MODEL APPLICATION FOR PLANT-SPECIFIC ADOPTION OF TSTF-431, REVISION 3, "CHANGE IN TECHNICAL SPECIFICATIONS END STATES (BAW-2441)," FOR BABCOCK & WILCOX REACTOR PLANTS USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS

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

SUBJECT: [PLANT]
DOCKET NO. 50-[XXX]
LICENSE AMENDMENT REQUEST FOR ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER TSTF-431, REVISION 3, "CHANGE IN TECHNICAL SPECIFICATIONS END STATES (BAW-2441)," USING THE CONSILIDATED LINE ITEM IMPROVEMENT PROCESS

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.90, [LICENSEE] is submitting a request for an amendment to [PLANT] technical specifications (TS) to incorporate the NRC-approved TSTF-431, Revision 3.

This proposed amendment would modify the TS requirements for end states associated with the implementation of the approved Topical Report BAW-2441-A, Revision 2, "Risk-Informed Justification for LCO End-State Changes," as well as Required Actions revised by a specific Note in TSTF-431, Revision 3. TS Actions End States modifications would permit, for some systems, entry into a hot shutdown (Mode 4) end state rather than a cold shutdown (Mode 5) end state that is the current TS requirement.

- Attachment 1 provides a description of the proposed change, the requested confirmation of applicability, and plant-specific verifications.
- Attachment 2 summarizes the regulatory commitments made in this submittal.
- Attachment 3 provides markup pages of the existing TS and TS Bases to show the proposed change.
- Attachment 4 provides the revised (clean) TS pages.

[LICENSEE] requests approval of the proposed license amendment by [DATE], with the amendment being implemented [BY DATE OR WITHIN X DAYS].

In accordance with 10 CFR 50.91(a)(1), "Notice for Public Comment," a copy of this application, with attachments, including the analysis about the issue of no significant hazards consideration (NSHC) using the standards in 10 CFR 50.92 is being provided to the Commission in accordance with the distribution requirements in 10 CFR 50.4.

In accordance with 10 CFR 50.91(b)(1), "State consultation," a copy of this application and the reasoned analysis about NSHC is being provided to the designated [STATE] Official.

I declare [or certify, verify, state] under penalty of perjury that the foregoing is correct and true.

Executed on [date] [Signature]

If you should have any questions about this submittal, please contact [NAME, TELEPHONE NUMBER].

Sincerely,

[Name, Title]

Attachments: [As stated or provide list]

cc: [NRR Project Manager]
[Regional Office]
[Resident Inspector]
[State Contact]

ATTACHMENT 1

DESCRIPTION AND ASSESSMENT

1.0 DESCRIPTION

The proposed License Amendment Request (LAR) to adopt Risk Informed Technical Specification Task Force Initiative 1 regarding TSTF-431, Revision 3, "Change in Technical Specifications End States (BAW-2441)," (ADAMS Accession Number ML093570241), would modify the Technical Specifications (TS) requirements to permit the plant to be placed in the preferred end state of hot shutdown (Mode 4) rather than the current TS required cold shutdown (Mode 5) end state. An end state is a condition that the reactor must be placed in if the TS Required Action(s) cannot be met.

{NOTE: TSTF-431, Revision 2, (ADAMS Accession Number ML071940399) incorporates Babcock & Wilcox (B&W) Owners Group (B&WOG) Topical Report BAW-2441, Revision 2, "Risk Informed Justification for LCO end-state Changes," (ADAMS Accession Number ML040260016) which was approved by the NRC staff in a safety evaluation dated August 25, 2006 (ADAMS Accession Number ML062130286). TSTF-431, Revision 3 (ADAMS Accession Number ML093570241) supersedes TSTF-431, Revision 2 in its entirety. The only difference in Revision 3 is that it modifies the TS Required Actions with a Note prohibiting the use of LCO 3.0.4.a when entering the preferred end state (Mode 4). Hence, the model application, model safety evaluation (SE), and model No Significant Hazards Consideration (NSHC) published in the *Federal Register* (as stated below) refer to TSTF-431, Revision 3, for the STS end state changes applicable to B&W plants.}

The *Federal Register* notice published on [DATE] ([ ] FR [ ]) announced the availability of this TS improvement as part of the consolidated line item improvement process (CLIIP).

