Attachment

Proposed Improved Technical Specifications
Comments on Draft Safety Evaluation

Virginia Electric and Power Company
(Dominion)

North Anna Power Station Units 1 and 2

DRAFT SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. XXX TO FACILITY OPERATING LICENSE NO. NPF-4

AND AMENDMENT NO. XXX TO FACILITY OPERATING LICENSE NO. NPF-7

VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION, UNITS 1 AND 2

DOCKET NOS. 50-338 AND 50-339

1.0 INTRODUCTION

North Anna Power Station, Units 1 and 2 (NAPS) have been operating with Technical Specifications (TS) issued with the original Operating Licenses on ~~October 5, 1970~~ November 26, 1977(for Unit 1), and ~~March 8, 1973~~April 11, 1980 (for Unit 2), as amended. By application dated December 11, 2000, as supplemented by letters dated May 30, June 18, July 16, July 20, August 13, August 27, September 27, October 10, October 17, November 8, November 19, November 29, December 3, December 7, December 12, and December 13, 2001, and January 2, January 25, and January 31, 2002, Virginia Electric and Power Company (the licensee) requested an amendment to the Operating Licenses and TS for the NAPS. Hereinafter, the proposed improved TS for NAPS are referred to as the ITS, the current TS are referred to as the CTS, and the improved standard TS, such as in NUREG-1431, are referred to as the STS. The corresponding Bases are ITS Bases, CTS Bases, and STS Bases, respectively. For convenience, a list of acronyms used in this SE is provided in Attachment 1 to this SE. This proposed amendment would convert the CTS to ITS.

The proposed conversion to the ITS is based upon:

- NUREG-1431, "Standard Technical Specifications for Westinghouse Plants," Revision 1, dated April 1995;
- The current NAPS CTS;
- "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, "Technical Specifications," as amended July 19, 1995 (60 FR 36953).

In addition to basing the ITS on the STS, the Final Policy Statement, and the requirements in 10 CFR 50.36, the licensee retained portions of the CTS as a basis for the ITS. Several post-submittal letters of request for additional information (RAI) and a series of telephone conference calls were required during the course of this review. These RAIs and conference calls were necessary for the staff to clarify the proposed ITS with respect to the guidance in the Final Policy Statement and the STS and the NAPS's plant specific features and design. In addition to information from these RAIs and discussions, the licensee also proposed matters of a generic nature that were not in the STS.

The staff requested that the licensee submit such generic issues as proposed changes to the STS through the NRC/Nuclear Energy Institute's Technical Specifications Task Force (TSTF). These generic issues were considered for specific applications in the NAPS ITS. Consistent with the Final Policy Statement, the licensee proposed transferring some CTS requirements to licensee-controlled documents (such as the NAPS Updated Final Safety Analysis Report (UFSAR), for which changes to the documents by the licensee are controlled by a regulation such as 10 CFR 50.59 and may be changed without prior NRC approval). NRC-controlled documents, such as the TS, may not be changed by the licensee without prior NRC approval. 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 overall objective of the proposed amendments, consistent with the Final Policy Statement, is to rewrite, reformat, and streamline the TS for NAPS in accordance with 10 CFR 50.36. Since the licensee submitted the December 11, 2000, application, a number of amendments to the NAPS operating license have been approved. The following table provides the subjects of the amendments and the dates of issuance.

Amendment Nos. Unit 1	Unit 2	Description of Change	Date
225	206	Increase Boron Concentration Limits in Reactor Coolant System during Refueling and Establish Boron Limits for Spent Fuel Pool.	3/20/01
226	207	Pressure-Temperature Limits, Low Temperature Overpressure Protection (LTOP) System Setpoints, and LTOP System effective temperature.	5/02/01
227	208	Increase Fuel Enrichment and Spent Fuel Pool Soluble Boron and Fuel Burnup Credit	6/15/01
228	209	Control Room Emergency Habitability Systems Increase Number of Compressed Air Bottles and revise Differential pressure Limit for Filter Assemblies	12/12/01
229	210	Elimination of Post Accident Sampling System Requirements	12/19/01
230		Delete Obsolete License Conditions for North Anna Unit 1	1/31/02

The licensee has incorporated these amendments, as appropriate, into the ITS.
The license conditions included in the conversion amendment will make enforceable the following aspects of the conversion: (1) the relocation of requirements from the CTS and (2) the implementation schedule for new and revised surveillance requirements (SRs) in the

ITS. The Commission's proposed action on the NAPS application for amendment dated December 11, 2000 was published in the *Federal Register* on XXXXX (xx FR xxxxx).

During its review, the 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 staff 's conclusion that the licensee can develop ITS based on STS, as modified by plant-specific changes, and that the use of the ITS is acceptable for continued operation of NAPS . This SE also explains the staff 's conclusion that the ITS, which are based on the STS as modified by plant-specific changes, are consistent with the NAPS current licensing basis and the requirements of 10 CFR 50.36.

The staff also acknowledges that, as indicated in the Final Policy Statement, the conversion to ITS is a voluntary process. Therefore, it is acceptable that the ITS differ from the STS to reflect the current licensing basis for NAPS . The staff approves the licensee's changes to the CTS with modifications documented in the licensee's supplemental submittals.

For the reasons stated *infra* in this SE, the staff finds that the ITS issued with these license amendments 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.

2.0 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. As recorded in the Statements of Consideration, "Technical Specifications for Facility Licenses; Safety Analysis Reports" (33 FR 18610, December 17, 1968), 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." Pursuant to 10 CFR 50.36, TS are required to include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) SRs; (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, utility owners groups and the staff developed improved STS, such as NUREG-1431, that would establish models of the Commission's policy for each primary reactor type. In addition, the 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-1431, Revision 0, which was developed using the guidance and criteria contained in the Commission's Interim Policy Statement. The STS in NUREG-1431 was established as a model for developing the ITS for Westinghouse plants, in general. The 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 supply system (NSSS) vendor 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 reactor designs. As such, the generic Bases presented in NUREG-1431 provide an abundance of information regarding the extent to which the STS present requirements that are necessary to protect public health and safety. The STS in NUREG-1431 apply to NAPS .

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. The Final Policy Statement described the safety benefits of the STS and encouraged licensees to use the STS as the basis for plant-specific TS amendments and for complete conversions to ITS based on the 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 SRs 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.* (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 technical specifications 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 four 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 3.0 of this SE explains the staff 's conclusion that the conversion of the NAPS CTS to ITS based on STS, as modified by plant-specific changes, is consistent with the NAPS current licensing basis and the requirements and guidance of the Final Policy Statement and 10 CFR 50.36.

3.0 EVALUATION

In its review of the NAPS ITS application, the staff evaluated five kinds of changes to the CTS as defined by the licensee. The staff 's review also included an evaluation of whether existing regulatory requirements are adequate for controlling future changes to requirements that are removed from the CTS and placed in licensee-controlled documents.

In its review, the staff identified the need for clarifications and additions to the December 11, 2000, ITS application in order to establish an appropriate regulatory basis for translation of CTS requirements into ITS. The staff 's comments were documented as requests for additional information (RAIs) and forwarded in letters dated April 23, May 21, June 1, June 4, June 22, July 2, July 30, July 31, September 6, September 7, September 18, October 3, October 10, October 16, November 7, and December 7, 2001. The licensee provided responses to the RAIs in supplemental letters dated ~~By application dated~~ May 30, June 18, July 16, July 20, August 13, August 27, September 27, October 10, October 17, November 8, November 19, November 29, December 3, December 7, December 12, and December 13, 2001, and January 2, January 25, and January 31, 2002. The letters clarified the licensee's basis for translating the CTS requirements into ITS. For items that have been reviewed by the staff as stated in this Draft Safety Evaluation, the staff finds that the licensee's submittals, including the responses to the RAIs, provide sufficient detail to allow the staff to reach a conclusion regarding the adequacy of the licensee's proposed changes to the CTS.

Following are the five types of CTS changes:

A Administrative - changes to the CTS that result in no changes to existing restrictions and flexibility (i.e., nontechnical changes in the presentation of CTS requirements).

M More Restrictive - changes to the CTS that result in added restrictions or reduced flexibility (i.e., additional TS requirements).

L Less Restrictive "Specific" - changes to the CTS that result in reduced restrictions or added flexibility (i.e., changes, deletions, and relaxations of CTS requirements).

LA Removed Details - changes to the CTS that move details out of the CTS and into the Bases, UFSAR, or other appropriate licensee-controlled documents (i.e., design details, system descriptive details, and procedural details). This type of change is included with ~~Relocations~~ Relocated Specifications in Table R as described below.

R ~~Relocations~~ Relocated Specifications - relaxations in which whole CTS specifications are removed from the CTS to licensee-controlled documents.

The ITS application included a justification for each proposed change to the CTS in a numbered discussion of change (DOC), using the above letter designations as appropriate. In addition, the ITS application included an explanation of each difference between ITS and STS requirements in a numbered justification for difference (JFD).

The changes to the CTS, as presented in the ITS application, are listed and described in the following four tables attached to this SE:

- Table A - Administrative (A) Changes to the CTS
- Table M - More Restrictive (M) Changes to the CTS
- Table L - Less Restrictive (L) Changes to the CTS
- Table R - Relocated Specifications (R) and Removed Details (LA) from the CTS

These tables provide a summary description of the proposed changes to the CTS, references to the specific CTS requirements that are being changed, and the specific ITS requirements that incorporate the changes. The tables are only meant to summarize the changes being made to the CTS. The details as to what the actual changes are and how they are being made to the CTS or ITS are provided in the licensee's application and supplemental letters.

A. Administrative Changes

Administrative (nontechnical) 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. 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 staff and the licensee have used the STS as guidance to reformat and make other administrative changes. Among the changes proposed by the licensee and found acceptable by the staff are:

- Identifying plant-specific wording for system names, etc.;

- Splitting up requirements currently grouped under a single current specification and moving them to more appropriate locations in two or more specifications of ITS;
- Combining related requirements currently presented in separate specifications of the CTS into a single specification of ITS;
- Presentation changes that involve rewording or reformatting for clarity (including moving an existing requirement to another location within the TS) but which do not involve a change in requirements;
- Wording changes and additions that are consistent with CTS interpretation and practice, and that more clearly or explicitly state existing requirements;
- Deletion of TS which no longer apply;
- Deletion of details that are strictly informational and have no regulatory basis; and
- Deletion of redundant TS requirements that exist elsewhere in the TS.

Table A lists the administrative changes being made in the NAPS ITS conversion. Table A is organized in STS order by each A-type DOC to the CTS, provides a summary description of the administrative change that was made, and provides CTS and ITS references. The 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 the STS, do not result in any 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 the STS, proposed a number of requirements more restrictive than those in the CTS. The ITS requirements in this category include requirements that are either new, more conservative than corresponding requirements in the CTS, or have additional restrictions that are not in the CTS but are in the 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 the more restrictive changes being made in the NAPS ITS conversion. Table M is organized in STS order by each M-type DOC to the CTS and provides a summary description of the more restrictive change that was adopted, and the CTS and ITS references. These changes are additional restrictions on plant operation that enhance safety and are acceptable.

C. Technical Changes - Less Restrictive

Less restrictive requirements include deletions and relaxations to portions of the CTS requirements that are being retained in the ITS. When requirements have been shown to give little or no safety benefit, their relaxation or 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 the STS. The 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 NAPS design was also reviewed to determine if the specific design basis and licensing basis for NAPS are consistent with the technical basis for the model requirements in the STS, and thus provide a basis for the ITS.

All of the less restrictive changes to the CTS have been evaluated. The majority of the changes were ~~and~~ found to involve deletions and relaxations to portions of the CTS requirements that can grouped in the following ~~seven~~ eight categories:

- Relaxation of LCO Requirement (Category 1)
- Relaxation of Applicability (Category 2)
- Relaxation of Completion Time (Category 3)
- Relaxation of Required Action (Category 4)
- Deletion of Surveillance Requirements (Category 5)
- Relaxation of Surveillance Requirements Acceptance Criteria (Category 6)
- Relaxation of Surveillance Frequency (Category 7)
- Deletion of Reporting requirements (Category 8)

The following discussions address why portions of various specifications within each of these eight categories of information or specific requirements are not required to be included in ITS:

1. Relaxation of LCO Requirement (Category 1)

   The CTS contain LCOs that are overly restrictive because they specify limits on operational and system parameters and on system operability beyond those necessary to meet safety analysis assumptions. The CTS also contain administrative controls that do not contribute to the safe operation of the plant. The ITS, consistent with the guidance in the STS, omit such operational limits and administrative controls. This category of change includes: (1) deletion of equipment or systems addressed by the CTS LCOs that are not required or assumed to function by the applicable safety analyses; (2) addition of explicit exceptions to the CTS LCO requirements ~~(e.g., mode entry restrictions equivalent to those of ITS LCO 3.0.4)~~ consistent with the guidance of the STS and normal plant operations to provide necessary operational flexibility but without a significant safety impact; and (3) deletion of miscellaneous administrative controls ~~such as reporting requirements,~~ sometimes contained in action requirements, that have no effect on safety. Deletion of such administrative controls allows operators to more clearly focus on issues important to safety. The ITS LCOs and administrative controls resulting from these changes will continue to maintain an adequate degree of protection consistent with the safety analysis, while providing an improved focus on issues important to safety and necessary operational flexibility without adversely affecting the safe operation of the plant. Therefore, these less restrictive changes, which are consistent with STS and fall within Category 1, are acceptable.

2. Relaxation of Applicability (Category 2)

   Reactor operating conditions are used in CTS to define when LCO features are required to be operable. CTS applicability requirements can be specifically defined terms of reactor conditions, such as hot shutdown, cold shutdown, reactor critical, or power operating conditions. CTS applicability requirements can also be more general. Depending on the circumstances, the CTS may require that an LCO be maintained within limits in "all modes" or "any operating mode." Generalized applicability conditions are not contained in STS; therefore, ITS eliminates CTS requirements such as "all modes" or "any operating mode," replacing them with ITS-defined modes or applicable conditions that are consistent with the application of the plant safety analysis assumptions for operability of the required features.

In another application of this category 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 that are indeterminate or which are inconsistent with application of accident analyses assumptions is acceptable because when LCOs cannot be met, the TS are satisfied by exiting the specified LCO's applicability, thus taking the plant out of the conditions that require the safety system to be operable. Therefore, these changes, which are consistent with STS and fall within Category 2, are acceptable.

3. Relaxation of Completion Time (Category 3)

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

Incorporating completion time extensions is acceptable because completion times take into account the operable 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, vendor-developed standard repair times, and the low probability of a design-basis accident (DBA) occurring during the repair period. Therefore, required action completion time extensions, which are consistent with STS and fall within Category ~~6~~3, are acceptable.

4. Relaxation of Required Actions (Category 4)

An LCO is the lowest functional capability or performance level of equipment required for safe operation of the facility. When an LCO is not met, the CTS specify actions to be taken until the equipment is restored to its required capability or performance level, or remedial measures are established. Compared to CTS-required actions, the ITS actions result in ~~extending the time period~~less restrictive requirements for taking the plant outside the applicability into shutdown conditions. For example, changes in this category include providing an option to (1) isolate a system, (2) place equipment in the state assumed by the safety analysis, (3) satisfy alternate criteria, (4) take manual actions in place of automatic actions, (5) "restore to operable status" within a specified time frame, (6) place alternate equipment into service, or (7) use more conservative TS setpoints. The resulting ITS actions continue to provide measures that conservatively compensate for the inoperable equipment. The ITS actions are commensurate with safety importance of the inoperable equipment, plant design, and industry practice and do not compromise safe operation of the plant. Therefore, these changes, which are consistent with STS and fall within Category 4, are acceptable.

5. Deletion of Surveillance Requirements (Category 5)

CTS require maintaining the LCO equipment operable by conducting SRs in accordance with the plant specific equipment. The changes in this type relate to elimination of surveillance requirements in CTS that were no longer required ~~or~~ because equipment had been replaced or the features that required surveillance actions had been replaced, or features with surveillance activities ~~to be~~were duplicated by other new ITS requirements. These changes fall in Category 5 and are consistent with the STS, and therefore are acceptable.

6. Relaxation of Surveillance Requirements Acceptance Criteria (Category 6)

Relaxation of CTS SR acceptance criteria provide operational flexibility, consistent with the guidance of the STS, but do not reduce the level of assurance of operability provided by the successful performance of the surveillance. Such revised acceptance criteria are acceptable because they remain consistent with the application of the plant safety analysis assumptions for operability of the LCO-required features.

Relaxation of CTS SR performance conditions include not requiring testing of de-energized equipment (e.g., instrumentation channel checks) and equipment that is already performing its intended safety function (e.g., position verification of valves locked in their safety actuation position). These changes are acceptable because the existing surveillances are not necessary to ensure the capability of the affected components to perform their intended functions. Another relaxation of SR performance conditions is the allowance to verify the position of valves in high radiation areas by administrative means. This change is acceptable because licensee controls regarding access to high radiation areas make the likelihood of mispositioning such valves negligible. Therefore, these changes, which are consistent with STS and fall within Category 6, are acceptable. ~~Upon discovery of a failure to meet an LCO, TS specify times for completing Required Actions of the associated TS conditions. Required Actions 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.~~

~~Incorporating completion time extensions 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, vendor developed standard repair times, and the low probability of a design basis accident (DBA) occurring during the repair period. These changes are consistent with STS, and allowed outage time extensions specified as Type 6 are acceptable.~~

7. Relaxation of Surveillance Frequency (Category 7)

Prior to placing the plant in a specified operational mode or other condition stated in the applicability of an LCO, and in accordance with the specified SR frequency thereafter, the CTS require verifying the operability of each LCO-required component by meeting the SRs associated with the LCO. This usually entails performance of testing to demonstrate the operability of the LCO-required components, or the verification that specified parameters are within LCO limits. A successful demonstration of operability requires meeting the specified acceptance criteria as well as any specified conditions for the conduct of the test. Relaxations of CTS SRs include relaxing both the acceptance criteria and the conditions of performance. These CTS SR relaxations are consistent with the STS.

~~Relaxations of CTS SR acceptance criteria provide operational flexibility, consistent with the guidance of the STS, but do not reduce the level of assurance of operability provided by the successful performance of the surveillance. Such revised acceptance criteria are acceptable because they remain consistent with the application of the plant safety analysis assumptions for operability of the LCO-required features.~~

~~Relaxations of CTS SR performance conditions include not requiring testing of de-energized equipment (e.g., instrumentation channel checks) and equipment that is already performing its intended safety function (e.g., position verification of valves locked in their safety actuation position). These changes are acceptable because the existing surveillances are not necessary to ensure the capability of the affected components to perform their intended functions. Another relaxation of SR performance conditions is the allowance to verify the position of valves in high radiation areas by administrative means. This change is acceptable because licensee controls regarding access to high radiation areas make the likelihood of mispositioning such valves negligible.~~

Finally, the ITS permits the use of an actual, as well as a simulated, actuation signal to satisfy SRs for automatically actuated systems. This is acceptable because TS-required features cannot distinguish between an "actual" signal and a "test" signal.

