Enclosure 1

Browns Ferry Nuclear Plant

Markup Comments on May 29, 1998 Draft Safety Evaluation Regarding Proposed Conversion to Improved Standard Technical Specifications

DRAFT
May 29, 1998

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. XXX TO FACILITY OPERATING LICENSE DPR-33

AND AMENDMENT NO. XXX TO FACILITY OPERATING LICENSE DPR-52

AND AMENDMENT NO. XXX TO FACILITY OPERATING LICENSE DPR 68

BROWNS FERRY NUCLEAR PLANT, UNIT NOS. 1, 2, AND 3

TENNESSEE VALLEY AUTHORITY

DOCKET NOS. 50-259, 50-260, AND 50-296

I. INTRODUCTION

Browns Ferry Nuclear Plant, Units Nos. 1, and 2, (BFN) has been operating with Technical Specifications (TS) issued with the original operating licenses on September 8, 1976 for Unit 1, and December 27, 1974 for Unit 2, as amended from time to time. By letter dated September 6, 1996, as supplemented by letters dated May 1, June 6, August 14, November 5, November 14, December 3, December 4, December 11, December 22, December 23, December 29, December 30, 1997, January 23, March 12, April 16, April 20, April 28, May 7, May 14, MAY 1998, Carolina Power and Light Company (the licensee) proposed to amend Appendix A of Operating License Nos. DPR-71 and DPR-62 to completely revise the BFN TS. The proposed amendment was based upon NUREG-1433, "Standard Technical Specifications for General Electric Plants, BWR/4," Revision 1, dated April 1995, and upon guidance in the "NRC Final Policy Statement on Technical Specification Improvements for Nuclear Power Reactors" (Final Policy Statement), published on July 22, 1993 (58 FR 39132), and 10 CFR 50.36, as amended July 19, 1995 (60 FR 36953). The overall objective of the proposed amendment, consistent with the Final Policy Statement, was to rewrite, reformat, and streamline completely the existing TS for BFN.

Hereinafter, the proposed TS are referred to as the improved TS (ITS), the existing BFN TS are referred to as the current TS (CTS), and the TS in NUREG-1433 are referred to as the standard TS (STS). The corresponding TS Bases are ITS Bases, CTS Bases, and STS Bases, respectively.

In addition to basing ITS on STS, the Final Policy Statement, and 10 CFR 50.36, the licensee retained portions of the CTS as a basis for the ITS. Plant-specific issues, including design features, requirements, and operating practices, were discussed with the licensee during a series of

and July 2, 1996 for Unit 3

IF this is listed, is June 6, 1996, TS-392 Admin Controls

June 26, 1973

and 3

June 28

May 19, May 27, and June 2

Tennessee Valley Authority

DPR-33, DPR-52, and DPR-68

conference calls and meetings that concluded on MONTH DATE, YEAR. Based on these discussions, the licensee proposed matters of a generic nature that were not in the STS. The NRC staff requested that the licensee submit such generic issues as a proposed change to STS through the Nuclear Energy Institute's Technical Specifications Task Force (TSTF). These generic issues were considered for specific applications in the BFN ITS. Consistent with the Final Policy Statement, the licensee proposed transferring some CTS requirements to licensee-controlled documents. In addition, human factors principles were emphasized to add clarity to the CTS requirements being retained in the ITS and to define more clearly the appropriate scope of the ITS. Further, significant changes were proposed to the CTS Bases to make each ITS requirement clearer and easier to understand.

The Commission's proposed action on the BFN application for an amendment dated October 23, 1996 was published in the *Federal Register* on ~~January 24, 1997~~ ~~(62 FR 3719)~~. The Staff's evaluation of the application, including supplements to the licensee's ITS proposal, submitted by letters dated November 5, November 24, December 3, December 4, December 23, December 29, 1997, March 12, and April 16, 1998, that resulted from NRC requests for information and discussions with the licensee during the NRC staff review, is presented in this Safety Evaluation (SE). These plant-specific changes serve to clarify the ITS with respect to the guidance in the Final Policy Statement and STS. Therefore, the changes are within the scope of the action described in the *Federal Register* notice.

During its review, the NRC staff relied on the Final Policy Statement and the STS as guidance for acceptance of CTS changes. This SE provides a summary basis for the NRC staff conclusion that BFN can develop ITS based on STS, as modified by plant-specific changes, and that the use of the ITS is acceptable for continued operation. The NRC staff also acknowledges that, as indicated in the Final Policy Statement, the conversion to STS is a voluntary process. Therefore, it is acceptable that the ITS differs from STS, reflecting the current licensing basis. The NRC staff approves the licensee's changes to the CTS with modifications documented in the revised submittals.

For the reasons stated *infra* in this SE, the NRC staff finds that the TS issued with this license amendment comply with Section 182a of the Atomic Energy Act, 10 CFR 50.36, and the guidance in the Final Policy Statement, and that they are in accord with the common defense and security and provide adequate protection of the health and safety of the public.

II. BACKGROUND

Section 182a of the Atomic Energy Act requires that applicants for nuclear power plant operating licenses will state:

> [S]uch technical specifications, including information of the amount, kind, and source of special nuclear material required, the place of the use, the specific characteristics of the facility, and such other information as the Commission may, by rule or regulation, deem necessary in order to enable it to find that the utilization . . . of special nuclear material will be in accord with the common defense and security and will provide adequate protection to the health and safety of the public. Such technical specifications shall be a part of any

license issued.

In 10 CFR 50.36, the Commission established its regulatory requirements related to the content of TS. In doing so, the Commission placed emphasis on those matters related to the prevention of accidents and the mitigation of accident consequences; the Commission noted that applicants were expected to incorporate into their TS "those items that are directly related to maintaining the integrity of the physical barriers designed to contain radioactivity." Statement of Consideration, "Technical Specifications for Facility Licenses; Safety Analysis Reports," 33 FR 18610 (December 17, 1968). Pursuant to 10 CFR 50.36, TS are required to include items in the following five specific categories: (1) safety limits, limiting safety system settings and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements (SR); (4) design features; and (5) administrative controls. However, the rule does not specify the particular requirements to be included in a plant's TS.

For several years, NRC and industry representatives have sought to develop guidelines for improving the content and quality of nuclear power plant TS. On February 6, 1987, the Commission issued an interim policy statement on TS improvements, "Interim Policy Statement on Technical Specification Improvements for Nuclear Power Reactors" (52 FR 3788). During the period from 1989 to 1992, the utility Owners Groups and the NRC staff developed improved STS that would establish models of the Commission's policy for each primary reactor type. In addition, the NRC staff, licensees, and Owners Groups developed generic administrative and editorial guidelines in the form of a "Writer's Guide" for preparing TS, which gives greater consideration to human factors principles and was used throughout the development of licensee-specific ITS.

In September 1992, the Commission issued NUREG-1433, which was developed using the guidance and criteria contained in the Commission's interim policy statement. STS were established as a model for developing improved TS for General Electric plants in general. STS reflect the results of a detailed review of the application of the interim policy statement criteria to generic system functions, which were published in a "Split Report" issued to the Nuclear Steam System Supplier (NSSS) Owners Groups in May 1988. STS also reflect the results of extensive discussions concerning various drafts of STS, so that the application of the TS criteria and the Writer's Guide would consistently reflect detailed system configurations and operating characteristics for all NSSS designs. As such, the generic Bases presented in NUREG-1433 provide an abundance of information regarding the extent to which the STS present requirements that are necessary to protect public health and safety.

On July 22, 1993, the Commission issued its Final Policy Statement, expressing the view that satisfying the guidance in the policy statement also satisfies Section 182a of the Act and 10 CFR 50.36 (58 FR 39132). The Final Policy Statement described the safety benefits of the improved STS, and encouraged licensees to use the improved STS as the basis for plant-specific TS amendments, and for complete conversions to improved STS. Further, the Final Policy Statement gave guidance for evaluating the required scope of the TS and defined the guidance criteria to be used in determining which of the LCOs and associated surveillances should remain in the TS. The Commission noted that, in allowing certain items to be relocated to licensee-controlled documents while requiring that other items be retained in the TS, it was adopting the qualitative standard enunciated by the Atomic Safety and Licensing Appeal Board in *Portland General Electric Co.*

NO COMMENTS

(Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 273 (1979). There, the Appeal Board observed:

> [T]here is neither a statutory nor a regulatory requirement that every operational detail set forth in an applicant's safety analysis report (or equivalent) be subject to a technical specification, to be included in the license as an absolute condition of operation which is legally binding upon the licensee unless and until changed with specific Commission approval. Rather, as best we can discern it, the contemplation of both the Act and the regulations is that TS are to be reserved for those matters as to which the imposition of rigid conditions or limitations upon reactor operation is deemed necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety.

By this approach, existing LCO requirements that fall within or satisfy any of the criteria in the Final Policy Statement should be retained in the TS; those LCO requirements that do not fall within or satisfy these criteria may be relocated to licensee-controlled documents. The Commission codified the four criteria in 10 CFR 50.36 (60 FR 36953, July 19, 1995). The Final Policy Statement criteria are as follows:

Criterion 1

Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

Criterion 2

A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 3

A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 4

A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

Part III of this SE explains the NRC staff conclusion that the conversion of the BFN CTS to those based on STS, as modified by plant-specific changes, is consistent with the BFN current licensing basis and the requirements and guidance of the Final Policy Statement and 10 CFR 50.36.

NO comments

III. EVALUATION

The NRC staff's ITS review evaluates changes to the CTS that fall into five categories defined by the licensee and includes an evaluation of whether existing regulatory requirements are adequate for controlling future changes to requirements removed from the CTS and placed in licensee-controlled documents. This evaluation also discusses the NRC staff's plans for monitoring the licensee's implementation of these controls at BFN.

In addition to the initial submittal of September 6, 1996, as supplemented, the NRC staff review identified the need for clarifications and additions to the submittal in order to establish an appropriate regulatory basis for translation of current TS requirements into ITS. Each change proposed in the amendment request is identified as either a discussion of change (DOC) to CTS or a justification for deviation from STS. The NRC staff comments were documented as requests for additional information (RAIs) and forwarded to the licensee for response by letters dated June 12, September 17, September 29, and February 28, 1997. The licensee provided written responses to the NRC staff requests in letters dated November 5, November 14, December 3, December 4, December 23, December 29, 1997, March 12, and April 16, 1998. The docketed letters clarified and revised the licensee basis for translating CTS requirements into ITS. The NRC staff finds that the licensee's submittals provide sufficient detail to allow the staff to reach a conclusion regarding the adequacy of the licensee's proposed changes.

The license amendment application was organized such that changes were included in each of the following CTS change categories, as appropriate: administrative changes, technical changes - less restrictive (specific), technical changes - less restrictive (generic), technical changes - more restrictive, and relocated specifications.

(1) Administrative Changes, (A), i.e., non-technical changes in the presentation of existing requirements;

(2) Technical Changes - More Restrictive, (M), i.e., new or additional CTS requirements;

(3) Technical Changes - Less Restrictive (specific), (L), i.e., changes, deletions and relaxations of existing TS requirements;

(4) Technical Changes - Less Restrictive (generic), (LA), i.e., deletion of existing TS requirements by movement of information and requirements from existing specifications (that are otherwise being retained) to licensee-controlled documents, including TS Bases; and

(5) Relocated Specifications, (R), i.e., relaxations in which whole specifications (the LCO and associated actions and SRs) are removed from the existing TS (an NRC-controlled document) and placed in licensee-controlled documents.

These general categories of changes to the licensee's current TS requirements and STS differences may be better understood as follows:

A. Administrative Changes

Administrative (non-technical) changes are intended to incorporate human factors principles into the form and structure of the ITS so that plant operations personnel can use them more easily; making the TS more easily understood through editorial changes, clarifications of TS requirements, and format changes, without changing the technical content. These changes are editorial in nature or involve the reorganization or reformatting of CTS requirements without affecting technical content or operational restrictions. Every section of the ITS reflects this type of change. In order to ensure consistency, the NRC staff and the licensee have used STS as guidance to reformat and make other administrative changes. Among the changes proposed by the licensee and found acceptable by the NRC staff are:

(1) providing the appropriate numbers, etc., for STS bracketed information (information that must be supplied on a plant-specific basis and that may change from plant to plant)

(2) identifying plant-specific wording for system names, etc.

(3) changing the wording of specification titles in STS to conform to existing plant practices

(4) splitting up requirements currently grouped under a single current specification to more appropriate locations in two or more specifications of ITS

(5) combining related requirements currently presented in separate specifications of the CTS into a single specification of ITS.

(6) presentation changes that involve rewording or reformatting for clarity (including moving an existing requirement to another location within the TS) that do not involve a change in requirements;

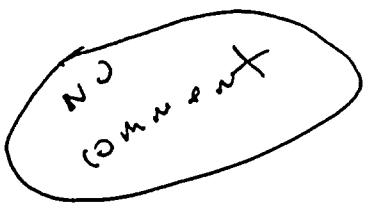
(7) wording changes and additions that are consistent with current interpretation and practice, and that more clearly or explicitly state existing requirements; and

(8) deletion of redundancies that are unnecessary since the requirements exist elsewhere in the TS.

Table A lists the administrative changes proposed in ITS. Table A is organized by the corresponding ITS section discussion of change, and provides a summary description of the administrative change that was made, and CTS and ITS LCO references. The NRC staff reviewed all of the administrative and editorial changes proposed by the licensee and finds them acceptable, because they are compatible with the Writer's Guide and STS, do not result in any substantive change in operating requirements and are consistent with the Commission's regulations.

B. Technical Changes - More Restrictive

The licensee, in electing to implement the specifications of STS proposed a number of requirements more restrictive than those in the CTS. ITS requirements in this category include requirements that are either new, more conservative than corresponding requirements in the CTS,



or that have additional restrictions that are not in the CTS but are in STS. Examples of more restrictive requirements are placing an LCO on plant equipment which is not required by the CTS to be operable, more restrictive requirements to restore inoperable equipment, and more restrictive SRs. Table M lists all the more restrictive changes proposed in ITS. Table M is organized by the corresponding ITS section discussion of change and provides a summary description of the more restrictive change that was adopted, and CTS and ITS LCO references. These changes are additional restrictions on plant operation that enhance safety and are acceptable.

C. Technical Changes - Less Restrictive (Specific)

Less restrictive requirements include changes, deletions, and relaxations to portions of current TS requirements that are not being retained in ITS. When requirements have been shown to give little or no safety benefit, their removal from the TS may be appropriate. In most cases, relaxations previously granted to individual plants on a plant-specific basis were the result of (1) generic NRC actions, (2) new staff positions that have evolved from technological advancements and operating experience, or (3) resolution of the Owners Groups comments on STS. The NRC staff reviewed generic relaxations contained in the STS and found them acceptable because they are consistent with current licensing practices and the Commission's regulations. The BFN design was also reviewed to determine if the specific design basis and licensing basis are consistent with the technical basis for the model requirements in STS, and thus provide a basis for ITS.

A significant number of changes to the CTS involved changes, deletions and relaxations to portions of current TS requirements evaluated as Categories I through VIII that follow:

Category I - Relaxation of Applicability

Category II - Relaxation of Surveillance Frequency

Category III - Relaxation of Allowed Outage Times

Category IV - Relaxation of Action Requirements for Exiting LCOs

Category V - ~~Deletion~~ Relaxation of Reporting Requirements

NOTE: DOC 3.3.3.1, L7 is a relaxation of reporting requirements

Category VI - Relaxation of Requirements for Testing Redundant Components

Category VII - Relaxation of LCO Requirements

Category VIII - Relaxation of Surveillance Requirement Acceptance Criteria

The following discussions address why various TS within each of the twelve categories of information or specific requirements are not required to be included in ITS.

Relaxation of Applicability *(Category I)*

Reactor operating conditions are used in CTS to define when the LCO features are required to be Operable. CTS applicabilities can be specific defined terms of reactor conditions: refueling,

hot shutdown, cold shutdown, startup, or power operating condition. Applicabilities can also be more general. In this type of change, CTS requirements may be eliminated during conditions for which the safety function of the specified safety system is met because the feature is performing its intended safety function. Deleting applicability requirements which are inconsistent with application of accident analyses assumptions is acceptable because when LCOs cannot be met, the TS are satisfied by exiting the applicability, thus, taking the plant out of the conditions that require the safety system to be Operable. These changes are consistent with STS and changes specified as Category I are acceptable.

Relaxation of Surveillance Frequency *(Category II)*

CTS and ITS surveillance frequencies specify time interval requirements for performing surveillance requirement testing. Increasing the time interval between surveillance tests in the ITS results in decreased equipment unavailability due to test which also increases equipment availability. In general, the STS contain test frequencies that are consistent with industry practice or industry standards for achieving acceptable levels of equipment reliability. Adopting testing practices specified in the STS is acceptable based on similar design, like-component testing for the system application and the availability of other TS requirements which provide regular checks to ensure limits are met.

Reduced testing can result in a safety enhancement because the unavailability due to test is reduced; in turn, reliability of the affected structure, system or component should remain constant or increase. Reduced testing is acceptable where operating experience, industry practice or the industry standards such as manufacturers' recommendations have shown that these components usually pass the Surveillance when performed at the specified interval, thus the frequency is acceptable from a reliability standpoint. Surveillance frequency changes to incorporate alternate division testing have been shown to be acceptable where other qualitative or quantitative test requirements are required which are established predictors of system performance, e.g., a 31 day air flow test is an indicator that positive pressure in a controlled space will be maintained because this test would use the same fans as the less frequent ITS 48 month pressurization test and industry experience shows that components usually pass the pressurization test.

not a BFN example

Additionally, surveillance frequency extensions can be based on staff-approved topical reports. The NRC staff has accepted topical report analyses that bound the plant-specific design and component reliability assumptions. These changes are consistent with STS and changes specified as Category II are acceptable.

Relaxation of Allowed Outage Time (*Categories III)*

Upon discovery of a failure to meet an LCO, STS specify times for completing required actions of the associated TS conditions. Required actions of the associated conditions are used to establish remedial measures that must be taken within specified completion times (allowed outage times). These times define limits during which operation in a degraded condition is permitted.

Adopting completion times from the STS is acceptable because completion times take into account the operability status of the redundant systems of TS required features, the capacity

and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a design basis accident (DBA) occurring during the repair period. These changes are consistent with the STS and allowed outage time extensions specified as Category III are acceptable.

Relaxation of Action Requirements for Exiting LCOs *(Category IV)*

CTS require that in the event specified LCOs are not met, power or Mode reductions shall be initiated as the method to reestablish the appropriate limits. The ITS are constructed to specify actions for conditions of required features made inoperable. Adopting ITS action requirements for exiting LCO applicabilities is acceptable because the plant remains within analyzed parameters by performance of required actions, or the actions are constructed to minimize risks associated with continued operation while providing time to repair inoperable features. Such actions add margin to safety, thereby providing assurance that the plant is configured appropriately or operations that could result in a challenge to safety systems are exited in a time period that is commensurate with the safety importance of the system. Additionally, other changes to TS actions include placing the reactor in a Mode where the specification no longer applies, usually resulting in an extension to the time period for taking the plant into shutdown conditions. These actions are commensurate with industry standards for reductions in thermal power in an orderly fashion without compromising safe operation of the plant. These changes are consistent with STS and changes specified as Category IV are acceptable.

Relaxation
~~Deletion~~ of Reporting Requirements *(Category V)*

CTS include requirements to submit Special Reports when specified limits are not met. Typically, the time period for the report to be issued is within 30 days. However, the STS eliminates the TS administrative control requirements for Special Reports and instead relies on the reporting requirements of 10 CFR 50.73. ITS changes to reporting requirements are acceptable because 10 CFR 50.73 provides adequate reporting requirements, and the special reports do not affect continued plant operation. Therefore, this change has no impact on the safe operation of the plant. Additionally, deletion of TS reporting requirements reduces the administrative burden on the plant and allows efforts to be concentrated on restoring TS required limits. These changes are consistent with STS and changes specified as Category V are acceptable.

