown boards are de-energized.

Distribution Systems Shutdown (WBN TS 3.8.10)

The required power distribution subsystems ensure the availability of AC, vital DC, and AC vital bus electrical power for the systems required to shut down the reactor and maintain it in a safe condition after an AOO or a postulated DBA. The AC, vital DC, and AC vital bus electrical power distribution subsystems are required to be operable. Maintaining the Train A and Train B AC, four channels of vital DC, and four channels of AC vital bus electrical power distribution

subsystems operable ensures that the redundancy incorporated into the design of engineered safety features is not defeated. Therefore, a single failure within any system or within the electrical power distribution subsystems will not prevent safe shutdown of the reactor.

Boron Concentration (WBN TS 3.9.1)

The limit on the boron concentrations of the reactor coolant system (RCS), the refueling canal, and the refueling cavity during refueling ensures that the reactor remains subcritical during Mode 6. Refueling boron concentration is the soluble boron concentration in the coolant in each of these volumes having direct access to the reactor core during refueling. The soluble boron concentration offsets the core reactivity and is measured by chemical analysis of a representative sample of the coolant in each of the volumes. The refueling boron concentration limit is specified in the Core Operating Limits Report. Plant procedures ensure the specified boron concentration in order to maintain an overall core reactivity of $k_{eff} \leq 0.95$ during fuel handling, with control rods and fuel assemblies assumed to be in the most adverse configuration (least negative reactivity) allowed by plant procedures.

Unborated Water Source Isolation Valves (WBN TS 3.9.2)

During Mode 6 operations, the isolation valves for reactor makeup water sources containing unborated water that are connected to the RCS must be closed to prevent unplanned boron dilution of the reactor coolant. The isolation valves must be secured in the closed position. The Chemical and Volume Control System is capable of supplying borated and unborated water to the RCS through various flow paths. Because a positive reactivity addition made by reducing the boron concentration is inappropriate during Mode 6, isolation of all unborated water sources prevents an unplanned boron dilution.

Nuclear Instrumentation (SQN TS 3.9.3)

The source range neutron flux monitors are used during refueling operations to monitor the core reactivity condition. The installed source range neutron flux monitors are part of the nuclear instrumentation system. These detectors are located external to the reactor vessel and detect neutrons leaking from the core. The TS requires that two source range neutron flux monitors be operable to ensure that redundant monitoring capability is available to detect changes in core reactivity. The TS Required Actions ensure that positive reactivity is not inadvertently added to the reactor core while the source range neutron flux monitor is inoperable. If core alterations are being performed during Mode 6 (the applicability for this TS), they must be suspended if the required nuclear instrumentation is determined to be inoperable.

Decay Time (SQN TS 3.9.8)

The primary purpose of the decay time requirement is to ensure that the fission product inventories assumed in the FHA analysis are met. As soon as the reactor is subcritical, the quantity of fission products in the core decreases as the fission products undergo natural radioactive decay. As long as the reactor remains subcritical, this decrease will continue and the radiation levels will also decrease.

3.2 Accident Analysis

The changes being made to the SQN and WBN TS in this license amendment request have no impact to any assumptions or inputs to the SQN and WBN safety analyses. The current safety

analyses remain valid and unchanged with the introduction of these changes; therefore, these changes are acceptable.

4.0 REGULATORY ANALYSIS

4.1 Applicable Regulatory Requirements/Criteria

The regulatory requirements associated with this amendment application include the following:

10 CFR 50.36, "Technical specifications," details the content and information that must be included in a station's TS. In accordance with 10 CFR 50.36, TSs are required to include (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements; (4) design features; and (5) administrative controls.

Appendix A to Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR 50), General Design Criteria (GDC) 61, "Fuel storage and handling and radioactivity control," requires that fuel storage systems be designed to assure adequate safety under normal and postulated accident conditions. The criticality safety evaluation demonstrates continued conformance with GDC 61. No administrative or physical changes are proposed that affect the ability to perform inspections, testing, shielding for radiation protection, confinement and filtering of potential effluents, or decay heat removal, nor is there any impact on assumed fuel storage coolant inventory under accident conditions.

4.2 Precedent

This LAR is similar to the following license amendments that approved the adoption of TSTF-471:

- NRC letter to Vistra Operations Company LLC, “Comanche Peak Nuclear Power Plant, Unit Nos. 1 and 2 - Issuance of Amendment Nos. 193 and 193, Respectively, Re: Change to Technical Specifications Consistent With TSTF-51-A, TSTF-471-A and TSTF-571 (EPID L-2024-LLA-0123),” dated August 27, 2025 (ML25213A183)
- NRC letter to Southern Nuclear Operating Co, Inc, “Vogtle Electric Generating Plant, Units 1 and 2, Issuance of Amendments Nos. 219 And 202, Regarding Alternate Source Term, TSTF-51, TSTF-471, AND TSTF-490 (EPID L-2022-LLA-0096),” dated July 31, 2023 (ML23158A018)
- NRC letter to Prairie Island Nuclear Generating Plant, “Prairie Island Nuclear Generating Plant, Units 1 and 2 - Issuance of Amendments Re: TSTF-471, Revision 1 ‘Eliminate Use of Term Core Alterations in Actions and Notes,’ TSTF-571-T, ‘Revise Actions for Inoperable Source Range Neutron Flux Monitor,’ and Administrative Changes To Technical Specification Section 5.0 (EPID L-2021-LLA-0069),” dated April 1, 2022 (ML22061A206)

4.3 No Significant Hazards Considerations Analysis

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.90, “Application for amendment of license, construction permit, or early site permit,” Tennessee Valley Authority (TVA) is submitting a request for an amendment to Renewed Facility Operating License Nos. DPR-77 and DPR-79 for the Sequoyah Nuclear Plant (SQN), Units 1 and 2, and Facility Operating License Nos. NPF-90 and NPF-96 for the Watts Bar Nuclear Plant (WBN), Units 1 and 2, respectively.

TVA requests adoption of Technical Specifications Task Force (TSTF)-471-A, Revision 1, "Eliminate use of term CORE ALTERATIONS in ACTIONS and Notes," which is an approved change to the Standard Technical Specifications (STS), into the SQN Units 1 and 2 Technical Specifications (TS), and the WBN Units 1 and 2 TS. TSTF-471-A eliminates the defined term “CORE ALTERATIONS” from the Westinghouse STS (NUREG-1431).

TVA evaluated whether or not a significant hazards consideration is involved with the proposed amendments by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below (separate sections are provided for each TSTF discussed above.)

1. *Does the proposed amendment involve a significant increase in the probability or consequence of an accident previously evaluated?*

   Response: No.

   Core alterations are not an initiator of any accident previously evaluated except a fuel handling accident (FHA). Those revised TS, which protect the initial conditions of an FHA, also require the suspension of movement of irradiated fuel assemblies, which protects the initial condition of a fuel handling accident. Therefore, suspension of core alterations is not required. Suspension of core alterations does not provide mitigation of any accident previously evaluated. Therefore, core alterations do not affect the initiators of the accidents previously evaluated and suspension of core alterations does not affect the mitigation of the accidents previously evaluated.

   Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. *Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?*

   Response: No.

   No new or different accidents result from utilizing the proposed change. The changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a significant change in the methods governing normal plant operation. In addition, the changes do not impose any new or different requirements. The changes do not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions.

   Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

Only two accidents are postulated to occur in the plant conditions in which core alterations may be made (i.e., an FHA and a boron dilution accident). Suspending movement of irradiated fuel assemblies prevents an FHA. Also requiring the suspension of core alterations is an overly broad, redundant requirement that does not increase the margin of safety. Core alterations have no effect on a boron dilution accident. Core components are not involved in the creation or mitigation of a boron dilution accident, and the shutdown margin limit is based on assuming the worst-case configuration of the core components. Therefore, core alterations have no effect on the margin of safety related to a boron dilution accident

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

3.2 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.

4.0 ENVIRONMENTAL CONSIDERATION

A review has determined the proposed change qualifies for a categorical exclusion from environmental review in accordance with 10 CFR 51.22. The proposed action is an amendment regarding the installation or use of a facility component as described in 10 CFR 51.22(d)(8). The proposed action does not disturb any previously undisturbed ground and there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, does not result in a significant increase in individual or cumulative public or occupational radiation exposure, and does not result in a significant increase in the potential for or consequences from radiological accidents. Therefore, pursuant to 10 CFR 51.22, neither an environmental assessment nor an environmental impact statement is required.