These relaxations of CTS SRs optimize test requirements for the affected safety systems and increase operational flexibility. Therefore, because of the reasons stated, less restrictive changes to CTS SRs falling within Category 7 are acceptable.

8. Deletion of Reporting requirements (Category 8)

CTS include requirements to submit special reports to the NRC when specified limits or conditions are not met. Typically, the time period for the report to be issued is "within 30 days." However, the ITS eliminates the TS requirements for special reports and instead relies on the reporting requirements of 10 CFR 50.73. The changes to the reporting requirements are acceptable because 10 CFR 50.73 provides adequate reporting requirements, and the special reports do not affect continued plant operation.

CTS also include requirements for reports to be made to the NRC on data gathered as part of routine plant programs. These requirements are removed from the ITS. The requirement to report test frequency changes that occur due to consecutive SR failures has been deleted since the test schedule is already covered by the TS. In addition, a historical review has shown the SR has never failed. These changes are consistent with STS, are specified as Type 8, ~~and are~~and are acceptable.

For the reasons presented above, these less restrictive requirements are acceptable because they will not affect the safe operation of the plant. The ITS requirements 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.

Table L lists the less restrictive changes being made in the NAPS ITS conversion. Table L is organized in STS order by each L-type DOC to the CTS provides a summary description of the less restrictive change that was made, the CTS and ITS references, and a reference to the specific change type as discussed above. The staff reviewed all of the less restrictive changes proposed by the licensee and finds them acceptable because they are compatible with the STS, do not result in any change in operating requirements, and are consistent with the Commission's regulations

~~Table L includes all L changes and is organized by ITS section. The table specifies: the section designation; a summary description of the change; CTS and ITS LCO references; a reference to the specific change type as discussed above; and a characterization of the DOC.~~

~~Table L is organized in STS order by each L- type DOC. For each change, the table lists (1) the DOC identifier (e.g., 3.1.1 followed by L1 means STS 3.1.1, DOC L1); (2) a summary description of the change; (3) the reference numbers of the associated ITS requirements; (4) the reference numbers of the associated CTS requirements; and (5) the less restrictive change category.~~

D. Technical Changes - Less Restrictive ~~removal~~ Removal of Details (~~R and~~ LA)

When requirements have been shown to give little or no safety benefit, their removal from the TS may be appropriate. These are grouped as LA changes in the R Tables. 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 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 NAPS 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 the 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 5 that follow:

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

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 (UFSAR Chapter 17). In 10 CFR 50.59, controls are specified for changing the facility as described in the UFSAR ~~(including the Technical Requirements Manual, (TRM)),~~ and in 10 CFR -50.54(a) criteria are specified for changing the QA plan. The TRM is a general reference in the UFSAR, and is subject to the administrative controls that include the requirement to perform 10CFR50.59 evaluations for changes made to the TRM. This is consistent with NEI 98-03 Revision 1,"Guidelines for Updating Final Safety Analysis Reports," which the NRC endorsed, without exception, in Reg. Guide 1.181, dated September 1999. The ITS Bases also contain descriptions of system design. ITS 5.5.11 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, which references the TRM,~~(including TRM)~~ in accordance with 10 CFR 50.59 or the ITS Bases, as appropriate. Cycle-specific design limits are contained in the Core Operating Limits Report (COLR). ITS Section 5.6, ~~Administrative Controls~~Reporting Requirements, includes the programmatic requirements for the COLR.

Type 2 - Removing Descriptions of System Operation

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 (RG) 1.33, Revision 2, Appendix A, February 1978. Controls specified in 10 CFR 50.59 apply to changes in procedures as described in the UFSAR. The ITS Bases also contain descriptions of system operation. The NAPS CTS include instrumentation trip setpoints and Allowable Values. Trip setpoints are instrument field settings. Allowable Values are the limiting values of the instrument trip setpoints before the LCO is exceeded, and the relationship between the

trip setpoints and the Allowable Values is determined through the setpoints methodology approved by the staff. Trip setpoints are system operation details that can be adequately controlled by licensee-controlled documents without adversely affecting safe operation of the plant. Allowable Values are specified in the ITS, while trip setpoints are relocated to the TRM.

It is acceptable to remove details of system operation from the TS because this type of information will be adequately controlled in the UFSAR, ~~(including~~which references the TRM,~~)~~ and the TS Bases, as appropriate.

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

Details for performing TS Actions and SRs are more appropriately specified in the plant procedures required by ITS 5.4.1, and described in 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 GL 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 ITS 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. ~~For example, the ITS requirement may refer to programmatic requirements such as COLR, included in ITS Section 5.6, which specifies the scope of the limits contained in the COLR and mandates NRC approval of the analytical methodology.~~ The QA Program is approved by the NRC and contained in UFSAR Chapter 17, and changes to the QA Program are controlled by 10 CFR 50.54(a). The Offsite Dose Calculation Manual (ODCM) is required by ITS 5.5.1. The TRM is ~~incorporated by~~ referenced in ~~to~~ the UFSAR, and changes to the TRM are controlled by 10 CFR 50.59. The Inservice Test (IST) program is required by ITS 5.5.7.

Type 4 - Removing Performance Requirements for Indication-Only Instrumentation and Alarms

Details for performance requirements for indication-~~Only~~ only ~~Instrumentations~~ instrumentation and ~~Alarms~~ alarms are more appropriately specified in the plant procedures required by ITS 5.4.1, the UFSAR, and the Bases. For example, CTS 4.6.1.1.d states, "Each time containment integrity is established after vacuum has been broken by pressure testing the butterfly isolation valves in the containment purge lines and the containment vacuum ejector line." ITS SR 3.6.3.4 states, "Perform leakage rate testing for containment purge valves with resilient seals." This changes the CTS by moving the detaileds performance requirement, specifically naming butterfly valves and the containment vacuum air ejector line, to the Bases. 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, based on TS Bases is therefore required in any event. The removal of these kinds of procedural details from the CTS is acceptable because they will be adequately controlled by NRC requirements, the UFSAR, plant procedures, and the Bases, as appropriate. This approach provides an effective level of regulatory control and provides for a more appropriate change control process. Removal of requirements for indication-only instrumentation is acceptable because such instrumentation usually does not

support system operability. Therefore, it is acceptable to remove Type 4 details from the CTS and place them in licensee-controlled documents.

Type 5 - Removal of Cycle-Specific Parameter Limits from the Technical Specifications to the Core Operating Limits Report

Other changes to procedural details include those associated with limits retained in the ITS. For example, the ITS requirement may refer to programmatic requirements such as COLR, included in ITS Section 5.~~5~~6, which specifies the scope of the limits contained in the COLR and mandates NRC approval of the analytical methodology. Removal of requirements for programmatic requirements such as COLR is acceptable because such program usually does not support system operability. Therefore, it is acceptable to remove Type 5 details from the CTS and place them in licensee-controlled documents with references to ITS ~~Section~~ Chapter 5.0.

Table R lists the less restrictive removal of detail changes being made in the NAPS ITS conversion. Table R is organized in STS order by each LA-type and R-type DOC. It includes the following: (1) the DOC identifier (e.g., 3.1.1 followed by LA1 means STS 3.1.1, DOC LA1); (2) the reference numbers of the associated CTS requirements; (3) a summary description of the relocated details and requirements; (4) the name of the licensee-controlled document to contain the relocated details and requirements (location); (5) the regulation (or ITS Specification) for controlling future changes to relocated requirements (change control process); and (6) a characterization of the type of change (not applicable to R-type DOCs).

The staff has concluded that these types of detailed information and specific requirements do not need to be included in the ITS to ensure the effectiveness of the 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:

- Bases controlled in accordance with ITS 5.5.13, "Technical Specifications (TS) Bases Control Program."
- UFSAR (which ~~includes~~ references the TRM ~~as Appendix T~~) controlled by 10 CFR 50.59.
- Programmatic documents required by ITS Section 5.5 and controlled by ITS Section 5.4.
- Inservice Inspection (ISI) and IST Programs controlled by 10 CFR 50.55a.
- ~~OCDM~~ ODCM controlled by ITS 5.5.1.
- COLR controlled by ITS 5.6.5.
- ~~PTLR controlled by ITS 5.6.5.~~
- QA Plan, as approved by the NRC and referenced in the UFSAR, controlled by 10 CFR Part 50, Appendix B, and 10 CFR 50.54(a).
- Site Emergency Plan controlled by 10 CFR 50.54(q).

To the extent that information has been relocated to licensee-controlled documents, such information is not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to public health and safety. Further, where such information is contained in LCOs and associated requirements in the CTS, the staff has concluded that they do not fall within any of the four criteria set forth in 10 CFR 50.36(c)(2)(ii) and discussed in the Final Policy Statement (see Section 2.0 of this SE). Accordingly, existing detailed information, such as generally described above, may be removed from the CTS and not included in the ITS.

E. Relocated Specifications (R) from the CTS

The Final Policy Statement states that LCOs and associated requirements that do not satisfy or fall within any of the four specified criteria (now contained in 10 CFR 50.36(c)(2)(ii)) may be relocated from existing TS (an NRC-controlled document) to appropriate licensee-controlled documents. This section of the SE discusses the relocation of entire specifications in the CTS to licensee-controlled documents. These specifications include the LCOs, Action Statements (i.e., Actions), and associated SRs. In its application and its supplements, the licensee proposed relocating such specifications from the CTS to the TRM, which is referenced in the UFSAR~~UFSAR, which includes the TRM, the Environmental Manual (EM),~~ and the ODCM, as appropriate. The NRC staff has reviewed the licensee's submittals and finds that relocation of these requirements to the UFSAR, TRM, EM, and ODCM is acceptable in that changes to the UFSAR, TRM, EM, and ODCM will be adequately controlled by 10 CFR 50.59, 10 CFR 50.54(a), 10 CFR 50.55a, and ITS 5.5.1, as applicable. These provisions will continue to be implemented by appropriate station procedures (i.e., operating procedures, maintenance procedures, surveillance and testing procedures, and work control procedures).

Table R lists all specifications that are being relocated from the CTS to licensee-controlled documents. Table R is combined with LA; however the relocated LA items are organized as described in Section 3.0.D above.

Table R lists the relocated changes being made in the NAPS ITS conversion. Table R lists all specifications that are being relocated from the CTS to licensee-controlled documents. Table R includes: (1) references to the DOCs, (2) references to the relocated CTS specifications, (3) summary descriptions of the relocated CTS specifications, (4) names of the documents that will contain the relocated specifications (i.e., the new location), and (5) the methods for controlling future changes to the relocated specifications (i.e., the regulatory control process).

The staff 's evaluation of each relocated specification listed in Table R is provided below, mostly in CTS order. New locations for relocated CTS are listed in Table R of Attachments to the SE.

1. 3.1.1.3.1 BORON DILUTION - Reactor Coolant Flow

   CTS 3.1.1.3.1 requires a minimum reactor coolant system flow of 3000 gpm in all MODES. Various accident analyses assume adequate reactor coolant flow for heat removal and boron mixing. However, a specific flow rate is not assumed as an initial condition of any design basis accident or transient and is not credited for mitigation of any design basis accident or transient. Other specifications in the ITS contains adequate controls to ensure that RCS flow meets the general accident analysis assumption. In MODES 1, 2, and 3, at least one Reactor Coolant Pump (RCP) is required to be in operation, which provides flow in excess of 3000 gpm. In MODE 4, either an RCP or Residual Heat Removal (RHR) train is required to be in operation, and in MODES 5 and 6, at least one RHR train is required to be in operation. The ITS Bases state that when an RHR train is required to provide RCS flow, the flow rate must be sufficient for decay heat removal and boron mixing. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Boron Dilution - Reactor Coolant Flow LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

2. 3.1.2.1 FLOW PATHS – Shutdown

CTS 3.1.2.1 provides requirements on the boration systems flow paths during shutdown. The boration systems are part of the Chemical and Volume Control System (CVCS) and provides the means to control the chemical neutron absorber (boron) concentration in the RCS and to help maintain the shutdown margin. The boration system is not assumed to be OPERABLE to mitigate the consequences of a design basis accident or transient. In the case of the boron dilution accident, the accident is addressed by preventing its occurrence or by terminating the event before the required shutdown margin is lost, not by boration. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Flow Paths – Shutdown LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

3. 3.1.2.2 FLOW PATHS – Operating

CTS 3.1.2.2 provides requirements on the boration systems flow paths during operation. The boration systems are part of the CVCS and provides the means to control the chemical neutron absorber (boron) concentration in the RCS and to help maintain the shutdown margin. The boration system is not assumed to be OPERABLE to mitigate the consequences of a design basis accident or transient. The Emergency Core Cooling System (ECCS) and Refueling Water Storage Tank are credited in the accident analyses. In the case of the boron dilution accident, the accident is addressed by preventing its occurrence or by terminating the event before the required shutdown margin is lost, not by boration. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Flow Paths – Operating LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

4. 3.1.2.3 CHARGING PUMP – Shutdown

CTS 3.1.2.3 provides requirements on the charging pumps during shutdown when used as part of the boration system. The charging pumps in the boration system are part of the CVCS and provide the means to control the chemical neutron absorber (boron) concentration in the RCS and to help maintain the shutdown margin. The charging pumps in the boration system are not assumed to be OPERABLE to mitigate the consequences of a design basis accident or transient. In the case of the boron dilution accident, the accident is addressed by preventing its occurrence or by terminating the event before the required shutdown margin is lost, not by boration. OPERABILITY of the charging pumps is required as part of the Emergency Core Cooling System, which is addressed in other specifications. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Charging Pump – Shutdown LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

5. 3.1.2.4 ~~Charging Pumps~~CHARGING PUMPS – Operating

CTS 3.1.2.4 provides requirements on the charging pumps during operation when used as part of the boration system. The charging pumps in the boration system are part of the CVCS and provide the means to control the chemical neutron absorber (boron) concentration in the RCS and to help maintain the shutdown

margin. The charging pumps in the boration system are not assumed to be OPERABLE to mitigate the consequences of a design basis accident or transient. The ECCS ~~is~~ and Refueling Water Storage Tank are credited in the accident analyses. In the case of the boron dilution accident, the accident is addressed by preventing its occurrence or by terminating the event before the required shutdown margin is lost, not by boration. OPERABILITY of the charging pumps is required as part of the ECCS, which is addressed in other specifications. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Charging Pumps – Operating LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

6. 3.1.2.5 Unit 1; BORIC ACID TRANSFER PUMPS – Shutdown

Unit 1 CTS 3.1.2.5 provides requirements on the boric acid transfer pumps during shutdown. The boric acid transfer pumps are part of the CVCS and provides the means to control the chemical neutron absorber (boron) concentration in the RCS and to help maintain the shutdown margin. The boric acid transfer pumps are not assumed to be OPERABLE to mitigate the consequences of a design basis accident or transient. In the case of the boron dilution accident, the accident is addressed by preventing its occurrence or by terminating the event before the required shutdown margin is lost, not by boration. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Boric Acid Transfer Pumps – Shutdown LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

7. 3.1.2.6 Unit 1; BORIC ACID TRANSFER PUMPS – Operating

Unit 1 CTS 3.1.2.6 provides requirements on the boric acid transfer pumps during operation. The boric acid transfer pumps are part of the CVCS and provides the means to control the chemical neutron absorber (boron) concentration in the RCS and to help maintain the shutdown margin. The boric acid transfer pumps are not assumed to be OPERABLE to mitigate the consequences of a design basis accident or transient. The ECCS and Refueling Water Storage Tank are credited in the accident analyses. In the case of the boron dilution accident, the accident is addressed by preventing its occurrence or by terminating the event before the required shutdown margin is lost, not by boration. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Boric Acid Transfer Pumps – Operating LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

8. 3.1.2.7 BORATED WATER SOURCES – Shutdown

CTS 3.1.2.7 provides requirements on the borated water sources during shutdown. The borated water sources - shutdown are part of the CVCS and provide the means to control the chemical neutron absorber (boron) concentration in the RCS and to help maintain the shutdown margin. The borated water sources are not assumed to be OPERABLE to mitigate the consequences of a design basis accident or transient. In the case of the boron dilution accident, the accident is addressed by preventing its occurrence or by terminating the event before the required shutdown margin is lost, not by boration. The staff has determined that the

screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Borated Water Sources – Shutdown LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

9. 3.1.2.8 BORATED WATER SOURCES – Operating

CTS 3.1.2.8 provides requirements on the borated water sources during operation. -The borated water sources - operating are part of the CVCS and provide the means to control the chemical neutron absorber (boron) concentration in the RCS and to help maintain the shutdown margin. The borated water sources are not assumed to be OPERABLE to mitigate the consequences of a design basis accident or transient. The ECCS and Refueling Water Storage Tank are credited in the accident analyses and are required by other specifications. In the case of the boron dilution accident, the accident is addressed by preventing its occurrence or by terminating the event before the required shutdown margin is lost, not by boration. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Borated Water Sources – Operating LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

10. 3.1.3.3 POSITION INDICATOR CHANNELS – Shutdown

CTS 3.1.3.3 provides requirements on the rod position indicator channels during shutdown (MODES 3, 4, and 5 with the reactor trip system breakers in the closed position). The control rod position indicator channels provide ~~indicator~~ indication of rod position to the operator. This indicator is used by the operator to verify that the rods are correctly positioned, and to verify the rods are inserted into the core following a reactor trip. Rod position indicator is also used during reactor startup. However, no DBA or Transient initiated in MODES 3, 4, or 5 with the reactor trip system breakers in the closed position assumes operator action to manually trip the reactor or to take some alternative action if an automatic reactor trip does not occur. With the reactor critical, rod position indicator is used to verify that the insertion, sequence, and overlap limits are met. These are related to SHUTDOWN MARGIN and core power distribution limits. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Position Indicator Channels – Shutdown LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

11. 3.3.3.1 RADIATION MONITORING INSTRUMENTATION

CTS 3.3.3.1 states the radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits. Portions of the Radiation Monitoring Instrumentation specification, as shown in the CTS markup, are addressed in ITS 3.4.15, RCS Leakage Detection Instrumentation, and ITS 3.3.3, Post Accident Monitoring (PAM) Instrumentation. Those portions are not addressed in this change. The Radiation Monitoring Instrumentation monitors radiation levels in selected plant locations and indicates abnormal or unusually high radiation levels. The radiation monitors are not assumed in the accident analyses to provide signals to prevent initiation of a DBA or transient or to mitigate a DBA or transient. The staff has determined that the

screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Radiation Monitoring LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