Relaxation of Requirements for Testing Redundant Components *(Category VI)*

Upon discovery of the inoperability of safety systems or components, the CTS require that the redundant components or systems be surveillance tested and periodically tested thereafter until the inoperable component is repaired. It is overly conservative to assume that additional testing must be performed solely because of the inoperability of a system or component because the vast majority of surveillance tests demonstrate that the systems or components are, in fact, Operable. Additionally, increased testing of systems or components when redundant equipment is inoperable can increase overall risk since the plant is placed test conditions that offer the potential for a demand for the system or component in test should a plant transient occur during this time period. In STS systems and components are assumed to be Operable when the associated surveillance requirements have been met and STS do not typically

(1 N)

For several specifications,

prescribe that additional testing be performed because of the inoperability of a redundant system or component. Furthermore, in STS, appropriate action requirements for exiting LCOs for inoperable equipment are specified which require the plant be appropriately configured or the inoperable systems or components be returned to service in a time period commensurate with the safety importance of the system or component. The BFN ITS reflect the STS approach in this regard. These changes are consistent with STS and changes specified as Category VI are acceptable.

Relaxation of LCO Requirements *(Category VII)*

CTS provides lists of acceptable devices that may be used to satisfy LCO requirements. The ITS reflect the STS approach to provide LCO requirements that specify the protective limit that is required to meet safety analysis assumptions for required features. The protective limits replace the lists of specific devices previously found to be acceptable to the NRC staff for meeting the LCO. The ITS changes provide the same degree of protection required by the safety analysis and provide flexibility for meeting limits without adversely affecting operations since equivalent features are required to be operable. These changes are consistent with STS and changes specified as Category VII are acceptable.

Relaxation of Surveillance Requirement Acceptance Criteria *(Category VIII)*

(IN SOME CASES)

CTS require safety systems to be tested and verified Operable prior to entering applicable conditions. ITS provide the additional requirement to verify Operability by actual or test conditions. Adopting the STS allowance for "actual" conditions is acceptable because TS required features cannot distinguish between an "actual" signal or a "test" signal. Category VIII also includes changes to CTS requirements that are replaced in the ITS with separate and distinct testing requirements which when combined include Operability verification of all TS required components for the features specified in the CTS. Adopting this format preference in the STS is acceptable because TS SRs that remain include testing of all previous features required to be verified operable. These changes are consistent with STS and changes specified as Category VIII are acceptable.

Table L lists all the less restrictive changes proposed in the ITS. Table L is organized by the corresponding ITS specification discussion of change and provides a summary description of the less restrictive change that was adopted, CTS and ITS reference, and category of change. Additionally, in electing to implement the specifications of STS, the licensee also proposed a number of less restrictive changes to the CTS which do not apply to the above Categories of changes, deletions and relaxations of CTS requirements. These changes are discussed below. The associated discussion of change identifier (e.g., L1) is provided for these unique less restrictive changes.

Section 1.0 - Less Restrictive

L2 The ITS definition of Channel Functional Test combines the analog and bistable channel requirements because the requirements are essentially the same. The only difference between the analog and bistable requirements is the location of the injected signal. In the CTS for instruments with analog channels, the injection of a simulated signal into the

channel is as close to the sensor as practical. For instruments with bistable channels, the injection of the simulated signal is into the sensor. Injecting a signal at the sensor would in some cases involve significantly increased probabilities of initiating undesired circuits during the test since several logic channels are often associated with a particular sensor. Performing the test by injection of a signal at the sensor requires jumpering of the other logic channels to prevent their initiation during the test, or increases the scope of the test to include multiple tests of the other logic channels. Either method significantly increases the difficulty of performing the surveillance. Allowing initiation of the signal close to the sensor provides a complete test of the logic channel while significantly reducing the probability of undesired initiation. ~~In addition, the sensor is still being checked during a Channel Calibration.~~

Section 3.0 - Less Restrictive

L2 BFN CTS do not contain the provisions of LCO 3.0.5 from NUREG-1433. LCO 3.0.5 is added to provide an exception to LCO 3.0.2 for instances where restoration of inoperable equipment to an operable status could not be performed while continuing to comply with required actions. Many TS actions require an inoperable component to be removed from service, such as maintaining an isolation valve closed, disarming a control rod, or tripping an inoperable instrument channel. To allow performance of SRs to demonstrate the operability of the equipment being returned to service, or to demonstrate the operability of other equipment which otherwise could not be performed without returning the equipment to service, an exception to these required actions is necessary.

LCO 3.0.5 is necessary to establish an allowance that, although informally utilized in restoration of inoperable equipment, is not formally recognized in the CTS. Without this allowance certain components could not be restored to operable status and a plant shutdown would ensue. Clearly, this is not the intent or desire that the TS preclude the return to service of a suspected operable component to confirm its operability. This allowance is deemed to represent a more stable, safe operation than requiring a plant shutdown to complete the restoration and confirmatory testing.

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Specification 3.1.1 - Less Restrictive

L1 The CTS indirectly requires that the SDM be ≥ O.38 Δk/k when the highest worth control rod is analytically determined. In ITS 3.1.1 the specific value for SDM located throughout TS will be maintained in the COLR. This change (relocation to the COLR) has been previously reviewed by NRC as TSTF-9.

Specification 3.1.6 - Less Restrictive

banked position withdrawal sequence

LI A specific requirement for control rods to be in compliance with the BPWS during operation at low power is proposed as TS 3.1.6. This proposed specification also contains an allowance (Actions to LCO 3.1.6) for a limited number of out-of-sequence Operable control rods, which is presented in the BWR STS, NUREG-1433, and also proposed to be included in the revised TS. The Actions allow up to 8 out-of-sequence operable control rods (separate from any inoperable out-of-sequence control rods) to be returned to their correct position within 8 hours. This allowance for correction is proposed in recognition of the occurrence of such events as

"double-notch" rod withdrawals, and minor misalignment of rod pattern during CRD hydraulic transients (control rod drift due to excessive cooling water pressure) or during a plant shutdown. These events can introduce out-of-sequence control rod patterns which the RWM was unable to preclude, even though the RWM was functioning as designed.

Specification 3.2.4 - Less Restrictive

L1 The current LCO and the proposed ITS LCO ensure acceptable operating margins by limiting excess power peaking or reducing the APRM flow biased neutron flux upscale scram setpoints by the ratio of the fraction of rated power and the core limiting value of the MFLPD. Proposed ITS LCO Item c also provides the option of increasing the APRM gains to cause the APRM to read $\geq$ 100 times MFLPD (in %). This condition is to account for the reduction in margin to the fuel cladding integrity safety limit and the fuel cladding 1% plastic strain limit. Either a gain adjustment on the APRMs or an adjustment to the APRM setpoints has effectively the same result. Although BFN CTS do not specifically call out APRM gain adjustments, they are interpreted as an acceptable alternative and are allowed by current BFN plant procedures. Since this method is formally adopted in ITS as LCO item c, this change is considered less restrictive. For compliance with proposed LCO Item b (APRM setpoint adjustment) or Item c (APRM gain adjustment), only APRMs required to be Operable per proposed LCO 3.3.1.1 (RPS Instrumentation) are required to be adjusted.

Specification 3.3.1.2 - Less Restrictive

L1 If a spiral offload or reload refueling pattern is used, the ITS allow a reduction in the number of SRM channels required to be operable. Specifically, existing TS 3.10.B.1 requires two SRMs during Core Alterations; however, CTS 3.10.B.2 permits the SRM count rate to fall below the specified minimum level if all control rods in cells that contain fuel are fully inserted and electrically disarmed. ITS 3.3.1.2 (Table 3.3.1.2-1 footnote (b)) represents a combined action otherwise allowed by CTS in that the ITS reduces the number of SRM channels required to be operable from 2 to 1 "during spiral offload or reload when the fueled region includes only that SRM detector." A reduction in the number of required operable SRM channels is acceptable when using a spiral pattern for loading or offloading fuel because the use of a spiral pattern provides assurance that the operable SRM is in the optimum position for monitoring changes in neutron flux levels resulting from the Core Alteration. These changes are consistent with BWR Standard Technical Specifications, NUREG-1433.

Unit 1 Restart License Condition

The Unit 1 license will contain a restart license condition to require staff acceptance of Unit 1 channel calibration and channel check frequency changes for CTS Tables 3.2.A, 3.2.B, 4.1.B, 4.2.A, 4.2.B made to be consistent with Units 2 and 3. These changes to frequencies have been reflected in the proposed BFN ITS for Unit 1 as the same as those in the proposed ITS for Units 2 and 3. The Unit 1 Calibration frequencies for these functions will be validated prior to Unit 1 recovery and changes to the proposed BFN ITS for Unit 1 will be made as necessary. [DOCs: 3.3.1.1, A11; 3.3.5.1, A3; 3.3.5.2, A8; 3.3.6.1, A12, A13, A14; 3.3.6.2, A10; and 3.3.7.1, A5

A15 (partial)

Specification 3.4.4 - Less Restrictive

L1 The total Leakage allowed has been increased from 25 to 30 gpm. The total Leakage limit is based on a reasonable minimum detectable amount and a 5 gpm change is not considered significant. No applicable safety analysis assumes the total Leakage limit. The limit considers RCS inventory makeup and drywell floor drain capacity. The new limit of 30 gpm is well within the makeup capacity of the Control Rod Drive System pump and the RCIC System, and is well below the collection capacities of one drywell equipment drain or floor drain pump and the collecting sump.

Specification 3.4.5 - Less Restrictive

L2 The requirement to perform daily instrument checks of the drywell sump flow integrators has been deleted. The deletion of this CTS requirement is acceptable because such an instrument check does not consistently demonstrate equipment operability. Normally, the instruments can not be compared to any other instruments, and their reading could be anywhere on scale; thus, observing the meter would provide no valid information as to whether the instrument is Operable. The Channel Calibration requirement is the best indicator of Operability while operating, and this requirement is being maintained. This is also consistent with the BWR Standard Technical Specification, NUREG 1433.

Specification 3.5.2 - Less Restrictive

L4 Under CTS 3.5.A.5, core spray (CS) is allowed to be removed from service during refueling operations if a Residual Heat Removal Service Water System (RHRSW) pump is available through the cross-connection, provided the fuel pool gates are removed and level normal. The RHR/RHRSW cross-connection provides a redundant source of makeup water for fuel pool as discussed in Section 10.5.5 of the FSAR. It is considered a backup source since it is raw water (river water) that would be used only if all other normal sources were unavailable.

→ The need for the availability of a RHRSW pump through the cross-connect as a prerequisite for the allowing the CS system to be inoperable is not included in ITS 3.5.2 for the same refueling conditions. This feature of the RHRSW system is not credited as a primary system for mitigation of transients or accidents. The provisions ITS 3.5.2 provide appropriate requirements for ensuring adequate water inventory is maintained during refueling activities. As noted above, this design feature will continue to be described in the FSAR. Changes to the FSAR are controlled in accordance with 10 CFR 50.59. → align

Specification 3.6.1.3 - Less Restrictive

L6 The frequency of the periodic verification required by CTS 4.7.D.2 when a penetration has been isolated to comply with CTS 3.7.D.2 has been changed from daily to monthly. These valves are strictly controlled and are operated in accordance with plant procedures. Daily verification that these valves are still isolated places an undue burden on plant operations and provides little if any gain in safety, since these valves are rarely found in the unisolated

condition, once closed. In addition, CTS 4.7.D.2 requires the position of one other valve in the line be "recorded" daily versus the STS wording of "verified." STS also allows an inoperable valve to be used for isolating the penetration. This Less Restrictive change eliminates or reduces unnecessary restrictions on plant operation and is acceptable.

L7 The Note to SR 3.6.1.3.1 allows the SR to not be met (i.e., purge valves do not have to be verified closed) when the valves are open for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry and for Surveillances that require the valves to be open. For these reasons, it is deemed acceptable to open the valves for short periods of time. CTS 3.7.F.3.a, which allows the 18- and 20 inch primary containment isolation valves associated with purging to be open during the Run Mode during a 24-hour period after entering the Run Mode and/or for a 24-hour period prior to entering the Shutdown Mode, is encompassed by the provisions of the Note. The additional exemptions allowed by the Note are acceptable since the 18- and 20-inch purge valves continue to be capable of closing in the environment following a LOCA.

Specification 3.8.4 - Less Restrictive

L1 The Limiting Conditions for Operation for CTS 3.9.B.8 allowed outage time of 5 days for the Unit 1 and 2 Shutdown Board DC batteries has been increased to 7 days in ITS LCO (3.8.4, Action A) for consistency with the Unit 3 Technical Specifications for Shutdown Battery 3EB and Units 1, 2, and 3 CTS for a unit battery. At BFN, there is a safety related 250 VDC unit battery located in each unit. The unit battery systems provide power for unit control functions, unit DC motor loads and alternate control power to the 4.16 kV and 480 V AC shutdown boards. The primary control power supplies to the 3A, 3C, and 3D 4.16kV ac shutdown boards and the Unit 3 480 V shutdown boards are also provided by the unit batteries. There are five safety related 250 V DC battery systems assigned as primary control power supplies to 4.16 kV AC shutdown boards A, B, C, D, 3EB, and 480 V shutdown boards 1A, 1B, 2A, and 2B. Alternate control power for these shutdown boards are provided from the Unit Batteries. Therefore, the impact on Unit 1 and 2 for a 4-kV shutdown board battery being inoperable is no more severe than a unit battery being out of service on Unit 1, 2, or 3 or shutdown board 3EB battery being inoperable on Unit 3. For these reasons, a seven day out of service time is appropriate for an inoperable 4-kV shutdown board battery on Units 1 and 2. This change is consistent with the STS intent since the allowed outage time continues to ensure corrective action is taken to restore the inoperable battery with no significant reduction in margin of safety while allowing time for corrective action to be accomplished.

Table L lists all CTS requirements that have been relaxed and which pertain to Category I though VIII and to the specific listing of changes discussed above. Table L is organized by ITS section and includes: the section designation, ~~followed by~~ the ~~discussion of~~ change identifier, e.g., ~~1.4-L1~~ ITS Section 1.1 DOC L1); a summary description of the change; CTS and ITS LCO references; and a reference to the applicable change categories as discussed above ~~(if applicable) and a~~

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Section 5.2 - Less Restrictive

L1 CTS Table 6.2.A requires four non-licensed operators when all three units are shutdown or when one unit is in operation, and five non-licensed operators when two or three units are in operation. ITS 5.2.2.a requires three non-licensed operators if all three units are shutdown or defueled. In addition, with two units operating (different control rooms), ITS 5.2.2.a requires four non-licensed operators. Based on experience, TVA believes that the ITS provide adequate staffing levels for non-licensed operators to support safely controlling the plants, whether shutdown or operating. This change is consistent with the STS.

L2 CTS 6.2.2.d requires two licensed reactor operators and a licensed senior reactor operator during cold startups, plant shutdowns, and recovery from trips. Because of experience gained since Unit 2 restart in May 1991, TVA believes that this requirement is no longer necessary and that compliance with the manning requirements of ITS and 10 CFR 50.54 (k), (l), and (m) will assure adequate staffing of licensed positions. Therefore, this CTS requirement is deleted. This change is consistent with the STS.

L3 CTS Table 6.2.A Note b, which allows the operating shift complement to be one less than the minimum requirement for up to two hours, is revised in ITS 5.2.2.c to delete the word "one." ITS 5.2.2.c requires immediate action to fill the vacant position, and maintains the CTS requirement that such a condition shall not exceed two hours. Additionally, Footnote 1 to the Minimum Staffing Table in 10 CFR 50.54(m) permits temporary deviations from the required staffing numbers as established in the unit's Technical Specifications. This change is consistent with the STS.

L4 CTS Table 6.2.A Note b, which does not permit any shift crew position to be unmanned upon shift change, is not included in ITS. ITS 5.2.2.c requires immediate action to fill any vacant position, and maintains the CTS requirement that such a condition shall not exceed two hours. Additionally, Footnote 1 to the Minimum Staffing Table in 10 CFR 50.54(m) permits temporary deviations from the required staffing numbers as established in the unit's technical specifications. This change is consistent with the STS.

Section 5.5 - Less Restrictive.

L1 CTS 6.8.4.1.a & f uses the term "Operability" when referring to radioactive and gaseous monitoring instrumentation and treatment systems. Proposed ITS 5.5.4 uses the term "functional capability." The proposed change is necessary because the Radioactive Effluent Controls Program is located outside the Technical Specifications in the ODCM. Use of the term "Operability" can be confusing when used in programs which are not in the Technical Specifications. The term functional capability means that the component or system is capable of performing its design function. Since it is not a TS defined term, the use of "functional capability" is considered less restrictive than the use of the term "Operability."

NOTE: This page omitted from Draft SER. Conversion lead subsequently faxed to TVA for comment consideration

~~"Characterization" of the discussion change.~~

For the reasons presented above, these less restrictive requirements are acceptable because they will not affect the safe operation of the plant. The TS requirements that remain are consistent with current licensing practices, operating experience, and plant accident and transient analyses, and provide reasonable assurance that public health and safety will be protected.

D. Relocated Less Restrictive Requirements

When requirements have been shown to give little or no safety benefit, their removal from the TS may be appropriate. In most cases, relaxations previously granted to individual plants on a plant-specific basis were the result of (1) generic NRC actions, (2) new staff positions that have evolved from technological advancements and operating experience, or (3) resolution of the Owners Groups comments on STS. The NRC staff reviewed generic relaxations contained in STS and found them acceptable because they are consistent with current licensing practices and the Commission's regulations. The BFN design was also reviewed to determine if the specific design basis and licensing basis are consistent with the technical basis for the model requirements in STS, and thus provide a basis for ITS. A significant number of changes to the CTS involved the removal of specific requirements and detailed information from individual specifications evaluated to be Types 1 through 4 that follow:

Type 1 - Details of System Design and System Description Including Design Limits

Type 2 - Descriptions of Systems or Plant Operation

Type 3 - Procedural Details for Meeting TS Requirements and Related Reporting Requirements → align

Type 4 - Performance Requirements for Indication-only Instrumentation and Alarms

The following discussions address why each of the four types of information or specific requirements are not required to be included in ITS.