Enclosure

Attachment 1

Proposed TS Changes (Mark-Ups) for SQN Unit 1

1.1 Definitions

CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. The COT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
~~CORE ALTERATION~~	~~CORE ALTERATION shall be the movement of any fuel, sources, reactivity control components, or other components affecting reactivity within the reactor vessel with the head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.~~
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.3. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries per gram) that alone would produce the same dose when inhaled as the combined activities of iodine isotopes I-131, I-132, I-133, I-134, and I-135 actually present. The determination of DOSE EQUIVALENT I-131 shall be performed using thyroid dose conversion factors from Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
DOSE EQUIVALENT XE-133	DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, "External Exposure to Radionuclides in Air, Water, and Soil."

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. Required Action and associated Completion Time for Condition A or B not met during movement of irradiated fuel assemblies~~, or during CORE ALTERATIONS~~.	D.1 Suspend movement of irradiated fuel assemblies. ~~AND~~ ~~D.2 Suspend CORE ALTERATIONS.~~	Immediately ~~Immediately~~
E. Required Action and associated Completion Time for Condition A or B not met in MODE 5 or 6.	E.1 Initiate action to restore one CREVS train to OPERABLE status.	Immediately

Table 3.3.7-1 (page 1 of 1)
CREVS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	1, 2, 3, 4, 5, 6, (a)	2 trains	SR 3.3.7.3	NA
2. Control Room Radiation				
a. Control Room Air Intakes	1, 2, 3, 4, 5, 6, (a)	2	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.4	≤ 400 cpm (b)
3. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.			

(a) During movement of irradiated fuel assemblies.~~,~~
~~During CORE ALTERATIONS.~~

(b) Equivalent to 1.0×10^{-5} µCi/cc.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.1 Suspend movement of irradiated fuel assemblies. ~~AND~~ ~~A.2.2 Suspend CORE ALTERATIONS.~~ AND A.2.~~3~~2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. AND A.2.~~4~~3 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately ~~Immediately~~ Immediately Immediately
B. One or more required DG(s) inoperable.	B.1 Suspend movement of irradiated fuel assemblies. ~~AND~~ ~~B.2 Suspend CORE ALTERATIONS.~~ AND B.~~3~~2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. AND B.~~4~~3 Initiate action to restore required DG(s) to OPERABLE status.	Immediately ~~Immediately~~ Immediately Immediately

3.9 REFUELING OPERATIONS

3.9.3 Nuclear Instrumentation

LCO 3.9.3 Two source range neutron flux monitors shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One source range neutron flux monitor inoperable.	A.1 Suspend ~~CORE ALTERATIONS~~positive reactivity additions.	Immediately
	AND	
	A.2 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
B. Two source range neutron flux monitors inoperable.	B.1 Initiate action to restore one source range neutron flux monitor to OPERABLE status.	Immediately
	AND	
	B.2 Perform SR 3.9.1.1.	Once per 12 hours

3.9 REFUELING OPERATIONS

3.9.8 Decay Time

LCO 3.9.8 The reactor shall be subcritical for ≥ 100 hours.

APPLICABILITY: During ~~CORE ALTERATIONS~~movement of irradiated fuel assemblies within the containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor subcritical for < 100 hours.	A.1 Suspend movement of irradiated fuel assemblies within the containment~~CORE ALTERATIONS~~.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify the reactor has been subcritical for ≥ 100 hours.	Prior to movement of irradiated fuel assemblies within the containment~~CORE ALTERATIONS~~

Enclosure

Attachment 2

Proposed TS Changes (Mark-Ups) for SQN Unit 2

1.1 Definitions

CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. The COT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
~~CORE ALTERATION~~	~~CORE ALTERATION shall be the movement of any fuel, sources, reactivity control components, or other components affecting reactivity within the reactor vessel with the head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.~~
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.3. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries per gram) that alone would produce the same dose when inhaled as the combined activities of iodine isotopes I-131, I-132, I-133, I-134, and I-135 actually present. The determination of DOSE EQUIVALENT I-131 shall be performed using thyroid dose conversion factors from Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
DOSE EQUIVALENT XE-133	DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, "External Exposure to Radionuclides in Air, Water, and Soil."

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. Required Action and associated Completion Time for Condition A or B not met during movement of irradiated fuel assemblies~~, or during CORE ALTERATIONS~~.	D.1 Suspend movement of irradiated fuel assemblies. ~~AND~~ ~~D.2 Suspend CORE ALTERATIONS.~~	Immediately ~~Immediately~~
E. Required Action and associated Completion Time for Condition A or B not met in MODE 5 or 6.	E.1 Initiate action to restore one CREVS train to OPERABLE status.	Immediately

Table 3.3.7-1 (page 1 of 1)
CREVS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	1, 2, 3, 4, 5, 6, (a)	2 trains	SR 3.3.7.3	NA
2. Control Room Radiation				
a. Control Room Air Intakes	1, 2, 3, 4, 5, 6, (a)	2	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.4	≤ 400 cpm (b)
3. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.			

(a) During movement of irradiated fuel assemblies.~~,~~
~~During CORE ALTERATIONS.~~

(b) Equivalent to 1.0×10^{-5} µCi/cc.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.1 Suspend movement of irradiated fuel assemblies. ~~AND~~ ~~A.2.2 Suspend CORE ALTERATIONS.~~ AND A.2.~~3~~2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. AND A.2.~~4~~3 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately ~~Immediately~~ Immediately Immediately
B. One or more required DG(s) inoperable.	B.1 Suspend movement of irradiated fuel assemblies. ~~AND~~ ~~B.2 Suspend CORE ALTERATIONS.~~ AND B.~~3~~2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. AND B.~~4~~3 Initiate action to restore required DG(s) to OPERABLE status.	Immediately ~~Immediately~~ Immediately Immediately

3.9 REFUELING OPERATIONS

3.9.3 Nuclear Instrumentation

LCO 3.9.3 Two source range neutron flux monitors shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One source range neutron flux monitor inoperable.	A.1 Suspend ~~CORE ALTERATIONS~~positive reactivity additions.	Immediately
	AND	
	A.2 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
B. Two source range neutron flux monitors inoperable.	B.1 Initiate action to restore one source range neutron flux monitor to OPERABLE status.	Immediately
	AND	
	B.2 Perform SR 3.9.1.1.	Once per 12 hours

3.9 REFUELING OPERATIONS

3.9.8 Decay Time

LCO 3.9.8 The reactor shall be subcritical for ≥ 100 hours.

APPLICABILITY: During ~~CORE ALTERATIONS~~movement of irradiated fuel assemblies within the containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor subcritical for < 100 hours.	A.1 Suspend movement of irradiated fuel assemblies within the containment~~CORE ALTERATIONS~~.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify the reactor has been subcritical for ≥ 100 hours.	Prior to movement of irradiated fuel assemblies within the containment~~CORE ALTERATIONS~~

Enclosure

Attachment 3

Proposed TS Changes (Mark-Ups) for WBN Unit 1

1.1 Definitions (continued)

CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. The COT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devise included in the step.
~~CORE ALTERATION~~	~~CORE ALTERATION shall be the movement of any fuel, sources, or other reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.~~
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the initial and current reload cycle. These cycle specific parameter limits shall be determined for the initial and each reload cycle in accordance with Specification 5.9.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose when inhaled as the combined activities of iodine isotopes I-131, I-132, I-133, I-134, and I-135 actually present. The determination of DOSE EQUIVALENT I-131 shall be performed using thyroid does conversion factors from Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977.
DOSE EQUIVALENT XE-133	DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, “External Exposure to Radionuclides in Air, Water and Soil.”

(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources-Shutdown

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems-Shutdown"; and

b. Two diesel generators (DGs) either Train A or Train B capable of supplying one train of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10.