12. 3.3.3.2 MOVABLE INCORE DETECTORS

CTS 3.3.3.2 provides requirements on the Movable Incore Detector Instrumentation when required to monitor the flux distribution within the core. The Movable Incore Detector System is used for periodic surveillance of the power distribution, and for calibration of the excore detectors. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Movable Incore Detectors LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

13. 3.3.3.3 SEISMIC INSTRUMENTATION

CTS 3.3.3.3 for Unit 1 states the Seismic Monitoring Instrumentation shown in Table 3.3-7 shall be OPERABLE. The Seismic Monitoring Instrumentation is used to record data for use in evaluating the effect of a seismic event. The Seismic Monitoring Instrumentation is not used to mitigate a DBA or transient. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Seismic Instrumentation LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

14. 3.3.3.4 METEOROLOGICAL INSTRUMENTATION

CTS 3.3.3.4 for Unit 1 states the Meteorological Monitoring Instrumentation shown in Tables 3.3-8 and 4.3-5 shall be OPERABLE. The Meteorological Monitoring Instrumentation is used to record meteorological data for use in evaluating the effect of an accidental radioactive release from the plant. The Meteorological Monitoring Instrumentation is not used to mitigate a DBA or transient. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Meteorological Instrumentation LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

15. 3.3.3.9 LOOSE PARTS MONITORING SYSTEM

Unit 1 CTS 3.3.3.9 requires the OPERABILITY of the loose parts detection instrumentation which can detect loose metallic parts in the Reactor Coolant System in order to avoid damage to the Reactor Coolant System components. The Unit 2 Technical Specifications do not contain this Specification. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Loose Parts Monitoring System LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

16. 3.3.3.11 EXPLOSIVE GAS MONITORING INSTRUMENTATION

CTS 3.3.3.11 requires the Explosive Gas Monitoring Instrumentation be OPERABLE. The Explosive Gas Monitoring Instrumentation is used to ensure that the oxygen limits of the Waste Gas Holdup System are not exceeded. The oxygen concentration limit in the Waste Gas Holdup Tank ensures that the concentration of potentially explosive gas mixtures in the Waste Gas Holdup System is maintained below the flammability limits. This instrumentation is not credited in preventing or mitigating any DBA or transient as the safety analysis concerning the Waste Gas Holdup System assumes a storage tank rupture with no mitigation. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Explosive Gas Monitoring Instrumentation LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

17. 3.4.6.3 PRIMARY TO SECONDARY LEAKAGE

CTS 3.4.6.3 provides limits on primary to secondary leakage in addition to the limits in CTS 3.4.6.2 and ITS 3.4.13. These additional limits lower the amount of allowed primary to secondary leakage when the reactor is operating above 50% power and were implemented to reduce the probability of a steam generator tube rupture following the Unit 1 steam generator tube rupture event at NAPS Unit 1 on July 15, 1987. The CTS 3.4.6.2 leakage limits ~~were~~ continued to be used in the accident analysis, not the additional limits in CTS 3.4.6.3. The NAPS Units 1 and 2 steam generators have been replaced with models that are not susceptible to the fatigue induced cracks which resulted in the tube rupture. As a result, these additional limits are not needed to lower the probability of a steam generator tube rupture. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Primary to Secondary Leakage LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

18 3.4.6.4 PRIMARY TO SECONDARY LEAKAGE DETECTION SYSTEMS

CTS 3.4.6.4 states requirements on primary to secondary leakage detection systems. These leakage detection systems are in addition to those systems required by CTS 3.4.6.1 and ITS 3.4.15 and were installed to monitor the stringent primary to secondary leakage limits in CTS 3.4.6.3. These additional primary to secondary leakage detection systems were added to the Technical Specifications following the Unit 1 steam generator tube rupture (SGTR) event at NAPS Unit 1 on July 15, 1987. Subsequently, the NAPS Units 1 and 2 steam generators have been replaced and steam generator primary to secondary leakage is insignificant. As a result, the requirements in ITS 3.4.15 are sufficient to indicate significant abnormal RCS leakage. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Primary to Secondary Leakage Detection Systems LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

19. 3.4.7 CHEMISTRY

CTS 3.4.7 provides limits on the oxygen, chloride and fluoride content in the RCS to minimize corrosion. Minimizing corrosion of the RCS will reduce the potential for RCS leakage or failure due to stress corrosion, and ultimately ensure the structural

integrity of the RCS. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Chemistry LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

20. 3.4.9.2 PRESSURIZER

CTS 3.4.9.2 states that the pressurizer temperature shall be limited to a maximum heatup of 100_F or cooldown of 200°_F in any one hour period and a maximum spray water temperature and pressurizer temperature differential of 320°_F. The pressurizer temperature limits are placed on the pressurizer to prevent non-ductile failure. The limits meet the requirements given in the ASME Boiler and Pressure Vessel Code, Section III, Appendix G. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Pressurizer LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

21. 3.4.10.1 STRUCTURAL INTEGRITY - ASME Code Class 1, 2 & 3 Components

CTS 3.4.10.1 provides requirements for the ASME Code Class 1, 2 and 3 components to ensure their structural integrity. These requirements are in addition to the requirements in CTS 4.0.5. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Structural Integrity - ASME Code Class 1, 2 & 3 Components LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

22. 3.4.11.1 REACTOR VESSEL HEAD VENT

CTS 3.4.11.1 provides requirements on the reactor vessel head vents. The reactor coolant head vents are provided to exhaust noncondensible gases or steam, which could inhibit core cooling, from the RCS. The reactor vessel head vents are not credited in any UFSAR accident analysis. The reactor vessel head vents are included in the Emergency Operating Procedures for mitigation of beyond design basis accidents. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Reactor Vessel Head Vent LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

23. 3.5.4.2 HEAT TRACING

CTS 3.5.4.2 states, "At least two independent channels of heat tracing shall be OPERABLE for the boron injection tank and for the heat traced portions of the associated flow paths." The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Boron Injection Tank Heat Tracing LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

24. 3.7.1.6 STEAM TURBINE ASSEMBLY

CTS 3.7.1.6 states that the structural integrity of the steam turbine assembly shall be maintained in MODES 1 and 2. The steam turbine assembly is used to provide the motive force for the main electrical generator. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Steam Turbine Assembly LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

25. 3.7.1.7 TURBINE OVERSPEED

CTS 3.7.1.7 states that at least one turbine overspeed protection system shall be OPERABLE in MODES 1, 2, and 3. The turbine overspeed protection system is used to prevent a turbine overspeed condition that could result in turbine damage. The turbine overspeed protection system serves no accident mitigation function in any MODE. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Turbine Overspeed LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

26. 3.7.2.1 STEAM GENERATOR PRESSURE / TEMPERATURE LIMITATION

CTS 3.7.2.1 states that the temperature of both the primary and secondary coolants in the steam generators shall be greater than 70°$\pm$ F when the pressure of either coolant in the steam generator is greater than 200 psig at all times. The Steam Generator Pressure/Temperature Limitation serves no accident mitigation function in any MODE. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Steam Generator Pressure / Temperature Limitation LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

27. 3.7.3.1 COMPONENT COOLING WATER SUBSYSTEM — Operating

CTS 3.7.3.1 states that three component cooling (CC) water system loops shall be OPERABLE. It is applicable when either unit is in MODES 1, 2, 3, or 4. The primary function of the CC System is to provide cooling water to the RHR heat exchangers. Unlike other Westinghouse plants, the RHR at NAPS does not share components with the Emergency Core Cooling System (ECCS), and thus does not play a role in DBA mitigation. At NAPS, this post-accident heat removal function is provided primarily by the Recirculation Spray System and the Low Head Safety Injection pumps. For this reason, CC is not required for DBA mitigation, and, like RHR, does not meet Criterion 3 of 10 CFR 50.36(c)(2)(ii) for retention in the Technical Specifications for MODES 1, 2, 3, and 4. Other plants use CC for DBA mitigation functions other than ECCS, such as containment cooling, but the CC system at NAPS does not. This makes the CC System at NAPS different from the CC System described in the IST, and retaining the CC requirement for supporting RHR or any other components not assumed in DBA analysis is inappropriate. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Component Cooling Water Subsystem - Operating LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

28. 3.7.3.2 COMPONENT COOLING WATER SUBSYSTEM - Shutdown

CTS 3.7.3.2 states that two CC loops shall be OPERABLE. It is applicable when both units are in MODES 5 or 6. The primary function of the CC System is to provide cooling water to the RHR heat exchangers, but does not warrant its own LCO. If insufficient CC is available for RHR, RHR is declared inoperable and the Conditions and Actions for CC in CTS are the same as those for RHR. Unlike other Westinghouse plants, RHR does not share components with the ECCS, and thus does not play a role in DBA mitigation in MODES 1, 2, 3, and 4. Other plants use CC for DBA mitigation functions other than ECCS in MODES 1, 2, 3, and 4, but the CC system at NAPS does not. This makes the CC System at NAPS different from the CC System described in the NUREG STS, and retaining the CC requirement for MODES 5 and 6 for supporting RHR or any other components not assumed in DBA analysis is inappropriate. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Component Cooling Water Subsystem - Shutdown LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

29. 3.7.4.2 SERVICE WATER SYSTEM - Shutdown

CTS 3.7.4.2 states that one service water loop shall be OPERABLE when both units are in MODES 5 or 6. The Service Water (SW) System in MODES 5 or 6 is used to provide cooling water to various safety and nonsafety related systems. Its principal safety function is to cool the Recirculation Spray (RS) heat exchangers which are not required to be OPERABLE in MODES 5 or 6. It also provides cooling water to the Component Cooling Water system (which supports no accident loads), the main control room coolers, instrument air compressors, and charging pump gearbox coolers. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Service Water System - Shutdown LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

30. 3.7.5.1.b ULTIMATE HEAT SINK - North Anna Reservoir

CTS 3.7.5.1.b states that one of the ultimate heat sinks that shall be OPERABLE is the North Anna Reservoir with a minimum water level at or above elevation 244 Mean Sea Level, USCG Datum, and average water temperature of $\leq$ 95° F as measured at the condenser inlet. The North Anna Reservoir provides makeup to the Service Water Reservoir for 30 days after a DBA as necessary to maintain cooling water inventory, ensuring a continued cooling capability. The Service Water Reservoir is credited as the ultimate heat sink for the DBA. The Service Water Reservoir contains adequate water to provide at least 30 days of cooling to support simultaneous safe shutdown and cooldown of both units and their maintenance in a safe-shutdown condition. The Service Water Reservoir also provides sufficient cooling for at least 30 days in the event of an accident in one unit, to permit control of that accident and permit simultaneous safe shutdown and cooldown of the remaining unit and maintain them in a safe-shutdown condition. The North Anna Reservoir serves as a backup to the Service Water Reservoir. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Ultimate Heat Sink - North Anna Reservoir LCO and

Surveillances may be relocated to other plant controlled documents outside the ITS.

31. 3.7.6.1 FLOOD PROTECTION

CTS 3.7.6.1 states the maximum elevation of the North Anna Reservoir. If this limit is exceeded, flood control measures are required to protect safety related equipment. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Flood Protection LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

32. 3.7.9.1 RESIDUAL HEAT REMOVAL SYSTEMS - (RHR) Operating

CTS 3.7.9.1 states that two RHR subsystems shall be OPERABLE in MODES 1, 2, and 3. The RHR System is used to remove decay heat from the reactor in MODES 4, 5, and 6. The RHR does not operate in MODES 1, 2 and 3 and must be isolated from the reactor coolant system in those MODES to prevent over pressurization of the RHR components. The RHR System serves no accident mitigation function in any MODE. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the RHR - ~~Shutdown~~ Operating LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

33. 3.7.10 SNUBBERS

CTS 3.7.10 states that snubbers shall be OPERABLE. The OPERABILITY of snubbers ensures that the Reactor Coolant System and other safety related fluid systems are adequately restrained and supported during an earthquake and are free to expand and contract during normal operation as the system temperature changes. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Snubbers LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

34. 3.7.11.1 SEALED SOURCE CONTAMINATION

CTS 3.7.11.1 states each sealed source containing radioactive material either in excess of 100 micro curies of beta and/or gamma emitting materials or 5 micro curies of alpha emitting material, shall be free of greater than or equal to 0.005 micro curies of removable contamination. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Sealed Source Contamination LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

35. 3.7.12.1 SETTLEMENT OF CLASS 1 STRUCTURES

CTS 3.7.12.1 and Table 3.7-5 provide limits on the total and differential settlement of Class 1 structures. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Settlement of Class 1 Structures

LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

36. 3.7.13 GROUNDWATER LEVEL - Service Water Reservoir

CTS 3.7.13 requires periodic measurement of the groundwater level at locations around the Service Water Reservoir. The groundwater level of the Service Water Reservoir is used to monitor long-term performance of the Service Water Reservoir dike. Failure to meet the requirements of the LCO does not result in the inoperability of the Service Water System. The ACTIONS direct that evaluations be performed to determine cause and consequences of the high groundwater level. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Groundwater Level - Service Water Reservoir LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

37. 3.8.2.5 (Unit 2) CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

Unit 2 CTS 3.8.2.5 states the primary and backup containment penetration conductor overcurrent protective devices associated with each containment electrical penetration circuit shall be OPERABLE. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Containment Penetration Conductor Overcurrent Protective Devices LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

38. 3.8.2.6 (Unit 2) MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION DEVICES

Unit 2 CTS 3.8.2.6 states the thermal overload protection devices, integral with the motor starter, of each valve in the safety system shall be OPERABLE. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Motor-Operated Valves Thermal Overload Protection Devices LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

39. 3.8.2.7 (Unit 2) NORMALLY DE-ENERGIZED POWER CIRCUITS

Unit 2 CTS 3.8.2.7 states that all circuits that have containment penetrations and are not required during reactor operations shall be de-energized. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Normally De-Energized Power Circuits LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

40. 3.9.3 DECAY TIME

CTS 3.9.3 states that the reactor must be subcritical for at least 150 hours prior to movement of movement of irradiated fuel in the reactor pressure vessel. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied,

and thus the Decay Time LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

41. 3.9.5 COMMUNICATIONS

CTS 3.9.5 states that direct communications shall be maintained between the control room and personnel at the refueling station during CORE ALTERATIONS. This ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity conditions during CORE ALTERATIONS. The prompt notification of the control room of a fuel handling accident is an assumption in the Fuel Handling Analysis. This prompt notification is used to ensure that the control room is isolated promptly and is necessary to meet the control room operator dose limits in General Design Criteria 19. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Communications LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

42. 3.9.6 MANIPULATOR CRANE OPERABILITY

CTS 3.9.6 states that the manipulator crane and auxiliary hoist shall be used for movement of control rods or fuel assemblies and shall be OPERABLE during movement of control rods or fuel assemblies within the reactor pressure vessel. This specification ensures that the lifting device on the Manipulator Crane has adequate capacity to lift the weight of a fuel assembly and a Rod Control Cluster Assembly, and that an automatic load limiting device is available to prevent damage to the fuel assembly during fuel movement. This specification also ensures that the auxiliary hoist on the Manipulator Crane has adequate capacity for latching and unlatching control rod drive shafts. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Manipulator Crane Operability LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

43. 3.9.7 CRANE TRAVEL - SPENT FUEL PIT

CTS 3.9.7 places restriction on movement of loads over irradiated assemblies in the spent fuel pit in excess of 2500 pounds. This represents the working load of the fuel assembly plus gripper. The LCO ensures that in the event this load is dropped the activity release will be limited to that contained in a single fuel assembly and any possible distortion of fuel in the storage racks will not result in a critical array. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Crane Travel - Spent Fuel Pit LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

44. 3.9.9 CONTAINMENT PURGE AND EXHAUST ISOLATION SYSTEM

CTS 3.9.9 states requirements for the containment purge and exhaust isolation system, which automatically closes the containment purge and exhaust isolation valves in MODE 6. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Containment Purge and Exhaust

System LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

45. 3.9.10.2 WATER LEVEL - Reactor Vessel Control Rods

CTS 3.9.10.2 states that the refueling cavity water level must be at least 23 feet above the fuel during MODE 6 during movement of control rods within the reactor pressure vessel. Movement of control rods is not an initiator of any UFSAR accident analysis. The staff has determined that the screening criteria of 10 CFR 50.36 have not been satisfied, and thus the Water Level - Reactor Vessel - Control Rods LCO and Surveillances may be relocated to other plant controlled documents outside the ITS.

The relocated specifications from the CTS discussed above are not required to be in the TS because they do not fall within the criteria for mandatory inclusion in the TS as stated in 10 CFR 50.36(c)(2)(ii). These specifications are not needed to obviate the possibility that an abnormal situation or event will give rise to an immediate threat to the public health and safety. In addition, the staff has concluded that appropriate controls have been established for all of the current specifications and information that are being moved to the UFSAR, TRM, ODCM, ~~PCP,~~ or ISI Program. These relocations are the subject of a new license condition discussed in Section 5.0 of this SE. Until incorporated in licensee-controlled documents, changes to these specifications and information will be controlled in accordance with the current applicable procedures and regulations that control these documents. Following implementation, the NRC may audit the removed provisions to ensure that an appropriate level of control has been achieved. The staff has concluded that, in accordance with the Final Policy Statement, sufficient regulatory controls exist under the regulations, particularly 10 CFR 50.59 and 10 CFR 50.55a. Accordingly, the specifications and information, as described in detail in this SE, may be relocated from the CTS and placed in the licensee-controlled documents identified in the licensee's submittals.

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

In the ITS conversion, the licensee will be relocating specifications, requirements, and detailed information from the CTS to licensee-controlled documents outside the CTS. This is discussed in Sections 3.0.D and 3.0.E above. The facility and procedures described in the UFSAR and TRM 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 the CTS and over future changes to the requirements. Other licensee-controlled documents contain provisions for making changes consistent with applicable regulatory requirements. For example, the ~~OCDM~~ ODCM can be changed in accordance with ITS 5.5.1, and the administrative instructions that implement the QA Plan can be changed in accordance with 10 CFR 50.54(a) and 10 CFR Part 50, Appendix B. The documentation of these changes will be maintained by the licensee in accordance with the record retention requirements specified in the QA Plan and such applicable regulations as 10 CFR 50.59.