BFN

Details of System Design and System Description Including Design Limits *(Type 1)*

The design of the facility is required to be described in the UFSAR by 10 CFR 50.34. In addition, the quality assurance (QA) requirements of Appendix B to 10 CFR Part 50 require that plant design be documented in controlled ~~procedures and~~ drawings, and maintained in accordance with an NRC-approved QA plan ~~(reference~~ in the ~~Updated Final Safety Analysis Report~~ (UFSAR)). In 10 CFR 50.59 controls are specified for changing the facility as described in the UFSAR, and in 10 CFR 50.54(a) criteria are specified for changing the QA plan. In ITS, the Bases also contain descriptions of system design. ITS 5.5.10 specifies controls for changing the Bases. Removing details of system design from the CTS is acceptable because this information will be adequately controlled in the UFSAR, controlled design documents and drawings or the TS Bases, as appropriate.

as referenced in Appendix D

Descriptions of Systems or Plant Operation *(Type 2)*

The plans for the normal and emergency operation of the facility are required to be described in the UFSAR by 10 CFR 50 34. ITS 5.4.1.a requires written procedures to be established, implemented, and maintained for plant operating procedures including procedures recommended in Regulatory Guide 1.33, Appendix A, ~~November 1972~~. Controls specified in 10 CFR 50.59 apply to changes in procedures as described in the UFSAR. In ITS, the Bases also contain descriptions of system or plant operation. It is acceptable to remove details of systems or plant operation from the TS because this type of information will be adequately controlled in the UFSAR, and the TS Bases, as appropriate.

and by ITS 5.4.1.a

Procedural Details for Meeting TS and Related Reporting Requirements *(Type 3)*

Details for performing action and SRs are more appropriately specified in the plant procedures required by ITS 5.4.1, the UFSAR, and ITS Bases. For example, control of the plant conditions appropriate to perform a surveillance test is an issue for procedures and scheduling and has previously been determined to be unnecessary as a TS restriction. As indicated in Generic Letter 91-04, allowing this procedural control is consistent with the vast majority of other SRs that do not dictate plant conditions for surveillances. Prescriptive procedural information in an action requirement is unlikely to contain all procedural considerations necessary for the plant operators to complete the actions required, and referral to plant procedures is therefore required in any event. Other changes to procedural details include those associated with limits retained in the ITS.

and by ITS 5.4.1

The removal of these kinds of procedural details from the CTS is acceptable because they will be adequately controlled in the UFSAR, ~~and~~ Bases, as appropriate. This approach provides an effective level of regulatory control and provides for a more appropriate change control process. Similarly, removal of reporting requirements from LCOs is appropriate because ITS 5.6, 10 CFR 50.36 and 10 CFR 50.73 adequately cover the reports deemed to be necessary.

Performance Requirements for Indication-Only Instrumentation and Alarms *(Type 4)*

Indication-only instrumentation, test equipment, and alarms are usually not required to be operable to support TS operability of a system or component unless these items are included in TS as source range monitoring instrumentation, remote shutdown monitoring instrumentation, post-accident monitoring instrumentation, and reactor coolant system leakage detection instrumentation. Thus, with the exception of the source range monitoring instrumentation, remote shutdown monitoring instrumentation, post accident monitoring instrumentation, and reactor coolant system leakage detection instrumentation, STS do not include operability requirements for indication-only equipment. The availability of such indication instruments, monitoring instruments, and alarms, and necessary compensatory activities if they are not available, are more appropriately specified in plant operational, maintenance, and annunciator response procedures required by ITS 5.4.1. Removal of requirements for indication-only instrumentation and alarms from the CTS is acceptable because they will be adequately controlled in plant procedures.

Table RL lists CTS specifications and detailed information removed from individual specifications that are relocated to licensee-controlled documents in ITS. Table RL is organized by ITS section and includes: the section designation followed by the discussion of change identifier, e.g., 3.1.1 LA1 (ITS Section 3.1.1, DOC LA 1); CTS reference; a summary description of the change; the name of the document that retains the CTS requirements; the method for controlling future changes to relocated requirements; a characterization of the change; and a reference to the specific change type, as discussed above, for not including the information or specific requirements in ITS.

The NRC staff has concluded that these types of detailed information and specific requirements are not necessary to ensure the effectiveness of ITS to adequately protect the health and safety of the public. Accordingly, these requirements may be moved to one of the following licensee-controlled documents for which changes are adequately governed by a regulatory or TS requirement: (1) TS Bases controlled by ITS 5.5.10, "Technical Specifications Bases Control Program;" (2) UFSAR (includes the Technical Requirements Manual (TRM) by reference) controlled by 10 CFR 50.59; ~~and~~ (3) the QA plans as approved by the NRC and referenced in the UFSAR, and controlled ~~by 10 CFR Part 50, Appendix B and~~ 10 CFR 50.54(a). For each of these changes, Table RL also lists the licensee-controlled documents and the TS or regulatory requirements governing changes to those documents.

and (4) procedures required and controlled by ITS 5.4.1.

To the extent that requirements and information have been relocated to licensee-controlled documents, such information and requirements are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Further, where such information and requirements are contained in LCOs and associated requirements in the CTS, the NRC staff has concluded that they do not fall within any of the four criteria in the Final Policy Statement (discussed in Part II of this safety evaluation). Accordingly, existing detailed information and specific requirements, such as generally described above, may be deleted from the CTS.

E. Relocated Specifications

The Final Policy Statement states that LCOs and associated requirements that do not satisfy or fall within any of the four specified criteria may be relocated from existing TS (an NRC-controlled document) to appropriate licensee-controlled documents. These requirements include the LCOs, Action Statements (Actions), and associated SRs. In its application, the licensee proposed relocating such specifications to the ~~UFSAR (includes~~ the TRM ~~by reference)~~. The staff has reviewed the licensee's submittals, and finds that relocation of these requirements to the ~~UFSAR~~ ~~and~~ TRM is acceptable, in that changes to the ~~UFSAR~~ will be adequately controlled by 10 CFR 50.59. These provisions will continue to be implemented by appropriate plant procedures; i.e., operating procedures, maintenance procedures, surveillance and testing procedures, and work control procedures.

TRM

The licensee, in electing to implement the specifications of STS, also proposed, in accordance with the criteria in the Final Policy Statement, to entirely remove certain TS from the CTS and place them in licensee-controlled documents noted in Table R. Table R lists all specifications and

which is referenced by the UFSAR

specific CTS details that are relocated, based on the Final Policy Statement, to licensee-controlled documents in ITS. Table R provides: a CTS reference; a summary description of the requirement; the name of the document that retains the CTS requirements; the method for controlling future changes to relocated requirements; and a characterization of the discussion of change. The NRC staff evaluation of each relocated specification and specific CTS detail presented in Table R is provided below.

CTS 2.1.A.1.c, TABLE 3/4.2.C - CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION

The requirements for the subject control rod blocks functions are being relocated to the TRM. This instrumentation consists of the APRM, the IRM, the SRM, and the scram discharge volume (SDV) instrumentation, and as shown in Table 3.2.C and Table 4.2.C, and as referenced by CTS 2.1.A.1.c. The relocated requirements and setpoints are as established in CTS Tables 3.2.C and 4.2.C.

Table 3/4.2.C APRM

The APRM control rod block functions to prevent a control rod withdrawal error at power transient utilizing LPRM signals to create the APRM rod block signal. APRMs provide information about the average core power, however, the APRM rod block function is not used to mitigate a Design Basis Accident (DBA) or transient.

Table 3/4.2.C SRMs

The SRM control rod block functions to prevent a control rod withdrawal error during reactor startup utilizing SRM signals to create the rod block signal. SRM signals are used to monitor neutron flux during refueling, shutdown, and startup conditions. No DBA or transient analysis takes credit for rod block signals initiated by the SRMs.

Table 3/4.2.C IRMs

The IRM control rod block functions to prevent a control rod withdrawal error during reactor startup utilizing IRM signals to create the rod block signal. IRMs are provided to monitor the neutron flux levels during refueling, shutdown, and startup conditions. No DBA or transient analysis takes credit for rod block signals initiated by IRMs.

Table 3/4.2.C Scram Discharge Volume

The SDV control rod block functions to prevent control rod withdrawals during power range operation, utilizing SDV signals to create the rod block signal if water is accumulating in the SDV. The purpose of measuring the SDV water level is to ensure that there is sufficient volume remaining to contain the water discharged by the control rod drives during a scram, thus ensuring that the control rods will be able to insert fully. This rod block signal provides an indication to the operator that water is accumulating in the SDV and prevents further rod withdrawals. With continued water accumulation, a reactor protection system initiated scram

NO COMMENTS

signal will occur. Thus, the SDV water level rod block signal provides an opportunity for the operator to take action to avoid a subsequent scram. No DBA or transient takes credit for rod block signals initiated by the SDV instrumentation.

In summary, the APRM, SRM, IRM, and scram discharge volume control rod blocks function to prevent a control rod withdrawal error at power transient. However, no design basis accident or transient takes credit for rod block signals initiated by this instrumentation. This instrumentation is also not credited for rod block signal initiation following a design basis accident or transient. Further, the evaluation summarized in NEDO-31466 determined the loss of the this instrumentation to be a non-significant risk contributor to core damage frequency and offsite release.

The control rod block LCO and SRs applicable to the APRM, SRM, IRM and SDV instrumentation do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the control rod block withdrawal instrumentation, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS TABLE 3/4.2.B - TRIP SYSTEM BUS POWER AND CORE SPRAY SPARGER DIFFERENTIAL PRESSURE FUNCTION

The trip system bus power monitors and core spray sparger differential pressure functions are operational functions only and are not considered in any design basis accident or transient. The evaluation summarized in the BFN Unit 1, 2, and 3 split report determined the loss of these functions to be a non-significant risk contributor to core damage frequency and offsite release.

The trip system bus power and core spray sparger differential pressure functions do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the subject instrumentation, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS TABLE 3/4.2.B -DRYWELL HIGH PRESSURE (CONTAINMENT SPRAY PERMISSIVE)

This instrument function is being relocated to the TRM. The purpose of this instrument is to preclude inadvertent actuation of drywell and suppression pool sprays during a LOCA. If a LOCA signal is present, the drywell and suppression pool spray valves cannot be opened unless reactor vessel water level is above the 2/3 core height level (to preclude diversion of LPCI when it is needed for core flooding) and the drywell pressure is $\geq$ 1.0 psig and $\leq$ 2.5 psig (indicative of a valid need for operating the drywell and suppression pool sprays). If the instrument is inoperable such that it trips too soon or too late (or not at all), the LPCI System is not impacted.

If the instrument trips too soon, the reactor vessel water level 2/3 core height functions still ensures that flow is not diverted away from core flooding. In fact, the major contributor to potential flow diversion is suppression pool cooling, and its valves are only precluded from opening by the 2/3 core height instrument. The flow diverted by the drywell and suppression pool sprays is a small fraction of that diverted by suppression pool cooling. Thus, operability of LPCI is not impacted. While tripping of the instrument allows one of the permissives for opening drywell and suppression pool spray valves to be met, inadvertent operation does not result, since manual actions must still be taken to open the valves if the other permissive (2/3 core height) is also met. In addition, if a LOCA signal is not present, this instrument does not preclude operation of the drywell and suppression pool spray valves. Therefore, inadvertent operation of drywell spray has been analyzed at BFN and does not result in containment failure due to operation of the reactor building-to-suppression chamber and the suppression chamber-to-drywell vacuum breakers. These vacuum breakers are controlled by TS (current and proposed). Therefore, operability of the suppression pool spray system is not impacted.

If the instrument trips too late or not at all, then no flow can be diverted by the drywell and suppression pool sprays; thus LPCI is not affected. The only TS systems affected in this case are the suppression pool spray and the drywell spray systems. A failure of the instrument to function would preclude the suppression pool spray and drywell spray valves from being opened from the control room. However, these systems are manually controlled systems that are not needed for a minimum of 10 minutes following a DBA LOCA, and the valves could still be opened locally at the valve operator. In addition, the instrument could be overridden to allow operation from the control room. Therefore, failure of this instrument may not result in the suppression pool spray or drywell spray systems being inoperable.

The drywell high pressure instrument does not relate to LPCI operability, and the suppression pool spray and drywell spray systems are manually actuated systems.

The drywell high pressure instrument function does not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the subject instrumentation, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS TABLE 3/4.2.B - CORE SPRAY (CS) AND RHR DISCHARGE PRESSURE AND COOLER FAN LOGIC, AND RHRSW START

Core Spray loop A & B discharge pressure, RHR Loop A & B discharge pressure, RHR and CS cooler fan logic, RHRSW start on CS start, instrument channel - Thermostat (RHR area cooler fan), and instrument channel - thermostat (core spray area cooler fan) are operational functions only and are not considered in any design basis accident or transient. As such, they are being relocated to the TRM. Relocating requirements for these instrument channels does not preclude them from being maintained operable. ~~They are required to be operable in order to support LPCI and CS system operability. If they become inoperable, the operability of the supported systems is required to be evaluated under the Safety Function Determination Program in Section 5.0 of the~~

~~18.~~

The requirements for these instrument channels do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the subject instrumentation, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS TABLE 3/4.2.B - RCIC TRIP SYSTEM BUS POWER MONITOR

The RCIC trip system bus power monitor function is an operational function only and is not considered in any design basis accident or transient. Also, the bus power monitors for the RCIC trip system will alarm if a fault is detected in the power system to the RCIC logic. No DBA or transient analyses take credit for the bus power monitors. Hence, this instrumentation provides a monitoring/alarm function only.

The RCIC trip system LCO and SR associated with the RCIC bus power monitor do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS and into the TRM. Any changes to these former requirements regarding the subject instrumentation, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.2.F - SURVEILLANCE INSTRUMENTATION

The suppression chamber air temperature, control rod position, neutron monitoring, drywell pressure alarm at 35 psig, drywell temperature and pressure and timer alarm, CAD tank level, drywell to suppression chamber differential pressure, relief valve tailpipe temperature or position indication, and wide range gaseous effluent radiation monitor are not credited as Regulatory Guide 1.97 Category 1 or Type A variables. Further, the loss of these instruments is a ⟵ non-significant risk contributor to core damage frequency and offsite release.

The surveillance instrumentation requirements specified for these functions do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the subject instrumentation, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.2.H, 3/4.2.I - FLOOD PROTECTION AND METEOROLOGICAL MONITORING INSTRUMENTATION

CTS 3.2/4.2.H, Flood Protection, and 3.2/4.2.I, Meteorological Monitoring Instrumentation requirements are being relocated to the TRM. Flood protection monitoring instrumentation is not utilized as part of the primary success path in detecting or mitigating the consequences of

a DBA or transient. Likewise, meteorological monitoring instrumentation is not utilized as part of the primary success path in detecting or mitigating the consequences of a DBA or transient.

The flood protection and meteorological monitoring instrumentation LCOs and SRs do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these requirements regarding flood protection and meteorological monitoring Instrumentation, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.2.J -SEISMIC MONITORING INSTRUMENTATION

CTS 3.2.J and 4.2.J requirements for the seismic monitoring instrumentation are relocated to the TRM. In the event of an earthquake, seismic monitoring instrumentation is required to determine the magnitude of the seismic event. These instruments do not perform any automatic action. They are used to measure the magnitude of the seismic event for comparison to the design basis of the plant to ensure the design margins for plant equipment and structures have not been violated. Since the determination of the magnitude of the seismic event is performed after the event has occurred, this instrumentation has no bearing on the mitigation of any DBA or transient.

The seismic monitoring instrumentation LCO and SRs do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the seismic monitoring instrumentation, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS TABLE 4.2.C - ROD BLOCK MONITOR (RBM) INSTRUMENTATION CHECK

CTS Table 4.2.C requires RBM instrument channel checks. This test is performed by a comparison of redundant channels as a simple check of instrument performance. NUREG-1433 has no equivalent check for the RBM so performance of the daily "Instrument Check" will be relocated to plant procedures and the TRM, and controlled in accordance with 10 CFR 50.59.

Browns Ferry Units 1, 2, & 3 were participants in NEDC-30851P-A, Supplement 1, Licensing Topical Report, Technical Specification Improvement Analysis for BWR Control Rod Block Instrumentation. The rational for not including the instrument channel check in the ITS was based on this analysis which included "an acceptable format for proposed TS changes" based on the Safety Evaluation Report cover letter. The proposed format for "Control Rod Block Instrumentation Surveillance Requirements" has the Rod Block Monitor Channel Check column marked N.A. (Not Applicable). Although, the requirement for instrument channel checks is not being transferred to the ITS from the CTS, the TRM will maintain the daily channel check requirement.

The rod block monitor instrumentation channel checks do not meet the criteria in 10 CFR 50.36.

Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the RBM instrumentation, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.3.B.2 - CONTROL ROD DRIVE (CRD) HOUSING SUPPORTS

CRD operability requirements (CTS 3.3.B.2) currently include requirements for the CRD housing support to be in place. These requirements have been relocated to the TRM. The CRD housing support does support CRD operability which is part of the primary success path. Having the CRD housing support out of place does impact CRD operability. It is indirectly covered in ITS 3.1.3 Action C in the blanket action for a control rod being inoperable for any other reason. There is no need to duplicate requirements in a subsystem LCO. Relocation of this LCO is appropriate since plant configuration (the control rod housing support in place) would be controlled by post maintenance procedures.

The CRD housing supports do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the subject instrumentation, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3.5.B.11,12,13 and 4.5.B.11- RHR INTER-UNIT CROSSTIE OPERABILITY

BFN consists of three units with RHR cross connection capability between adjacent units. The RHR pump suction and heat exchanger discharge lines of one loop of RHR in Unit 1 (Loop II) are cross-connected to the pump suction and heat exchanger of Unit 2. Unit 2 and 3 systems are cross-connected in a similar manner. The standby coolant supply connection and RHR crossties are provided to maintain long-term reactor core and primary containment cooling capability irrespective of primary containment integrity or operability of the RHR System associated with a given unit. They provide added long-term redundancy to the other ECC Systems and are designed to accommodate certain situations which, although unlikely to occur, could jeopardize the functioning of these systems. Neither the RHR cross-tie nor the standby coolant supply capability is assumed to function for mitigation of any transient or accident analyzed in the FSAR.

The crosstie capability requirements do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former LCO and SRs, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3.5.C.1, 3/4.5.C.3, 3/4.5.C.4 STANDBY COOLANT SUPPLY

The CTS requirements related to the standby coolant supply connection have been relocated to the TRM. By proper valve alignment, the network created by the standby coolant supply connection and RHR cross-ties permits the D2 (or D1) RHRSW pump and header to supply raw

water directly to the reactor core of Units 1 or 2 as reactor pressure approaches 50 psig. The RHRSW pump and header can also be valved to supply raw water to the drywell/suppression chamber spray headers or directly to the suppression chamber of either unit. In a similar fashion, the B2 (or B1) RHRSW pump and header can supply raw water to the reactor core of Units 2 or 3 or into the respective drywell/suppression chamber spray headers or directly to the suppression chambers. However, the standby coolant supply connection is not needed to mitigate any design basis accident and there is a very low probability of ever needing the standby coolant supply.

The standby coolant supply requirements do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the standby coolant supply specification, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.5.D - RHR AND CORE SPRAY ROOM COOLERS

CTS 3.5.D/4.5.D, Equipment Area Coolers, are being relocated to the TRM. Relocating the associated operability and surveillance requirements for the equipment area coolers is acceptable based on the criteria of 10 CFR 50.36. The coolers are required to be operable in order to support LPCI and CS system operability and if they do become inoperable, will fall under the ~~Safety Function Determination Program in ITS 5.5.11~~. controls provided in the TRM.

The RHR and core spray room coolers do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.5.H.4 - CORE SPRAY/RHR DISCHARGE LINE PRESSURE MONITORING (ECCS - OPERATING)

CTS 3.5.H/4.5.H.4 requires daily monitoring of the core spray and RHR discharge line pressure indicators (48 psig minimum) to ensure the discharge piping is full of water whenever CS and RHR are required to be operable. These CTS requirements will be relocated to the TRM. Improper water fill is not considered likely since alignment to the pressure suppression chamber (PSC) head tank is maintained with locked open valves. Also, under the provisions of proposed ITS SR 3.5.1.1, venting and verification of water fill for the ECCS discharge piping is performed every 31 days as a formal surveillance test. The 31-day frequency is adequate to ensure that the water fill requirements are met and is based on the gradual nature of void buildup in the ECCS piping, procedural controls governing system operation, and industry operating experience.

The Core Spray/RHR discharge line LCOs and SRs do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS and into the TRM. Any changes to these former requirements regarding the discharge line pressure monitoring specification, as relocated to the TRM, will require a safety

evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.6.B - REACTOR COOLANT CHEMISTRY

The chemistry limits are provided to prevent long term component degradation and provide long term maintenance of acceptable structural conditions of the system. Poor reactor coolant water chemistry may contribute to the long term degradation of system materials and thus is not of immediate importance to the plant operator. Reactor coolant water chemistry is monitored for a variety of reasons. One reason is to reduce the possibility of failures in the reactor coolant system pressure boundary caused by corrosion. Hence, the chemistry monitoring activity serves a long term preventative rather than mitigative purpose.