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. ----------	
	A.1 Declare affected required feature(s) with no offsite power available inoperable.	Immediately
	OR	
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.~~2~~1 Suspend movement of irradiated fuel assemblies. AND	Immediately
	A.2.~~3~~2 Initiate action to suspend operations involving positive reactivity additions. AND	Immediately
	A.2.~~4~~3 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One required DG inoperable.	~~B.1 Suspend CORE ALTERATIONS.~~ ~~AND~~	~~Immediately~~
	B.~~1~~2 Suspend movement of irradiated fuel assemblies. AND	Immediately
	B.~~2~~3 Initiate action to suspend operations involving positive reactivity additions. AND	Immediately
	B.~~3~~4 Initiate action to restore required DG to OPERABLE status.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more required vital DC electrical power subsystems inoperable for reasons other than Condition A. OR Required Actions and associated Completion Time of Condition A not met.	B.1.1 Declare affected required feature(s) inoperable. OR ~~B.2.1 Suspend CORE ALTERATIONS.~~ ~~AND~~ B.2.~~1~~2 Suspend movement of irradiated fuel assemblies. AND B.2.~~2~~3 Initiate action to suspend operations involving positive reactivity additions. AND B.2.~~3~~4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately ~~Immediately~~ Immediately Immediately Immediately
C. One required DG DC electrical power subsystem inoperable.	C.1 Declare associated DG inoperable.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 Inverters shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverter channels inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	A.2.~~1~~2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.~~2~~3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND	
	A.2.~~3~~4 Initiate action to restore required inverters to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems-Shutdown

LCO 3.8.10 The necessary portion of AC, vital DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, vital DC, or AC vital bus electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable. OR ~~A.2.1 Suspend CORE ALTERATIONS.~~ ~~AND~~ A.2.~~1~~2 Suspend movement of irradiated fuel assemblies. AND A.2.~~2~~3 Initiate action to suspend operations involving positive reactivity additions. AND	Immediately ~~Immediately~~ Immediately Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.~~34~~ Initiate actions to restore required AC, vital DC, and AC vital bus electrical power distribution subsystems to OPERABLE status. AND A.2.~~45~~ Declare associated required residual heat removal subsystem(s) inoperable and not in operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required AC, vital DC, and AC vital bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of the Reactor Coolant System, the refueling canal, and the refueling cavity shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Boron concentration not within limit.	~~A.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	A.~~1~~2 Suspend positive reactivity additions.	Immediately
	AND	
	A.~~2~~3 Initiate action to restore boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is within the limit specified in COLR.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.2 Unborated Water Source Isolation Valves

LCO 3.9.2 Each valve used to isolate unborated water sources shall be secured in the closed position.

APPLICABILITY: MODE 6.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each unborated water source isolation valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Required Action A.~~3~~2 must be completed whenever Condition A is entered. ---------- One or more valves not secured in closed position.	~~A.1 Suspend CORE ALTERATIONS.~~ ~~AND~~ A.~~1~~2 Initiate action to secure valve in closed position. AND A.~~2~~3 Perform SR 3.9.1.1.	~~Immediately~~ Immediately 4 hours

3.9 REFUELING OPERATIONS

3.9.3 Nuclear Instrumentation

LCO 3.9.3 Two source range neutron flux monitors shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required source range neutron flux monitor inoperable.	~~A.1 Suspend CORE ALTERATIONS.~~ ~~AND~~ A.~~2~~1 Suspend positive reactivity additions.	~~Immediately~~ Immediately
B. Two required source range neutron flux monitors inoperable.	B.1 Initiate action to restore one source range neutron flux monitor to OPERABLE status. AND B.2 Perform SR 3.9.1.1.	Immediately 4 hours AND Once per 12 hours thereafter

Enclosure

Attachment 4

Proposed TS Changes (Mark-Ups) for WBN Unit 2

1.1 Definitions (continued)

CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify the OPERABILITY of all devices in the channel required for channel OPERABILITY. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for the channel OPERABILITY such that the setpoints are within the necessary range and accuracy. The COT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
~~CORE ALTERATION~~	~~CORE ALTERATION shall be the movement of any fuel, sources, or other reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.~~
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the initial and current reload cycle. These cycle specific parameter limits shall be determined for the initial and each reload cycle in accordance with Specification 5.9.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose when inhaled as the combined activities of iodine isotopes I-131, I-132, I-133, I-134, and I-135 actually present. The determination of DOSE EQUIVALENT I-131 shall be performed using thyroid dose conversion factors from Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977.

(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems-Shutdown;" and

b. Two diesel generators (DGs) either Train A or Train B capable of supplying one train of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10.

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. ----------	
	A.1 Declare affected required feature(s) with no offsite power available inoperable.	Immediately
	OR	
	~~A.2.1~~ ~~Suspend CORE ALTERATIONS~~	~~Immediately~~
	~~AND~~	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.~~1~~2	Suspend movement of irradiated fuel assemblies.	Immediately
	AND		
	A.2.~~2~~3	Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND		
	A.2.~~3~~4	Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One required DG inoperable.	~~B.1~~	~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~		
	B.~~1~~2	Suspend movement of irradiated fuel assemblies.	Immediately
	AND		
	B.~~2~~3	Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND		
	B.~~3~~4	Initiate action to restore required DG to OPERABLE status.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One or more required vital DC electrical power subsystems inoperable for reasons other than Condition A. OR Required Actions and associated Completion Time of Condition A not met.	B.1.1	Declare affected required feature(s) inoperable.	Immediately
	OR		
	~~B.2.1~~	~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
		~~AND~~	
	B.2.~~1~~2	Suspend movement of irradiated fuel assemblies.	Immediately
		AND	
	B.2.~~2~~3	Initiate action to suspend operations involving positive reactivity additions.	Immediately
		AND	
	B.2.~~3~~4	Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately
C. One required DG DC electrical power subsystem inoperable.	C.1	Declare associated DG inoperable.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 Inverters shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required inverter channels inoperable.	A.1	Declare affected required feature(s) inoperable.	Immediately
	OR		
	~~A.2.1~~	~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~		
	A.2.1~~2~~	Suspend movement of irradiated fuel assemblies.	Immediately
	AND		
	A.2.2~~3~~	Initiate action to suspend operations involving positive reactivity additions	Immediately
	AND		
	A.2.3~~4~~	Initiate action to restore required inverters to OPERABLE status	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portion of AC, vital DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, vital DC, or AC vital bus electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable. OR ~~A.2.1 Suspend CORE ALTERATIONS.~~ ~~AND~~ A.2.1~~2~~ Suspend movement of irradiated fuel assemblies. AND A.2.2~~3~~ Initiate action to suspend operations involving positive reactivity additions. AND	Immediately ~~Immediately~~ Immediately Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.34 Initiate actions to restore required AC, vital DC, and AC vital bus electrical power distribution subsystems to OPERABLE status. AND A.2.~~45~~ Declare associated required residual heat removal subsystem(s) inoperable and not in operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required AC, vital DC, and AC vital bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of the Reactor Coolant System, the refueling canal, and the refueling cavity shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Boron concentration not within limit.	~~A.1~~	~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~		
	A.~~1~~2	Suspend positive reactivity additions.	Immediately
	AND		
	A.~~2~~3	Initiate action to restore boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is within the limit specified in COLR.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.2 Unborated Water Source Isolation Valves

LCO 3.9.2 Each valve used to isolate unborated water sources shall be secured in the closed position.

APPLICABILITY: MODE 6.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each unborated water source isolation valve.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ----------NOTE---------- Required Action A.~~3~~2 must be completed whenever Condition A is entered. ---------- One or more valves not secured in closed position.	~~A.1~~	~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~		
	A.~~1~~2	Initiate action to secure valve in closed position.	Immediately
	AND		
	A.~~2~~3	Perform SR 3.9.1.1.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Verify each valve that isolates unborated water sources is secured in the closed position.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.3 Nuclear Instrumentation

LCO 3.9.3 Two source range neutron flux monitors shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required source range neutron flux monitor inoperable.	~~A.1~~	~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~		
	A.~~1~~2	Suspend positive reactivity additions.	Immediately
B. Two required source range neutron flux monitors inoperable.	B.1	Initiate action to restore one source range neutron flux monitor to OPERABLE status.	Immediately
	AND		
	B.2	Perform SR 3.9.1.1.	4 hours AND Once per 12 hours thereafter

Enclosure

Attachment 5

Proposed TS Bases Page Changes (Mark-Ups) for SQN Unit 1 (For Information Only)

B 3.3 INSTRUMENTATION

B 3.3.7 Control Room Emergency Ventilation System (CREVS) Actuation Instrumentation

BASES

BACKGROUND

The CREVS provides an enclosed control room environment from which the unit can be operated following an uncontrolled release of radioactivity. During normal operation, the Control Building Ventilation System provides control room ventilation. Upon receipt of an actuation signal, the CREVS initiates filtered ventilation and pressurization of the control room. This system is described in the Bases for LCO 3.7.10, "Control Room Emergency Ventilation System (CREVS)."