The license condition for the relocation of requirements from the CTS, which is discussed in Section 5.0 of this SE, will address the implementation of the ITS conversion and the schedule for the relocation of the CTS requirements into licensee-controlled documents. ~~The relocations to the UFSAR, which include the TRM, shall be included in the next required update of the UFSAR in accordance with 10 CFR 50.71(e).~~

G. Evaluation of Other TS Changes (Beyond-Scope Changes) Included in the Application for Conversion to ITS

This section evaluates other TS changes included in the licensee's conversion application. These include items which deviate from both the CTS and the STS, do not fall clearly into a category, or are in addition to those changes that are needed to meet the overall purpose of the conversion. These changes are termed beyond scope issues (BSI), which have been identified by the licensee in their submittal, and by the staff during the course of the staff review. These BSIs are included in the notice of consideration of amendment published in the Federal Register on xx, xx, 2002.

G.1 BSI Changes identified by the Licensee:

The changes discussed below are licensee-identified BSI and are listed in the order of the applicable ITS specification or section, as appropriate. Also provided are references to the associated DOC to the CTS and JFD from the STS given in the licensee's application.

1. ITS SR 3.3.1.6, (DOC L.16 and JFD 15)

ITS states "Compare results of the excore channels to incore detector measurements." Note is added to require NIS channel adjustment if absolute difference is > 3%.

The licensee responded to the staff's RAI with a letter, dated November 8, 2001. In this letter, the licensee proposed to use a TSTF presently under NEI review. Subsequently, during a conference call on December 2, 2001, the licensee proposed to replace this BSI with a submittal to extend the SR from 92 days to 6 months. As of January 18, 2002 the staff has not received this submittal.

2. ITS 3.3.1 Function 6 OTDT Allowable Value Note 1, ~~DOC L.21, JFD 7,~~ CTS Table 2.2-1 Function 7 OTDT Allowable Value Note 3 (DOC L.21and JFD 7)

ITS states the % allowed for the trip setpoints may differ from the Allowable Value by 2.3%

The licensee in a letter, dated January 2, 2002, withdrew this BSI.

3. ITS 3.3.2 ESFAS INTERLOCK P-12, ~~DOC M.7, JFD 1~~, CTS Table 3.3-3 ESF Interlock P-12 (DOC M.7 and JFD 1)

ITS states the Allowable Value for the P-12 interlock as 542 degrees.

The staff received the licensee's submittal, dated October 17, 2001. This BSI is under staff review.

4. ITS 3.3.2 ESFAS Functions 1.c, 1.d, 1.f, 2.c, 4.c, and 4.d, ~~DOC M.7, JFD 1,~~ CTS Table 3.3-4 ESF Functions 1.c, 1.d, 1.f, 2.c, 4.c, and 4.d (DOC M.7and JFD 1)

NUREG brackets the Allowable Values for the ~~following~~ functions.

In a letter, dated December 13, 2001, the licensee requested staff approval of plant specific methodology for NAPS and Surry Power Station. This BSI is under staff review

5. ITS 3.4.12, Low Temperature Overpressure Protection (LTOP) System, Condition C (DOC M.4 and JFD 6);

ITS states for Condition C that when an accumulator is not isolated or power is available to one or more accumulator isolation valve operators, the accumulator must be isolated immediately and power removed from affected accumulator isolation valve operator in one hour. Note modifies the Condition to state that it is only applicable when accumulator pressure is greater than PORV lift setpoints.

This beyond scope issue is related to NUREG-1431, STS 3.4.12, "Low Temperature Overpressure Protection (LTOP) System" regarding the accumulator isolation requirement. The licensee proposed ITS 3.4.12, will ~~,~~: 1) add a note to ACTION C which indicates that the accumulator isolation is only applicable when accumulator pressure is greater than power operated relief valve (PORV) setting~~,~~; 2) add REQUIRED ACTION C.2 to state ~~that~~ "Remove power from affected accumulator isolation valve operators;~~,~~" and 3) add a note in LCO section which states that, "Accumulator isolation with power removed from the isolation valve operators is only required when accumulator pressure is greater than the PORV lift setting." STS 3.4.12 of NUREG-1431 has~~,~~: 1) a note in the APPLICABILITY section which states that "accumulator isolation is only required when accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR~~,~~";" and 2) ACTION C contains ~~the~~ similar words as the note in the APPLICABILITY section.

The primary purpose of the accumulator isolation during LTOP conditions is to prevent inadvertent injection of water from the accumulators into RCS which may be a challenge to reactor vessel P/T limits during low temperature operating conditions. The PORVs at NAPS Units are served as an LTOP system with their setpoints designed to protect reactor vessel P/T limits under the limiting mass addition and heat addition transients. The settings of these PORVs are lower than the P/T limits in various temperature regions.

The proposed ITS 3.4.12, in the areas of accumulator isolation, will require that when the plant is operating in the LTOP conditions, and the accumulator pressures are above the PORV settings, the accumulators are required to be isolated with power removed from the isolation valve operators. The staff evaluated the licensee's submittals and concludes that the licensee proposed ITS 3.4.12 regarding accumulator isolation is acceptable. The bases for the staff acceptance are ~~,~~:1) The proposed ITS will only allow the accumulators connected to RCS when the accumulator pressures are lower than the PORV settings. Since the PORVs are designed to mitigate the limiting mass addition from a charging pump, ~~It~~ it is unlikely that the P/T limits will be challenged by water injecting to RCS from the accumulators;~~,~~ 2)The proposed ITS is more conservative than STS 3.4.12 in NUREG 1431 since the STS would allow the accumulators to be connected to RCS when the accumulator pressures are below the P/T limits but above the PORV settings;~~,~~ 3) The proposed ITS will require power removal from the isolation valve operators for added assurance for accumulator isolation;~~,~~ and 4) The proposed ITS add plant operational restrictions to NAPS current licensing bases regarding the requirement of accumulation isolation. There is no such requirement in their CTS.

Based on the above review, the staff finds that the licensee proposed ITS 3.4.12 in the areas of requiring accumulator isolation during LTOP conditions are more conservative than that in CTS and STS 3.4.12 of NUREG-1431. Therefore, the proposed ITS 3.4.12 regarding accumulator isolation is acceptable.

6. ITS 3.7.3 - Main Feedwater Isolation Valves (MFIVs), Main Feedwater Pump Discharge Valves (MFPDVs), Main Feedwater Regulating Valves (MFRVs), and Main Feedwater Regulating Bypass Valves (MFRBVs) (DOC M.1 and JFD 3);

The licensee proposed the adoption of Section 3.7.3 of the STS. Adoption of Section 3.7.3 presents several deviations to the standard format provided in NUREG-1431 and has therefore been identified as a "beyond scope" issue. The title of this section as adopted into the NAPS Units 1 and 2 ITS is~~; Section~~ITS 3.7.3, "Main Feedwater Isolation Valves (MFIVs), Main Feedwater Pump Discharge Valves (MFPDVs), Main Feedwater Regulating Valves (MFRVs), and Main Feedwater Regulating Bypass Valves (MFRBVs)."

The NAPS feedwater system consists of three main feedwater pumps with associated Main Feedwater Pump Discharge Valves that feed a common header. From this header are three lines feeding the three steam generators. On each line is a Main Feedwater Isolation Valve in series with a Main Feedwater Regulating Valve. On a line which bypasses each MFIV and MFRV is a Main Feedwater Regulating Bypass Valve. Each of these valves, the MFPDVs, MFIVs, MFRVs, and MFRBVs, close on receipt of a Safety Injection or Steam Generator Water Level High-High Signal. The MFIVs and the MFRVs provide single failure protection for each other. The MFPDVs and the MFRBVs provide single failure protection for each other. Therefore, all four valve types are required to meet the safety analysis assumptions.

~~The most significant deviation in content that ITS 3.7.3 presents is that ITS 3.7.3 Required Actions A.2, B.2, C.2, and added Required Action D.2, are revised to state, "Verify by administrative means [MFIV or MFPDV or MFRV or MFRBV] is closed or isolated." The phrase "by administrative means" does not appear in the STS and is added in the NAPS ITS. When the specified valves are closed and isolated, there is no indication available in the Control Room of the valve position. Therefore, this verification must be performed by plant personnel accessing the area where the valve is and verifying it's position visually. The licensee indicated that this administrative action will be performed according to NAPS in-house procedure. The staff accepts this deviation from the STS.~~ (DELETED – RAI 3.7.3 – 1 LETTER DATED 12/3/01, Serial Number 01-645)

The most significant deviation in format to the STS is that the NAPS ITS 3.7.3 will include Main Feedwater Pump Discharge Valves. The STS 3.7.3 (as written in NUREG-1431) addresses Main Feedwater Isolation Valves and Main Feedwater Regulating Valves and associated bypass valves but not MFPDVs. Because NAPS's Main Feedwater System includes Main Feedwater Pump Discharge Valves, and because they provide single failure protection for the MFRBVs (and therefore are required to meet safety analysis assumptions), it is appropriate that the MFPDVs be included in ITS 3.7.3.

Other changes being made are the inclusion of NAPS plant specific values and information, where appropriate, in place of those presented in Section 3.7.3 of the STS. An example of this is the isolation time for the MFIVs, MFRVs, and MFPDVs. The time presented in ITS surveillance requirement (SR) 3.7.3.1 was changed to represent the NAPS requirement and differs slightly from the isolation time presented in the STS SR 3.7.3.1. The ITS SR 3.7.3.1 also adds the requirement to test the closure time of each MFPDV.

Based on our review, the staff finds the proposed change to adopt STS 3.7.3 for NAPS to be acceptable with the deviations from the STS cited above.

7. ITS 3.7.7~~, DOC R.1, JFD 1~~, CTS 3.7.3.1 and 3.7.3.~~1~~2 (DOC R.1 and JFD 1)

ITS does not include an LCO for the Component Cooling System.

In response to the staff's RAI, the licensee provided a submittal dated November 19, 2001. During a conference call conducted on January 3, 2002, the staff requested additional information, which the licensee has agreed to submit by the end of January 2002.

8. ITS 3.7.9, ~~DOC R.1~~, CTS 3.7.6.1 (DOC R.1)

NUREG includes requirements for the Ultimate Heat Sink. ITS does not include requirements for the NAPS Reservoir.

In response to the staff's RAI, the licensee provided a submittal dated November 19, 2001. During a conference call conducted on January 3, 2002, the staff requested additional information, which the licensee has agreed to submit by the end of January 2002.

9. ITS SR 3.7.11.1 - Main Control Room/Emergency Switchgear Room Air Conditioning System(DOC M.2 and JFD 4)

The licensee proposed changing the surveillance requirement frequency of SR 3.7.11.1, from "18 months" to "18 months on a Staggered Test Basis."

An air conditioning system with two independent 100% capacity trains for each unit which supplies the relay rooms and common control room are designed for 75 °F dry bulb at approximately 50% relative humidity during normal operation. For emergency conditions, there is sufficient cooling capacity to maintain the control room, computer room, and relay room space temperature well below the design maximum of 120 °F. A third chiller is provided for each reactor unit as an alternative for either train. One 100% capacity cooling system which supplies the relay rooms and common control room in order to meet the signal failure criterion is installed for each reactor unit. The cooling systems cannot be cross connected between the two reactor units. Only one train for each unit is used at a time.

The emergency ACS for the MCR/ESGR envelope consists of two independent 100% redundant subsystems, one chiller in one subsystem and two chillers in the other. Each subsystem consists of two air handling units, one for the MCR and one for the ESGR to provide the heat removal function during post accident conditions as well as during normal operation. The licensee added Staggered Test Basis with the 18 months surveillance test frequency of chillers. The staff finds the proposed change acceptable, because there are three chillers with 100% cooling operation capability, either of which can be used by the subsystem and in staff's judgement, changing the surveillance frequency to every 18 month on a Staggered Test Basis provides an acceptable level of confidence that the system will function as assumed in the accident analysis.

10. ITS 3.7.12 LCO Note, ~~DOC M.2, JFD 4~~, CTS 3.7.8.1(DOC M.2 and JFD 4)

The licensee proposed to add the phrase "not open by design" to ITS 3.7.12 LCO to convey that the ECCS pump room boundary openings not open by design may be opened. This additional ~~is deviated~~ deviates from the NUREG NOTE, which states that the ECCS pump room boundary openings may be opened intermittently under administrative control.

This item is under review by the staff.

11. ITS Surveillance Requirements (SR) 3.7.12.2 and 3.7.12.4, CTS 4.7.8.1.a.1 - Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)(DOC M.1 and JFD 7)

The licensee proposed adding the following surveillance requirement as ITS SR 3.7.12.2, with a surveillance frequency of 31 days: "Actuate each ECCS PREACS train by aligning Safeguards Area exhaust flow and Auxiliary Building Central exhaust flow through the Auxiliary Building HEPA filter and charcoal adsorber assembly".

The Emergency Core Cooling System (ECCS) Pump Room Exhaust Cleanup System (PREACS) filters air from the area of the active ECCS components during the recirculation phase of a loss of coolant accident (LOCA). The ECCS PREACS, in conjunction with other normally operating systems, also provides environmental control of temperature in the ECCS pump room areas.

The licensee stated that this surveillance requirement, ITS SR 3.7.12.2, is added to divert Safeguards Area exhaust flow and Auxiliary Building Central exhaust system flow through the Auxiliary Building HEPA filter and charcoal adsorber assembly for the operating Safeguards Area fan, from the control room, every 31 days. This ITS SR 3.7.12.2 requires certain dampers associated with the Auxiliary Building Central exhaust system to be manually actuated, and tested. This provides additional assurance that the exhaust flow can be diverted through the filters in case of a Design Basis Accident (DBA) that requires~~ing~~ their actuation. The licensee also stated that the 31 days test frequency is based on the known reliability of the equipment and the availability of redundant trains.

This new SR is added to ensure that in the event of a postulated DBA, the ECCS PREACS train is operable to reduce the potential dose risk from a radiological event. The staff concludes that the proposed SR is a conservative addition and therefore finds it acceptable. With this proposed change, the STS surveillance requirement 3.7.12.2 is then renumbered to become ITS SR 3.7.12.3. This an administrative change and the staff finds it acceptable. Similarly, STS SR 3.7.12.3 is renumbered to become ITS SR 3.7.12.4. This is also an administrative change which the staff finds acceptable. ~~In addition, the licensee proposed changing this SR from "Verify each ECCS PREACS train actuates on an actual or simulated actuation signal" to "Verify Safeguards Area exhaust flow is diverted and each Auxiliary Building filter bank is actuated on an actual or simulated actuation signal".~~ (REDUNDANT)

In addition, STS SR 3.7.12.3 requires verifying each ECCS PREACS train to actuate on an actual or simulated actuation signal. The licensee proposed a change to this SR by replacing "Verify each ECCS PREACS train actuates on an actual or simulated actuation signal" with "Verify Safeguards Area exhaust flow is diverted and each Auxiliary Building filter bank is actuated on an actual or simulated actuation signal" on a surveillance frequency of every 18 months. The staff finds this change acceptable because this SR ~~verify~~verifies proper operation of actuation signal and assures that the each Auxiliary Building filter bank signal will actuate in case of an accident.

12. ITS 3.7.13, ~~DOC M.2, JFD 7,~~ CTS 3.7.7.1 Action b. (DOC M.2 and JFD 7)

CTS allows the bottled air system to be inoperable for seven days. ITS allows two or more required trains of the MCR/ESGR bottled air system to be inoperable for 24 hours.

This item is under review by the staff.

13. ITS 3.7.15, ~~DOC L.2, JFD 5.~~ CTS 3.9.12 (DOC L.2 and JFD 5)

Fuel Building Ventilation System (FBVS) - CTS SR 4.9.12.

The Fuel Building Ventilation System (FBVS) consists of dual exhaust fans and two-speed supply fans. One supply fan serves the spent fuel pit area and one ~~for~~ serves the remote equipment space at ~~Evaluation~~ Elevation 249 ft. 4 in. Both take suction from a common plenum fitted with a combination roll and high efficiency filter (95% atmospheric dust spot efficiency) and steam coils for air tempering and space heating. The exhaust fans discharge through vent stack B and are arranged for selective alignment through the auxiliary building HEPA/charcoal filter bank. The area of the remote equipment room subject to radioactive contamination is exhausted by a branch from the decontamination building exhaust system.

The licensee proposed to eliminate the testing requirement for the fuel building filtration system from the ITS by deleting CTS SR 4.9.12 (a) and CTS SR 4.9.12 (c). The purpose of these SRs is to verify that the fuel building filters can perform as required. In the submittal, the licensee states that the deleted SRs are not necessary to verify that the equipment used to meet the LCO are consistent with the safety analysis and can perform its required functions. Thus, appropriate equipment continues to be tested in a manner and at a frequency necessary to give confidence that the equipment can perform its assumed safety function. Furthermore, the licensee stated that the deletion of the requirement for the FBVS filters is acceptable because the NAPS radiological analysis of the fuel handling accident (FHA) in the fuel building assumes that all of the radionuclides released from the fuel pool are released without credit for filtration of the released material.

In order to determine the acceptability of the deletion of requirements for the FBVS filters, the staff examined the licensee's design basis radiological analysis of the FHA as documented in the licensee's UFSAR, Chapter 15.4.5. The previous licensee analysis along with the resulting dose consequences were found to be acceptable by the staff. The staff verified that the current fuel building FHA radiological analysis does not take credit for filtration of the released material and that the analysis assumptions as listed in the UFSAR are consistent with Regulatory Guide 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors." The dose consequences of the FHA were previously found by the staff to be well within the dose guidelines given in 10 CFR Part 100 for offsite doses and also meet dose criteria in 10 CFR 50, Appendix A, General Design Criterion (GDC) 19 for the control room. The staff finds the proposed changes to the NAPS TS that remove requirements for testing the FBVS filtration capability are consistent with assumptions used in the current design basis analysis found in the NAPS UFSAR.

The licensee proposes, in accordance with TSTF-51, to add the term recently irradiated fuel as fuel that has been part of a critical reactor core within a licensee-specified number of days. The proposed TS bases state that until analyses are performed to determine a specific value, recently irradiated fuel is defined as any irradiated fuel. CTS 3.9.3 "Decay Time " is being relocated to the TRM. The required decay time is 150 hours before allowing movement of irradiated fuel, which is longer than the assumed decay time of 100 hours in the UFSAR FHA radiological analysis. The staff finds that the licensee's proposed definition of recently irradiated fuel is consistent with the NAPS design basis analysis. Based on the above evaluation, the staff concludes that the proposed changes to SR 4.9.12 incorporated into the ITS are acceptable.

14. ITS 3.9.4, ~~LA.1, A.5, JFD 2,~~ CTS 3.9.4 (DOC LA.1, A.5 and JFD 2)

The licensee in their submittal dated November 8, 2001, withdrew their request to use this BSI.