The reactor coolant system chemistry LCO and SRs do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS and into the TRM. Any changes to these former requirements regarding the reactor coolant system chemistry specification, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.6.G - ASME STRUCTURAL INTEGRITY REQUIREMENTS

The structural integrity inspections in CTS 3.6.G and 4.6.G are provided to prevent long term component degradation and provide long term maintenance of acceptable structural conditions of the system. The associated inspections are not required to ensure immediate operability of the system. Other TS require important systems to be operable and in a ready state for mitigative action. This TS is more directed toward prevention of component degradation and continued long term maintenance of acceptable structural conditions. Hence, it is not necessary to retain this specification to ensure immediate operability of safety systems.

The structural integrity LCO and SRs in CTS 3/4/6.G do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS and into the TRM. Any changes to these former requirements regarding the structural integrity LCOs and SRs, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.6.H - SNUBBER REQUIREMENTS

CTS 3.6.H and 4.6.H snubber inspection requirements are being relocated to the TRM. These requirements define inspection schedules, types, sampling methods, and acceptance criteria. Hydraulic and mechanical snubbers are included in the plant design to ensure the structural integrity of the reactor coolant system and other safety-related systems is maintained during and following a seismic or other dynamic event. They serve as an aid to preventing pipe failure, but do not mitigate pipe failure. Also, the failure of a snubber on a particular pipe cannot, by itself, cause

NO COMMENT

the pipe to fail. Consequently, the CTS snubber requirements do not meet 10 CFR 50.36 criteria since they are not used as part of the primary success path in detecting or mitigating the consequences of a DBA or transient event. The ITS will define the operability requirements for the plant systems. With the removal of snubber operability requirements from the TS operability requirements will be determined in accordance with specific ITS system operability requirements.

The snubber requirements do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the snubber LCOs and SRs, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.7.F - PRIMARY CONTAINMENT PURGE SYSTEM

CTS 3.7.F.1 & 2 and 4.7.F Primary Containment Purge System requirements have been relocated to the TRM. The Primary Containment Purge System at BFN is not a safety related system (with the exception of the primary containment isolation valves which are covered by ITS 3.6.1.3) and is not relied upon to mitigate any transient or design basis event. It does not contain installed instrumentation used to detect a significant abnormal degradation in the reactor coolant pressure boundary and is not modeled in the BFN Probabilistic Safety Assessment (PSA).

The primary containment purge system (with the exception of the primary containment isolation valves which are covered by ITS 3.6.1.3) does not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.8.E - RADIOACTIVE MATERIALS SOURCES TESTING

The CTS 3.8.E and 4.8.E limitations on sealed source contamination are intended to ensure that the total body or individual organ irradiation does not exceed allowable limits in the event of ingestion or inhalation. This is done by imposing a limitation on the maximum amount of removable contamination on each sealed source. This requirement and the associated surveillance requirements bear no relation to the conditions or limitations which are necessary to ensure safe reactor operation. Miscellaneous radioactive materials sources requirements are not used for, nor capable of, detecting a significant abnormal degradation of the reactor coolant pressure boundary prior to a DBA. Miscellaneous radioactive materials sources requirements are not process variables that are initial conditions of a DBA or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. Miscellaneous radioactive materials sources requirements are not part of the primary success path that function or actuate to mitigate a DBA or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The radioactive materials sources testing requirements do not meet the criteria in 10 CFR 50.36.

NO COMMENTS

Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the subject specification, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 4.9.A.1.d - VENDOR RECOMMENDED DIESEL GENERATOR MAINTENANCE INSPECTIONS

CTS 4.9.A.1.d requires DG inspections in accordance with the manufacturer's recommendations once every 24 months. The conversion to ITS relocates this specific inspection requirement to the TRM. Although this type of surveillance is a good practice and aids in improving long term reliability and performance of the DGs, this inspection does not verify or prove the DG will perform its required safety function. There is no credit taken for this inspection in the accident or transient analysis nor does the inspection verify proper DG response assumed in the accident or transient analysis. Performance of this inspection surveillance: 1) does not involve or affect instrumentation used to detect or indicate degradation of the reactor coolant pressure boundary, 2) is not a process variable, design feature, or operating restriction that is an initial condition of a DBA or transient analysis, 3) is not part of the primary success path that functions or actuates to mitigate a DBA or transient, and 4) is not credited with ensuring operability of a structure, system, or component which operating experience or probabalistic studies have shown to be significant to public health and safety.

The vendor recommended diesel generator maintenance inspections requirements do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the subject specification, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.10.C.2, 3/4.10C.3 - SPENT FUEL TEMPERATURE AND CHEMISTRY

This change relocates CTS 3.10.C spent fuel pool temperature and chemistry requirements of the spent fuel pool TRM. The chemistry limits are provided to prevent long term component degradation and provide long term maintenance of acceptable structural conditions of the system. Poor fuel pool water chemistry may contribute to the long term degradation of system material and also hampers work activities in the fuel pool if water clarity is low. Maintenance of chemistry is considered a maintenance activity for prevention of long term degradation of fuel pool components and, thus, is not an immediate concern for the operator. Fuel pool temperature limits are prescribed for the benefit of personnel working in the vicinity of the fuel pool. The RHR system can be operated if required to supplement the fuel pool cooling system if required during refueling operations.

The spent fuel pool temperature and chemistry requirements do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the subject

NO COMMENTS

specification, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59.

CTS 3/4.10.D - REACTOR BUILDING CRANE

CTS 3.10.D and 4.10.D Reactor Building Crane requirements for handling fuel or spent fuel casks are relocated to the TRM. The relocated requirements include surveillance requirements for crane controls, and interlocks, and inspection requirements for hoists and wire ropes. Operability of the equipment (e.g., cranes and hoists) ensures that cranes and hoists have sufficient load capacity for handling fuel assemblies and the spent fuel cask. Although interlocks and other safety features are designed to prevent damage to these components, the interlocks are not assumed to function to mitigate the consequences of a DBA. Hence, the refueling platform cranes and hoists are not part of the primary success path in mitigating any DBA during refueling.

The crane and hoist operability LCO and SRs do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these former requirements regarding the crane and hoist operability specifications, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CTS 3/4.10.E, 3.10.F - SPENT FUEL CASK REQUIREMENTS - REFUELING FLOOR

CTS 3.10.E, 4.10.E and 3.10.F Spent Fuel Cask requirements are relocated to the TRM. The relocated requirements include inspection requirements for the lifting trunnions and fastening connection, yoke safety link position requirements, and administrative limits on lift height. The and spent fuel cask handling - refueling floor ensure that appropriate controls are in place for handling the spent fuel cask. Although safety features are designed to prevent damage to these components, the safety features are not assumed to function to mitigate the consequences of a DBA.

The spent fuel cask requirements - refueling floor do not meet the criteria in 10 CFR 50.36. Therefore, in accordance with the NRC Final Policy Statement, these specifications are relocated out of the ITS. Any changes to these spent fuel cask specifications, as relocated to the TRM, will require a safety evaluation pursuant to 10 CFR 50.59. Thus, sufficient regulatory controls exist to ensure continued protection of public health and safety.

CONCLUSION

The relocated CTS discussed above are not required to be in the TS under 10 CFR 50.36 and do not meet any criteria in 10 CFR 50.36(c)(2)(ii). They are not needed to obviate the possibility that an abnormal situation or event will give rise to an immediate threat to public health and safety. In addition, the NRC staff finds that sufficient regulatory controls exist under the regulations cited above to maintain the effect of the provisions in these specifications. The NRC staff has concluded that appropriate controls have been established for all of the current specifications, information, and requirements that are being moved to licensee-controlled documents. This is the subject of a license condition established herewith. Until incorporated in the ~~UFSAR~~, changes to

TRM

these specifications, information, and requirements will be controlled in accordance with the current applicable procedures that control these documents. Following implementation, the NRC will audit the removed provisions to ensure that an appropriate level of control has been achieved. The NRC staff has concluded that, in accordance with the Final Policy Statement, sufficient regulatory controls exist under the regulations, particularly 10 CFR 50.59. Accordingly, these specifications, information, and requirements, as described in detail in this Safety Evaluation, may be relocated from CTS and placed in the ~~UFSAR or other licensee-controlled documents~~ as specified in the licensee's letter dated September 6, 1996 as modified by the licensee's May 1, ~~June 6~~, August 14, November 5, November 14, December 3, December 4, December 11, December 22, December 23, December 29, December 30, 1997, January 23, March 12, April 16, April 20, April 28, May 7, May 14, 1998 letters.

F. Control of Specifications, Requirements, and Information Removed from the CTS

The facility and procedures described in the UFSAR and TRM, incorporated into the UFSAR by reference, can only be revised in accordance with the provisions of 10 CFR 50.59, which ensures records are maintained and establishes appropriate control over requirements removed from CTS and over future changes to the requirements. Other licensee-controlled documents contain provisions for making changes consistent with other applicable regulatory requirements; for example, the administrative instructions that implement the Nuclear Quality Assurance Plan (NQAP) can be changed in accordance with 10 CFR 50.54(a), ~~and 10 CFR Part 50, Appendix B.~~ Temporary procedure changes are also controlled by 10 CFR 50.54(a). The documentation of these changes will be maintained by the licensee in accordance with the record retention requirements specified in the licensee's QA Program Description for BFN and such applicable regulations as 10 CFR 50.59.

The licensee committed in a letter dated ~~September 6, 1996~~, to confirm that CTS requirements designated for placement in the UFSAR or the TRM are appropriately reflected in these documents, or that they will be included in the next required update of these documents. This is the subject of a license condition established herewith. The licensee has also committed to maintain an auditable record of, and an implementation schedule for, the procedure changes associated with the implementation of ITS. The licensee will maintain the documentation of these changes in accordance with the record retention requirements in the QA Program Description. Volume 1 of the September 6, 1996, letter, as modified by the licensee's May 1, ~~June 6~~, August 14, November 5, November 14, December 3, December 4, December 11, December 22, December 23, December 29, December 30, 1997, January 23, March 12, April 16, April 20, April 28, May 7, May 14, 1998 letters includes a list of the changes involving specific requirements that have been removed from the CTS. For each of these changes, Volume 1 also includes the licensee-controlled documents and the TS or regulatory requirements governing changes to these documents.

G. EVALUATION OF OTHER TS CHANGES INCLUDED IN THE APPLICATION FOR CONVERSION TO IMPROVED TECHNICAL SPECIFICATIONS

REACTOR WATER LEVEL

CTS, Section 2.0.2, specifies that reactor vessel water level be maintained not less than 372.5 inches above vessel zero. The ITS does not specify an actual level but rather that the water level should be greater than the top of the active irradiated fuel. Accordingly, the licensee proposed to delete the specific water level and ties the Safety Limit to its bases of maintaining adequate core cooling, which is accomplished by ensuring water level is maintained above the top of active fuel. This change is considered less restrictive because the CTS water level is being removed. It is not necessary to specify the precise water level above the actual top of active irradiated fuel. The licensee states that its assumptions relative to the reactor water level in the accident or transient event are not affected. The licensee's analysis assumes that maintaining water level above the top of the active irradiated fuel provides adequate margin above 2/3 core height for effective action. The change still ensures adequate margin for effective action in the event of a level drop. The proposed change is consistent with the ~~standard~~ TS, and current safety analysis assumptions that water level does not drop below 2/3 core height and, therefore, the proposed change is acceptable.

ECCS OPERABILITY

The licensee proposed that only two ECCS subsystems are required to be operable during shutdown to provide the capability to restore and maintain the reactor coolant level in the event of an inadvertent drain down. The current TS, which defines subsystems in the same manner as the ITS, require three subsystems to be operable. Each ECCS subsystem consists of one motor-driven pump, piping, and valves to transfer water from the suppression pool to the reactor vessel. One low pressure ECCS injection/spray subsystem can maintain adequate reactor water level in the event of an inadvertent vessel drain down. The licensee states that, based on current BFN analyses, and as defined in the ~~current~~ TS Bases, the minimum requirement at atmospheric pressure is for one supply of makeup water for the core. Sufficient redundancy and makeup water can be provided by two core spray (CS) pumps, two residual heat removal (RHR) pumps, or one CS pump and one RHR pump. Therefore, requiring two RHR pumps and one CS pump to be operable provides excess redundancy. Based on the licensee's analysis that two ECCS subsystems would be adequate for providing makeup water to the core and that the licensee's proposed change is consistent with the CTS, the staff finds the proposed TS change to be acceptable. With the plant in a shutdown condition, the system independence required to mitigate a design basis loss of coolant accident is no longer required. The availability of two ECCS subsystems in the shutdown Modes provides sufficient equipment to handle any anticipated reactor coolant flow or level problems. Therefore, this less restrictive change is acceptable.

NUMBER OF REQUIRED OPERABLE RESIDUAL HEAT REMOVAL SERVICE WATER PUMPS

The licensee proposed a less restrictive change to the residual heat removal service water (RHRSW) system TS which would reduce the number of RHRSW pumps required to be operable

under certain conditions.

Current TS RHRSW requirements (TS 3.5.C and Table 3.5-1) for three unit operation specify seven RHRSW pumps to be Operable for the RHR cooling safety function. Diesel generator A (DG-A) supplies RHRSW pumps A1 and A2, and diesel generator B (DG-B) supplies RHRSW pumps C1 and C2. The current TS allows specific pump combinations that could result in the loss of two pumps following a single-failure of DG-A or DG-B, thereby reducing the number of pumps available to less than the six pumps required for accident mitigation as identified in the Final Safety Analysis Report (FSAR). Since the RHRSW system is a common system serving all three units, a failure that could result in the loss of two pumps is not unit specific. Therefore, the current TS operability requirements for two-unit operation are similarly non-conservative. For two units fueled, four pumps are required for accident mitigation (2 per unit), and the current specification only requires 5 Operable RHRSW pumps. If two of the required pumps are powered from the same source, then a single failure may result in only three pumps available between the two units. The TS requirements for single unit operation are conservative without change because four RHRSW pumps are required to be Operable, and thus, the loss of two pumps due to a diesel generator failure results in two pumps still available to adequately remove accident heat loads from the single unit (the other two units are defueled and RHRSW is not required for those two units). As a result of the above described non-conservatism discovered in the current TS and the proposed STS conversion, TVA provided an additional submittal on December 30, 1997. In that submittal, the licensee proposed changes to the current RHRSW system TS and revised the proposed RHRSW system TS (TS 3.7.1) associated with the STS conversion to reflect the latest failure analysis which resulted in an increase in the number of RHRSW pumps required to be Operable under certain conditions. This evaluation addresses the proposed RHRSW system STS conversion as requested by the September 6, 1996, submittal and amended by the December 30, 1997, submittal. The proposed changes to the current RHRSW system TS have been implemented by the licensee under administrative controls to ensure that plant operation is consistent with the latest analysis.

Proposed TS 3.7.1 "Residual Heat Removal Service Water (RHRSW) System," and its Bases, TS B3.7.1, require the RHRSW system to be Operable in Modes 1, 2, and 3. The Limiting Condition for Operation (LCO) specifies that:

Four RHRSW subsystems shall be Operable with the number of Operable pumps as listed below:

1. 1 Unit fueled - four Operable RHRSW pumps.

2. 2 Units fueled - six Operable RHRSW pumps.

3. 3 Units fueled - eight Operable RHRSW pumps.

The LCO is preceded by a NOTE which states that the number of required RHRSW pumps may be reduced by one for each fueled unit that has been in MODE 4 or 5 for at least ≥ 24 hours.

The required Actions to be taken when entering this LCO identify seven conditions (Conditions A

through G) to address possible inoperable equipment. The following describes each of these conditions and proposed Required Actions:

Condition A - With one required RHRSW pump inoperable, Action A.1 requires the licensee to immediately (for the 2 units fueled condition) verify that 5 RHRSW pumps powered from separate 4kV shutdown boards are Operable OR perform required Action A.2 and restore the required RHRSW pump to Operable within 30 days. The requirement for 5 Operable RHRSW for the 2 unit fuel condition also includes a note that the number of pumps may be reduced to 4 RHRSW pumps powered from separate 4kV shutdown boards if the other fueled unit has been in MODE 4 or 5 for ≥24 hours. This condition and Action A.2 effectively provides a 30 day allowed outage time (AOT) for one inoperable required RHRSW pump. For two fueled units the 30 day AOT may be waived if the remaining 5 pumps are all powered from separate shutdown boards.

Condition B - With one RHRSW subsystem inoperable, Action B.1 specifies the subsystem to be restored to Operable within 30 days. A modifying Note to Action B.1 also specifies to enter the applicable Conditions and Required Actions of LCO 3.4.7, "Residual Heat Removal (RHR) - Hot Shutdown," for RHR shutdown cooling made inoperable by the RHRSW system.

Condition C - With two required RHRSW pumps inoperable, Action C.1 specifies to restore one inoperable RHRSW pump to Operable status within 7 days.

Condition D - With two RHRSW subsystems inoperable, Action D.1 allows up to 7 days to restore one of the inoperable subsystems. Action D.1 also includes a Note to enter the applicable Conditions and Required Actions of LCO 3.4.7 for RHR shutdown cooling made inoperable by the RHRSW system.

Condition E - With three or more required RHRSW pumps inoperable, Action E.1 specifies to restore one RHRSW pump to Operable within 8 hours.

Condition F - With three or more inoperable subsystems, Action F.1 requires that one RHRSW subsystem be restored to Operable status within 8 hours. This action also includes a Note to enter the applicable Conditions and Required Actions of LCO 3.4.7 for RHR shutdown cooling made inoperable by the RHRSW system.

Condition G - Condition G specifies the required Actions and Completion Times in the event that the Action and associated Completion Time for one of the above Conditions A through F are not met. Actions G.1 and G.2 specify that the plant shall be in MODE 3 within 12 hours AND in MODE 4 within 36 hours, respectively.

Proposed TS 3.7.1 includes one surveillance requirement, SR 3.7.1.1, which requires (every 31 days) the licensee to verify each RHRSW manual and power operated valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.

Because of its shared nature, the once-through RHRSW system at Browns Ferry is significantly

NO COMMENT

different than the once-through RHRSW system described in the Bases for the BWR/4 STS in NUREG-1433. The RHRSW system LCO, Required Actions, and Bases in NUREG-1433 are based on a single unit plant with two RHRSW subsystem trains, having two pumps and one RHR heat exchanger per train. The RHRSW system at Browns Ferry is shared equally between all three units, and consists of 4 subsystems (headers) with 2 RHRSW pumps and 3 RHR heat exchangers (one in each unit) in each subsystem for a total of 8 RHRSW pumps and 12 RHR heat exchangers. Thus, each subsystem supplies cooling water to 1 of 4 RHR heat exchangers in each unit. Given these differences, the proposed LCO, Actions, and required Completion Times, are consistent to the extent practical with those in NUREG-1433. The proposed differences are necessary to account for the design differences between the shared Browns Ferry system and the system described in NUREG-1433.

The RHRSW system provides cooling for the RHR system heat exchangers, required for a safe reactor shutdown following a design basis accident (DBA) or transient. The RHRSW system is operated whenever the RHR heat exchangers are required to operate in the shutdown cooling mode or in the suppression pool cooling or spray mode of the RHR system. As described in the proposed Bases B3.7.1, the RHRSW system is common to all three units and consists of four independent and redundant loops, each of which feeds one heat exchanger in each unit. Each loop is made up of a header, two pumps, a suction source, valves, piping, and associated instrumentation. One loop with one pump operating is capable of providing 50% of the required cooling capacity to maintain safe shutdown conditions for one unit. As such, a subsystem consists of a loop with one or two Operable pumps, a heat exchanger, a suction source, and associated valves, piping, and instrumentation.