The actuation instrumentation consists of redundant radiation monitors in the air intake. A high radiation signal from any detector will initiate its associated train of the CREVS. The control room operator can also initiate CREVS trains by manual switches in the control room. The CREVS is also actuated by a safety injection (SI) signal. The SI Function is discussed in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation."

APPLICABLE SAFETY ANALYSES

The control room must be kept habitable for the operators stationed there during accident recovery and post accident operations.

The CREVS acts to terminate the supply of unfiltered outside air to the control room, initiate filtration, and pressurize the control room. These actions are necessary to ensure the control room is kept habitable for the operators stationed there during accident recovery and post accident operations by minimizing the radiation exposure of control room personnel.

In MODES 1, 2, 3, and 4, the radiation monitor actuation of the CREVS is a backup for the SI signal actuation. This ensures initiation of the CREVS during a loss of coolant accident or main steam line break.

The radiation monitor actuation of the CREVS in MODES 5 and 6, and during movement of irradiated fuel assemblies~~, and during CORE ALTERATIONS~~ are the primary means to ensure control room habitability in the event of a fuel handling accident.

The CREVS actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

The LCO requirements ensure that instrumentation necessary to initiate the CREVS is OPERABLE.

1. Manual Initiation

The LCO requires two channels OPERABLE. The operator can initiate the CREVS at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

Each channel consists of one hand switch and the interconnecting wiring to the actuation logic cabinet.

2. Control Room Radiation

The LCO specifies two required Control Room Air Intake Radiation Monitors to ensure that the radiation monitoring instrumentation necessary to initiate the CREVS remains OPERABLE.

For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY also requires correct valve lineups, and sample pump operation, as well as detector OPERABILITY.

3. Safety Injection

Refer to LCO 3.3.2, Function 1, for all initiating Functions and requirements.

APPLICABILITY

The CREVS Functions must be OPERABLE in MODES 1, 2, 3, 4, 5, and 6, and during movement of irradiated fuel assemblies~~, and during CORE ALTERATIONS~~ to ensure a habitable environment for the control room operators.

The Applicability for the CREVS actuation on the ESFAS Safety Injection Functions are specified in LCO 3.3.2. Refer to the Bases for LCO 3.3.2 for discussion of the Safety Injection Function Applicability.

BASES

ACTIONS (continued)

Alternatively, both trains may be placed in the recirculation mode. This ensures the CREVS function is performed even in the presence of a single failure.

C.1 and C.2

Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1 ~~and D.2~~

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met when irradiated fuel assemblies are being moved ~~or when CORE ALTERATIONS are being performed~~. Movement of irradiated fuel assemblies ~~and CORE ALTERATIONS~~ must be suspended immediately to reduce the risk of accidents that would require CREVS actuation.

E.1

Condition E applies when the Required Action and associated Completion Time for Condition A or B have not been met in MODE 5 or 6. Actions must be initiated to restore the inoperable train(s) to OPERABLE status immediately to ensure adequate isolation capability in the event of a fuel handling accident.

BASES

ACTIONS (continued)

movement. By the allowance of the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's ACTIONS.

A.2.1, A.2.2, A.2.3, ~~A.2.4,~~ B.1, B.2, and B.3~~, and B.4~~

With the offsite circuit not available to all required trains, the option would still exist to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With one or more required DGs inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend movement of irradiated fuel assemblies~~, CORE ALTERATIONS,~~ and operations involving positive reactivity additions that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that what would be required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM.

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability or the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

Pursuant to LCO 3.0.6, the Distribution System's ACTIONS would not be entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A are modified by a Note to indicate that when Condition A is entered with no AC power to any required 6.9 kV shutdown board, the ACTIONS for

BASES

APPLICABILITY

In MODE 6, the source range neutron flux monitors must be OPERABLE to determine changes in core reactivity. There are no other direct means available to check core reactivity levels. In MODES 2, 3, 4, and 5, these same installed source range detectors and circuitry are also required to be OPERABLE by LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation," and LCO 3.3.9, "Boron Dilution Monitoring Instrumentation (BDMI)."

ACTIONS

A.1 and A.2

With only one source range neutron flux monitor OPERABLE, redundancy has been lost. Since these instruments are the only direct means of monitoring core reactivity conditions, positive reactivity additions~~CORE ALTERATIONS~~ and introduction of coolant into the RCS with boron concentration less than required to meet the minimum boron concentration of LCO 3.9.1 must be suspended immediately. Suspending positive reactivity additions~~CORE ALTERATIONS~~ is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than what would be required in the RCS for minimum refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Performance of Required Action A.1 shall not preclude completion of movement of a component to a safe position.

B.1

With no source range neutron flux monitor OPERABLE, action to restore a monitor to OPERABLE status shall be initiated immediately. Once initiated, action shall be continued until a source range neutron flux monitor is restored to OPERABLE status.

B.2

With no source range neutron flux monitor OPERABLE, there are no direct means of detecting changes in core reactivity. However, since positive reactivity additions are not to be made, the core reactivity condition is stabilized until the source range neutron flux monitors are OPERABLE. This stabilized condition is determined by performing SR 3.9.1.1 to ensure that the required boron concentration exists.

The Completion Time of once per 12 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration and ensures that unplanned changes in boron concentration would be identified. The

B 3.9 REFUELING OPERATIONS

B 3.9.8 Decay Time

BASES

BACKGROUND	The primary purpose of the decay time requirement is to ensure that the fission product inventories assumed in the fuel handling accident analysis are met. As soon as the reactor is subcritical, the quantity of fission products in the core decreases as the fission products undergo natural radioactive decay. As long as the reactor remains subcritical, this decrease will continue and the radiation levels will also decrease.
APPLICABLE SAFETY ANALYSES	The fuel handling accident is the postulated event of concern in MODE 6 during fuel handling operations (Ref. 1). It establishes the minimum decay time. It is assumed that all of the fuel rods in the equivalent of one fuel assembly are damaged to the extent that all the gap activity in the rods is released. The damaged fuel assembly is assumed to be the assembly with the highest fission product inventory. The fission product inventories are those assumed to be present 100 hours after the reactor becomes subcritical. The decay time satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).
LCO	The LCO requires that the reactor be subcritical for at least 100 hours prior to commencing CORE ALTERATIONS. The requirement to be subcritical for greater than or equal to 100 hours ensures that the fission product radioactivity has undergone natural radioactive decay and that the consequences of a fuel handling accident will be within the bounds of the safety analysis.
APPLICABILITY	This LCO applies during ~~CORE ALTERATIONS~~movement of irradiated fuel assemblies within the containment, since the potential for a release of fission products exists.
ACTIONS	A.1 With the reactor subcritical for less than 100 hours, there shall be no operations involving movement of irradiated fuel assemblies within the containment~~CORE ALTERATIONS~~. This will preclude a fuel handling accident with fuel containing more fission product radioactivity than assumed in the safety analysis. The immediate Completion Time is consistent with the required times for actions to be performed without delay and in a controlled manner.

B 3.9 REFUELING OPERATIONS

B 3.9.8 Decay Time

BASES

BACKGROUND	The primary purpose of the decay time requirement is to ensure that the fission product inventories assumed in the fuel handling accident analysis are met. As soon as the reactor is subcritical, the quantity of fission products in the core decreases as the fission products undergo natural radioactive decay. As long as the reactor remains subcritical, this decrease will continue and the radiation levels will also decrease.
APPLICABLE SAFETY ANALYSES	The fuel handling accident is the postulated event of concern in MODE 6 during fuel handling operations (Ref. 1). It establishes the minimum decay time. It is assumed that all of the fuel rods in the equivalent of one fuel assembly are damaged to the extent that all the gap activity in the rods is released. The damaged fuel assembly is assumed to be the assembly with the highest fission product inventory. The fission product inventories are those assumed to be present 100 hours after the reactor becomes subcritical. The decay time satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).
LCO	The LCO requires that the reactor be subcritical for at least 100 hours prior to moving irradiated fuel assemblies within containment~~commencing CORE ALTERATIONS~~. The requirement to be subcritical for greater than or equal to 100 hours ensures that the fission product radioactivity has undergone natural radioactive decay and that the consequences of a fuel handling accident will be within the bounds of the safety analysis.
APPLICABILITY	This LCO applies during ~~CORE ALTERATIONS~~movement of irradiated fuel assemblies within the containment, since the potential for a release of fission products exists.
ACTIONS	A.1 With the reactor subcritical for less than 100 hours, there shall be no operations involving movement of irradiated fuel assemblies within the containment~~CORE ALTERATIONS~~. This will preclude a fuel handling accident with fuel containing more fission product radioactivity than assumed in the safety analysis. The immediate Completion Time is consistent with the required times for actions to be performed without delay and in a controlled manner.