15. ITS Table 5.5.8-2 - Steam Generator Tube Inspection ~~(DOC L.22 and JFD 1),~~ CTS Table 4.4-2. Unit 1 CTS steam generator tube inspection requirements(DOC L.22 and JFD 1)

The licensee proposed to delete the requirements in the current technical specifications Section 4.4.5, Table 4.4-2, "Report to NRC and Obtain Approval Prior to Operation," in the event an additional steam generator is found to be in category C-3. The licensee stated that the requirement is not specified in the STS. The proposed deletion makes this table consistent with the corresponding table in the STS.

The proposed administrative TS retains the requirement to notify the NRC if inspection results fall into category C-3. This notification is to be made pursuant to 10 CFR 50.72, and the "approval" requirement was imposed on the licensee prior to replacement of steam generators when tube leaks at times during operation were frequent. However, the licensee has since ~~replaced~~ installed ~~with~~ new steam generators and the steam generator performance is significantly improved, and thus the staff concurs that an "approval" requirement is no longer necessary. This deletion will make the NAPS technical specifications consistent with the STS in NUREG 1431. The proposed change is not expected to have any affect on safety, and therefore, the staff finds that the proposed change acceptable.

G.2 Additional BSI Changes identified by the Staff:

1. ITS 3.3.1, (JFD 14, DOC A.24)

In April of 2001, Westinghouse published NUREG-1431, Rev 2, ~~"NUREG-1431, Rev 2,~~ "Standard Technical Specifications, Westinghouse Plants." Many of the Westinghouse designed plants including North Anna Units 1 and 2 are converting to the ITS to provide consistency in their technical specifications and reduce regulatory burden. The staff is responsible for reviewing the conversion of each plant to the ITS format from their CTS. The staff must ensure all safety and regulatory requirements are met.

North Anna Units 1 and 2 used the Westinghouse ITS and WCAP-14483-A "Generic Methodology for Expanded Core Operating Limits Report" to develop their ITS and new Core Operating Limits Report (COLR). The COLR allows licensees to change cycle-specific technical values without NRC approval, provided that NRC approved methodologies are used to determine the values. The staff reviews the implementation of a COLR to ensure that the proper approved methodologies are being used.

Due to the differences between the format and content of the CTS and the proposed ITS for North Anna Units 1 and 2, the staff must review any changes involved in the conversion. This safety evaluation discusses the review of the following two BSIs for North Anna Units 1 and 2:

1) The overtemperature ΔT and overpower ΔT formulas contained in Notes 1 and 2 of ITS Table 3.3.1-1 have been modified in the proposed ITS to reflect those used as the licensing basis in the North Anna CTS.

2) The licensee stated that these changes reflect the plant specific CTS formulas in the proposed ITS requirements. The licensee proposed to exclude the statement "with

gains to be selected based on measured instrument response during plant startup tests such that:" in Table 2.2-1, Note 1 of the CTS, from the proposed ITS. This statement describes the methodology used to determine the gains used in the calculation of the overtemperature ΔT trip setpoints. The licensee's justification for deletion contends that this statement is for information only and since the gains have not been adjusted without engineering evaluation and NRC approval since their initial calculation, the removal is administrative.

With regard to the first BSI, the staff reviewed the formulas for the overtemperature and overpower ΔT functions in Notes 1 and 2 of the ITS Table 3.3.1-1, and found that they are identical to those in Notes 1 and 2, respectively, of the CTS Table 2.2-1. Since these formulas were previously approved by the NRC as the licensing basis in the North Anna CTS and have not been changed in the conversion to the ITS, the staff finds their use in the ITS acceptable.

In evaluating the second BSI, the staff reviewed the methodologies used by the licensee to calculate the allowable overtemperature ΔT gains and trip setpoints. The staff conducted this review to determine if it was acceptable for the licensee to exclude the statement "with gains to be selected based upon measured instrument response during plant startup tests such that:" from Note 1 of ITS Table 3.3.1-1. This statement appears in CTS Note 1 of Table 2.2-1 and describes how gains for the axial flux difference are determined and used in the calculation of the overtemperature ΔT trip setpoints. In two separate RAIs dated September 7 and November 7, 2001, the staff requested the license provide detailed information on the procedures and methodologies used to determine the allowable values for the gains and setpoints. The licensee provided responses dated October 10 and December 12, 2001, which indicate the procedures and NRC approved methodologies used in determining the appropriate gains and trip setpoints. The licensee stated that they used the NRC approved methodology contained in WCAP-~~8748~~8745-P-A, "Design Bases for the Thermal Overpower Delta-T and Thermal Overtemperature Delta-T Trip Functions." The staff has approved this topical report for calculation of the constants used in the overtemperature and overpower ΔT formulas. Since the licensee is using NRC approved methodologies used for the calculation of the allowable overtemperature ΔT gains and trip setpoints, the staff finds it acceptable to exclude the identified statement from ITS Table 3.3.1-1, Note 1.

In reviewing the December 12, 2001, RAI response, the staff noted licensee statements to conditionally adopt WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report" (COLR), to allow relocation of overtemperature and overpower ΔT allowable values to the COLR. The staff reviewed the response to determine if an NRC approved methodology was used in calculating the allowable values and gains for the purpose of acceptability to remove the statement on how gains are determined from the ITS. This safety evaluation has not reviewed the response to determine acceptability of relocating values to the COLR for North Anna, Units 1 and 2 because no clear position on licensee use of WCAP 14483-A was established.

The staff reviewed two BSIs related to the licensee's conversion from the CTS to the Westinghouse ITS. First, the staff approves the use of the plant specific ITS equations for the overtemperature and overpower ΔT equations shown in Table 3.3.1-1, Notes 1 and 2. The staff has concluded that these equations are identical to those previously approved in CTS Table 2.2-1, Notes 1 and 2. Secondly, the staff approves the exclusion of the statement "with gains to be selected based upon measure instrument response during plant startup tests such that:" from ITS Table 3.3.1-1, Note 1. The staff concluded that the licensee used NRC approved methodologies to calculate the allowable overtemperature ΔT gains and trip setpoints.

2. ITS 3.3.1, ~~DOC L.7,~~ Unit 2(DOC L.7)

Category 6 - Relaxation of Surveillance Requirement Acceptance Criteria.

The licensee will adopt TSTF-371, which is under staff review.

3. ITS 3.3.1 - Reactor Trip System (RTS) Instrumentation; ~~(DOC L.8);~~ Relaxation of LCO Requirements, Allowable Values for the P-7 function come from the requirements of P-10 and P-13(DOC L.8)

The licensee proposed a change to the allowable values of the setpoints for the P-7 interlock (Low Power Reactor Trips Block) to a value not currently allowed by their current TS. The original allowable value for P-7 was <11 percent. The staff reviewed the proposed change and finds a change to the CTS which lists the allowable value as NA (Not Applicable). However, the P-7 interlock uses the P-10 and P-13 interlocks for inputs. The licensee proposed new allowable value for P-10 and P-13 of ≤ 11 percent. This change effectively modifies the P-7 actuation from <11 percent to ≤11 percent, thus including 11 percent as an allowable value. The staff considers this change to be less restrictive, however it is considered to have a negligible effect. Based on this review, the staff finds the proposed change acceptable.

4. ITS 3.3.1 - Reactor Trip System (RTS) Instrumentation; ~~(DOC L.14);~~ Relaxation of LCO Requirements, Allowable Value Changes for P-6, P-8, and P-13 interlocks(DOC L.14)

The licensee proposed changes to the allowable values for the P-6, P-8, and P-13 interlocks. The P-6 interlock function for increasing power (intermediate range above setpoints) is to allow the operators to manually block the Source Range channels trip capability. Securing the Source Range channels trip is not a safety function, but is an equipment protection function. The licensee proposed removing this P-6 setting from the improved TS. The staff reviewed the change and finds this removal acceptable. However, the P-6 interlock function while decreasing power (intermediate range below setpoints) is safety related. This interlock activates the Source Range channels trip capability. The allowable value for the decreasing power P-6 interlock is listed as $>3x10^{-10}$ in the current Technical Specifications. The proposed allowable value is listed as $\geq 3x10^{-10}$. This change is less restrictive, but is considered to have a negligible effect. Based on this review, the staff finds the proposed change acceptable.

When below the defined setpoints, the P-8 interlock prevents a reactor trip for the following conditions: low flow in a single loop, a single reactor coolant pump breaker open, or a turbine trip. This function (power range below setpoints) is not a safety function and the associated setpoints have been removed from the proposed TS. The staff finds this removal acceptable. However, when above ITS setpoints, the P-8 interlock allows a reactor trip for the above conditions. The current TS list the allowable value for the setpoints as <31 percent on the power range channels. The licensee proposed changing the allowable value to ≤31 percent. This change is less restrictive, but is considered to have a negligible effect. Based on this review, the staff finds the proposed change acceptable.

The P-13 interlock (Turbine Impulse Pressure) is an input to the P-7 interlock. When above the setpoints, P-13 (in conjunction with P-10) allows a reactor trip under the following conditions in more than one loop: low flow, reactor coolant pump breaker open, under voltage on the reactor coolant pump busses, and under frequency on the reactor coolant pump buses. P-13 also allows

a reactor trip on pressurizer low pressure or pressurizer high level when above the setpoints. The current TS list the allowable value as < 11 percent. The licensee proposed changing the allowable value to ≤11 percent. The inclusion of 11 percent is less restrictive, but it is considered negligible. Based on this review, the staff finds the proposed change acceptable.

When below the setpoints, P-13 (in conjunction with P-10) prevents a reactor trip when any of the following conditions occur: reactor coolant system low flow, reactor coolant pump breakers open, reactor coolant pump busses under voltage, reactor coolant pump busses under frequency, pressurizer low pressure, and pressurizer high level. This function of P-13 is not assumed in the safety analyses. Therefore, the licensee proposed removing the setpoints and allowable values for this function of P-13 from their TS. Based on this review, the staff finds this removal acceptable.

85. ITS Table 3.3.2-1, ESFAS Instrumentation Function 7. Automatic Switch over to Containment Sump(DOC M.3)

The following proposed ITS changes have been determined to be beyond the scope of the conversion to the STS format for North Anna Power Station Units 1 and 2:

> Functional Unit 7, "Automatic Switchover to Containment Sump" is being included in Technical Specifications 3/4.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," with allowed outage time and additional channel bypass.

In addition, as revised by the licensee in their May 30, 2001 submittal, the proposed ITS 3.3.2 limiting condition for operation section in the Bases section is as follows:

3.3.2 - Action I, RWST Level-Low Low Coincident with Safety Injection (Bases pages 3.3.2-38 and 3.3.2-39)

> The 72 hour Completion Time is justified in **a plant-specific risk assessment, consistent with** Reference 8.
>
> The total of 72 hours to reach Mode 3 and 12 hours for a second channel to be bypassed is acceptable based on the results of **a plant-specific risk assessment, consistent with** Reference 8.

A plant-specific risk assessment was completed to include an assessment of Functional Unit 7, "Automatic Switchover to Containment Sump." Functional Unit 7 had been included as a new unit in the Improved Technical Specifications for consistency with NUREG-1431. The plant-specific risk evaluation assessed the change in core damage frequency (CDF) and the incremental conditional core damage probability (ICCDP) as a result of the WCAP changes for the additional functions.

The licensee developed the CDF sensitivity for this function in the same manner as the WCAP-10271 and WCAP-14333 analyses. The automatic containment switchover function is similar to that of some of the WCAP channels and was estimated by comparison to similar functions. Once the channel failure impacts were quantified, these numbers were converted to a CDF impact by looking at the associated CDF sensitivity from the North Anna probable risk assessment model for the same function or a higher level function.

The automatic switchover to containment sump occurs when the refueling water storage tank level drops to the established setpoint. Automatic switchover failure probability is estimated to increase by approximately 1.3E-4 as result of the proposed changes. This increase is based upon the assumption that the full allowed outage time will be used on a regular basis every year. The result of a plant-specific risk assessment for this function related to CDF impact is negligible (less than 0.01% of the CDF) based on the baseline CDF (3.3E-5/yr) at North Anna.

This risk assessment demonstrates that the effect on CDF and ICCDP is negligible for the potential unavailability changes associated with this function. The staff concludes that the licensee's proposed Functional Unit 7 Technical Specification allowed outage and bypass times are acceptable.

~~96~~. ITS 3.7.11 Actions D and E, ~~DOC M.1 and M.3,~~ JFD 3, CTS 3/4.7.7.1 Action d (DOC M.1 and M.3)

The ITS proposes to only require entry into Action D, for one AC subsystem inoperable, as long as 100% air conditioning system cooling equivalent to a single operable AC subsystem is available.

The emergency ACS for the MCR/ESGR envelope consists of two independent 100% redundant subsystems, one chiller in one subsystem and two chillers in the other. Each subsystem consists of two air handling units, one for the MCR and one for the ESGR to provide the heat removal function during post accident conditions as well as during normal operation. An air conditioning system with two independent 100% capacity subsystems for each unit which supplies the relay rooms and common control room are designed for 75° F dry bulb at approximately 50% relative humidity during normal operation. For emergency conditions, there is sufficient cooling capacity to maintain the control room, computer room, and relay room space temperature well below the design maximum of 120° F. A third chiller is provided for each reactor unit as an alternative for either train. The cooling systems cannot be cross connected between the two reactor units. Only one train for each unit is used at a time.

The licensee stated that because the MCR/ESGR ACS includes a total of three chillers and flexibility in the use of system components, the description of system requirements, "Less than 100% of the MCR/ESGR ACS cooling equivalent to a single OPERABLE MCR/ESGR ACS subsystem available...." is proposed in the above ITS instead of a reference to two inoperable trains. The proposed ITS Conditions allow a variety of system configurations to be established that would provide sufficient cooling capacity to meet the design function and allows appropriate flexibility in operation of the system similar to ITS 3.5.2, ECCS. The licensee further stated that the Conditions D and E still require that when the design function can not be met, that the appropriate Applicability (MODES 1,2, 3, and 4 and During movement of recently irradiated fuel assemblies) be exited.

The staff has reviewed the proposed change and agrees with the licensee that the proposed ITS change is consistent with the intent of STS 3.7.11. Since there are three chillers with 100% cooling capability, ~~either~~ one of which can be used by either subsystem. The staff finds the proposed ITS change acceptable because it provides the system flexibility in operation of the system, enables the various configurations to maintain the required cooling function, and provides an acceptable level of confidence that the system will function as assumed in the accident analysis.

Based on the above evaluation, the staff concludes that the proposed changes to TS 3.7.11, Actions D and E, incorporated in the ITS are acceptable.

4.0 COMMITMENTS RELIED UPON

In reviewing the proposed ITS conversion for NAPS, the staff has relied upon the licensee's commitment to relocate certain requirements from the CTS to licensee-controlled documents as described in Table R, "Relocated Specifications and Removal of Details" (Attachment 5 to this SE). This table reflects the relocations described in the licensee's submittals on the conversion. The staff requested and the licensee submitted a license condition to make this commitment enforceable (see Section 5.0 of this SE). Such a commitment from the licensee is important to the ITS conversion because the acceptability of removing certain requirements from the TS is based on those requirements being relocated to licensee-controlled documents where further changes to the requirements will be controlled by regulations or other requirements (e.g., in accordance with 10 CFR 50.59).

5.0 LICENSE CONDITIONS

License conditions to define the schedule to begin performing the new and revised SRs after implementation of the ITS are included in ~~Appendix C of~~ the Operating License. These conditions are:

(1) For SRs that are new in this amendment, the first performance is due at the end of the first surveillance interval that begins on the date of implementation of this amendment.

(2) For SRs that existed prior to this amendment, whose intervals of performance are being reduced, the first reduced surveillance interval begins upon completion of the first surveillance performed after implementation of this amendment.

(3) For SRs that existed prior to this amendment that have modified acceptance criteria, the first performancesubject to the modified acceptance criteria is due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of this amendment.

(4) For SRs that existed prior to this amendment, whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to the implementation of this amendment.

The staff has reviewed the above schedule for the licensee to begin performing the new and revised SRs and concludes that it is an acceptable schedule. The licensee stated that their implementation date for the new ITS ~~is April 2, 2002~~will be within 5 months after receipt of an approved Safety Evaluation.. This implementation schedule is acceptable.

Also, a license condition is to be included that will enforce the relocation of requirements from the CTS to licensee-controlled documents. The relocations are described in Table R (Attachment 5 to this SE), and Section 3.0.D, "Removed Details," and Section 3.0.E, "Relocated Specifications," above. The license condition states that the relocations would be completed no later than ~~December 31, 2001~~ the implementation date of ITS. This schedule is acceptable.

~~As a part of the ITS conversion, the licensee also proposed to delete two existing license conditions related to compliance with CTS reporting and record retention requirements. These two conditions, 3.C and 3.D, are no longer necessary because they duplicate regulations regarding reporting and record keeping. They also duplicate License Condition 3.B, "Technical Specifications," which requires that NAPS operate the facility in accordance with the TS. Many of the CTS requirements that these two conditions refer to are being relocated out of the ITS to licensee-controlled documents, as specified in the conversion submittal and supplements thereto. Therefore, deletion of these two license conditions will have no impact on the reporting and record keeping requirements for NAPS, and is acceptable.~~

6.0 STATE CONSULTATION

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

7.0 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 xxxxx (xx FR xxxxx), for the proposed conversion of the CTS to ITS for NAPS. Accordingly, based upon the environmental assessment, the Commission has determined that issuance of these amendments will not have a significant effect on the quality of the human environment.

With respect to other 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 staff has determined that the amendments required by these other changes involve 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 issued proposed findings that the amendments required by these other changes involve no significant hazards consideration, and there has been no public comment on these findings published in the *Federal Register* on XXXXX (XX FR XXXXX); XXXXX (XX FR XXXXX), and XXXXXX (XX FR XXXXX). Accordingly, these changes meet 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 implementation of these changes.

8.0 CONCLUSION

The NAPS ITS provides clearer, more readily understandable requirements to ensure safe operation of the plant. The staff concludes that the ITS for NAPS satisfy the guidance in the Final Policy Statement on TS improvements for nuclear power reactors with regard to the content of TS, and conform to the STS provided in NUREG-1431, Revision 1, with appropriate modifications for plant-specific considerations. The staff further concludes that the ITS satisfy Section 182a of the Atomic Energy Act, 10 CFR 50.36, and other applicable standards. On this basis, the staff concludes that the proposed ITS for NAPS are acceptable.

The staff has also reviewed the plant-specific changes to the CTS as described in this SE. On the basis of the evaluations described herein for each of the changes, the staff also 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 amendment will not be inimical to the common defense and security, or to the health and safety of the public.