The RHRSW system is initiated manually from each of the three control rooms. If operating ~~at the time of a LOCA (for shutdown cooling to one of the units)~~, the system is automatically tripped on degraded bus voltage to allow the diesel generators to automatically power only that equipment necessary to reflood the core of the accident unit. The system can be manually started any time the degraded bus voltage signal clears, and is assumed to be operating within 10 minutes after the LOCA. The RHRSW system removes heat from the suppression pool to limit the suppression pool temperature and containment pressure following a LOCA.

Because the RHRSW system provides cooling only to the RHR system and no other components, RHRSW is only required for fueled units but, because of its shared nature, all four subsystems are required to be Operable even if there is only one fueled unit. However, the number of required Operable pumps to meet the single failure criterion will vary depending on the number of fueled units and on which specific RHRSW pumps are Operable. Since the eight RHRSW pumps are powered by only six of the eight emergency diesel generators, two of the diesel generators (DG-A and DG-B) each provide power to two RHRSW pumps such that the failure of either DG-A or DG-B will result in the loss of two pumps (on the same header). Thus, in some cases it is possible to reduce the number of RHRSW pumps required to be Operable if the pumps are all powered by independent DGs (i.e., powered from separate 4kV shutdown boards) such that any single electrical failure will only result in the loss of one pump.

The proposed LCO is conservative as it requires all the RHRSW subsystems to be Operable

whenever there is fuel in at least one of the units. The number of required Operable pumps is also conservative because it requires all 8 pumps to be Operable for three fueled units, and reduces the number of required pumps by two for each unit that is not fueled. Under all of these unit configurations, the LCO assures that the design basis of the RHRSW system is met and that the system can perform its safety function following any worst case single active failure. The proposed LCO is also more conservative than the current TS because it requires an additional RHRSW pump to be Operable for the 3 units fueled case and the two units fueled case. The staff considers the proposed LCO acceptable because it is more conservative than the existing TS and assures that the system will meet its design basis. It is also consistent to the extent practical with the intent of NUREG-1433. The modifying note that allows the required number of Operable pumps to be reduced by one for each fueled unit that has been in MODE 4 or 5 for ≥24 hours is also acceptable because it provides some flexibility while assuring that the system design basis is still met with a smaller number of pumps based on the reduced heat removal requirements of a plant that has been in MODE 4 or 5 for more than a day.

The proposed applicability requirements for MODES 1, 2, and 3, are consistent with the applicability of this system in TS 3.7.1 of NUREG-1433. The RHRSW system is required to be Operable to support the Operability of the RHR system for primary containment cooling (LCO 3.6.2.3, "Residual Heat Removal (RHR) Suppression Pool Cooling," and LCO 3.6.2.4, "Residual Heat Removal (RHR) Suppression Pool Spray,") and decay heat removal (LCO 3.4.7, "Residual Heat Removal (RHR) Shutdown Cooling System-Hot Shutdown"). The Applicability is, therefore, consistent with the requirements of these systems. In MODES 4 and 5, the Operability requirements for the RHRSW system are determined by the system it supports, i.e., the RHR system in the shutdown cooling mode. The proposed applicability requirements are essentially identical to the existing TS for the RHRSW system which require the system to be Operable prior to startup from a cold shutdown (equivalent to MODE 4) condition and during reactor power operation. Based on the applicability requirements being consistent with the systems that are supported by the RHRSW system, consistent with NUREG-1433, and consistent with the current TS, the staff concludes that the proposed applicability requirements are acceptable.

Proposed Condition A, Actions A.1 and A.2 essentially provide a 30 day AOT for one inoperable required RHRSW pump. A 30 day AOT for this condition is consistent with the AOT specified in TS 3.7.1 of NUREG-1433. The RHRSW system design is considered to contain excess redundancy because with one pump inoperable, the worst single failure does not result in a loss of system function, however, it would result in reduced containment cooling capability. The current RHRSW system TS also provides a 30 day AOT for this condition and, therefore, the proposed changes are consistent with the existing specifications. The staff considers the 30 day AOT acceptable based on the remaining heat removal capability to accommodate additional single failures, and the low probability of an event occurring during this time period.

Action A.1 allows continued plant operation (for 2 units fueled) with one inoperable RHRSW pump provided that the remaining 5 Operable pumps (4 pumps if one unit has been in Mode 4 or 5 for 24 hours) are powered from separate 4kV shutdown boards. This action is acceptable since under those specific conditions, the RHRSW system will still meet its design basis including the worst case single active failure. This is a plant specific condition that provides added flexibility and is

NO COMMENT

made possible by the shared features of the RHRSW system.

Proposed Condition B, Action B.1 also provides a 30 day AOT for one RHRSW subsystem inoperable. The equivalent NUREG-1433 STS specifies a 7 day AOT for an inoperable subsystem that is inoperable for a condition other than one inoperable RHRSW pump. The STS is based on an RHRSW system with two subsystems while the Browns Ferry design has four RHRSW subsystems. For the STS design, one inoperable pump results in an inoperable subsystem, and under these condition, a 30 day AOT is provided by the STS. At Browns Ferry, one inoperable pump may or may not result in an inoperable RHRSW subsystem depending on the number of fuel units. Because of its shared nature, a subsystem can still be operable with only one RHRSW pump Operable under certain conditions. This is because the one pump can supply 50% of the heat removal capacity for one unit while the remaining three subsystems can supply 150% of the capacity. Under these conditions (4 pumps and 4 subsystems) the single failure criterion can still be met and the RHRSW system can still meet its design basis. With one subsystem inoperable, there is no single failure that can result in the complete loss of RHRSW system function, however, like the inoperable pump in Condition A, it does result in reduced containment cooling capability. The staff considers the 30 day AOT acceptable based on the remaining heat removal capability to accommodate additional single failures, and the low probability of an event occurring during this time period. The proposed note to enter the applicable conditions of LCO 3.4.7, for the RHR shutdown cooling for hot shutdown is also acceptable because it refers to a TS where the required action may be more restrictive under certain conditions. The current RHRSW system TS does not address inoperable subsystems, but the proposed change ~~gives~~ equivalent to the current AOTs for the RHRSW pumps. Therefore, it is neither more nor less restrictive than the current specification but may provide additional flexibility.

Proposed Condition C provides a 7 day AOT for two inoperable required RHRSW pumps. Under these conditions the RHRSW system can still perform its safety function, but there are certain single failures that could result in the loss of system function. This outage time is consistent with the current specification and consistent with the STS for the equivalent vulnerabilities (the STS allow 7 days for one inoperable subsystem for conditions other than one inoperable pump in which case there is a 30 day AOT). The staff considers the 7 day AOT acceptable based on the remaining heat removal capability to accommodate additional single failures and the low probability of an event requiring RHRSW system operation during this time period. The allowed outage time is also consistent with the AOTs for the system it supports, i.e., the RHR system in containment/suppression pool cooling mode (TSs 3.6.2.3, 3.6.2.4, and 3.6.2.5).

Proposed Condition D provides a 7 day AOT for two inoperable subsystems. This is essentially the same as the two inoperable pumps in Condition C above; however, Condition C is needed for those cases when there may be two required pumps inoperable but at least three subsystems are still Operable. With two inoperable subsystems, the RHRSW system can still perform its safety function but certain single failures could result in the loss of RHRSW system function. The 7 day AOT is consistent with the current TS for the equivalent situation, and is consistent with the STS for the loss of one of two subsystems which is equivalent to this condition where two out of four RHRSW subsystems are inoperable. The proposed 7 days is also consistent with the RHR system TSs in the containment/suppression pool cooling mode. Based on the above and for the

same reasons stated by the staff for the similar Condition C, the staff concludes that proposed Condition D is acceptable. This Condition also includes a note similar to Condition B above, and is acceptable on the same basis.

Proposed Conditions E and F allow 8 hours to restore one RHRSW pump to Operable status when three or more required pumps are inoperable, and to restore one RHRSW subsystem to Operable status when three or more subsystems are inoperable, respectively. If either of these conditions is entered, the RHRSW system is incapable of meeting its design function and the requisite number of pumps or subsystems must be restored to Operable within 8 hours or the plant must be placed in a condition where the LCO does not apply (MODES 4 and 5) as required by Condition G of this specification. This provides some time to restore a subsystem, which is the most likely outcome, prior to putting the unit through a mode change which could result in a plant transient or trip which could challenge safety systems. These proposed Conditions may be considered less restrictive than the existing RHRSW system TS which does not specifically address this condition and results in the commencement of reactor shutdown within 1 hour. However, the 8 hour AOT is consistent with the NUREG-1433 STS for the RHRSW system under similar conditions and is also consistent with the proposed AOTs for the systems (containment/suppression pool cooling) which are supported by the RHRSW system. Based on the low probability of an event requiring RHRSW operation during this 8 hour period, plus the fact that the AOTs are consistent with the TSs for the supported systems, the staff concludes that proposed Conditions E and F are acceptable.

Proposed Condition F is also modified by a note to enter the appropriate action requirement for the RHR system shutdown cooling function made inoperable by the RHRSW system inoperability. This is acceptable for the same reasons stated in the above evaluation for Condition B.

Proposed Condition G requires the plant to be placed in MODE 3 within 12 hours and MODE 4 within 36 hours in the event a required Action and associated Completion Time are not met for any of the stated conditions. The required actions and completion times are consistent with NUREG-1433 under the same conditions. The time to reach cold shutdown (MODE 4) is less conservative than the existing TS which requires the plant to be in cold shutdown within 24 hours. The time to reach hot shutdown (MODE 3) could be considered more conservative than the current TS which does not specify the time to reach hot shutdown. The staff considers that the proposed completion times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging plant systems. The final mode, MODE 4, brings the plant to a condition where the RHRSW system TS is no longer applicable. The staff, therefore, concludes that the proposed Condition G is acceptable.

The proposed Surveillance Requirement (SR) 3.7.1.1, is the same as the SR for the RHRSW system in NUREG-1433 and the same as the current TS SR, except that the requirement to verify the position of automatic valves has been deleted. This is an acceptable plant specific change that is necessary because the RHRSW system at Browns Ferry does not have any automatic valves, even though the words "automatic valves" were included in the current TS surveillance. The 31 day frequency is consistent with the procedural controls governing valve operation, provides adequate assurance of correct valve position, and is acceptable based on engineering judgement and operating experience. The current TS for the RHRSW system also has two SRs

NO COMMENT

for the RHRSW pumps. Consistent with the STS, the SRs for the pumps have been relocated to the Inservice Testing (IST) Program. The overall IST program is still required by the Browns Ferry conversion in Specification 5.5.6 and requires testing of these pumps. The staff considers that the IST program and the ASME Code, Section XI testing requirements for the RHRSW pumps demonstrate adequate pump operability and, therefore, the removal of the specific pump testing requirements from the RHRSW system TS is acceptable. The proposed SR 3.7.1.1 is, therefore, acceptable.

Based on its evaluation as described above, the staff concludes that the proposed RHRSW system TS 3.7.1 is consistent to the extent practical with NUREG-1433, is overall, more conservative than the current TS (requires more Operable pumps), is consistent with the plant design, and provides adequate assurance that the RHRSW system will meet its design basis in the event of a DBA. The proposed TS is, therefore, acceptable.

EXTENSION OF SURVEILLANCE FREQUENCIES FROM A 18-MONTH TO A 24-MONTH REFUELING INTERVAL - CONTAINMENT SYSTEMS AREA

By application dated November 1, 1996, CP&L requested changes to the BSEP Units 1 and 2 Technical Specifications (TS). Application included proposed changes necessary to permit 24-month operating cycles. TS Section 6.2, specifies containment systems operability and surveillance requirements. This evaluation addresses each of the proposed changes to TS Section

Need input from HICB. Effort in progress

SECONDARY CONTAINMENT ISOLATION (SCSB)
Work in progress.

TVA has abandoned the zone concept for containment isolation because of difficulties in controlling leakage between zones in the secondary containment. The proposed ITS would reflect this operating practice. Review TVA's abandonment of the zonal secondary containment isolation concept as currently provided for in the Browns Ferry Nuclear Plant, Units 1/2 /3 CTS, and determine acceptability of proposed establishment of a single zone.

POWER RANGE NEUTRON MONITORING (APRM)

The licensee, previously proposed to incorporate design changes relating to upgrade of the existing ~~analog~~ power monitoring system in the three BFN units with a GE Digital Nuclear Measurement Analysis and Control Power Range Neutron Monitor System (NUMAC-PRNMS), including an Oscillation Power Range Monitor (OPRM) function. The staff approved the CTS amendments in a letter dated ~~June 16~~, 1997. Presently, as part of its conversion from the CTS to the ITS, the licensee proposed the same amendments in ~~the~~ ITS format.

The ISTS format, which is described in NUREG-1433, is supplemented by NEDC-32410P-A, Supplement 1, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC-PRNM) Retrofit Plus Option III Stability Trip Function." By letter dated September 5, 1995, the staff approved the topical report NEDC-32410P. The staff review of this topical report determined that NEDC-32410P contains acceptable guidance for replacing the existing power range monitors in a boiling water reactor (BWR) with a digital NUMAC-PRNMS. The staff-approved NEDC-32410P-A also contains guidance to ensure digital upgrade issues, relevant standards and guidelines, and technical specifications (TS) are adequately addressed.

The licensee's CTS amendment applicable to the Average Power Range Monitor (APRM) portion of the BFN TS were implemented following installation of the NUMAC-PRNMS. The OPRM functions have been operated in the "indicate only" test mode. Following NRC staff review and approval of the operating data, the OPRM trip function will be ~~connected to the~~ reactor protection system (RPS) channels, and OPRM-specific TS amendments, which are described in Supplement 1 to NEDC-32410P-A, will be implemented. During this test period, the existing interim corrective actions for determining and mitigating power oscillations will remain in effect. Since the staff has already approved the NUMAC-PRNM system implementation at BFN, the following safety evaluation addresses only the conversion of the BFN, Units 1, 2, and 3 APRM CTS to the ISTS format described in Appendix H to NEDC-32410P-A.

SYSTEM DESCRIPTION

Using the existing local power range monitors (LPRMs) and the recirculation coolant loop flows, the NUMAC-PRNMS provides APRM and OPRM trip signals to the RPS. The APRM system averages LPRM signals, processes flow signals from the reactor core recirculation flow instrumentation, and then compares the results to RPS trip set points. The OPRM detects and suppresses reactor core power instabilities using the Option III approach described in LTR NEDO-31960, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," dated June 1991, which ~~was~~ were approved by the staff.

The GE NUMAC-PRNMS consists of four APRM channels and four voter channels. Trip signals from each of the four APRM channels are sent to all four voter channels. One voter module is dedicated to each RPS trip relay. A reactor trip occurs when two or more of the four APRM functions or two or more of the four OPRM functions calculate a trip condition. The voters perform a vote of the OPRM channel trip outputs separate from the APRM trip outputs (i.e., an OPRM trip in one channel and an APRM trip in another channel will not result in a reactor trip from two of four voters in a trip state).

EVALUATION

As stated in the staff's safety evaluation of NEDC-32410P, one condition for receiving NRC approval of a NUMAC-PRNMS implementation is that the licensee must confirm that

plant-specific TSs for the NUMAC-PRNMS functions are consistent with NEDC-32410P-A, Appendix H, and Supplement 1. The following sections describe the proposed conversion of the previously approved BFN CTS ~~for the APRM functions~~ to the ISTS format described in NEDC-32410P-A, Appendix H. Upon completion of the OPRM test period, the licensee will propose revisions to incorporate the OPRM into the BFN TSs using the staff approved guidance in Supplement 1 to NEDC-32410P-A.

PLANT-SPECIFIC REVISED TS

As stated above, BFN CTS amendment that incorporated the NUMAC-PRNM implementation at BFN were approved by the staff in a safety evaluation dated ~~June 16~~, 1997. References to the BFN CTS in this safety evaluation apply to the amended BFN CTS, which had not been approved prior to the licensee's submittal of the following proposed TS changes. Consequently, the licensee's proposed changes concerning areas other than TS amendments have been approved previously by the staff and do not require additional staff approval. Staff evaluations of the proposed BFN CTS conversion to ISTS format are discussed in the following sections.

* ~~Page 3.3-1,~~ Section 3.3.1.1

New notes were added for Required Action A.2 and for Condition B to exclude APRM monitor functions 2.a, 2.b, 2.c, and 2.d. These changes are consistent with the APRM two-out-of-four voter function, associated operability requirements, notes, operating modes, action statements, NEDC-32410P APRM functions, and the existing CTS, and therefore, are acceptable.

~~Page 3.3-5,~~ Section 3.3.1.1

The licensee proposes adding new notes that exclude the neutron detectors from Surveillance Requirement (SR) 3.3.1.1.13. Additionally, SR 3.3.1.1.13 has been added to the APRM Function 2.a, Neutron Flux - High,(Setdown) surveillance requirements. These changes are consistent with the corresponding NEDC-32410P-A ISTS APRM functions and the existing BFN CTS, and therefore, are acceptable.

~~Page 3.3-5,~~ Section 3.3.1.1

In the BFN Unit 1 TS, the licensee proposes adding a new CHANNEL FUNCTIONAL TEST surveillance (SR 3.3.1.1.16) with a frequency of 184 days. This surveillance, and the corresponding 184-day surveillance requirement is consistent with ISTS SR 3.3.1.1.11 and the existing BFN CTS, and therefore, is acceptable.

~~In BFN Units 2 and 3,~~ the licensee proposes adding a new note to the existing SR 3.3.1.1.16 related to the requirements for Function 2.a. The new note excludes the requirement for

* Recommend removing page numbers throughout. PRNM changes were based on Rø of ITS. Page numbers may have subsequently changed.

performing SR 3.3.1.1.16 when the unit enters MODE 2 from MODE 1 until 12 hours after entering MODE 2. Adding the new note will make SR 3.3.1.1.16 identical in all three units. The new note is consistent with the note for SR 3.3.1.1.11 in the corresponding ISTS section in NEDC-32410P-A ~~and the existing note for the BFN CTS~~, and therefore, is acceptable.

Pages ~~3.3-6~~ and ~~3.3-7~~, Table 3.3.1.1-1

The licensee proposes changing the APRM functions in Table 3.3.1.1-1 to delete the "Downscale" trip function, and add the "2-Out-Of-4 Voter" function. A new footnote stating each APRM channel provides inputs to both trip systems will be added to the table. The Required Channels Per Trip System is to be changed from "2" to "3" for the existing APRM functions. The Surveillance Requirements have also been revised. These changes are consistent with the corresponding ISTS section in NEDC-32410P-A and the existing BFN CTS, and, therefore, are acceptable.

associated

Page ~~3.3-17~~, Section 3.3.2.1

The proposed change revises the frequency for SR 3.3.2.1.1 from 92 days to 184 days. This change is consistent with the approved surveillance interval in the corresponding ISTS section in NEDC-32410P-A and the existing BFN CTS, and therefore, is acceptable.

Page ~~3.3-18~~, Section 3.3.2.1

The proposed change revises the frequency for SR 3.3.2.1.4 from 92 days to 18 months. This change is consistent with the approved surveillance interval in the corresponding ISTS section in NEDC-32410P-A and the existing BFN CTS, and therefore, is acceptable.