B 3.9 REFUELING OPERATIONS

B 3.9.8 Decay Time

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.8.1

Prior to movement of irradiated fuel assemblies within the containment~~CORE ALTERATIONS~~, the reactor must be determined to be subcritical for greater than or equal to 100 hours by verifying the date and time that the reactor achieved subcritical conditions.

REFERENCES

1. UFSAR, Section 15.5.6.

Enclosure

Attachment 6

Proposed TS Bases Page Changes (Mark-Ups) for SQN Unit 2 (For Information Only)

B 3.3 INSTRUMENTATION

B 3.3.7 Control Room Emergency Ventilation System (CREVS) Actuation Instrumentation

BASES

BACKGROUND

The CREVS provides an enclosed control room environment from which the unit can be operated following an uncontrolled release of radioactivity. During normal operation, the Control Building Ventilation System provides control room ventilation. Upon receipt of an actuation signal, the CREVS initiates filtered ventilation and pressurization of the control room. This system is described in the Bases for LCO 3.7.10, "Control Room Emergency Ventilation System (CREVS)."

The actuation instrumentation consists of redundant radiation monitors in the air intake. A high radiation signal from any detector will initiate its associated train of the CREVS. The control room operator can also initiate CREVS trains by manual switches in the control room. The CREVS is also actuated by a safety injection (SI) signal. The SI Function is discussed in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation."

APPLICABLE SAFETY ANALYSES

The control room must be kept habitable for the operators stationed there during accident recovery and post accident operations.

The CREVS acts to terminate the supply of unfiltered outside air to the control room, initiate filtration, and pressurize the control room. These actions are necessary to ensure the control room is kept habitable for the operators stationed there during accident recovery and post accident operations by minimizing the radiation exposure of control room personnel.

In MODES 1, 2, 3, and 4, the radiation monitor actuation of the CREVS is a backup for the SI signal actuation. This ensures initiation of the CREVS during a loss of coolant accident or main steam line break.

The radiation monitor actuation of the CREVS in MODES 5 and 6, and during movement of irradiated fuel assemblies~~, and during CORE ALTERATIONS~~ are the primary means to ensure control room habitability in the event of a fuel handling accident.

The CREVS actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

The LCO requirements ensure that instrumentation necessary to initiate the CREVS is OPERABLE.

1. Manual Initiation

   The LCO requires two channels OPERABLE. The operator can initiate the CREVS at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

   The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

   Each channel consists of one hand switch and the interconnecting wiring to the actuation logic cabinet.

2. Control Room Radiation

   The LCO specifies two required Control Room Air Intake Radiation Monitors to ensure that the radiation monitoring instrumentation necessary to initiate the CREVS remains OPERABLE.

   For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY also requires correct valve lineups, and sample pump operation, as well as detector OPERABILITY.

3. Safety Injection

   Refer to LCO 3.3.2, Function 1, for all initiating Functions and requirements.

APPLICABILITY

The CREVS Functions must be OPERABLE in MODES 1, 2, 3, 4, 5, and 6, and during movement of irradiated fuel assemblies~~, and during CORE ALTERATIONS~~ to ensure a habitable environment for the control room operators.

The Applicability for the CREVS actuation on the ESFAS Safety Injection Functions are specified in LCO 3.3.2. Refer to the Bases for LCO 3.3.2 for discussion of the Safety Injection Function Applicability.

BASES

ACTIONS (continued)

Alternatively, both trains may be placed in the recirculation mode. This ensures the CREVS function is performed even in the presence of a single failure.

C.1 and C.2

Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1 ~~and D.2~~

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met when irradiated fuel assemblies are being moved ~~or when CORE ALTERATIONS are being performed~~. Movement of irradiated fuel assemblies ~~and CORE ALTERATIONS~~ must be suspended immediately to reduce the risk of accidents that would require CREVS actuation.

E.1

Condition E applies when the Required Action and associated Completion Time for Condition A or B have not been met in MODE 5 or 6. Actions must be initiated to restore the inoperable train(s) to OPERABLE status immediately to ensure adequate isolation capability in the event of a fuel handling accident.

BASES

ACTIONS (continued)

movement. By the allowance of the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's ACTIONS.

A.2.1, A.2.2, A.2.3, ~~A.2.4,~~ B.1, B.2, and B.3~~, and B.4~~

With the offsite circuit not available to all required trains, the option would still exist to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With one or more required DGs inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend movement of irradiated fuel assemblies~~, CORE ALTERATIONS,~~ and operations involving positive reactivity additions that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that what would be required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM.

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability or the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

Pursuant to LCO 3.0.6, the Distribution System's ACTIONS would not be entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A are modified by a Note to indicate that when Condition A is entered with no AC power to any required 6.9 kV shutdown board, the ACTIONS for

BASES

APPLICABILITY

In MODE 6, the source range neutron flux monitors must be OPERABLE to determine changes in core reactivity. There are no other direct means available to check core reactivity levels. In MODES 2, 3, 4, and 5, these same installed source range detectors and circuitry are also required to be OPERABLE by LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation," and LCO 3.3.9, "Boron Dilution Monitoring Instrumentation (BDMI)."

ACTIONS

A.1 and A.2

With only one source range neutron flux monitor OPERABLE, redundancy has been lost. Since these instruments are the only direct means of monitoring core reactivity conditions, positive reactivity additions~~CORE ALTERATIONS~~ and introduction of coolant into the RCS with boron concentration less than required to meet the minimum boron concentration of LCO 3.9.1 must be suspended immediately. Suspending positive reactivity additions~~CORE ALTERATIONS~~ is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than what would be required in the RCS for minimum refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Performance of Required Action A.1 shall not preclude completion of movement of a component to a safe position.

B.1

With no source range neutron flux monitor OPERABLE, action to restore a monitor to OPERABLE status shall be initiated immediately. Once initiated, action shall be continued until a source range neutron flux monitor is restored to OPERABLE status.

B.2

With no source range neutron flux monitor OPERABLE, there are no direct means of detecting changes in core reactivity. However, since positive reactivity additions are not to be made, the core reactivity condition is stabilized until the source range neutron flux monitors are OPERABLE. This stabilized condition is determined by performing SR 3.9.1.1 to ensure that the required boron concentration exists.

The Completion Time of once per 12 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration and ensures that unplanned changes in boron concentration would be identified. The

B 3.9 REFUELING OPERATIONS

B 3.9.8 Decay Time

BASES

BACKGROUND	The primary purpose of the decay time requirement is to ensure that the fission product inventories assumed in the fuel handling accident analysis are met. As soon as the reactor is subcritical, the quantity of fission products in the core decreases as the fission products undergo natural radioactive decay. As long as the reactor remains subcritical, this decrease will continue and the radiation levels will also decrease.
APPLICABLE SAFETY ANALYSES	The fuel handling accident is the postulated event of concern in MODE 6 during fuel handling operations (Ref. 1). It establishes the minimum decay time. It is assumed that all of the fuel rods in the equivalent of one fuel assembly are damaged to the extent that all the gap activity in the rods is released. The damaged fuel assembly is assumed to be the assembly with the highest fission product inventory. The fission product inventories are those assumed to be present 100 hours after the reactor becomes subcritical. The decay time satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).
LCO	The LCO requires that the reactor be subcritical for at least 100 hours prior to moving irradiated fuel assemblies within containment~~commencing CORE ALTERATIONS~~. The requirement to be subcritical for greater than or equal to 100 hours ensures that the fission product radioactivity has undergone natural radioactive decay and that the consequences of a fuel handling accident will be within the bounds of the safety analysis.
APPLICABILITY	This LCO applies during ~~CORE ALTERATIONS~~movement of irradiated fuel assemblies within the containment, since the potential for a release of fission products exists.
ACTIONS	A.1 With the reactor subcritical for less than 100 hours, there shall be no operations involving movement of irradiated fuel assemblies within the containment~~CORE ALTERATIONS~~. This will preclude a fuel handling accident with fuel containing more fission product radioactivity than assumed in the safety analysis. The immediate Completion Time is consistent with the required times for actions to be performed without delay and in a controlled manner.