Attachments:

1. List of Acronyms
2. Table A - Administrative Changes
3. Table M - More Restrictive Changes
4. Table L - Less Restrictive Changes
5. Table R - Relocated Specifications and Removed Details

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LIST OF ACRONYMS

AC	Air Conditioning or Alternating Current
ADD	Atmospheric Dump Valve
~~JFD~~AFD	Axial Flux Difference
~~A.W.~~AFW	Auxiliary Feedwater System
AOT	Allowed Outage Time
~~ARM~~	~~Average Power Range Monitor~~
~~ART~~	~~Adjusted Reference Temperature~~
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATWS	Anticipated Transient Without Scram
CC	Component Cooling Water
CW	Circulating Water
CFR	Code of Federal Regulations
~~CFR~~CFT	Channel Functional Test
~~C.V.~~CIV	Containment Isolation Valve
COLR	Core Operating Limits Report
~~CPI~~	~~Containment Pressure Condensate Isolation~~
C~~.~~RD~~.~~	Control Rod Drive
~~CHEFS~~CREFS	Control Room Emergency Filtration System
~~CRIS~~	~~Control Room Ventilation System~~
~~CRAW~~	~~Control Rod Withdrawal Accident~~
~~CST~~	~~Condensate Storage Tank~~
CTS	Current Technical Specification
CVCS	Chemical and Volume Control System
DBA	Design-Basis Accident
DG	Diesel Generator
DNB	Departure from Nucleate Boiling
DOC	Discussion of Change (from the CTS)
ECCS	Emergency Core Cooling System
ECST	Emergency Condensate Storage Tank
EDG~~E~~	Emergency Diesel Generator
EFPD	Effective Full Power Year
~~ESPY~~EFPY	Effective Full Power Year
~~EM~~	~~Environmental Manual~~
~~EPA~~	~~Electrical Protection Assembly~~
ESFAS	Engineered Safety Features Actuation System
FR	Federal Register
ISI	Inservice Inspection
IST	Inservice Testing
ITS	Improved Technical Specification
JFD	Justification for Deviation
kV	Kilovolt
kW	Kilowatt
LCO	Limiting Condition for Operation
LOCA	Loss-of-Coolant Accident
LOOP	Loss of Offsite Power
LOP	Loss of Power

~~LPM~~	~~Local Power Range Monitor~~
~~LEFT~~	~~Logic System Functional Test~~
LTOP	Low Temperature Overpressure Protection
MCR EVS	Main Control Room Emergency Ventilation System
MFRV	Manual Feedwater Regulating Valve
~~MAW~~MFW	Main Feedwater
MG	Motor Generator
MFIV	Main ~~Steam~~ Feedwater Isolation Valve
MSSV	Main Steam Safety Valve
MSTV	Main Steam Trip Valve
~~M.C.~~MTC	Moderator Temperature Coefficient
~~M.D./T~~	~~Megawatt Days/short Ton~~
NAPS	North Anna Power Station
~~NMC~~	~~Nuclear Management Company, LLC~~
ODCM	Offsite Dose Calculation Manual
PAM	Post-Accident Monitoring
PIV	Pressure Isolation Valve
P/T	Pressure/Temperature
PORV	Power Operated Relief Valve
PTLR	Pressure Temperature Limits Report
PWR	Pressurized Water Reactor
QA	Quality Assurance
QPTR	Quadrant Power Tilt Ratio
RAI	Request for Additional Information
~~RBM~~	~~Rod Block Monitor~~
~~RCPB~~	~~Reactor Coolant Pressure Boundary~~
RCS	Reactor Coolant System
RG	Regulatory Guide
RHR	Residual Heat Removal
~~RPS~~	~~Reactor Protection System~~
RPV	Reactor Pressure Vessel
~~RSCS~~	~~Rod Sequence Control System~~
RTB	Reactor Trip Breaker
RTP	Rated Thermal Power
RTS	Reactor Trip System
RWST	Reactor Water Storage Tank
~~SAT~~	~~Station Auxiliary Transformer~~
~~SCIV~~	~~Secondary Containment Isolation Valve~~
~~SDC~~	~~Shutdown Cooling~~
SDM	Shutdown Margin
~~SDV~~	~~Scram Discharge Volume~~
SE	Safety Evaluation
SER	Safety Evaluation Report
SI	Safety Injection
SG	Steam Generator
SGTR	Steam Generator Tube Rupture
SR	Surveillance Requirement
SRM	Source Range Monitor
SRV	Safety/Relief Valve
~~SSER~~	~~Supplemental Safety Evaluation Report~~

STS	Improved Standard Technical Specification, NUREG-1431, Rev. 1
SW	Service Water
TADOT	Trip Actuating Device Operational Test
TRM	Technical Requirements Manual
TS	Technical Specification
TSTF	Technical Specifications Task Force (re: generic changes to the STS)
UHS	Ultimate Heat Sink
UFSAR	Updated Final Safety Analysis Report
V	Volt
VEPCO	Virginia Electric & Power Company

~~APPENDIX D~~

ADDITIONAL CONDITIONS

FACILITY OPERATING LICENSE NOs. NPF-4 and NPF-7

Dominion Generation shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Conditions	Date
	This amendment authorizes the relocation of certain Technical Specification requirements to licensee-controlled documents. Implementation of this amendment shall include the relocation of these technical specification requirements to the appropriate documents, as described in Table R, which is ~~that are~~ attached to the staff's [draft] Safety Evaluation enclosed with this amendment.	The amendment shall be implemented by ~~[date].~~September 2,2002
	The schedule for the performance of new and revised Surveillance Requirements (SRs) shall be as follows: For SRs that are new in this amendment, the first performance is due at the end of the first surveillance interval that begins on the date of implementation of this amendment.	This amendment shall be implemented within ~~XX days of the date of this~~for Unit 1, by the end of the sixteenth refueling outage and for Unit 2, by the end of the fifteenth refueling outage.

Amendment Number	Additional Conditions	Implementation Date
	For SRs that existed prior to this amendment whose intervals of performance are being reduced, the first reduced surveillance interval begins upon completion of the first surveillance performed after implementation of this amendment. For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance subject to the modified acceptance criteria is due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of this amendment. For SRs that existed prior to this amendment whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to implementation of this amendment.	

Note for Tables A – Administrative Changes:

All "A" Discussion of Change (DOC) – Administrative Tables have been revised to include each entire A DOC, rather than just a summary of each change. For legibility reasons, the inclusion of the entire A DOC is not highlighted in red. If an A DOC has been revised for another reason (e.g., to incorporate a comment from the NRC), that change is highlighted in red, and the justification for that change is included in the right margin.

Attachment

Improved Technical Specifications
And
Bases
Revision 17

Virginia Electric and Power Company
(Dominion)

North Anna Power Station Units 1 and 2

Improved Technical Specifications And Bases
North Anna Power Station Units 1 and 2

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TECHNICAL SPECIFICATIONS

FOR NORTH ANNA UNITS 1 & 2

1.0 USE AND APPLICATION

1.1 Definitions

- NOTE -
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.
- -

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ACTUATION LOGIC TEST	An ACTUATION LOGIC TEST shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state required for OPERABILITY of a logic circuit and the verification of the required logic output. The ACTUATION LOGIC TEST, as a minimum, shall include a continuity check of output devices.
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.

1.1 Definitions

CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. The COT may be performed by means of any series of sequential, overlapping, or total channel steps.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."

1.1 Definitions

$\bar{E}$–AVERAGE DISINTEGRATION ENERGY	$\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > 15 minutes, making up at least 95% of the total noniodine activity in the coolant.
ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank; 2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE; or 3. Reactor Coolant System (RCS) LEAKAGE through a steam generator (SG) to the Secondary System;

(continued)

1.1 Definitions

LEAKAGE (continued)	b. Unidentified LEAKAGE All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE; c. Pressure Boundary LEAKAGE LEAKAGE (except SG LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.
MASTER RELAY TEST	A MASTER RELAY TEST shall consist of energizing all master relays in the channel required for channel OPERABILITY and verifying the OPERABILITY of each required master relay. The MASTER RELAY TEST shall include a continuity check of each associated required slave relay. The MASTER RELAY TEST may be performed by means of any series of sequential, overlapping, or total steps.
MODE	A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE–OPERABILITY	A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are: a. Described in Chapter 14, Initial Tests and Operation, of the UFSAR; (continued)

1.1 Definitions

PHYSICS TESTS (continued)	b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
QUADRANT POWER TILT RATIO (QPTR)	QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2893 MWt.
REACTOR TRIP SYSTEM (RTS) RESPONSE TIME	The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
SHUTDOWN MARGIN (SDM)	SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming: a. All rod cluster control assemblies (RCCAs) are fully inserted except for the single RCCA of highest reactivity worth, which is assumed to be fully withdrawn. With any RCCA not capable of being fully inserted, the reactivity worth of the RCCA must be accounted for in the determination of SDM; and b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level.

1.1 Definitions

SLAVE RELAY TEST	A SLAVE RELAY TEST shall consist of energizing all slave relays in the channel required for channel OPERABILITY and verifying the OPERABILITY of each required slave relay. The SLAVE RELAY TEST shall include a continuity check of associated required testable actuation devices. The SLAVE RELAY TEST may be performed by means of any series of sequential, overlapping, or total steps.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)	A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of all devices in the channel required for trip actuating device OPERABILITY. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy. The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps.

Table 1.1-1 (page 1 of 1)
MODES

MODE	TITLE	REACTIVITY CONDITION (k_{eff})	% RATED THERMAL POWER(a)	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	≥ 0.99	> 5	NA
2	Startup	≥ 0.99	≤ 5	NA
3	Hot Standby	< 0.99	NA	≥ 350
4	Hot Shutdown(b)	< 0.99	NA	$350 > T_{avg} > 200$
5	Cold Shutdown(b)	< 0.99	NA	≤ 200
6	Refueling(c)	NA	NA	NA

(a) Excluding decay heat.

(b) All reactor vessel head closure bolts fully tensioned.

(c) One or more reactor vessel head closure bolts less than fully tensioned.

Intentionally Blank

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE

The purpose of this section is to explain the meaning of logical connectors.

Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are AND and OR. The physical arrangement of these connectors constitutes logical conventions with specific meanings.

BACKGROUND

Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentations of the logical connectors.

When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.

1.2 Logical Connectors

EXAMPLES

The following examples illustrate the use of logical connectors.

EXAMPLE 1.2-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Verify ... AND A.2 Restore ...	

In this example the logical connector AND is used to indicate that when in Condition A, both Required Actions A.1 and A.2 must be completed.

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Trip ... OR A.2.1 Verify ... AND A.2.2.1 Reduce ... OR A.2.2.2 Perform ... OR A.3 Align ...	

This example represents a more complicated use of logical connectors. Required Actions A.1, A.2, and A.3 are alternative choices, only one of which must be performed as indicated by the use of the logical connector OR and the left justified placement. Any one of these three Actions may be chosen. If A.2 is chosen, then both A.2.1 and A.2.2 must be performed as indicated by the logical connector AND. Required Action A.2.2 is met by performing A.2.2.1 or A.2.2.2. The indented position of the logical connector OR indicates that A.2.2.1 and A.2.2.2 are alternative choices, only one of which must be performed.

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1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE

The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.

BACKGROUND

Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).

DESCRIPTION

The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.

If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition.

Once a Condition has been entered, subsequent trains, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition, unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition.

(continued)

1.3 Completion Times

DESCRIPTION (continued)

However, when a subsequent train, subsystem, component, or variable expressed in the Condition is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:

a. Must exist concurrent with the first inoperability; and

b. Must remain inoperable or not within limits after the first inoperability is resolved.

The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:

a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours; or

b. The stated Completion Time as measured from discovery of the subsequent inoperability.

The above Completion Time extensions do not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each train, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ." Example 1.3-3 illustrates one use of this type of Completion Time. The 10 day Completion Time specified for Conditions A and B in Example 1.3-3 may not be extended.

1.3 Completion Times

EXAMPLES

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

Condition B has two Required Actions. Each Required Action has its own separate Completion Time. Each Completion Time is referenced to the time that Condition B is entered.

The Required Actions of Condition B are to be in MODE 3 within 6 hours AND in MODE 5 within 36 hours. A total of 6 hours is allowed for reaching MODE 3 and a total of 36 hours (not 42 hours) is allowed for reaching MODE 5 from the time that Condition B was entered. If MODE 3 is reached within 3 hours, the time allowed for reaching MODE 5 is the next 33 hours because the total time allowed for reaching MODE 5 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 5 is the next 36 hours.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable.	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

When a pump is declared inoperable, Condition A is entered. If the pump is not restored to OPERABLE status within 7 days, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable pump is restored to OPERABLE status after Condition B is entered, Condition A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

When a second pump is declared inoperable while the first pump is still inoperable, Condition A is not re-entered for the second pump. LCO 3.0.3 is entered, since the ACTIONS do not include a Condition for more than one inoperable pump. The Completion Time clock for Condition A does not stop after LCO 3.0.3 is entered, but continues to be tracked from the time Condition A was initially entered.

While in LCO 3.0.3, if one of the inoperable pumps is restored to OPERABLE status and the Completion Time for Condition A has not expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition A.

While in LCO 3.0.3, if one of the inoperable pumps is restored to OPERABLE status and the Completion Time for Condition A has expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition B. The Completion Time for Condition B is tracked from the time the Condition A Completion Time expired.

(continued)

EXAMPLES

EXAMPLE 1.3-2 (continued)

On restoring one of the pumps to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first pump was declared inoperable. This Completion Time may be extended if the pump restored to OPERABLE status was the first inoperable pump. A 24 hour extension to the stated 7 days is allowed, provided this does not result in the second pump being inoperable for > 7 days.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X train inoperable.	A.1 Restore Function X train to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO
B. One Function Y train inoperable.	B.1 Restore Function Y train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO
C. One Function X train inoperable. AND One Function Y train inoperable.	C.1 Restore Function X train to OPERABLE status. OR C.2 Restore Function Y train to OPERABLE status.	72 hours 72 hours

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-3 (continued)

When one Function X train and one Function Y train are inoperable, Condition A and Condition B are concurrently applicable. The Completion Times for Condition A and Condition B are tracked separately for each train starting from the time each train was declared inoperable and the Condition was entered. A separate Completion Time is established for Condition C and tracked from the time the second train was declared inoperable (i.e., the time the situation described in Condition C was discovered).

If Required Action C.2 is completed within the specified Completion Time, Conditions B and C are exited. If the Completion Time for Required Action A.1 has not expired, operation may continue in accordance with Condition A. The remaining Completion Time in Condition A is measured from the time the affected train was declared inoperable (i.e., initial entry into Condition A).

The Completion Times of Conditions A and B are modified by a logical connector with a separate 10 day Completion Time measured from the time it was discovered the LCO was not met. In this example, without the separate Completion Time, it would be possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. The separate Completion Time modified by the phrase "from discovery of failure to meet the LCO" is designed to prevent indefinite continued operation while not meeting the LCO. This Completion Time allows for an exception to the normal "time zero" for beginning the Completion Time "clock". In this instance, the Completion Time "time zero" is specified as commencing at the time the LCO was initially not met, instead of at the time the associated Condition was entered.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

A single Completion Time is used for any number of valves inoperable at the same time. The Completion Time associated with Condition A is based on the initial entry into Condition A and is not tracked on a per valve basis. Declaring subsequent valves inoperable, while Condition A is still in effect, does not trigger the tracking of separate Completion Times.

Once one of the valves has been restored to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first valve was declared inoperable. The Completion Time may be extended if the valve restored to OPERABLE status was the first inoperable valve. The Condition A Completion Time may be extended for up to 4 hours provided this does not result in any subsequent valve being inoperable for > 4 hours.

If the Completion Time of 4 hours (including the extension) expires while one or more valves are still inoperable, Condition B is entered.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each inoperable valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

The Note above the ACTIONS Table is a method of modifying how the Completion Time is tracked. If this method of modifying how the Completion Time is tracked was applicable only to a specific Condition, the Note would appear in that Condition rather than at the top of the ACTIONS Table.

The Note allows Condition A to be entered separately for each inoperable valve, and Completion Times tracked on a per valve basis. When a valve is declared inoperable, Condition A is entered and its Completion Time starts. If subsequent valves are declared inoperable, Condition A is entered for each valve and separate Completion Times start and are tracked for each valve.

If the Completion Time associated with a valve in Condition A expires, Condition B is entered for that valve. If the Completion Times associated with subsequent valves in Condition A expire, Condition B is entered separately for each valve and separate Completion Times start and are

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-5 (continued)

tracked for each valve. If a valve that caused entry into Condition B is restored to OPERABLE status, Condition B is exited for that valve.

Since the Note in this example allows multiple Condition entry and tracking of separate Completion Times, Completion Time extensions do not apply.

EXAMPLE 1.3-6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x. OR A.2 Reduce THERMAL POWER to ≤ 50% RTP.	Once per 8 hours 8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

Entry into Condition A offers a choice between Required Action A.1 or A.2. Required Action A.1 has a "once per" Completion Time, which qualifies for the 25% extension, per SR 3.0.2, to each performance after the initial performance. The initial 8 hour interval of Required Action A.1 begins when Condition A is entered and the initial performance of Required Action A.1 must be complete within the first 8 hour interval. If Required Action A.1 is followed, and the Required Action is not met within the Completion Time (plus

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-6 (continued)

the extension allowed by SR 3.0.2), Condition B is entered. If Required Action A.2 is followed and the Completion Time of 8 hours is not met, Condition B is entered.

If after entry into Condition B, Required Action A.1 or A.2 is met, Condition B is exited and operation may then continue in Condition A.

EXAMPLE 1.3-7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated. AND A.2 Restore subsystem to OPERABLE status.	1 hour AND Once per 8 hours thereafter 72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

Required Action A.1 has two Completion Times. The 1 hour Completion Time begins at the time the Condition is entered and each "Once per 8 hours thereafter" interval begins upon performance of Required Action A.1.

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-7 (continued)

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.

IMMEDIATE COMPLETION TIME

When "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE

The purpose of this section is to define the proper use and application of Frequency requirements.

DESCRIPTION

Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated LCO. An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.

The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR as well as certain Notes in the Surveillance column that modify performance requirements.

Sometimes special situations dictate when the requirements of a Surveillance are to be met. They are "otherwise stated" conditions allowed by SR 3.0.1. They may be stated as clarifying Notes in the Surveillance, as part of the Surveillance, or both.

Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.

The use of "met" or "performed" in these instances conveys specific meanings. A Surveillance is "met" only when the acceptance criteria are satisfied. Known failure of the requirements of a Surveillance, even without a Surveillance specifically being "performed," constitutes a Surveillance not "met." "Performance" refers only to the requirement to specifically determine the ability to meet the acceptance criteria.