Page ~~3.10-20~~, Section 3.10.8

In LCO 3.10.8, Shutdown Margin (SDM) Test - Refueling, Requirement 3.10.8.a, LCO 3.3.1.1 Mode 2 requirements, the licensee proposes to add a reference to Item 2.d of Table 3.3.1.1-1, Average Power Range Monitors Inop, to correlate LCO 3.10.8 to Table 3.3.1.1-1. This reference is consistent with the corresponding ISTS section in NEDC-32410P-A and the existing BFN CTS, and therefore, is acceptable.

Page ~~3.10-22~~, SR 3.10.8.1

In SR 3.10.8.1, MODE 2 applicable surveillances for LCO 3.3.1.1, the licensee proposes to add a reference to Item 2.d of Table 3.3.1.1-1, Average Power Range Monitors Inop, to correlate SR 3.10.8.1 to Table 3.3.1.1-1. This reference is consistent with the corresponding ISTS section in NEDC-32410P-A and the existing BFN CTS, and therefore, is acceptable.

Page ~~B 3.3-6~~, Section B 3.3.1.1, Average Power Range Monitor

The licensee proposes adding the NEDC-32410P-A Bases Section 3.3.1.1, "Average Power Range Monitor," to provide appropriate descriptions of the new NUMAC-PRNM equipment and to consolidate the existing Bases information. In the second paragraph of the proposed Bases description, the licensee states,

> . . . A trip from any <u>two</u> unbypassed APRM will result in a "half-trip" in all four of the voter units, but no trip inputs to either RPS trip system.

This sentence should state,

> . . . A trip from any <u>one</u> unbypassed APRM will result in a "half-trip" in all four of the voter units, but no trip inputs to either RPS trip system.

The licensee markups (Insert C) ~~for Page B 3.3-6~~ of the TS bases provide the same description as in the corresponding ISTS section in NEDC-32410P-A. The licensee corrected the error in the initial submittal in their response to the staff's request for additional information. The staff, therefore, finds this proposed Bases description acceptable.

Pages ~~B 3.3-6 to B 3.3-10~~, Section B 3.3.1.1, Functions 2.a, 2.b, and 2.c

The Bases description of APRM Functions 2.a, 2.b, and 2.c were changed to be consistent with the approved Bases description in the corresponding ISTS section in NEDC-32410P-A. The proposed Bases descriptions are consistent with NEDC-32410P-A and the existing BFN CTS, and therefore, are acceptable.

~~Page B 3.3-11~~ Section 3.3.1.1, Function 2.d

The Bases description of APRM Function 2.d, Average Power Range Monitor -- Downscale, was deleted. This change was approved by the staff in the ~~June 16~~, 1997, safety evaluation, and therefore, is acceptable. September 11,

~~Pages B 3.3-11 and B 3.3-12~~, Section 3.3.1.1, Function 2.d

The Bases description of Average Power Range Monitor -- Inop," APRM Function 2.e, was renumbered as APRM Function 2.d. The renumbered section was rewritten to describe the Inop function. The proposed Bases description is consistent with the corresponding ISTS section in NEDC-32410P-A and the existing BFN CTS, and therefore, is acceptable.

~~Page B 3.3-12~~, Section 3.3.1.1, Function 2.e

The Bases description of APRM Functions 2.e was changed to be consistent with the corresponding ISTS section in NEDC-32410P-A. In the first paragraph of the revised Bases description, the licensee states,

> Three of the four APRM channels are required to be OPERABLE for each of the APRM Functions. This Function (Inop) provides assurance that a minimum number of APRMs are OPERABLE. . . .

The approved description states,

> Three of the four APRM channels are required to be OPERABLE for each of the APRM Functions. This Function (Inop) provides assurance that the minimum number of APRMs are OPERABLE. . . .

The licensee corrected the error in the initial submittal in their response to the staff's request for additional information. The revised statement is consistent with the corresponding ISTS section in NEDC-32410P-A and the existing BFN CTS, and therefore, is acceptable.

~~Unit 1 TS Pages B 3.3-21 and B 3.3-22; Unit 2 and Unit 3 TS Pages B 3.3-22 and B 3.3-~~23, Section B 3.3.1.1, Actions A.1 and A.2

The licensee proposes to add Reference 12 (NEDC-32410P-A) to the Bases discussion of TS Actions A.1 and A.2. The reference is acceptable for the BFN units.

Additionally, the licensee proposes adding a discussion of a new note for LCO Action A.2. The note is consistent with the corresponding ISTS section in NEDC-32410P-A and the existing BFN CTS, and therefore, is acceptable.

~~Unit 1 TS Pages B 3.3-21 and B 3.3-22; Unit 2 and Unit 3 TS Pages B 3.3-22 and B 3.3-29;~~ Section B 3.3.1.1, Actions B.1 and B.2

The licensee proposes to add Reference 12 (NEDC-32410P) to the Bases discussion of TS Actions B.1 and B.2. The reference is acceptable for the BFN units.

Additionally, the licensee proposes adding a discussion of a new note for LCO Actions B.1 and B.2. The note is consistent with the ISTS and the existing BFN CTS, and therefore, is acceptable.

~~Unit 1 TS Page B 3.3-28~~, Section B 3.3.1.1, SR 3.3.1.1.16 (Unit 1 only)

The licensee proposes to change the Bases title discussion to include discussion of BFN SR 3.3.1.1.16, which corresponds to ISTS SR 3.3.1.1.11. The existing title addresses SR 3.3.1.1.8 and SR 3.3.1.1.12. The three surveillances require channel functional tests. After this change, the BFN SR Bases discussion titles will be the same for all three units. Although not consistent with the corresponding Bases discussion in the ISTS, the staff finds this revision does not change the content of the Bases discussion, and therefore, is acceptable.

~~BFN Unit 1 TS Page B 3.3-28; BFN Unit 2 and BFN Unit 3 TS Page B 3.3-29,~~
Section B 3.3.1.1, SR 3.3.1.1.8, SR 3.3.1.1.12, and SR 3.3.1.1.16

The licensee proposes to add a Bases discussion for SR 3.3.1.1.16 to the SR Bases discussion for SR 3.3.1.1.8 and SR 3.3.1.1.12. The added discussion of SR 3.3.1.1.16 is consistent with the discussion for the equivalent SR 3.3.1.1.11 in the ISTS, and therefore, is acceptable.

~~BFN Unit 1 TS Page B 3.3-29; BFN Unit 2 and BFN Unit 3 TS Page B 3.3-30,~~
Section B 3.3.1.1, SR 3.3.1.1.9, SR 3.3.1.1.10, and SR 3.3.1.1.13

In the Bases discussion for SR 3.3.1.1.9, SR 3.3.1.1.10, and SR 3.3.1.1.13, the existing descriptions of notes for SR 3.3.1.1.9 are revised to include applicability for SR 3.3.1.1.13.

The note comments for proposed BFN TS SR 3.3.1.1.13 state,

1. Neutron detectors are excluded.
2. For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2.

The second note was deleted in the licensee's response to the staff's request for additional information. The proposed SR 3.3.1.1.13 is consistent with the NEDC-32410P-A guidance and is, therefore, acceptable.

The licensee changed the channel calibration frequency (SR 3.3.1.1.9) for Function 1, Intermediate Range Monitors, from 18 months in the CTS to 92 days in the proposed TS, and added an additional channel calibration requirement (SR 3.3.1.1.13) for Function 2, Average Power Range Monitors. The proposed channel calibration frequency for SR 3.3.1.1.13 is 18 months, which is consistent with the ISTS, and therefore, is acceptable.

~~BFN Unit 1 TS Page B 3.3-30; BFN Unit 2 and BFN Unit 3 TS Pages B 3.3-30 and B 3.3-31,~~
Section B 3.3.1.1, SR 3.3.1.1.11

The licensee deleted the description of SR 3.3.1.1.11, and designated SR 3.3.1.1.11 as "Deleted." The equivalent BFN proposed surveillance is SR 3.3.1.1.16, which is consistent with ISTS SR 3.3.1.1.11. This change, therefore, is acceptable.

~~BFN Unit 1 TS Page B 3.3-30; BFN Unit 2 and BFN Unit 3 TS Page B 3.3-31,~~
Section B 3.3.1.1, SR 3.3.1.1.14

The following description for testing of APRM Function 2.e is added to the existing description of requirements for SR 3.3.1.1.14:

The LOGIC SYSTEM FUNCTIONAL TEST for APRM Function 2.e simulates APRM trip conditions at the 2-out-of-4 voter channel inputs to check all combinations of two tripped inputs to the 2-out-of-4 logic in the voter channels and APRM related redundant RPS relays.

This description is consistent with the ISTS description and, therefore, is acceptable.

~~Page B 3.3-20~~, Section 3.3.1.1, REFERENCES

The following reference is added to the existing list of references:

12. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.

This reference is acceptable.

~~Page B 3.3-42~~, Section B 3.3.2.1, Background

In the Background section, the following text is deleted:

A signal from one average power range monitor (APRM) channel assigned to each Reactor Protection System (RPS) trip system supplies a reference signal for the RBM channel in the same trip system.

The deleted text is replaced with the following:

A signal from one of the four redundant average power range monitor (APRM) channels supplies a reference signal for one of the RBM channels and a signal from another of the APRM channels supplies the reference signal to the second RBM channel. This reference signal is used to determine which RBM range setpoint (low, intermediate, or high) is enabled.

This description is consistent with the ISTS description and, therefore, is acceptable.

~~Page B 3.3-49~~, Section B 3.3.2.1, SR 3.3.2.1.1

In the description of SR 3.3.2.1.1, the Frequency is changed from "92 days" to "184 days." The related reference is changed from "Ref. 8" to "Ref. 11."

This description is consistent with the ISTS description and, therefore, is acceptable.

~~Page B 3.3-50~~, Section B 3.3.2.1, SR 3.3.2.1.4

In the description of SR 3.3.2.1.4, the assumed calibration interval is changed from "a 184 day" to "an 18 month." The calibration interval is consistent with the calibration interval in the ISTS Bases discussion and the interval in proposed BFN TS SR 3.3.2.1.4, and, therefore, is acceptable.

The scope of the BFN TS Bases discussion for SR 3.3.2.1.4 is consistent with the scope of the ISTS discussion, and is therefore acceptable.

~~Page B 3.3-52~~, Section B 3.3.2.1, References

The following new reference is proposed for the references section.

11. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.

This reference is correct, and therefore is acceptable.

~~Page B 3.10-34~~, Section B 3.10.8, LCO 3.10.8

In the Bases for LCO 3.10.8, a new reference to Function 2.d in Table 3.3.1.1-1 is added. This addition is consistent with the NUMAC-PRNM functions and, therefore, is acceptable.

~~Page B 3.10-37~~, Section B 3.10.8, SR 3.10.8.1, SR 3.10.8.2, and SR 3.10.8.3

A new reference to Function 2.d in Table 3.3.1.1-1 is added to the Bases discussion of SR 3.10.8.1, SR 3.10.8.2, and SR 3.10.8.3. This addition is consistent with the NUMAC-PRNM functions and, therefore, is acceptable.

CONCLUSION

Based on the above review and justifications for TS changes, the staff concludes that the licensee's proposed TS changes for the BFN plants are consistent with the staff-approved guidance in NEDC-32410P-A and the ISTS in NUREG-1433. The staff, therefore, finds the NUMAC-PRNMS TS changes to be acceptable.

ADMINISTRATIVE CONTROLS, QA PLAN (To Be Provided)

SAFETY/RELIEF VALVE SETPOINT REQUIREMENTS (To Be Provided)

TVA proposes to increase the safety/relief valve (SRV) setpoint tolerance from its current value of 1% to 3% in the ITS.

EXTENDED STS/AOTS FOR INSTRUMENTATION (REVIEW OF A PLANT-SPECIFIC APPLICATION OF APPROVED GENERIC METHODOLOGY). (To Be Provided)

SPENT FUEL RACK.

The STS states that the spent fuel storage racks and the new fuel storage racks are designed and shall be maintained with fuel assemblies having a maximum k-infinity of [1.31] in the normal reactor core configuration at cold conditions with an average U-235 enrichment of [4.5] weight percent. For the BFN high density storage racks, the appropriate k-infinity is 1.33. ~~For the new fuel racks, 1.31 is correct~~. The fuel enrichment description is being deleted. This limit is redundant to the limits established in GE's Standard Application for Reactor Fuel (GESTAR) and is, therefore, not included in the ITS. This is consistent with the BFN UFSAR and therefore, is acceptable.

INSTRUMENTATION STIS AND AOTS

(SEE ATTACHED SE)

IV. STATE CONSULTATION

In accordance with the Commission's regulations, the ~~Tennessee~~ State official was notified of the proposed issuance of the amendment. The State official for the State of ~~Tennessee~~ had no comments.

Alabama

V. ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an environmental assessment and finding of no significant impact was published in the *Federal Register* on _____ __, 1998 (__ FR _____) for the ITS conversion.

Accordingly, based upon the environmental assessment, the Commission has determined that issuance of this ITS conversion amendment will not have a significant effect on the quality of the human environment.

With respect to other TS changes included in the application for conversion to ITS, the items change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (FR). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

VI. CONCLUSION

The improved BFN TS provide clearer, more readily understandable requirements to ensure safe operation of the plant. The NRC staff concludes that they satisfy the guidance in the Commission's policy statement with regard to the content of TS, and conform to the model provided in NUREG-1433 with appropriate modifications for plant-specific considerations. The NRC staff further concludes that the improved BFN TS satisfy Section 182a of the Atomic Energy Act, 10 CFR 50.36 and other applicable standards. On this basis, the NRC staff concludes that the proposed improved BFN TS are acceptable.

The NRC staff has also reviewed the plant-specific changes to CTS as described in this evaluation. On the basis of the evaluations described herein for each of the changes, the NRC staff concludes that these changes are acceptable.

The Commission has concluded, based on the considerations discussed above, that: (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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Date: _____ __, 1998

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

PROPOSED REVISION TO TECHNICAL SPECIFICATIONS

INSTRUMENTATION STIS AND AOTS

TENNESSE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 2 & 3

DOCKET NOS. 50-260, 50-296

1.0 INTRODUCTION

By letter dated December 11,1997 (Reference 1) and April 20,1998 (Reference 2), Tennessee Valley Authority (TVA) submitted plant specific assessment of the applicability of certain topical reports to Browns Ferry Nuclear Plants (BFN) Units 2 and 3 Technical Specifications (TS). The submittal is a supplement to the TS conversion package (TS-362) which changes the current TS format to the General Electric (GE) Standard TS (NUREG-1433, Revision 1) format.

2.0 EVALUATION

The TS conversion package proposed extension of certain plant protection instrumentation allowed outage times (AOTs) and surveillance test intervals(STIs). A justification for each

ATTACHMENT

NO COMMENT

proposed extension was provided in the conversion package with a reference to the following previously approved Boiling Water Reactor Owners Group (BWROG) Topical Reports:

1.0 NEDC -30936P-A parts 1and 2, "BWROG TS Improvement Methodology (with Demonstration for BWR ECCS Actuation Instrumentation)"

2.0 NEDC-31677P-A, "TS Improvement Analysis for BWR Isolation Actuation Instumentation"

3.0 NEDC-30851P-A and supplements 1and 2, "TS Improvement Analysis for BWR Reactor Protection System, Control Rod Block, and Isolation Instrumentation Common to RPS and ECCS"

4.0 GENE-770-06-01 and 02, "Bases for Changes to STIs and AOTs for Selected Instrumentation TS"

The staff approved these topical reports for extending the on-line STIs and AOTs for various instrumentation systems and required individual plants which propose TS changes based on the topical teports to confirm; (1) the applicability of the generic analyses to the plant, and (2) that any increase in the instrument drift due to the extended STIs is properly accounted for in the setpoint calculation methodology. The staff SER is part of the topical report.

NO COMMENT

Item (1) above is addressed in Reference 1 which includes GE analyses to justify using results of the above listed BWROG Topical Reports for extending STIs and AOTs for various plant protection instrumentation. The GE evaluation of the BFN Unit 2 plant specific differences with the generic model used engineering judgements and additional analyses which were documented as examples in the BWROG Topical Reports under the section entitled "Plant Specific Application of Generic Results." This GE assessment compared the plant specific with the generic analyses and concluded that the differences would not significantly affect plant safety due to the proposed changes in the plant TS. It was, therefore, concluded that the BWROG Topical Reports are applicable to BFN Unit 2 TS.

The GE analyses also compared BFN Unit 3 configuration to the configuration of BFN Unit 2 plant protection instrumentation. This comparison indicated that the two units are identical and, therefore, the BWROG Topical Reports are also applicable to BFN Unit 3 TS. The staff agrees with GE's conclusion that the generic analyses in the above listed BWROG Topical Reports are applicable to BFN Units 2 and 3 TSs.

Item (2) above is addressed reference 2 which states that the TVA's setpoint methodology accounted for the instrument drift inaccuracies associated with the duration between the instrument calibrations and that the calibration intervals established by the setpoint methodology were reviewed against the proposed STIs to assure that the required calibration intervals will not be exceeded.

For Unit 3, TVA performed a similarity analysis between Units 2 and 3 instrumentation systems which concluded that the GE evaluations were likewise applicable to Unit 3.

3.0 CONCLUSION

Based on the review of TVAs submittals, the staff concludes that the BWROG Topical Reports previously approved by the staff are applicable to the BFN units 2 and 3 TSs for extending various plant protection instrumentation STIs and AOTs.

4.0 REFERENCES

1. Letter, T.E.Abney to NRC Document Control Desk, dated December 11, 1997.
2. Letter, T.E.Abney to NRC Document Control Desk, dated April 20, 1998.