B 3.9 REFUELING OPERATIONS

B 3.9.8 Decay Time

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.8.1

Prior to movement of irradiated fuel assemblies within the containment~~CORE ALTERATIONS~~, the reactor must be determined to be subcritical for greater than or equal to 100 hours by verifying the date and time that the reactor achieved subcritical conditions.

REFERENCES

1. UFSAR, Section 15.5.6.

Enclosure

Attachment 7

Proposed TS Bases Page Changes (Mark-Ups) for WBN Unit 1 (For Information Only)

BASES

APPLICABILITY

The AC sources required to be OPERABLE in MODES 5 and 6 and during movement of irradiated fuel assemblies provide assurance that:

a. Systems needed to mitigate a fuel handling accident are available;

b. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

c. Instrumentation and control capability is available for monitoring and maintaining the plant in a cold shutdown condition or refueling condition.

The AC power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.1.

ACTIONS

A.1

An offsite circuit would be considered inoperable if it were not available to one required ESF train. Although two trains are required by LCO 3.8.10, the one train with offsite power available may be capable of supporting sufficient required features to allow continuation of ~~CORE ALTERATIONS and~~ irradiated fuel movement. By the allowance of the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's ACTIONS.

A.2.1, A.2.2, A.2.3, ~~A.2.4,~~ B.1, B.2, and B.3~~, and B.4~~

With the offsite circuit not available to all required trains, the option would still exist to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With either required DG inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend ~~CORE ALTERATIONS,~~ movement of irradiated fuel assemblies~~,~~ and operations involving positive reactivity additions. The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory provided the required SDM is maintained.

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the plant safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power.

(continued)

BASES

ACTIONS

A.2.1, A.2.2, A.2.3, ~~A.2.4, and~~ B.1, B.2, and B.3~~, and B.4~~ (continued)

Pursuant to LCO 3.0.6, the Distribution System's ACTIONS would not be entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A are modified by a Note to indicate that when Condition A is entered with no AC power to any 6.9 kV shutdown board, the ACTIONS for LCO 3.8.10 must be immediately entered. This Note allows Condition A to provide requirements for the loss of the offsite circuit, whether or not a train is de-energized. LCO 3.8.10 would provide the appropriate restrictions for the situation involving a de-energized train.

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, 3, and 4. SR 3.8.1.8 is not required to be met since only one offsite circuit is required to be OPERABLE. SR 3.8.1.17 is not required to be met because the required OPERABLE DG(s) is not required to undergo periods of being synchronized to the offsite circuit. SR 3.8.1.21 is excepted because starting independence is not required with the DG(s) that is not required to be operable.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during performance of SRs, and to preclude deenergizing a required 6.9 kV bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR.

REFERENCES

1. Watts Bar FSAR, Section 8.0, "Electric Power."

2. Title 10, Code of Federal Regulations, Part 50, General Design Criterion 17, "Electric Power Systems."

BASES

ACTIONS (continued)

B.1, B.2.1, B.2.2, and B.2.3~~, and B.2.4~~

If two subsystems are required by LCO 3.8.10, the remaining subsystem with DC power available may be capable of supporting sufficient systems to allow continuation of ~~CORE ALTERATIONS and~~irradiated fuel movement. By allowing the option to declare required features inoperable with the associated vital DC power source(s) inoperable, appropriate restrictions will be implemented in accordance with the affected required features LCO ACTIONS. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend ~~CORE ALTERATIONS,~~ movement of irradiated fuel assemblies~~,~~ and operations involving positive reactivity additions). The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory, provided the required SDM is maintained.

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required vital DC electrical power subsystems and to continue this action until restoration is accomplished in order to provide the necessary DC electrical power to the plant safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required vital DC electrical power subsystems should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power.

C.1

If the DG DC electrical power subsystem cannot be restored to OPERABLE status in the associated Completion Time, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable. This declaration also requires entry into applicable Conditions and Required Actions for an inoperable DG, LCO 3.8.2, "AC Sources-Shutdown."

SURVEILLANCE REQUIREMENTS

SR 3.8.5.1

SR 3.8.5.1 requires performance of all Surveillances required by SR 3.8.4.1 through SR 3.8.4.7. Therefore, see the corresponding Bases for LCO 3.8.4 for a discussion of each SR.

(continued)

BASES (continued)

LCO

The inverters ensure the availability of electrical power for the instrumentation for systems required to shutdown the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. The battery powered inverters provide uninterruptible supply of AC electrical power to the AC vital buses even if the 6.9 kV shutdown boards are de-energized. OPERABILITY of the inverters requires that the AC vital buses required by LCO 3.8.10, "Distribution Systems - Shutdown" be powered by the inverter. As a minimum, either the channel I and III or II and IV inverters for each unit (or spare inverters) shall be OPERABLE to support the distribution systems required by LCO 3.8.10. The unit inverters have an associated bypass supply provided by a regulated transformer that is automatically connected to the associated AC vital bus in the event of inverter failure or overload. The bypass supply is not battery-backed and thus does not meet requirements for inverter operability. The spare inverters do not have an associated bypass supply. Additionally, the 480V Vital Transfer Switch, while connected to the alternate power supply, can only be declared operable for technical specifications under the limitations of applicable LCOs and provided the associated unit is defueled (Unit 1 for Channels I or II, and Unit 2 for Channels III or IV). This ensures the availability of sufficient inverter power sources to operate the plant in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents).

APPLICABILITY

The inverters required to be OPERABLE in MODES 5 and 6 and during movement of irradiated fuel assemblies provide assurance that:

a. Systems needed to mitigate a fuel handling accident are available;

b. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

c. Instrumentation and control capability is available for monitoring and maintaining the plant in a cold shutdown condition or refueling condition.

Inverter requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.7.

ACTIONS

A.1, A.2.1, A.2.2, ~~A.2.3,~~ and A.2.~~4~~3

If two trains are required by LCO 3.8.10, the remaining OPERABLE Inverters may be capable of supporting sufficient required features to allow continuation of ~~CORE ALTERATIONS~~ irradiated fuel movement and operations with a potential for positive reactivity additions. By the allowance of the option to declare required features inoperable with the associated inverter(s) inoperable, appropriate

(continued)

BASES (continued)

ACTIONS

A.1, A.2.1, A.2.2, ~~A.2.3,~~ and A.2.~~4~~3 (continued)

restrictions will be implemented in accordance with the affected required features LCOs' Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend ~~CORE ALTERATIONS,~~ movement of irradiated fuel assemblies~~,~~ and operations involving positive reactivity additions). The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory, provided the required SDM is maintained.

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required inverters and to continue this action until restoration is accomplished in order to provide the necessary inverter power to the plant safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required inverters should be completed as quickly as possible in order to minimize the time the plant safety systems may be without power or powered from its associated regulated transformer bypass source.

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

This Surveillance verifies that the required inverters are functioning properly with all required circuit breakers closed and AC vital buses energized from the inverter. The verification of proper voltage and frequency output ensures that the required power is readily available for the instrumentation connected to the AC vital buses. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. Upon placing a spare inverter in service, the spare inverter is considered inoperable until this surveillance is completed.

REFERENCES

1. Watts Bar FSAR, Section 15, "Accident Analysis," and Section 6, "Engineered Safety Features."

BASES (continued)

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, and A.2.4~~, and A.2.5~~

Although redundant required features may require redundant trains of electrical power distribution subsystems to be OPERABLE, one OPERABLE distribution subsystem train may be capable of supporting sufficient required features to allow continuation of ~~CORE ALTERATIONS, and~~irradiated fuel movement. By allowing the option to declare required features associated with an inoperable distribution subsystem inoperable, appropriate restrictions are implemented in accordance with the affected distribution subsystem LCO's Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend ~~CORE ALTERATIONS,~~ movement of irradiated fuel assemblies~~,~~ and operations involving positive reactivity additions).

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC and DC electrical power distribution subsystems and to continue this action until restoration is accomplished in order to provide the necessary power to the plant safety systems.