(continued)

1.4 Frequency

DESCRIPTION (continued)

Some Surveillances contain notes that modify the Frequency of performance or the conditions during which the acceptance criteria must be satisfied. For these Surveillances, the MODE-entry restrictions of SR 3.0.4 may not apply. Such a Surveillance is not required to be performed prior to entering a MODE or other specified condition in the Applicability of the associated LCO if any of the following three conditions are satisfied:

a. The Surveillance is not required to be met in the MODE or other specified condition to be entered; or

b. The Surveillance is required to be met in the MODE or other specified condition to be entered, but has been performed within the specified Frequency (i.e., it is current) and is known not to be failed; or

c. The Surveillance is required to be met, but not performed, in the MODE or other specified condition to be entered, and is known not to be failed.

Examples 1.4-3, 1.4-4, 1.4-5, and 1.4-6 discusses these special situations.

EXAMPLES

The following examples illustrate the various ways that Frequencies are specified. In these examples, the Applicability of the LCO (LCO not shown) is MODES 1, 2, and 3.

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an

(continued)

EXAMPLES

EXAMPLE 1.4-1 (continued)

extension of the time interval to 1.25 times the stated Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment is inoperable, a variable is outside specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in a MODE or other specified condition in the Applicability of the LCO, and the performance of the Surveillance is not otherwise modified (refer to Example 1.4-3), then SR 3.0.3 becomes applicable.

If the interval as specified by SR 3.0.2 is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the LCO for which performance of the SR is required, the Surveillance must be performed within the Frequency requirements of SR 3.0.2 prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of SR 3.0.4.

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify flow is within limits.	Once within 12 hours after ≥ 25% RTP AND 24 hours thereafter

Example 1.4-2 has two Frequencies. The first is a one time performance Frequency, and the second is of the type shown in Example 1.4-1. The logical connector "AND" indicates that both Frequency requirements must be met. Each time reactor power is increased from a power level < 25% RTP to ≥ 25% RTP, the Surveillance must be performed within 12 hours.

(continued)

1.4 Frequency

EXAMPLES

EXAMPLE 1.4-2 (continued)

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the 25% extension allowed by SR 3.0.2. "Thereafter" indicates future performances must be established per SR 3.0.2, but only after a specified condition is first met (i.e., the "once" performance in this example). If reactor power decreases to < 25% RTP, the measurement of both intervals stops. New intervals start upon reactor power reaching 25% RTP.

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
----------NOTE---------- Not required to be performed until 12 hours after ≥ 25% RTP. ----------	
Perform channel adjustment.	7 days

The interval continues, whether or not the unit operation is < 25% RTP between performances.

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is < 25% RTP, this Note allows 12 hours after power reaches ≥ 25% RTP to perform the Surveillance. The Surveillance is still considered to be performed within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day (plus the extension allowed by SR 3.0.2) interval, but operation was < 25% RTP, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours with power ≥ 25% RTP.

(continued)

1.4 Frequency

EXAMPLES

EXAMPLE 1.4-3 (continued)

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval, there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
----------NOTE---------- Only required to be met in MODE 1. ----------	
Verify leakage rates are within limits.	24 hours

Example 1.4-4 specifies that the requirements of this Surveillance do not have be met until the unit is in MODE 1. The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of the Surveillance. Therefore, if the Surveillance were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), but the unit was not in MODE 1, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.2 occurs when changing MODES, even with the 24 hour Frequency exceeded, provided the MODE change was not made into MODE 1. Prior to entering MODE 1 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-5

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
----------NOTE---------- Only required to be performed in MODE 1. ----------	
Perform complete cycle of the valve.	7 days

The interval continues, whether or not the unit operation is in MODE 1, 2, or 3 (the assumed Applicability of the associated LCO) between performances.

As the Note modifies the required performance of the Surveillance, the Note is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is not in MODE 1, this Note allows entry into and operation in MODES 2 and 3 to perform the Surveillance. The Surveillance is still considered to be performed within the "specified Frequency" if completed prior to entering MODE 1. Therefore, if the Surveillance were not performed within the 7 day (plus the extension allowed by SR 3.0.2) interval, but operation was not in MODE 1, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not result in entry into MODE 1.

Once the unit reaches MODE 1, the requirement for the Surveillance to be performed within its specified Frequency applies and would require that the Surveillance had been performed. If the Surveillance were not performed prior to entering MODE 1, there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-6

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
----------NOTE---------- Not required to be met in MODE 3. ----------	
Verify parameter is within limits.	24 hours

Example 1.4-6 specifies that the requirements of this Surveillance do not have to be met while the unit is in MODE 3 (the assumed Applicability of the associated LCO is MODES 1, 2, and 3). The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of this Surveillance. Therefore, if the Surveillance were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), and the unit was in MODE 3, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES to enter MODE 3, even with the 24 hour Frequency exceeded, provided the MODE change does not result in entry into MODE 2. Prior to entering MODE 2 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.

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2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

In MODES 1 and 2, the combination of THERMAL POWER, Reactor Coolant System (RCS) highest loop average temperature, and pressurizer pressure shall not exceed the limits specified in the COLR; and the following SLs shall not be exceeded.

2.1.1.1 The departure from nucleate boiling ratio (DNBR) shall be maintained greater than or equal to the 95/95 DNBR criterion for the DNB correlations and methodologies specified in Section 5.6.5.

2.1.1.2 The peak fuel centerline temperature shall be maintained < 4700°F.

2.1.2 RCS Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained ≤ 2735 psig.

2.2 SL Violations

2.2.1 If SL 2.1.1 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.

2.2.2.2 In MODE 3, 4, or 5, restore compliance within 5 minutes.

Intentionally Blank

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2 and LCO 3.0.7.

LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated.

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

a. MODE 3 within 7 hours;

b. MODE 4 within 13 hours; and

c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

LCO 3.0.4 When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specific condition in the Applicability for an unlimited period of time,

(continued)

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

b. After performance of a risk evaluation, consideration of the results, determination of the acceptability of the MODE change, and establishment of risk management actions, if appropriate, or

c. When a specific value or parameter allowance has been approved by the NRC.

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.14, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

3.0 LCO APPLICABILITY

LCO 3.0.7 Test Exception LCOs 3.1.9 and 3.4.19 allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1

SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits. Surveillances may be performed by any series of sequential, overlapping, or total steps.

SR 3.0.2

The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

For Frequencies specified as "once," the above interval extension does not apply.

If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance.

Exceptions to this Specification are stated in the individual Specifications.

SR 3.0.3

If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

(continued)

3.0 SR APPLICABILITY

SR 3.0.3 (continued)

When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

SR 3.0.4

Entry into a MODE or other specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency. When an LCO is not met, entry into a MODE or other specific condition in the Applicability shall only be made:

a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specific condition in the Applicability for an unlimited period of time,

b. After performance of a risk evaluation, consideration of the results, determination of the acceptability of the MODE change, and establishment of risk management actions, if appropriate, or

c. When a specific value or parameter allowance has been approved by the NRC.

This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

SR 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3 and 4.

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3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)

LCO 3.1.1 SDM shall be within the limits provided in the COLR.

APPLICABILITY: MODE 2 with $k_{eff} < 1.0$,
MODES 3, 4, and 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.1.1 Verify SDM to be within limits.	24 hours

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3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Core Reactivity

LCO 3.1.2 The measured core reactivity shall be within ± 1% $\Delta k/k$ of predicted values.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Measured core reactivity not within limit.	A.1 Re-evaluate core design and safety analysis, and determine that the reactor core is acceptable for continued operation.	7 days
	AND	
	A.2 Establish appropriate operating restrictions and SRs.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	----------NOTE---------- The predicted reactivity values may be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 effective full power days (EFPD) after each fuel loading. ----------	
	Verify measured core reactivity is within ± 1% $\Delta k/k$ of predicted values.	Once prior to entering MODE 1 after each refueling AND -----NOTE------ Only required after 60 EFPD ---------- 31 EFPD thereafter

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Moderator Temperature Coefficient (MTC)

LCO 3.1.3 The MTC shall be maintained within the limits specified in the COLR. The upper limit specified in the COLR shall be $\leq 0.6 \times 10^{-4}$ $\Delta k/k/°F$ when < 70% RTP, and ≤ 0.0 $\Delta k/k/°F$ when $\geq$ 70% RTP.

APPLICABILITY: MODE 1 and MODE 2 with $k_{eff} \geq 1.0$ for the upper MTC limit, MODES 1, 2, and 3 for the lower MTC limit.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. MTC not within upper limit.	A.1 Establish administrative withdrawal limits for control banks to maintain MTC within limit.	24 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2 with $k_{eff} < 1.0$.	6 hours
C. MTC not within lower limit.	C.1 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.3.1 Verify MTC is within upper limit.	Once prior to entering MODE 1 after each refueling

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.2	----------NOTES---------- 1. Not required to be performed until 7 effective full power days (EFPD) after reaching the equivalent of an equilibrium RTP all rods out (ARO) boron concentration of 300 ppm 2. If the MTC is more negative than the 300 ppm Surveillance limit (not LCO limit) specified in the COLR, SR 3.1.3.2 shall be repeated once per 14 EFPD during the remainder of the fuel cycle. 3. SR 3.1.3.2 need not be repeated if the MTC measured at the equivalent of equilibrium RTP-ARO boron concentration of $\leq$ 60 ppm is less negative than the 60 ppm Surveillance limit specified in the COLR. ----------	
	Verify MTC is within lower limit.	Once each cycle

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Rod Group Alignment Limits

LCO 3.1.4 All shutdown and control rods shall be OPERABLE.

AND

Individual indicated rod positions shall be within 12 steps of their group step counter demand position.

- - - - - - - - - - - - - - - - NOTE - - - - - - - - - - - - - - - -
When THERMAL POWER is ≤ 50% RTP, the indicated position of each rod as determined by its individual rod position indicator may be within 24 steps from its group step counter demand position for up to 1 hour per 24 hours. This NOTE is not applicable for control rods known to be greater than 12 steps from the rod group step counter demand position.
- -

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more rod(s) inoperable.	A.1.1 Verify SDM to be within the limits provided in the COLR.	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.2 Be in MODE 3.	6 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One rod not within alignment limits.	B.1.1 Verify SDM to be within the limits provided in the COLR.	1 hour AND Once per 12 hours thereafter
	OR	
	B.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	B.2.1 Reduce THERMAL POWER to ≤ 75% RTP.	2 hours
	OR	
	B.2.2.1 Perform SR 3.2.1.1.	72 hours
	AND	
	B.2.2.2 Perform SR 3.2.2.1.	72 hours
	AND	
	B.3 Re-evaluate safety analyses and confirm results remain valid for duration of operation under these conditions.	5 days
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3.	6 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. More than one rod not within alignment limit.	D.1.1 Verify SDM to be within the limit provided in the COLR. OR D.1.2 Initiate boration to restore required SDM to within limit. AND D.2 Be in MODE 3.	1 hour 1 hour 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify individual rod positions within alignment limit.	12 hours
SR 3.1.4.2	Verify rod freedom of movement (trippability) by moving each rod not fully inserted in the core $\geq$ 10 steps in either direction.	92 days
SR 3.1.4.3	Verify rod drop time of each rod, from the fully withdrawn position, is $\leq$ 2.7 seconds from the beginning of decay of stationary gripper coil voltage to dashpot entry, with: a. $T_{avg} \geq 500°F$; and b. All reactor coolant pumps operating.	Prior to reactor criticality after each removal of the reactor head

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3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Shutdown Bank Insertion Limits

LCO 3.1.5 Each shutdown bank shall be within insertion limits specified in the COLR.

APPLICABILITY: MODES 1 and 2.

- - - - - - - - - - - - - - - - NOTE - - - - - - - - - - - - - - - -
This LCO is not applicable while performing SR 3.1.4.2.
- -

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more shutdown banks not within limits for reasons other than Condition B.	A.1.1 Verify SDM to be within the limits provided in the COLR.	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.2 Restore shutdown banks to within limits.	2 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One shutdown bank inserted ≤ 18 steps below the insertion limit and immovable. AND Each control and shutdown rod within limits of LCO 3.1.4. AND Each control bank within the insertion limits of LCO 3.1.6.	B.1 Verify SDM to be within the limits provided in the COLR. AND B.2 Restore the shutdown bank to within insertion limit.	Once per 12 hours 72 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each shutdown bank is within the insertion limits specified in the COLR.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 Control Bank Insertion Limits

LCO 3.1.6 Control banks shall be within the insertion, sequence, and overlap limits specified in the COLR.

APPLICABILITY: MODE 1,
MODE 2 with $k_{eff} \geq 1.0$.

- - - - - - - - - - - - - - - - NOTE - - - - - - - - - - - - - - - -
This LCO is not applicable while performing SR 3.1.4.2.
- -

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Control bank sequence or overlap limits not met.	A.1.1 Verify SDM to be within the limits provided in the COLR. OR A.1.2 Initiate boration to restore SDM to within limit. AND A.2 Restore control bank sequence and overlap to within limits.	1 hour 1 hour 2 hours
B. Control bank insertion limits not met for reasons other than Condition C.	B.1.1 Verify SDM to be within the limits provided in the COLR. OR B.1.2 Initiate boration to restore SDM to within limit. AND	1 hour 1 hour (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Restore control bank(s) to within limits.	2 hours
C. Control bank A, B, or C inserted ≤ 18 steps below the insertion limit and immovable. AND Each control and shutdown rod within limits of LCO 3.1.4. AND Each shutdown bank within the insertion limits of LCO 3.1.5.	C.1 Verify SDM to be within the limits provided in the COLR. AND C.2 Restore the control bank to within insertion limit.	Once per 12 hours 72 hours
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 2 with K_{eff} < 1.0.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify estimated critical control bank position is within the insertion limits specified in the COLR.	Within 4 hours prior to achieving criticality

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.2	Verify each control bank is within the insertion limits specified in the COLR.	12 hours
SR 3.1.6.3	Verify each control bank not fully withdrawn from the core is within the sequence and overlap limits specified in the COLR.	12 hours

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3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Rod Position Indication

LCO 3.1.7 The Rod Position Indication (RPI) System and the Demand Position Indication System shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

NOTE

Separate Condition entry is allowed for each inoperable rod position indicator and each demand position indicator.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RPI per group inoperable for one or more groups.	A.1 Verify the position indirectly of the rods with inoperable position indicators by using movable incore detectors. OR A.2 Reduce THERMAL POWER to ≤ 50% RTP.	Once per 8 hours 8 hours

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. More than one RPI per group inoperable.	B.1	Place the control rods under manual control.	Immediately
	AND		
	B.2	Monitor and record RCS T_{avg}.	Once per 1 hour
	AND		
	B.3	Verify the position of the rods with inoperable position indicators indirectly by using the movable incore detectors.	Once per 8 hours
	AND		
	B.4	Restore inoperable position indicator to OPERABLE status such that a maximum of one RPI per group is inoperable.	24 hours
C. One or more rods with inoperable position indicators have been moved in excess of 24 steps in one direction since the last determination of the rod's position.	C.1	Verify the position indirectly of the rods with inoperable position indicators by using movable incore detectors.	4 hours
	OR		
	C.2	Reduce THERMAL POWER to $\leq$ 50% RTP.	8 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One demand position indicator per bank inoperable for one or more banks.	D.1.1 Verify by administrative means all RPIs for the affected banks are OPERABLE. AND	Once per 8 hours
	D.1.2 Verify the most withdrawn rod and the least withdrawn rod of the affected banks are ≤ 12 steps apart. OR	Once per 8 hours
	D.2 Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Perform CHANNEL CALIBRATION of each RPI.	18 months

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3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 Primary Grade Water Flow Path Isolation Valves

LCO 3.1.8 Each valve used to isolate primary grade water flow paths shall be secured in the closed position.

---------- NOTE ----------
Primary grade water flow path isolation valves may be opened under administrative control for planned boron dilution or makeup activities.

APPLICABILITY: MODES 3, 4, and 5.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ---------NOTE--------- Required Action A.3 must be completed whenever Condition A is entered. ---------- One or more valves not secured in closed position.	A.1	Suspend positive reactivity additions.	Immediately
	AND		
	A.2	Secure valves in closed position.	15 minutes
	AND		
	A.3	Perform SR 3.1.1.1.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	Verify each valve in the affected flow path that isolates primary grade water flow paths is locked, sealed, or otherwise secured in the closed position.	Within 15 minutes following a boron dilution or makeup activity

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3.1 REACTIVITY CONTROL SYSTEMS

3.1.9 PHYSICS TESTS Exceptions–MODE 2

LCO 3.1.9 During the performance of PHYSICS TESTS, the requirements of

LCO 3.1.3, "Moderator Temperature Coefficient (MTC)";
LCO 3.1.4, "Rod Group Alignment Limits";
LCO 3.1.5, "Shutdown Bank Insertion Limits";
LCO 3.1.6, "Control Bank Insertion Limits"; and
LCO 3.4.2, "RCS Minimum Temperature for Criticality"

may be suspended and the number of required channels for LCO 3.3.1, "RTS Instrumentation," Functions 2, 3, and 18.d, may be reduced to "3" required channels, provided:

a. RCS lowest loop average temperature is $\geq$ 531°F;

b. SDM is within the limits provided in the COLR; and

c. THERMAL POWER is $\leq$ 5% RTP.