NO comment

Enclosure 2

Browns Ferry Nuclear Plant

Markup Comments on May 29, 1998
Draft Safety Evaluation
Regarding Proposed Conversion to
Improved Standard Technical Specifications

Tables A, MR, L, RL, R

Discussion of Change	Summary of Change	ITS Section	CTS Section
	ITS SECTION 1.0 - USE AND APPLICATION		
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	1.1	1.0
A2	Added a note to Section 1.1, "Definitions," in order to clarify that the defined terms will appear capitalized throughout the ITS and Bases.	1.1	1.0
A3	Reworded and moved "Limiting Conditions for Operations" definition to Section 3.0 of the ITS.	1.1	1.0.C.1
A4	not used	n/a	n/a
A5	Reworded and capitalized "Operable - Operability" definition. Also, changed the "and" to an "or" in normal and emergency ~~the definition for~~ power sources for consistency with STS. This is an administrative change because the CTS definition and CTS 1.0.C.2 require one source to be Operable as long as the redundant systems, subsystems, trains, components, or devices are Operable. CTS 1.0.C.2 requirements are incorporated into ITS 3.8.1 and 3.8.2 Actions for when a diesel or offsite power source is inoperable.	1.1	1.0.C.2 1.0.E
A6	Incorporated definitions for "Reactor Power Operation," "Startup Conditions," "Hot Shutdown Conditions," "Cold Shutdown Conditions," "Startup/Hot Standby Mode," "Run Mode, "Shutdown Mode," and "Refuel Mode" into a "MODES" table (Table 1.1-1 of the ITS).	1.1	1.0.H 1.0.I 1.0.K 1.0.M
A7	Changed "Rated Power" title to "RATED THERMAL POWER" and reworded definition.	1.1	1.0.N
A8	Reworded and capitalized "Core Alteration" definition.	1.1	1.0.S

Discussion of Change	Summary of Change	ITS Section	CTS Section
	ITS SECTION 2.0 - SAFETY LIMITS		
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	2.0	1.1
A2	Changed the reactor pressure limits unit of measurement from "psia" to "psig" and reduced the requirement for when the MCPR limit is applicable slightly by adding the "equal to sign". Also, the limit on core flow is now specified as greater than or equal to.	2.1	1.1.A.1
A3	Editorial changes and rewording of the "Safety Limits" requirements. Also, changed the reactor pressure applicability units of measurement from "psia" to "psig". No technical changes were made.	2.1	1.1.A
A4	Changed "less than or equal to" to "less than" in the reactor pressure limit and the "equal to" was taken out of the "less than or equal to" expression for core flow. These are minor changes in presentation and are incorporated for consistency with STS.	2.1	1.1.A.2

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.3.5.2 - REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM INSTRUMENTATION			
A7	Revised the nomenclature for two CTS Reactor Water Level instrument check frequencies from "day" to 24 hours. Since these intervals are equivalent, the change is considered administrative.	SR 3.3.5.2.1	Table 4.2.B
~~A8~~	~~Revised the Unit 1 calibration frequencies for the marked functions to be consistent with Units 2 and 3.~~	~~SR 3.3.5.2.3~~	~~Table 4.2.B~~
ITS SECTION 3.3.6.1 - PRIMARY CONTAINMENT ISOLATION INSTRUMENTATION			
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	3.3.6.1	1.1, 2.1 3.2, 4.2 3.7, 4.7
A2	Note 1.A for CTS Table 3.2.A has been modified to require the reactor be placed in Mode 2 rather than to close the MSIVs, which are equivalent requirements because the unit must be in Mode 2 with the main steam lines isolated. ~~This is essentially the same, since to close the MSIVs, the unit must be in Mode 2. Once in Mode 2, the Function is not required (as stated in the remarks section for the Function), thus, the MSIVs are not required to be closed. Therefore, this change is considered administrative.~~	LCO 3.3.6.1 Action E.1	Table 3.2.A Note 1.A
A3	Deleted CTS Notes which are not applicable to ITS Section 3.3.6.1.	3.3.6.1	Table 4.2.A Table 4.2.B

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.3.6.1 - PRIMARY CONTAINMENT ISOLATION INSTRUMENTATION			
A9	CTS provide separate Actions for initiating instruments, initiation logic, and actuation logic. The ITS only specifies Actions for initiating instruments and the Actions for the initiation logic are included in the Actions for the initiating instruments. Therefore, the deletion of the initiation logic is considered administrative. Technical changes are evaluated in other DOCs.	LCO 3.3.6.1 Actions	Table 3.2.A Table 3.2.B
A10	CTS Table 3.2.B, Note 8 has been deleted since the note is not referenced from the CTS Table.	3.3.6.1	Table 3.2.B Note 8
A11	not used	n/a	n/a
~~A12~~	~~Revised the Unit 1 RWCU Temperature Functions to be consistent with Units 2 and 3.~~	~~Table 3.3.6.1-1~~	~~Table 3.2.A Table 4.2.A (Unit 1)~~
~~A13~~	~~Revised the Unit 1 calibration frequencies for the indicated functions to be consistent with Units 2 and 3.~~	~~SR 3.3.6.1.5 SR 3.3.6.1.4~~	~~Table 4.2.A Table 4.2.B (Unit 1)~~
~~A14~~	~~Revised the Unit 1 channel check frequencies for the indicated functions to be consistent with Units 2 and 3.~~	~~SR 3.3.6.1.1~~	~~Table 4.2.B (Unit 1)~~
A15	Revised the HPCI and RCIC Steam Line Space Temperature Functions to identify each location monitored as a separate Function and each sensor as a channel. The change is considered administrative since the number of required instruments are not changed ~~Also, the ITS for Unit 1 is being made consistent with Units 2 and 3.~~	Table 3.3.6.1-1	Table 3.2.B Table 4.2.B

This should be shown in Table L also

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.3.8.1 - LOSS OF POWER (LOP) INSTRUMENTATION			
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	3.3.8.1	3.9 4.9
A2	Added a Note which will allow Separate Condition Entry for each channel. This added note provides more explicit instructions for proper application of the Actions for TS compliance consistent with the intent of the existing CTS Actions for an inoperable LOP instrumentation channel.	LCO 3.3.8.1 Actions Note	3.9.B
ITS SECTION 3.3.8.2 - REACTOR PROTECTION SYSTEM (RPS) ELECTRIC POWER MONITORING			
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	3.3.8.2	3.4 4.1
A2	Deleted the options to "restore . . . to operable status." This action is always an option, and is implied in all Conditions. Hence, omitting this action is purely editorial.	3.3.8.2	3.1.B.1 3.1.B.2
A3	Added ITS Action C that requires a shutdown if the LCO Actions are not met. This action is functionally equivalent to the CTS 1.0.C.1.	LCO 3.3.8.2 Action C.1 Action C.2	3.1.B.2

Add per June 2, 1998 submittal: Also, the Loss of Power Instrumentation Conditions and Required Actions were reformatted to align the definition for channel with industry standards.

Discussion of Change	Summary of Change	ITS Section	CTS Section
	ITS SECTION 3.4.2 - JET PUMPS		
A2	The wording of the CTS SR was changed to ~~require verification~~ conform to STS presentation that one of the applicable criteria are met rather than ~~verifying~~ that none of the conditions exist simultaneously. ~~This is consistent with ITS presentation which state in the~~ positive presentaion necessitated a. ~~Also, due to the~~ change in phrasing of the SR, "more than" was changed to "less than or equal to" in ITS SR criteria b and c. There were no changes in the requirements.	SR 3.4.2.1	4.6.E.1 4.6.E.2
A3	The variance of the diffuser-to-lower plenum differential pressure reading on an individual jet pump will now be taken from the established pattern rather than from the mean of all jet pump differential pressures per the CTS SR. This change is in accordance with the recommendations of SIL-330 and is consistent with STS.	SR 3.4.2.1	4.6.E.1 4.6.E.2
A4	The conditions of the 4.6.E.2 are assured by LCO 3.4.1. Therefore, there is no need to restate the CTS conditions for jet pump operability.	3.4.2	4.6.E.2
A5	The frequency for this SR has been changed from daily to once per 24 hours.	SR 3.4.2.1	4.6.E.2
	ITS SECTION 3.4.3 - SAFETY/RELIEF VALVES (S/RVs)		
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	3.4.3	1.2 3.6
A2	The Frequency for SR 3.4.3.1 (CTS 4.6.D.1) has been changed from "each operating cycle" to "18 months." The Frequency for SR 3.4.3.2 (CTS 4.6.D.2) has been changed from "In accordance with Specification 1.0 MM" to "18 months." The Inservice Testing Program (1.0.MM) frequency is 18 months.	SR 3.4.3.1 SR 3.4.3.2	4.6.D.1 4.6.D.2

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.6.1.2 - PRIMARY CONTAINMENT AIR LOCK			
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	3.6.1.2	3.7.A.2 ~~3.7.D~~ ~~3.7.F.3~~ 4.7.A.2 ~~4.7.D~~
A2	CTS 4.7.A.2.h(1) requires repairs to be initiated immediately to restore the airlock to Operable status when it is determined the criterion of 4.7.A.2.g is exceeded. Since repairs are typically initiated immediately and Action C.1 for ITS 3.6.1.2 requires action be initiated to evaluate the primary containment overall leakage rate using the current air lock results, and Action A of ITS 3.6.1.1 will only allow 1 hour to restore primary containment to operable status prior to requiring the initiation of a shutdown, CTS 4.7.A.2.h(1) has been deleted.	LCO 3.6.1.2 Action C	4.7.A.2.h
ITS SECTION 3.6.1.3 - PRIMARY CONTAINMENT ISOLATION VALVES (PCIVs)			
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection. In addition, the PCIV LCO specifically excludes the reactor building-to-suppression chamber vacuum breakers since they are governed by other ITS LCOs.	3.6.1.3	3.7

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.6.3.1 - CONTAINMENT ATMOSPHERE DILUTION (CAD) SYSTEM			
A3	Unit 1 CTS 3.7.G.6 & 7 and 4.7.G.2 have been deleted. These specifications were special provisions that expired January 17, 1985, and therefore, no longer apply.	3.6.3.1	CTS 3.7.G.6 CTS 3.7.G.6 4.7.G.2 (Unit 1)
ITS SECTION 3.6.3.2 - PRIMARY CONTAINMENT OXYGEN CONCENTRATION			
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	3.6.3.2	3.7.A.4 4.7.A.4
A2	The subject CTS statement on RCS pressure has been deleted since it is unnecessary. With the reactor in power operation, reactor coolant pressure will always be above 100 psig.	3.6.3.2 Applicability	3.7.A.5.a
ITS SECTION 3.6.4.1 - SECONDARY CONTAINMENT			
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	3.6.4.1	3.7.C 4.7.C
A2	The definition of Secondary Containment Integrity has been deleted. In its place the requirement for secondary containment is that it "shall be operable." This change is editorial in that all the requirements are specifically addressed in the LCO for the secondary containment and in the Secondary Containment Isolation Valves (SCIV) and Standby Gas Treatment (SGT) System Specifications. The Applicability has been reworded to be consistent with the new definitions of Modes and to have a positive statement as to when it is applicable, not when it is not applicable. Therefore, the change is purely a presentation difference.	LCO 3.6.4.1	3.7.C.1 3.7.C.2

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.8.3 - DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR			
A2	The fuel oil, fuel transfer, and starting air requirements of current LCO 3/4.9.A and 3.9.A.6 have been moved to a new LCO 3.8.3 and editorially rewritten.	3.8.3	3.9.A 4.9.A 3.9.A.6
A3	Program requirements for the Diesel Fuel Oil Testing Program are now presented in Chapter 5.0 of the ITS in the format of the BWR Standard Technical Specifications, NUREG 1433. An SR is added (SR 3.8.3.3) to clarify that the tests of the Diesel Fuel Oil Testing Program in ITS 5.5.9 must also be completed and passed for determining operability of the DGs. This is a presentation change that maintains current requirements.	SR 3.8.3.3 5.5.9	4.9.A.1.e
A4	The phrase "staggered test basis" as applied in CTS means that no more than one DG will be tested at a time and is not the same as the ITS definition of Staggered Test. The requirement to test only one DG at a time is maintained in ITS by Note 3 of SR 3.8.1.2. Therefore, this change is considered administrative.	3.8.3	4.9.A.1.a
ITS SECTION 3.8.4 - DC SOURCES - OPERATING			
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	3.8.4	3.9 4.9
A2	Added an ~~explicit~~ LCO statement for the DG 125 VDC subsystems, and ~~Added~~ Action C which directs that affected DGs be declared inoperable due to specific degradations in the DG DC systems, which ~~duplicates the current surveillance 4.9A~~.	LCO 3.8.4 Action C	3.9.A.4 3.9.B

is implicit in CTS 4.9.A.2 requirements. Therefore, this change is considered administrative.

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.9.1 - REFUELING EQUIPMENT INTERLOCKS			
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	3.9.1	3.10.A 4.10.A
A2	CTS 3.10.A.1 places requirements on the mode switch position/status during Core Alterations and requires the refueling interlocks to be operable during in-vessel fuel movement with equipment associated with the interlocks. The CTS requirement has been divided into two separate ITS Specifications. ITS 3.9.1 addresses fuel movement while ITS 3.9.2 addresses control rod withdrawal.	3.9.1 3.9.2	3.10.A.1
A3	The format of the ITS does not include providing "cross-references." ITS LCO 3.0.7 adequately prescribes the use of Special Operations LCOs without such references. Therefore, the CTS 3.10.A.1 reference to the CTS exceptions serves no functional purpose and has been deleted.	3.9.1	3.10.A.1
A4	Proposed SR 3.0.1 requires all SRs to be met during the Modes or other specified conditions in the Applicability for individual LCO's, unless otherwise stated in the SR. Therefore, the CTS requirement to perform the SR prior to any fuel handling with the head off the vessel is redundant and can be deleted.	SR 3.9.1.1	4.10.A.1
A5	The "*" Note for SR 4.10.A.1.f, g, and h has been deleted since the ITS 3.9.1 is only applicable to interlocks associated with equipment used for in-vessel fuel movement. Therefore, this note is not needed.	SR 3.9.1.1	4.10.A.1.f 4.10.A.1.g 4.10.A.1.h

Discussion of Change	Summary of Change	ITS Section	CTS Section
	ITS SECTION 4.0 - DESIGN FEATURES		
A1	Editorial rewording, reformatting, and renumbering made in accordance with the BWR Standard Technical Specifications, NUREG-1433. Additional information has also been added to more fully describe each subsection.	4.0	5.0
A2	The specific zirconium alloy (zircaloy) used for the fuel rod clad has been incorporated.	4.2.1	5.2.A
A3	The values for K_{eff} have been changed from "<" to "≤." This change is appears ~~slightly~~ less restrictive but has been categorized as administrative since the ≤ value is consistent with the FSAR clarifies an inconsistency where "equal to" had not been used. ~~and the difference between < and ≤ is insignificant.~~	4.3.1	5.5.A

and

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.3.6.2 - SECONDARY CONTAINMENT ISOLATION INSTRUMENTATION			
M3	Deleted CTS allowance for "Open Vessel" physics testing at power levels not to exceed 5 MW(t). ITS does not include provisions for this activity, therefore, this change is more restrictive.	3.3.6.2	3.7.A.2
ITS SECTION 3.3.7.1 - CONTROL ROOM EMERGENCY VENTILATION (CREV) SYSTEM INSTRUMENTATION			
M1 SP	Added Actions requiring that the CREV System be declared inoperable upon discovery of loss of CREV initiation capability for Functions 1, 2, 3, and 4 or when the Required Actions and associated Completion Times of Condition B, C, or D are not met. Added Required Action E.1 to allow the option of placing CREVS in the pressurization mode of operation.	LCO 3.3.7.1 Action B.1 Action C.1 Action E.1 Action E.2	Table 3.2.A
ITS SECTION 3.3.8.1 - LOSS OF POWER (LOP) INSTRUMENTATION			
M1	Added new Applicability specifications requiring the LOP instruments be operable when the associated DGs are required to be operable by LCO 3.8.2, AC Sources—Shutdown.	LCO 3.3.8.1	3.9.A
M2	Revised Frequency of degraded voltage relays from annually to a Channel Calibration every 184 days.	SR 3.3.8.1.1	4.9.A.4.c
ITS SECTION 3.3.8.2 - REACTOR PROTECTION SYSTEM (RPS) ELECTRIC POWER MONITORING			
M1	Added an Action that requires insertion of any withdrawn control rods in cells containing fuel if the Required Actions of Conditions A or B are not met. This requirement is not in CTS.	LCO 3.3.8.2 Action D.1	3.1.B
M2	Added time delay setting requirements into the SR Acceptance Criteria for the undervoltage, overvoltage, and underfrequency protective devices of the RPS MG sets. These time delay settings are currently used, but are not required by CTS.	SR 3.3.8.2.2	4.1.B.2

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.6.1.3 - PRIMARY CONTAINMENT ISOLATION VALVES (PCIVs)			
M1	CTS 3.7.D.3 requires an orderly shutdown be initiated and the reactor to be in the Cold Shutdown Condition within 24 hours when certain conditions can not be met. Action E will require the plant be in Mode 3 in 12 hours and Mode 4 in 36 hours. The addition of this intermediate step to the Cold Shutdown Condition is considered more restrictive since CTS do not require any action to take place within 12 hours.	LCO 3.6.1.3 Action E	3.7.D.3
M2	CTS requires the primary containment to be operable at all times when the reactor is critical or when the reactor water temperature is above 212°F and fuel is in the vessel. ~~CTS~~ 3.7.D requires all PCIVs to be Operable when primary containment is Operable. The ITS LCO 3.6.1.3 Applicability ~~of~~ is Modes 1, 2, and 3 which is broader. ~~is more restrictive since CTS does not require primary containment integrity when in Mode 2, not critical, and < 212°F.~~ The ITS LCO is also applicable when associated instrumentation is required to be operable per LCO 3.3.6.1, which adds a Mode 4 and 5 requirement for the RHR Shutdown Cooling isolation valves. Action F has been added for when the valves cannot be isolated (since the unit is already in Mode 4 or 5, the current actions provide no appropriate compensatory measures).	LCO 3.6.1.3 Action F	3.7.A 3.7.D
M3	New SRs 3.6.1.3.1, 3.6.1.3.2, and 3.6.1.3.3 have been added to verify PCIVs are in their proper position or state. New SRs 3.6.1.3.4 and 3.6.1.3.9 have been added to ensure the traversing incore probe (TIP) squib valves will actuate if required. These SRs are additional restrictions on plant operation.	SR 3.6.1.3.1 SR 3.6.1.3.2 SR 3.6.1.3.3 SR 3.6.1.3.4 SR 3.6.1.3.9	4.7.D

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.6.1.4 - DRYWELL AIR TEMPERATURE			
M1	A new Specification is being added requiring drywell air temperature to be ≤ 150° F.	3.6.1.4	n/a
ITS SECTION 3.6.1.5 - REACTOR BUILDING -to - SUPPRESSION CHAMBER VACUUM BREAKERS			
M1	CTS requires the primary containment to be operable at all times when the reactor is critical or when the reactor water temperature is above 212°F and fuel is in the vessel. CTS 3.7.A.3.a requires Reactor Building-to Suppression Chamber Vacuum Breakers to be Operable when primary containment is Operable. ITS 3.6.1.5 Applicability is Modes 1, 2, and 3 which is broader. ~~This is more restrictive since CTS does not require the primary containment to be operable when in Mode 2, not critical, and < 212°F.~~	LCO 3.6.1.5	3.7.A.3.a
M2	A new SR been added to verify each vacuum breaker is closed every 14 days.	SR 3.6.1.5.1	4.7.A
M3	ITS LCO 3.6.1.5 Actions allow only 72 hours for closing an open vacuum breaker and 72 hours for returning the vacuum breaker to operable status versus the CTS of 7 days. Therefore, the ITS Actions are more restrictive when a vacuum breaker becomes inoperable for opening since only 72 hours is allowed for returning the vacuum breaker to operable status. Also, CTS ~~also~~ does not provide a specific requirement to close open (inoperable) vacuum breakers within 72 hours.	LCO 3.6.1.5 Actions	3.7.A.3.b
ITS SECTION 3.6.1.6 - SUPPRESSION CHAMBER - to - DRYWELL VACUUM BREAKERS			

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.7.3 - CONTROL ROOM EMERGENCY VENTILATION (CREV) SYSTEM			
M3	The SR'adds a verification requirement that each CREV subsystem maintain a positive pressure of 0.125 inches of water relative to the outdoors during the flow verification for each CREV subsystem fan.	SR 3.7.3.4	4.7.E
M4	Adds a requirement that the unit be in Mode 3 within 12 hours if the inoperable CREV subsystem is not restored to operable status within seven days and requires LCO 3.0.3 to be entered when both CREV subsystems are inoperable. CTS 3.7.E.4 requires the plant be in Cold Shutdown within 24 hours when both subsystems are inoperable. LCO 3.0.3 requires the unit be placed in Mode 2 within 7 hours and Mode 3 within 13 hours.	LCO 3.7.3 Action B Action D	3.7.E.4
M5	Adds a requirement that the CREV heater SR be performed over a continuous 10-hour time period during the monthly performance SR. CTS does not require continous opertaion. SP	SR 3.7.3.1	4.7.E.2.d
ITS SECTION 3.7.4 - CONTROL ROOM AIR CONDITIONING (AC) SYSTEM			
M1	Adds a new ITS Section requiring the Control Room AC System be operable. Appropriate Actions and SRs are also added.	3.7.4	n/a
ITS SECTION 3.7.5 - MAIN TURBINE BYPASS SYSTEM			
M1	Adds a new ITS Section requiring the Main Turbine Bypass System be operable. Appropriate Actions and SRs are also added.	3.7.5	n/a