Notwithstanding performance of the above conservative Required Actions, a required residual heat removal (RHR) subsystem may be inoperable. In this case, Required Actions A.2.1 through A.2.4 do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the RHR ACTIONS would not be entered. Therefore, Required Action A.2.5 is provided to direct declaring RHR inoperable, which results in taking the appropriate RHR actions.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required distribution subsystems should be completed as quickly as possible in order to minimize the time the plant safety systems may be without power.

(continued)

BASES (continued)

APPLICABLE SAFETY ANALYSES

During refueling operations, the reactivity condition of the core is consistent with the initial conditions assumed for the boron dilution accident in the accident analysis and is conservative for MODE 6. The boron concentration limit specified in the COLR is based on the core reactivity at the beginning of each fuel cycle (the end of refueling) and includes an uncertainty allowance.

The required boron concentration and the plant refueling procedures that verify the correct fuel loading plan (including full core mapping) ensure that the k_{eff} of the core will remain ≤ 0.95 during the refueling operation. Hence, at least a $5\%\Delta k/k$ margin of safety is established during refueling.

During refueling, the water volume in the spent fuel pool, the transfer canal, the refueling canal, the refueling cavity, and the reactor vessel form a single mass. As a result, the soluble boron concentration is relatively the same in each of these volumes.

The RCS boron concentration satisfies Criterion 2 of the NRC Policy Statement.

LCO

The LCO requires that a minimum boron concentration be maintained in the RCS, the refueling canal, and the refueling cavity while in MODE 6. The boron concentration limit specified in the COLR ensures that a core k_{eff} of ≤ 0.95 is maintained during fuel handling operations. Violation of the LCO could lead to an inadvertent criticality during MODE 6.

APPLICABILITY

This LCO is applicable in MODE 6 to ensure that the fuel in the reactor vessel will remain subcritical. The required boron concentration ensures a $k_{eff} \leq 0.95$. Above MODE 6, LCO 3.1.1, "SHUTDOWN MARGIN (SDM) - $T_{avg} > 200°F$," and LCO 3.1.2, "SHUTDOWN MARGIN (SDM) - $T_{avg} \leq 200°F$," ensure that an adequate amount of negative reactivity is available to shut down the reactor and maintain it subcritical.

ACTIONS

A.1 ~~and A.2~~

Continuation of ~~CORE ALTERATIONS or~~ positive reactivity additions (including actions to reduce boron concentration) is contingent upon maintaining the unit in compliance with the LCO. If the boron concentration of any coolant volume in the RCS, the refueling canal, or the refueling cavity is less than its limit, all operations involving ~~CORE ALTERATIONS or~~ positive reactivity additions must be suspended immediately.

Suspension of ~~CORE ALTERATIONS and~~ positive reactivity additions shall not preclude moving a component to a safe position.

BASES (continued)

ACTIONS (continued)

A.~~23~~

In addition to immediately suspending ~~CORE ALTERATIONS or~~ positive reactivity additions, boration to restore the concentration must be initiated immediately.

In determining the required combination of boration flow rate and concentration, no unique Design Basis Event must be satisfied. The only requirement is to restore the boron concentration to its required value as soon as possible. In order to raise the boron concentration as soon as possible, the operator should begin boration with the best source available for unit conditions.

Once actions have been initiated, they must be continued until the boron concentration is restored. The restoration time depends on the amount of boron that must be injected to reach the required concentration.

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

This SR ensures that the coolant boron concentration in the RCS, the refueling canal, and the refueling cavity is within the COLR limits. The boron concentration of the coolant in each volume is determined periodically by chemical analysis.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. Title 10, Code of Federal Regulations, Part 50, Appendix A, Section III, GDC 26, "Reactivity Control System Redundancy and Capability."

2. Watts Bar FSAR, Section 15, "Accident Analysis."

BASES (continued)

ACTIONS

The ACTIONS table has been modified by a Note that allows separate Condition entry for each unborated water source isolation valve.

~~A.1~~

~~Continuation of CORE ALTERATIONS is contingent upon maintaining the unit in compliance with this LCO. With any valve used to isolate unborated water sources not secured in the closed position, all operations involving CORE ALTERATIONS must be suspended immediately. The Completion Time of "immediately" for performance of Required Action A.1 shall not preclude completion of movement of a component to a safe position.~~

~~Condition A has been modified by a Note to require that Required Action A.3 be completed whenever Condition A is entered.~~

A.~~2~~1

Preventing inadvertent dilution of the reactor coolant boron concentration is dependent on maintaining the unborated water isolation valves secured closed. Securing the valves in the closed position ensures that the valves cannot be inadvertently opened. The Completion Time of "immediately" requires an operator to initiate actions to close an open valve and secure the isolation valve in the closed position immediately. Once actions are initiated, they must be continued until the valves are secured in the closed position.

A.~~3~~2

Due to the potential of having diluted the boron concentration of the reactor coolant, SR 3.9.1.1 (verification of boron concentration) must be performed whenever Condition A is entered to demonstrate that the required boron concentration exists. The Completion Time of 4 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration.

(continued)

BASES (continued)

APPLICABILITY

In MODE 6, the source range neutron flux monitors must be OPERABLE to determine changes in core reactivity. There are no other direct means available to check core reactivity levels. In MODES 2, 3, 4, and 5, these same installed source range detectors and circuitry are also required to be OPERABLE by LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation."

ACTIONS

A.1 and A.2

With only one source range neutron flux monitor OPERABLE, redundancy has been lost. Since these instruments are the only direct means of monitoring core reactivity conditions, ~~CORE ALTERATIONS and~~ positive reactivity additions must be suspended immediately. Performance of Required Action A.1 shall not preclude completion of movement of a component to a safe position.

B.1

With no source range neutron flux monitor OPERABLE, actions to restore a monitor to OPERABLE status shall be initiated immediately. Once initiated, actions shall be continued until a source range neutron flux monitor is restored to OPERABLE status.

B.2

With no source range neutron flux monitor OPERABLE, there are no direct means of detecting changes in core reactivity. However, since ~~CORE ALTERATIONS and~~ positive reactivity additions are not to be made, the core reactivity condition is stabilized until the source range neutron flux monitors are OPERABLE. This stabilized condition is determined by performing SR 3.9.1.1 to ensure that the required boron concentration exists.

The Completion Time of 4 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration. The Frequency of once per 12 hours ensures that unplanned changes in boron concentration would be identified. The 12 hour Frequency is reasonable, considering the low probability of a change in core reactivity during this time period.

Enclosure

Attachment 8

Proposed TS Bases Page Changes (Mark-Ups) for WBN Unit 2 (For Information Only)

BASES (continued)

APPLICABILITY

The AC sources required to be OPERABLE in MODES 5 and 6 and during movement of irradiated fuel assemblies provide assurance that:

a. Systems needed to mitigate a fuel handling accident are available;

b. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

c. Instrumentation and control capability is available for monitoring and maintaining the plant in a cold shutdown condition or refueling condition.

The AC power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.1.

ACTIONS

A.1

An offsite circuit would be considered inoperable if it were not available to one required ESF train. Although two trains are required by LCO 3.8.10, the one train with offsite power available may be capable of supporting sufficient required features to allow continuation of ~~CORE ALTERATIONS and~~irradiated fuel movement. By the allowance of the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's ACTIONS.

A.2.1, A.2.2, A.2.3, ~~A.2.4,~~ B.1, B.2, and B.3~~, and B.4~~

With the offsite circuit not available to all required trains, the option would still exist to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With either required DG inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend ~~CORE ALTERATIONS,~~ movement of irradiated fuel assemblies~~,~~ and operations involving positive reactivity additions. The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory provided the required SDM is maintained.

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the plant safety systems.

BASES (continued)

ACTIONS

A.2.1, A.2.2, A.2.3, ~~A.2.4,~~ B.1, B.2, and B.3~~, and B.4~~ (continued)

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power.

Pursuant to LCO 3.0.6, the Distribution System's ACTIONS would not be entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A are modified by a Note to indicate that when Condition A is entered with no AC power to any 6.9 kV shutdown board, the ACTIONS for LCO 3.8.10 must be immediately entered. This Note allows Condition A to provide requirements for the loss of the offsite circuit, whether or not a train is de-energized. LCO 3.8.10 would provide the appropriate restrictions for the situation involving a de-energized train.