APPLICABILITY: During PHYSICS TESTS initiated in MODE 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. SDM not within limit.	A.1	Initiate boration to restore SDM to within limit.	15 minutes
	AND		
	A.2	Suspend PHYSICS TESTS exceptions.	1 hour
B. THERMAL POWER not within limit.	B.1	Open reactor trip breakers.	Immediately
C. RCS lowest loop average temperature not within limit.	C.1	Restore RCS lowest loop average temperature to within limit.	15 minutes

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.9.1	Perform a CHANNEL OPERATIONAL TEST on power range and intermediate range channels per SR 3.3.1.7, SR 3.3.1.8, and Table 3.3.1-1.	Prior to initiation of PHYSICS TESTS
SR 3.1.9.2	Verify the RCS lowest loop average temperature is $\geq$ 531°F.	30 minutes
SR 3.1.9.3	Verify THERMAL POWER is $\leq$ 5% RTP.	30 minutes
SR 3.1.9.4	Verify SDM to be within the limits provided in the COLR.	24 hours

3.2 POWER DISTRIBUTION LIMITS

3.2.1 Heat Flux Hot Channel Factor ($F_Q(Z)$)

LCO 3.2.1 $F_Q(Z)$, as approximated by $F_Q^M(Z)$, shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. $F_Q^M(Z)$ not within limit.	A.1 Reduce AFD limits $\geq$ 1% for each 1% $F_Q^M(Z)$ exceeds limit.	15 minutes after each $F_Q^M(Z)$ determination
	OR	
	A.2.1 Reduce THERMAL POWER $\geq$ 1% RTP for each 1% $F_Q^M(Z)$ exceeds limit.	15 minutes after each $F_Q^M(Z)$ determination
	AND	
	A.2.2 Reduce Power Range Neutron Flux–High trip setpoints $\geq$ 1% for each 1% $F_Q^M(Z)$ exceeds limit.	72 hours after each $F_Q^M(Z)$ determination
	AND	
	A.2.3 Reduce Overpower ΔT trip setpoints $\geq$ 1% for each 1% $F_Q^M(Z)$ exceeds limit.	72 hours after each $F_Q^M(Z)$ determination
	AND	
	A.2.4 Perform SR 3.2.1.1.	Prior to increasing THERMAL POWER above the limit of Required Action A.2.1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

- NOTE -
During power escalation, THERMAL POWER may be increased until a power level for extended operation has been achieved, at which a power distribution map is obtained.
- -

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	----------NOTE---------- If $F_Q^M(Z)$ measurements indicate maximum over z $\left[\frac{F_Q^M(Z)}{K(Z)}\right]$ has increased since the previous evaluation of $F_Q^M(Z)$: a. Increase $F_Q^M(Z)$ by the appropriate factor and verify $F_Q^M(Z)$ is still within limits; or b. Repeat SR 3.2.1.1 once per 7 EFPD until two successive flux maps indicate maximum over z $\left[\frac{F_Q^M(Z)}{K(Z)}\right]$ has not increased. ----------	
	Verify $F_Q^M(Z)$ is within limit.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP AND Once within 12 hours after achieving equilibrium conditions after exceeding, by $\geq$ 10% RTP, the THERMAL POWER at which $F_Q^M(Z)$ was last verified AND 31 EFPD thereafter

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3.2 POWER DISTRIBUTION LIMITS

3.2.2 Nuclear Enthalpy Rise Hot Channel Factor ($F^N_{\Delta H}$)

LCO 3.2.2 $F^N_{\Delta H}$ shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Required Actions A.3 and A.4 must be completed whenever Condition A is entered. ---------- $F^N_{\Delta H}$ not within limit.	A.1 Reduce THERMAL POWER to < 50% RTP.	4 hours
	AND	
	A.2 Reduce Power Range Neutron Flux–High trip setpoints to ≤ 55% RTP.	72 hours
	AND	
	A.3 Perform SR 3.2.2.1.	24 hours
	AND	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 ---------NOTE--------- THERMAL POWER does not have to be reduced to comply with this Required Action. ---------- Perform SR 3.2.2.1.	Prior to THERMAL POWER exceeding 50% RTP AND Prior to THERMAL POWER exceeding 75% RTP AND 24 hours after THERMAL POWER reaching ≥ 95% RTP
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify $F^N_{\Delta H}$ is within limits specified in the COLR.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP AND 31 EFPD thereafter

3.2 POWER DISTRIBUTION LIMITS

3.2.3 AXIAL FLUX DIFFERENCE (AFD)

LCO 3.2.3 The AFD in % flux difference units shall be maintained within the limits specified in the COLR.

NOTE

The AFD shall be considered outside limits when two or more OPERABLE excore channels indicate AFD to be outside limits.

APPLICABILITY: MODE 1 with THERMAL POWER ≥ 50% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. AFD not within limits.	A.1 Reduce THERMAL POWER to < 50% RTP.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify AFD within limits for each OPERABLE excore channel.	7 days

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3.2 POWER DISTRIBUTION LIMITS

3.2.4 QUADRANT POWER TILT RATIO (QPTR)

LCO 3.2.4 The QPTR shall be ≤ 1.02.

APPLICABILITY: MODE 1 with THERMAL POWER > 50% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. QPTR not within limit.	A.1 Reduce THERMAL POWER ≥ 3% from RTP for each 1% of QPTR > 1.00.	2 hours after each QPTR determination
	AND	
	A.2 Determine QPTR.	Once per 12 hours
	AND	
	A.3 Perform SR 3.2.1.1 and SR 3.2.2.1.	24 hours after achieving equilibrium Conditions from a THERMAL POWER reduction per Required Action A.1
		AND
		Once per 7 days thereafter
	AND	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 Reevaluate safety analyses and confirm results remain valid for duration of operation under this condition.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
	AND	
	A.5 --------NOTES-------- 1. Perform Required Action A.5 only after Required Action A.4 is completed. 2. Required Action A.6 shall be completed whenever Required Action A.5 is performed. ----------	
	Normalize excore detectors to restore QPTR to within limits.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
	AND	(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.6 --------NOTE-------- Perform Required Action A.6 only after Required Action A.5 is completed. ---------- Perform SR 3.2.1.1 and SR 3.2.2.1.	 Within 24 hours after achieving equilibrium Conditions at RTP not to exceed 48 hours after increasing THERMAL POWER above the limit of Required Action A.1
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ 50% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	----------NOTES---------- 1. With input from one Power Range Neutron Flux channel inoperable and THERMAL POWER ≤ 75% RTP, the remaining three power range channels can be used for calculating QPTR. 2. SR 3.2.4.2 may be performed in lieu of this Surveillance. ---------- Verify QPTR is within limit by calculation.	 7 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.2.4.2	----------NOTE---------- Not required to be performed until 12 hours after input from one or more Power Range Neutron Flux channels are inoperable with THERMAL POWER > 75% RTP. ---------- Verify QPTR is within limit using the movable incore detectors.	12 hours

3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

- NOTE -
Separate Condition entry is allowed for each Function.
- -

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).	Immediately
B. One Manual Reactor Trip channel inoperable.	B.1 Restore channel to OPERABLE status. OR B.2 Be in MODE 3.	48 hours 54 hours
C. One channel or train inoperable.	C.1 Restore channel or train to OPERABLE status. OR C.2.1 Initiate action to fully insert all rods. AND	48 hours 48 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.	49 hours
D. One Power Range Neutron Flux–High channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels. ----------	
	D.1.1 Place channel in trip.	72 hours
	AND	
	D.1.2 Reduce THERMAL POWER to ≤ 75% RTP.	78 hours
	OR	
	D.2.1 Place channel in trip.	72 hours
	AND	
	----------NOTE---------- Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable. ----------	
	D.2.2 Perform SR 3.2.4.2.	Once per 12 hours
	OR	
	D.3 Be in MODE 3.	78 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----------	
	E.1 Place channel in trip.	72 hours
	OR	
	E.2 Be in MODE 3.	78 hours
F. One Intermediate Range Neutron Flux channel inoperable.	F.1 Reduce THERMAL POWER to < P-6.	24 hours
	OR	
	F.2 Increase THERMAL POWER to > P-10.	24 hours
G. Two Intermediate Range Neutron Flux channels inoperable.	----------NOTE---------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ----------	
	G.1 Suspend operations involving positive reactivity additions.	Immediately
	AND	
	G.2 Reduce THERMAL POWER to < P-6.	2 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. One Source Range Neutron Flux channel inoperable.	----------NOTE---------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ---------- H.1 Suspend operations involving positive reactivity additions.	Immediately
I. Two Source Range Neutron Flux channels inoperable.	I.1 Open Reactor Trip Breakers (RTBs).	Immediately
J. One Source Range Neutron Flux channel inoperable.	J.1 Restore channel to OPERABLE status. OR J.2.1 Initiate action to fully insert all rods. AND J.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.	48 hours 48 hours 49 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. Required Source Range Neutron Flux channel inoperable.	----------NOTE---------- Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. ----------	
	K.1 Suspend operations involving positive reactivity additions.	Immediately
	AND	
	K.2 Perform SR 3.1.1.1.	1 hour AND Once per 12 hours thereafter
L. One channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----------	
	L.1 Place channel in trip.	72 hours
	OR	
	L.2 Reduce THERMAL POWER to < P-7.	78 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. One Reactor Coolant Pump Breaker Position channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ---------- M.1 Restore channel to OPERABLE status. OR M.2 Reduce THERMAL POWER to < P-7.	 72 hours 78 hours
N. One Turbine Trip channel inoperable.	----------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ---------- N.1 Place channel in trip. OR N.2 Reduce THERMAL POWER to < P-8.	 72 hours 76 hours
O. One train inoperable.	----------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ---------- O.1 Restore train to OPERABLE status. OR O.2 Be in MODE 3.	 24 hours 30 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
P. One RTB train inoperable.	----------NOTES---------- 1. One train may be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE. 2. One RTB may be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE. 3. One RTB train may be bypassed for up to 4 hours for concurrent surveillance testing of the RTB and automatic trip logic, provided the other train is OPERABLE. ---------- P.1 Restore train to OPERABLE status. OR P.2 Be in MODE 3.	 1 hour 7 hours
Q. One or more channels inoperable.	Q.1 Verify interlock is in required state for existing unit conditions. OR Q.2 Be in MODE 3.	1 hour 7 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
R. One or more channels inoperable.	R.1 Verify interlock is in required state for existing unit conditions. OR R.2 Be in MODE 2.	1 hour 7 hours
S. One trip mechanism inoperable for one RTB.	S.1 Restore inoperable trip mechanism to OPERABLE status. OR S.2 Be in MODE 3.	48 hours 54 hours

SURVEILLANCE REQUIREMENTS

---------- NOTE ----------
Refer to Table 3.3.1-1 to determine which SRs apply for each RTS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2	----------NOTE---------- Not required to be performed until 12 hours after THERMAL POWER is ≥ 15% RTP. ---------- Compare results of calorimetric heat balance calculation to power range channel output. Adjust power range output if calorimetric heat balance calculation result exceeds power range channel output by more than +2% RTP.	 24 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.1.3	----------NOTE---------- Not required to be performed until 72 hours after THERMAL POWER is ≥ 15% RTP. ---------- Compare results of the incore detector measurements to Nuclear Instrumentation System (NIS) AFD. Adjust NIS channel if absolute difference is ≥ 3%.	31 effective full power days (EFPD)
SR 3.3.1.4	----------NOTE---------- This Surveillance must be performed on the reactor trip bypass breaker immediately after placing the bypass breaker in service. ---------- Perform TADOT.	31 days on a STAGGERED TEST BASIS
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.1.6	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	92 days
SR 3.3.1.7	----------NOTE---------- Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3. ---------- Perform COT.	92 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.1.8	----------NOTE---------- This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. ---------- Perform COT.	-----NOTE----- Only required when not performed within previous 92 days ---------- Prior to reactor startup AND Four hours after reducing power below P-6 for source range instrumentation AND Twelve hours after reducing power below P-10 for power and intermediate range instrumentation AND Once per 92 days thereafter
SR 3.3.1.9	----------NOTES---------- 1. Adjust NIS channel if absolute difference $\geq$ 3%. 2. Not required to be performed until 72 hours after THERMAL POWER is $\geq$ 50% RTP. ---------- Compare results of the excore channels to incore detector measurements.	92 EFPD

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.1.10	----------NOTE---------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ---------- Perform CHANNEL CALIBRATION.	18 months
SR 3.3.1.11	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	18 months
SR 3.3.1.12	Perform CHANNEL CALIBRATION.	18 months
SR 3.3.1.13	Perform COT.	18 months
SR 3.3.1.14	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	18 months
SR 3.3.1.15	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	Prior to exceeding the P-8 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.16	----------NOTE---------- Neutron detectors are excluded from response time testing. ----------	
	Verify RTS RESPONSE TIME is within limits.	18 months on a STAGGERED TEST BASIS

Table 3.3.1-1 (page 1 of 5)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Manual Reactor Trip	1, 2	2	B	SR 3.3.1.14	NA
	3[a], 4[a], 5[a]	2	C	SR 3.3.1.14	NA
2. Power Range Neutron Flux					
a. High	1, 2	4	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ 110% RTP
b. Low	1[b], 2	4	E	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ 26% RTP
3. Power Range Neutron Flux Rate					
a. High Positive Rate	1, 2	4	E	SR 3.3.1.7 SR 3.3.1.11	≤ 5.5% RTP with time constant ≥ 2 sec
b. High Negative Rate	1, 2	4	E	SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ 5.5% RTP with time constant ≥ 2 sec
4. Intermediate Range Neutron Flux	1[b], 2[c]	2	F, G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	≤ 40% RTP
5. Source Range Neutron Flux	2[d]	2	H, I	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ 1.3 E5 cps
	3[a], 4[a], 5[a]	2	I, J	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ 1.3 E5 cps
	3[e], 4[e], 5[e]	1	K	SR 3.3.1.1 SR 3.3.1.11	NA

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(b) Below the P-10 (Power Range Neutron Flux) interlocks.

(c) Above the P-6 (Intermediate Range Neutron Flux) interlocks.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

(e) With the Rod Control System incapable of rod withdrawal. In this condition, source range Function does not provide reactor trip but does provide indication.

Table 3.3.1-1 (page 2 of 5)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Overtemperature ΔT	1, 2	3	E	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.12 SR 3.3.1.16	Refer to Note 1 (Page 3.3.1-16)
7. Overpower ΔT	1, 2	3	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.12	Refer to Note 2 (Page 3.3.1-17)
8. Pressurizer Pressure					
a. Low	1[(f)]	3	L	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ 1860 psig
b. High	1, 2	3	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≤ 2370 psig
9. Pressurizer Water Level–High	1[(f)]	3	L	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≤ 93%
10. Reactor Coolant Flow–Low	1[(f)]	3 per loop	L	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ 89%
11. Reactor Coolant Pump (RCP) Breaker Position	1[(f)]	1 per RCP	M	SR 3.3.1.14	NA
12. Undervoltage RCPs	1[(f)]	1 per bus	L	SR 3.3.1.6 SR 3.3.1.10 SR 3.3.1.16	≥ 2870 V
13. Underfrequency RCPs	1[(f)]	1 per bus	L	SR 3.3.1.6[(g)] SR 3.3.1.10 SR 3.3.1.16	≥ 56 Hz
14. Steam Generator (SG) Water Level–Low Low	1, 2	3 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ 17%

(f) Above the P-7 (Low Power Reactor Trips Block) interlock.

(g) Required to be performed for Unit 2 only.

Table 3.3.1-1 (page 3 of 5)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
15. SG Water Level–Low	1, 2	2 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≥ 24%
Coincident with Steam Flow/Feedwater Flow Mismatch	1, 2	2 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ 42.5% full steam flow at RTP
16. Turbine Trip					
a. Low Auto Stop Oil Pressure	1(h)	3	N	SR 3.3.1.10 SR 3.3.1.15	≥ 40 psig
b. Turbine Stop Valve Closure	1(h)	4	N	SR 3.3.1.10 SR 3.3.1.15	≥ 0% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1, 2	2 trains	O	SR 3.3.1.14	NA
18. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	2(d)	2	Q	SR 3.3.1.11 SR 3.3.1.13	≥ 3E-11 amp
b. Low Power Reactor Trips Block, P-7	1	1 per train	R	SR 3.3.1.5	NA
c. Power Range Neutron Flux, P-8	1	4	R	SR 3.3.1.11 SR 3.3.1.13	≤ 31% RTP
d. Power Range Neutron Flux, P-10	1, 2	4	Q	SR 3.3.1.11 SR 3.3.1.13	≥ 7% RTP ≤ 11% RTP
e. Turbine Impulse Pressure, P-13	1	2	R	SR 3.3.1.10 SR 3.3.1.13	≤ 11% turbine power
19. Reactor Trip Breakers(i)	1, 2	2 trains	P	SR 3.3.1.4	NA
	3(a), 4(a), 5(a)	2 trains	C	SR 3.3.1.4	NA
20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1, 2	1 each per RTB	S	SR 3.3.1.4	NA
	3(a), 4(a), 5(a)	1 each per RTB	C	SR 3.3.1.4	NA
21. Automatic Trip Logic	1, 2	2 trains	O	SR 3.3.1.5	NA
	3(a), 4(a), 5(a)	2 trains	C	SR 3.3.1.5	NA

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

(h) Above the P-8 (Power Range Neutron Flux) interlock.

(i) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

Table 3.3.1-1 (page 4 of 5)
Reactor Trip System Instrumentation

Note 1: Overtemperature ΔT

The Overtemperature ΔT Function Allowable Value shall not exceed the following nominal trip setpoint by more than 2.0% of ΔT span.

$$\Delta T \leq \Delta T_0 \left\{ K_1 - K_2 \frac{(1+\tau_1 s)}{(1+\tau_2 s)} [T - T'] + K_3 (P - P') - f_1(\Delta I) \right\}$$

Where: ΔT is measured RCS ΔT, °F.
ΔT_0 is the indicated ΔT at RTP, °F.
s is the Laplace transform operator, sec^{-1}.
T is the measured RCS average temperature, °F.
T' is the nominal T_{avg} at RTP, $\leq$ [*]°F.

P is the measured pressurizer pressure, psig
P' is the nominal RCS operating pressure, $\geq$ [*] psig

$K_1 \leq$ [*] $K_2 \geq$ [*]/°F $K_3 \geq$ [*]/psig

$\tau_1 \geq$ [*] sec $\tau_2 \leq$ [*] sec

$f_1(\Delta I) =$ [*]{[*]% - $(q_t - q_b)$} when $q_t - q_b <$ [*]% RTP
0% of RTP when [*]% RTP $\leq q_t - q_b \leq$ [*]% RTP
[*]{$(q_t - q_b)$ - [*]} when $q_t - q_b >$ [*]% RTP

Where q_t and q_b are percent RTP in the upper and lower halves of the core, respectively, and $q_t + q_b$ is the total THERMAL POWER in percent RTP.

The values denoted with [*] are specified in the COLR.

Table 3.3.1-1 (page 5 of 5)
Reactor Trip System Instrumentation

Note 2: Overpower ΔT

The Overpower ΔT Function Allowable Value shall not exceed the following nominal trip setpoint by more than 2% of ΔT span.

$$\Delta T \leq \Delta T_0 \left\{ K_4 - K_5 \left[\frac{\tau_3 s}{1 + \tau_3 s} \right] T - K_6 [T - T'] - f_2(\Delta I) \right\}$$

Where: ΔT is measured RCS ΔT, °F.
ΔT_0 is the indicated ΔT at RTP, °F.
s is the Laplace transform operator, sec^{-1}.
T is the measured RCS average temperature, °F.
T' is the nominal T_{avg} at RTP, $\leq$ [*]°F.

$K_4 \leq$ [*]
$K_5 \geq$ [*]/°F for increasing T_{avg}
[*]/°F for decreasing T_{avg}
$K_6 \geq$ [*]/°F when $T > T'$
[*]/°F when $T \leq T'$

$\tau_3 \leq$ [*] sec

$f_2(\Delta I)$ = [*]

The values denoted with [*] are specified in the COLR.

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