Discussion of Change	Summary of Change	ITS Section	CTS Section
	ITS SECTION 3.8.1 - AC SOURCES OPERATING		
M1	ITS LCO 3.8.1 is applicable in Modes 1, 2 and 3 which is more restrictive than CTS 3.9.B. CTS 3.9.B requires action for inoperable equipment "Whenever the reactor is in Startup Mode or Run Mode and not in a cold condition." Thus, CTS would not require the stated requirements in the Startup Mode prior to reaching 212 degrees F or in a Hot Shutdown condition whereas the proposed ITS will.	LCO 3.8.1	3.9.B
M2	not used	n/a	n/a
M3	not used	n/a	n/a
M4	CTS requires one less AC power source than required for continuous operation to startup from the Hot Standby Condition. This allowance is eliminated in the ITS and the application of LCO 3.0.4 will result in precluding this CTS startup allowance.	LCO 3.8.1	3.9.A.2
M5	SRs 3.8.1.1, 3.8.1.4, 3.8.1.5, and 3.8.1.9 add acceptance criteria for DG voltage and frequency. In addition, SR 3.8.1.9 criteria c adds a DG start time requirement.	SR 3.8.1.1 SR 3.8.1.4 SR 3.8.1.5 SR 3.8.1.9	4.9.A.1.a 4.9.A.1.ab 4.9.A.4.b
M6	Added an action requirement to be in Mode 3 within 12 hours of entry into the LCO. CTS requires being in Cold Shutdown within 24 hours.	LCO 3.8.1 Action I.1	3.9.B.3 (U1& 2) 3.9.B.15 (U1& 2) 3.9.B.2.(U3) 3.9.B.13 (U3)
M7	not used	n/a	n/a
M8	Added a new SR 3.8.1.8 to demonstrate proper operation for the Design Basis Accident loading sequence, which ensures that DGs (and offsite circuits) are not overloaded and that the required loads are started in sufficient time to adequately support the assumed function.	SR 3.8.1.8	4.9.A

Discussion of Change	Summary of Change	ITS Section	CTS Section
	ITS SECTION 3.8.4 - DC SOURCES - OPERATING		
M1	Added SRs 3.8.4.2 and 3.8.4.5 for the Unit, Shutdown, and DG battery chargers. SR 3.8.4.2 verifies battery charger capability to recharge the batteries every 18 months. SR 3.8.4.5 verifies battery charger capability to perform at maximum output every 60 months. These new SRs are additional restrictions on plant operation.	SR 3.8.4.2 SR 3.8.4.5	4.9.A.2
M2	Added a new requirement to be in Mode 3 within 12 hours of entry into the LCO. CTS allow 24 hours.	LCO 3.8.4 Action B.1	3.9.B.15 (U1&U2) 3.9.B.13 (U3)
M3	Added specific acceptance criteria for relating overall battery voltage and measured battery capacity to DC source subsystem operability). This imposes TS limitations that do not currently exist, and are, therefore, additional restrictions.	3.8.4 SRs	4.9.A.2
M4	Added an explicit LCO statement (LCO 3.8.4.e) to require the Unit Shutdown board DC subsystems that support SGT and CREVS be operable. Associated Action D is also added.	LCO 3.8.4.e Action D	3.9.A
M5	Unit 1 and 2 CTS 3.9.B.7 & B.8 are written so that they allow one 250-V Unit Battery to be inoperable concurrent with one 250-V Shutdown Board Battery. CTS 3.9.B.7 provides a 7 day LCO for the Unit Batteries and CTS 3.9.B.8 provides a 5 day LCO for the Shutdown Board Batteries. The ITS have been written to explicitly allow only one Unit Battery or Shutdown Board Battery inoperable and as such are considered more restrictive.	LCO 3.8.4	3.9.B.7 (U1&2) 3.9.B.8 (U1&2)

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.9.1 - REFUELING EQUIPMENT INTERLOCKS			
M1	Added an appropriate Action to suspend in-vessel fuel movement with equipment associated with the inoperable interlock for consistency with STS. CTS provide no specific actions for inoperable refueling interlocks.	LCO 3.9.1 Action A	3.10.A.1
ITS SECTION 3.9.2 - REFUELING POSITION ONE-ROD-OUT INTERLOCK			
M1	Added Actions to suspend control rod withdrawal and to initiate action to fully insert all insertable control rod in core cells containing one or more fuel assemblies for consistency with STS. CTS provide no specific actions for an inoperable one-rod-out interlock.	LC0 3.9.2 Action A	3.10.A.1
M2	Added an SR that requires verification every 12 hours that the mode switch remains locked in the Refuel position while in Mode 5 with and any control rod withdrawn. CTS require the reactor mode switch to be locked in the Refuel position, but there are no periodic requirements to verify the mode switch is locked in the correct position	SR 3.9.2.1	3.10.A.1
ITS SECTION 3.9.3 - CONTROL ROD POSITION			
M1	Added an Action to suspend loading fuel assemblies into the core consistent with STS. CTS provide no specific actions if one or more control rods are not inserted and fuel is being loaded.	LCO 3.9.3 Action A	3.10.A.2
M2	Added a new SR to verify all control rods are fully inserted every 12 hours.	SR 3.9.3.1	4.10.A
ITS SECTION 3.9.4 - CONTROL ROD POSITION INDICATION			
M1	Added new ITS Section to require the control rod full-in position indication for each control rod to be operable in Mode 5.	3.9.4	n/a

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.9.5 - CONTROL ROD OPERABILITY - REFUELING			
M1	Added a new ITS Section to require each withdrawn control rod to be operable when in Mode 5. .	3.9.5	n/a
ITS SECTION 3.9.6 - REACTOR PRESSURE VESSEL (RPV) WATER LEVEL			
M1	Added a new ITS Section to require RPV water level to be ≥ 22 feet above the top of the RPV flange.	3.9.6	n/a
ITS SECTION 3.9.7 - RESIDUAL HEAT REMOVAL (RHR) - HIGH WATER LEVEL			
M1	Added a new ITS Section to require one RHR shutdown cooling subsystem to be operable when in Mode 5 with water level ≥ 22 feet above the top of the RPV flange.	3.9.7	n/a
ITS SECTION 3.9.8 - RESIDUAL HEAT REMOVAL (RHR) - LOW WATER LEVEL			
M1	Added a new ITS Section to require two RHR shutdown cooling subsystems to be operable and one RHR shutdown cooling subsystem to be operating when in Mode 5 with water level < 22 feet above the top of the RPV flange.	3.9.8	n/a

Discussion of Change	Summary of Change	ITS Section	CTS Section
ITS SECTION 3.10.4 - SINGLE CONTROL ROD WITHDRAWAL - COLD SHUTDOWN			
M1	CTS 3.10.A.5.b requires all control rods diagonally and face adjacent to the maintenance rod be fully inserted and disarmed. ITS LCO 3.10.4.c.2 is more restrictive since it requires all other control rods in a five by five array centered on the control rod being withdrawn be disarmed. The ITS LCO allows the SDM requirements be changed to allow the single control rod withdrawn to be assumed to be the highest worth control rod. Corresponding SR 3.10.4.2 is also more restrictive in that it requires that all control rods, other than the control rod being withdrawn in a five by five array centered on the control rod being withdrawn, are verified to be disarmed on a frequency of once per 24 hours.	LCO 3.10.4 SR 3.10.4.2	3.10.A.5.b 4.10.A.5.b
M2	CTS do not provide specific Actions for if the LCO requirements not met. In the event LCO requirements are not met while in Mode 4 and the withdrawn control rod insertable, ITS LCO 3.10.4 Action A requires that the applicable Condition of the affected LCO be entered immediately, action be taken to insert all insertable control rods immediately and the reactor mode switch be placed in the Shutdown position within one hour. In the event that LCO requirements cannot be met and the withdrawn control rod is not insertable, Action B requires steps be taken immediately to rectify the condition.	LCO 3.10.4 Action A Action B	3.10.A
M3	CTS 4.10.A.5 does not require a periodic verification that control rods are disarmed. ITS SR 3.10.4.2 has a frequency of 24 hours for this activity. Also, SR 3.10.4.3 was added to verify all control rods, other than the control rod being withdrawn, are fully inserted every 24 hours. This is considered more restrictive since this periodic verification did not exist in CTS.	SR 3.10.4.2 SR 3.10.4.3	4.10.A.

Discussion of Change	Description	ITS Section	CTS Section	Category
ITS SECTION 3.3.1.1 - REACTOR PROTECTION SYSTEM (RPS) INSTRUMENTATION				
L7	Revised the requirement for verification of IRM/APRM overlap from during controlled startup to during shutdowns when entering Mode 2 from Mode 1.	SR 3.3.1.1.6	Table 4.1.B	II
L8	Deleted the CTS requirement for APRM High Flux (Setdown)-≤15% rated power and APRM Inoperative Functions in the Refuel Mode.	Table 3.3.1.1-1	Table 3.1.A	I
L9	Revised the calibration frequency for the Local Power Range Monitors (LPRMs) from 1000 effective full power days to 1000 megawatt-days per ton average core exposure.	SR 3.3.1.1.7	Table 4.1.B	II
ITS SECTION 3.3.1.2 - SOURCE RANGE MONITOR (SRM) INSTRUMENTATION				
L1	Revised the number of SRM channels required to be operable during refueling from 2 to 1 if a spiral offload or reload pattern is used.	Table 3.3.1.2-1 Footnote (b)	3.10.B.1	None
L2	Revised applicability of SRMs in Mode 2 to only be required when IRMs are on range 2 or below.	Table 3.3.1.2-1 Footnote (a)	3.10.B.1	I
ITS SECTION 3.3.2.1 - CONTROL ROD BLOCK INSTRUMENTATION				
LB1	Revised the Channel Functional Test Frequency for several rod block Functions from 1 month to 92 days.	SR 3.3.2.1.1 SR 3.3.2.1.2 SR 3.3.2.1.3	Table 4.2.C Note 1	II

Categories:

I. CTS LCO Applicability Change
II. Relaxation of CTS Surveillance Frequency
III. CTS Allowed Outage Time Extension to STS Times
IV. Relaxation of Required Actions to Exit LCOs
V. Relaxation of CTS Reporting Requirements
VI. Relaxation of CTS Requirements for Testing Redundant Components
VII. Relaxation of CTS LCO Requirements
VIII. Relaxation of Surveillance Requirement Acceptance Criteria

Discussion of Change	Description	ITS Section	CTS Section	Category
ITS SECTION 3.3.8.2 - REACTOR PROTECTION SYSTEM (RPS) ELECTRIC POWER MONITORING				
L1	Deleted the requirement for the RPS and the RPS bus powered components to be operable with no control rods withdrawn from core cells containing fuel assemblies.	LCO 3.3.8.2	3.1.B	I
L2	not used	n/a	n/a	n/a
L3	Extended the Completion Time to de-energize the bus from 30 minutes to 1 hour when both electric power monitoring assemblies of a power supply are inoperable.	LCO 3.3.8.2 Action B.1	3.1.B.2	III
Unit 1 RESTART LICENSE CONDITION ISSUES				
A11	Revised the Unit 1 calibration frequencies for the marked functions to be consistent with Units 2 and 3.	SR 3.3.1.1.10 SR 3.3.1.1.13	Table 4.1.B (Unit 1)	
A3	Revised the Unit 1 calibration frequencies for the marked functions to be consistent with Units 2 and 3.	SR 3.3.5.1.5	Table 4.2.B (Unit 1)	
A8	Revised the Unit 1 calibration frequencies for the marked functions to be consistent with Units 2 and 3.	SR 3.3.5.2.3	Table 4.2.B (Unit 1)	
A12	Revised the Unit 1 RWCU Temperature Functions to be consistent with Units 2 and 3.	Table 3.3.6.1-1	Table 3.2.A Table 4.2.A (Unit 1)	

Categories:

I. CTS LCO Applicability Change
II. Relaxation of CTS Surveillance Frequency
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IV. Relaxation of Required Actions to Exit LCOs
V. Relaxation of CTS Reporting Requirements
VI. Relaxation of CTS Requirements for Testing Redundant Components
VII. Relaxation of CTS LCO Requirements
VIII. Relaxation of Surveillance Requirement Acceptance Criteria

TABLE L - MATRIX OF LESS RESTRICTIVE CHANGES (Page 30 of 76)

Discussion of Change	Description	ITS Section	CTS Section	Category
	Unit 1 RESTART LICENSE CONDITION ISSUES			
A13	Revised the Unit 1 calibration frequencies for the indicated functions to be consistent with Units 2 and 3.	SR 3.3.6.1.5 SR 3.3.6.1.4	Table 4.2.A Table 4.2.B (Unit 1)	
A14	Revised the Unit 1 channel check frequencies for the indicated functions to be consistent with Units 2 and 3.	SR 3.3.6.1.1	Table 4.2.B (Unit 1)	
A10	Revised the Unit 1 calibration frequencies for the indicated functions to be consistent with Units 2 and 3.	SR 3.3.6.2.3	Table 4.2.A (Unit 1)	
A5	Revised the Unit 1 calibration frequencies for the indicated functions to be consistent with Units 2 and 3.	SR 3.3.7.1.5	Table 4.2.A (Unit 1)	

• Add A15 (partial) from ITS 3.3.6.1

Categories:

I. CTS LCO Applicability Change
II. Relaxation of CTS Surveillance Frequency
III. CTS Allowed Outage Time Extension to STS Times
IV. Relaxation of Required Actions to Exit LCOs
V. Relaxation of CTS Reporting Requirements
VI. Relaxation of CTS Requirements for Testing Redundant Components
VII. Relaxation of CTS LCO Requirements
VIII. Relaxation of Surveillance Requirement Acceptance Criteria

Discussion of Change	Description	ITS Section	CTS Section	Category
L2	ITS Action D.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in Modes 4 or 5, LCO 3.0.3 would not specify any action. ~~This allows the plant to be in Hot Shutdown within 12 hours versus Hot Standby within 6 hours as required by CTS.~~ If moving irradiated fuel assemblies while in Mode 1, 2, or 3, the fuel movement is independent of reactor operation and the inability to suspend movement of irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown. By adding an exception to LCO 3.0.3 required reactor shutdown is avoided in Mode 1, 2, or 3. However, the plant would still be required to shutdown per proposed Required Action C in addition to suspending fuel movement per Action D.1. However, this shutdown is considered less restrictive since Action C allows the plant to be in Hot Shutdown within 12 hours versus Hot Standby within 6 hours as required by CTS 1.0.C.1.	3.6.4.2 Action D.1 3.6.4.3 Action C.1	3.7.C.2	III
	ITS SECTION 3.6.4.3 - STANDBY GAS TREATMENT (SGT) SYSTEM			
L1	The CTS requirement to test the other SGT subsystems when one subsystem is inoperable has been deleted.	3.6.4.3	4.7.B.3.c	VI

Categories:

I.	CTS LCO Applicability Change	V.	Relaxation of CTS Reporting Requirements
II.	Relaxation of CTS Surveillance Frequency	VI.	Relaxation of CTS Requirements for Testing Redundant Components
III.	CTS Allowed Outage Time Extension to STS Times	VII.	Relaxation of CTS LCO Requirements
IV.	Relaxation of Required Actions to Exit LCOs	VIII.	Relaxation of Surveillance Requirement Acceptance Criteria

TABLE L - MATRIX OF LESS RESTRICTIVE CHANGES (Page 54 of 76)

Discussion of Change	Description	ITS Section	CTS Section	Category
L2	In Action C.1, an alternative is provided to initiate two Operable subsystems of SGT and continue to conduct the operations rather than suspending operations if a SGT subsystem cannot be returned to Operable status within seven days.	LCO 3.6.4.3 Action C.1	3.7.B	IV

Categories:

I. CTS LCO Applicability Change
II. Relaxation of CTS Surveillance Frequency
III. CTS Allowed Outage Time Extension to STS Times
IV. Relaxation of Required Actions to Exit LCOs
V. Relaxation of CTS Reporting Requirements
VI. Relaxation of CTS Requirements for Testing Redundant Components
VII. Relaxation of CTS LCO Requirements
VIII. Relaxation of Surveillance Requirement Acceptance Criteria

Discussion of Change	Description	ITS Section	CTS Section	Category
	ITS SECTION 3.6.4.3 - STANDBY GAS TREATMENT (SGT) SYSTEM			
L4	CTS 4.7.B.3.b text is modified for consistency with plant procedures and nomenclature. In the plant operating instructions, the bypass valve(s) for filter cooling are titled as the SGT "Decay Heat Discharge Dampers" for the three SGT trains. In ITS SR 3.6.4.3.4, operability is demonstrated by verifying these SGT Decay Heat Discharge Dampers are in their correct (locked) position for system service. This change is less restrictive since in ITS operability is demonstrated by position verification; whereas, CTS 4.7.B.3.b requires demonstration of manual operability. This is acceptable because physical operation of the Decay Heat Discharge Dampers is not required to place the filter cooling mode in service.	SR 3.6.4.3.4	4.7.B.3.b	VIII

Revised L4 is shown on page 56 of 76. This page now duplicative.

Categories:

I. CTS LCO Applicability Change
II. Relaxation of CTS Surveillance Frequency
III. CTS Allowed Outage Time Extension to STS Times
IV. Relaxation of Required Actions to Exit LCOs
V. Relaxation of CTS Reporting Requirements
VI. Relaxation of CTS Requirements for Testing Redundant Components
VII. Relaxation of CTS LCO Requirements
VIII. Relaxation of Surveillance Requirement Acceptance Criteria

Discussion of Change	Description	ITS Section	CTS Section	Category
ITS SECTION 3.7.6 - SPENT FUEL STORAGE POOL WATER LEVEL				
L1	Deletes the CTS requirement to maintain and verify spent fuel pool level at all times whenever irradiated fuel is stored in the spent fuel pool. Modified to whenever irradiated fuel is being moved.	LCO 3.7.6 SR 3.7.6.1	3.10.C.1 4.10.C.1	I II
L2	This change relaxes the SR Frequency to verify spent fuel pool water level from daily to once every 7 days.	SR 3.7.6.1	4.10.C.1	II

Categories:

I. CTS LCO Applicability Change
II. Relaxation of CTS Surveillance Frequency
III. CTS Allowed Outage Time Extension to STS Times
IV. Relaxation of Required Actions to Exit LCOs
V. Relaxation of CTS Reporting Requirements
VI. Relaxation of CTS Requirements for Testing Redundant Components
VII. Relaxation of CTS LCO Requirements
VIII. Relaxation of Surveillance Requirement Acceptance Criteria

ITS & DOC Reference	CTS	Description	General Location	Change Controls	Characterization	Change Type
ITS SECTION 3.1.1 - SHUTDOWN MARGIN (SDM)						
3.1.1 LA1	4.3.A.1	Details concerning control rod withdrawal for performance of the SDM surveillance requirement (SR).	Bases	Bases Control Program	Relocation of testing details.	3
ITS SECTION 3.1.2 - REACTIVITY ANOMALIES						
3.1.2 LA1	4.3.D	Details of the methods to perform the Reactivity Anomaly SR.	Bases	Bases Control Program	Relocation of details of testing methodology.	3
ITS SECTION 3.1.3 - CONTROL ROD OPERABILITY						
3.1.3 LA1	3.3.A.2.b 3.3.B.1	Details concerning the requirement to disarm CRDs.	Bases	Bases Control Program	Relocation of details regarding the method used to comply with the required action.	3
3.1.3 LA2	4.3.B.1.a	Operational details concerning verification of control rod coupling by means of nuclear instrumentation.	FSAR	50.59	Relocation of operational details.	2

Types of Changes
Type 1 - Details of System Design and System Description Including Design Limits
Type 2 - Descriptions of Systems or Plant Operation
Type 3 - Procedural Details for Meeting TS Requirements and Related Reporting Requirements
Type 4 - Performance Requirements for Indication-only Instrumentation and Alarms