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, 3, and 4. SR 3.8.1.8 is not required to be met since only one offsite circuit is required to be OPERABLE. SR 3.8.1.17 is not required to be met because the required OPERABLE DG(s) is not required to undergo periods of being synchronized to the offsite circuit. SR 3.8.1.21 is excepted because starting independence is not required with the DG(s) that is not required to be operable.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during performance of SRs, and to preclude de-energizing a required 6.9 kV bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR.

REFERENCES

1. Watts Bar FSAR, Section 8.0, "Electric Power."
2. Title 10, Code of Federal Regulations, Part 50, General Design Criterion 17, "Electric Power Systems."

BASES

ACTIONS

A.1, A.2, and A.3 (continued)

Required Action A.2 requires that the battery float current be verified as less than or equal to 2 amps. This indicates that, if the battery had been discharged as the result of the inoperable battery charger, it has now been fully recharged. If at the expiration of the initial 12 hour period the battery float current is not less than or equal to 2 amps this indicates there may be additional battery problems and the battery must be declared inoperable.

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days. This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status.

B.1, B.2.1, B.2.2, and B.2.3~~, and B.2.4~~

If two subsystems are required by LCO 3.8.10, the remaining subsystem with DC power available may be capable of supporting sufficient systems to allow continuation of ~~CORE ALTERATIONS and~~irradiated fuel movement. By allowing the option to declare required features inoperable with the associated vital DC power source(s) inoperable, appropriate restrictions will be implemented in accordance with the affected required features LCO ACTIONS. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend ~~CORE ALTERATIONS,~~ movement of irradiated fuel assemblies~~,~~ and operations involving positive reactivity additions). The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory, provided the required SDM is maintained.

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required vital DC electrical power subsystems and to continue this action until restoration is accomplished in order to provide the necessary DC electrical power to the plant safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required vital DC electrical power subsystems should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power.

(continued)

BASES (continued)

ACTIONS

A.1, A.2.1, A.2.2, ~~A.2.3,~~ and A.2.~~43~~

If two trains are required by LCO 3.8.10, the remaining OPERABLE Inverters may be capable of supporting sufficient required features to allow continuation of ~~CORE ALTERATIONS~~ irradiated fuel movement, and operations with a potential for positive reactivity additions. By the allowance of the option to declare required features inoperable with the associated inverter(s) inoperable, appropriate restrictions will be implemented in accordance with the affected required features LCOs' Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend ~~CORE ALTERATIONS,~~ movement of irradiated fuel assemblies~~,~~ and operations involving positive reactivity additions). The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory, provided the required SDM is maintained.

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required inverters and to continue this action until restoration is accomplished in order to provide the necessary inverter power to the plant safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required inverters should be completed as quickly as possible in order to minimize the time the plant safety systems may be without power or powered from its associated regulated transformer bypass source.

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

This Surveillance verifies that the required inverters are functioning properly with all required circuit breakers closed and AC vital buses energized from the inverter. The verification of proper voltage and frequency output ensures that the required power is readily available for the instrumentation connected to the AC vital buses. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. Upon placing a spare inverter in service, the spare inverter is considered inoperable until this surveillance is completed.

BASES (continued)

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, and A.2.4~~, and A.2.5~~

Although redundant required features may require redundant trains of electrical power distribution subsystems to be OPERABLE, one OPERABLE distribution subsystem train may be capable of supporting sufficient required features to allow continuation of ~~CORE ALTERATIONS, and~~irradiated fuel movement. By allowing the option to declare required features associated with an inoperable distribution subsystem inoperable, appropriate restrictions are implemented in accordance with the affected distribution subsystem LCO's Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend ~~CORE ALTERATIONS,~~ movement of irradiated fuel assemblies~~,~~ and operations involving positive reactivity additions).

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC and DC electrical power distribution subsystems and to continue this action until restoration is accomplished in order to provide the necessary power to the plant safety systems.

Notwithstanding performance of the above conservative Required Actions, a required residual heat removal (RHR) subsystem may be inoperable. In this case, Required Actions A.2.1 through A.2.4 do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the RHR ACTIONS would not be entered. Therefore, Required Action A.2.5 is provided to direct declaring RHR inoperable, which results in taking the appropriate RHR actions.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required distribution subsystems should be completed as quickly as possible in order to minimize the time the plant safety systems may be without power.

BASES (continued)

ACTIONS

A.1 ~~and A.2~~

Continuation of ~~CORE ALTERATIONS or~~ positive reactivity additions (including actions to reduce boron concentration) is contingent upon maintaining the unit in compliance with the LCO. If the boron concentration of any coolant volume in the RCS, the refueling canal, or the refueling cavity is less than its limit, all operations involving ~~CORE ALTERATIONS or~~ positive reactivity additions must be suspended immediately.

Suspension of ~~CORE ALTERATIONS and~~ positive reactivity additions shall not preclude moving a component to a safe position.

A.~~2~~3

In addition to immediately suspending ~~CORE ALTERATIONS or~~ positive reactivity additions, boration to restore the concentration must be initiated immediately.

In determining the required combination of boration flow rate and concentration, no unique Design Basis Event must be satisfied. The only requirement is to restore the boron concentration to its required value as soon as possible. In order to raise the boron concentration as soon as possible, the operator should begin boration with the best source available for unit conditions.

Once actions have been initiated, they must be continued until the boron concentration is restored. The restoration time depends on the amount of boron that must be injected to reach the required concentration.

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

This SR ensures that the coolant boron concentration in the RCS, the refueling canal, and the refueling cavity is within the COLR limits. The boron concentration of the coolant in each volume is determined periodically by chemical analysis.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES (continued)

APPLICABILITY

In MODE 6, this LCO is applicable to prevent an inadvertent boron dilution event by ensuring isolation of all sources of unborated water to the RCS.

For all other MODES, the boron dilution accident was analyzed and was found to be capable of being mitigated.

ACTIONS

The ACTIONS table has been modified by a Note that allows separate Condition entry for each unborated water source isolation valve.

~~A.1~~

~~Continuation of CORE ALTERATIONS is contingent upon maintaining the unit in compliance with this LCO. With any valve used to isolate unborated water sources not secured in the closed position, all operations involving CORE ALTERATIONS must be suspended immediately. The Completion Time of "immediately" for performance of Required Action A.1 shall not preclude completion of movement of a component to a safe position.~~

~~Condition A has been modified by a Note to require that Required Action A.3 be completed whenever Condition A is entered.~~

A.1~~2~~

Preventing inadvertent dilution of the reactor coolant boron concentration is dependent on maintaining the unborated water isolation valves secured closed. Securing the valves in the closed position ensures that the valves cannot be inadvertently opened. The Completion Time of "immediately" requires an operator to initiate actions to close an open valve and secure the isolation valve in the closed position immediately. Once actions are initiated, they must be continued until the valves are secured in the closed position.

A.2~~3~~

Due to the potential of having diluted the boron concentration of the reactor coolant, SR 3.9.1.1 (verification of boron concentration) must be performed whenever Condition A is entered to demonstrate that the required boron concentration exists. The Completion Time of 4 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration.

BASES (continued)

APPLICABILITY

In MODE 6, the source range neutron flux monitors must be OPERABLE to determine changes in core reactivity. There are no other direct means available to check core reactivity levels. In MODES 2, 3, 4, and 5, these same installed source range detectors and circuitry are also required to be OPERABLE by LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation."

ACTIONS

A.1 and A.2

With only one source range neutron flux monitor OPERABLE, redundancy has been lost. Since these instruments are the only direct means of monitoring core reactivity conditions, ~~CORE ALTERATIONS and~~ positive reactivity additions must be suspended immediately. Performance of Required Action A.1 shall not preclude completion of movement of a component to a safe position.

B.1

With no source range neutron flux monitor OPERABLE, actions to restore a monitor to OPERABLE status shall be initiated immediately. Once initiated, actions shall be continued until a source range neutron flux monitor is restored to OPERABLE status.

B.2

With no source range neutron flux monitor OPERABLE, there are no direct means of detecting changes in core reactivity. However, since ~~CORE ALTERATIONS and~~ positive reactivity additions are not to be made, the core reactivity condition is stabilized until the source range neutron flux monitors are OPERABLE. This stabilized condition is determined by performing SR 3.9.1.1 to ensure that the required boron concentration exists.

The Completion Time of 4 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration. The Frequency of once per 12 hours ensures that unplanned changes in boron concentration would be identified. The 12 hour Frequency is reasonable, considering the low probability of a change in core reactivity during this time period.