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

[LICENSEE] has reviewed the model safety evaluation (SE) referenced in the *Federal Register* Notice of Availability published on [DATE] ([ ] FR [ ]) for the proposed changes as part of the consolidated line item improvement process (CLIIP). [LICENSEE] has also reviewed the NRC SE, (ADAMS Accession Number ML062130286) for Topical Report BAW-2441, Revision 2, (ADAMS Accession Number ML040260016) as well as the supporting information provided to support TSTF-431, Revision 3. As described herein, [LICENSEE] has concluded that the technical basis presented in the TSTF proposal and the SE are applicable to [PLANT] and justifies this amendment for the incorporation of the changes to the [PLANT] TS.

2.2 Optional Changes and Variation

[LICENSEE] is not proposing any variations or deviations from the Standard Technical Specifications (STS) changes described in TSTF-431, Revision 3, or the NRC staff model SE dated [DATE]. [If the licensee proposes variations or deviations, then the licensee will describe and justify these variations/deviations and include a statement, such as, "The proposed amendment is consistent with the STS changes described in TSTF-431, Revision 3, but [LICENSEE] proposes variations or deviations from TSTF-431, Revision 3, as identified and justified below."]

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration

[LICENSEE] has evaluated the proposed changes to the TS using the criteria in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration.

{NOTE: The model application contains a model NSHC analysis as an example for the licensee to consider in preparing the NSHC for plant-specific adoption of TSTF-423.}

Description of Amendment Request: The proposed amendment would modify the [PLANT] Technical Specifications (TS) requirements to permit an end state of hot shutdown (Mode 4) rather than the current TS requirement of a cold shutdown (Mode 5) end state consistent with NRC–approved TSTF-431, Revision 3. The proposed amendment would include a Note in the applicable TS Required Actions, consistent with TSTF-431, Revision 3, which prohibits the use of LCO 3.0.4.a when entering the preferred end state.

Basis for no significant hazards consideration determination: As required by 10 CFR 50.91(a), [LICENSEE] analysis of the issue of no significant hazards consideration is presented below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The proposed change allows a change to certain required end states when the TS Completion Times for remaining in power operation will be exceeded. Most of the requested technical specifications changes are to permit an end state of hot shutdown (Mode 4) rather than an end state of cold shutdown (Mode 5) contained in the current TS. The request was limited to: (1) those end states where entry into the shutdown mode is for a short interval, (2) entry is initiated by inoperability of a single train of equipment or a restriction on a plant operational parameter, unless otherwise stated in the applicable technical specification, and (3) the primary purpose is to correct the initiating condition and return to power operation as soon as is practical. Risk insights from both the qualitative and quantitative risk assessments were used in specific TS assessments. Such assessments are documented in Sections 4 and 5 of BAW-2441-A, Revision 2, "Risk Informed Justification for LCO end-state Changes," for B&W Plants. They provide an integrated discussion of deterministic and probabilistic issues, focusing on specific technical specifications, which are used to support the proposed TS end state and associated restrictions. The staff finds that the risk insights support the conclusions of the specific TS assessments. Therefore, the probability of an accident previously evaluated is not significantly increased, if at all. The consequences of an accident after adopting proposed TSTF-431, Revision 3, are no different than the consequences of an accident prior to its adoption. The addition of a requirement to assess and manage the risk introduced by this change will further minimize possible concerns.

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

2. Does the Proposed Change Create the Possibility of a New or Different Kind of Accident from any Accident Previously Evaluated?

   Response: No

   The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed). If risk is assessed and managed, allowing a change to certain required end states when the TS Completion Times for remaining in power operation are exceeded, i.e., entry into hot shutdown rather than cold shutdown to repair equipment, will not introduce new failure modes or effects and will not, in the absence of other unrelated failures, lead to an accident whose consequences exceed the consequences of accidents previously evaluated. The addition of a requirement to assess and manage the risk introduced by this change and the commitment by the licensee to adhere to the guidance in TSTF-IG-07-01, Implementation Guidance for TSTF-431, Revision 1, "Changes in Technical Specifications end states, BAW-2441-A," will further minimize possible concerns.

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

3. Does the Proposed Change Involve a Significant Reduction in a Margin of Safety?

   Response: No

   The proposed change allows, for some systems, entry into hot shutdown rather than cold shutdown to repair equipment, if risk is assessed and managed. The B&WOG's risk assessment approach is comprehensive and follows staff guidance as documented in RGs 1.174 and 1.177. In addition, the analyses show that the criteria of the three-tiered approach for allowing TS changes are met. The risk impact of the proposed TS changes was assessed following the three-tiered approach recommended in RG 1.177. A risk assessment was performed to justify the proposed TS changes. The net change to the margin of safety is insignificant.

   Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based upon the reasoning presented above, [LICENSEE] concludes that the requested change involves no significant hazards consideration, as set forth in 10 CFR 50.92(c), "Issuance of Amendment."

3.2 Verifications, Commitments, and Additional Information Needed

As discussed in the notice of availability published in the *Federal Register* on [DATE] for this TS improvement, plant-specific verifications were performed as follows:

[LICENSEE] commits to the regulatory commitments in Attachment 2. In addition, [LICENSEE] has proposed TS Bases consistent with Topical Report BAW-2441 and TSTF-431, which provide guidance and details on how to implement the new requirements. Implementation of TSTF-431 requires that risk be managed and assessed, and the licensee's configuration risk management program is adequate to satisfy this requirement. The risk assessment need not be quantified, but may be a qualitative assessment of the vulnerability of systems and components when one or more systems are not able to perform their associated function. Finally, [LICENSEE] has a Bases Control Program consistent with Section 5.5 of the Standard Technical Specifications.

4.0 ENVIRONMENTAL EVALUATION

The amendment changes requirements with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment adopting TSTF-431, Revision 3, involves no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that TSTF-431, Revision 2, involves no significant hazards considerations, and there has been no public comment on the finding in *Federal Register* notice 72 FR 65615, dated November 21, 2007. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

ATTACHMENT 2

LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by [LICENSEE] in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments. Please direct questions regarding these commitments to [CONTACT NAME].

REGULATORY COMMITMENTS	DUE DATE/EVENT
[LICENSEE] will follow the guidance established in Section 11 of NUMARC 93-01, "Industry Guidance for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Nuclear Management and Resource Council, Revision 3, July 2000.	[Ongoing, or implement with amendment]
[LICENSEE] will follow the guidance established in TSTF-IG-07-01, Revision 1, "Implementation Guidance for TSTF-431, Revision 3, "Change in Technical Specifications End States, BAW-2441-A""	[Implement with amendment, when TS Required Action End State remains within the APPLICABILITY of TS]

MODEL SAFETY EVALUATION FOR PLANT-SPECIFIC ADOPTION OF TSTF-431, REVISION 3, "CHANGE IN TECHNICAL SPECIFICATIONS END STATES (BAW-2441)," FOR BABCOCK & WILCOX REACTOR PLANTS USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS

1.0 INTRODUCTION

By letter dated [DATE], [LICENSEE] (the licensee) proposed changes to the Technical Specifications (TS) for [PLANT]. The proposed amendment would modify the [PLANT] TS requirements to permit the plant to be placed in the preferred end state of hot shutdown (Mode 4) rather than the current TS required cold shutdown (Mode 5) end state. An end state is a condition that the reactor must be placed in if the TS Required Action(s) cannot be met.

The proposed changes are consistent with NRC–approved TSTF-431, Revision 3, "Change in Technical Specifications End States (BAW-2441)," (ADAMS Accession Number ML093570241). TSTF-431, Revision 3, incorporates Babcock & Wilcox (B&W) Owners Group (B&WOG) Topical Report BAW-2441, Revision 2, "Risk Informed Justification for LCO end-state Changes," (ADAMS Accession Number ML040260016) into the B&W Standard Technical Specifications (STS) (NUREG -1430). BAW-2441 was approved by the NRC on August 25, 2006 (ADAMS Accession Number ML062130286). The proposed amendment would also modify the Required Action(s) in the applicable TS sections by adding a Note prohibiting the use of LCO 3.0.4.a when entering the preferred end state.

The STS for B&W plants define six operational modes. In general, they are:

- Mode 1- Power Operation: $K_{eff} \geq 0.99$ and power >5% RTP
- Mode 2 - Startup: $K_{eff} \geq 0.99$ and power $\leq$ 5% RTP
- Mode 3 - Hot Standby: $K_{eff} < 0.99$ and $T_{avg} \geq$ [330]°F
- Mode 4 - Hot Shutdown: $K_{eff} < 0.99$ and [330]°F $\geq T_{avg} \geq$ [200]°F
- Mode 5 - Cold Shutdown: $K_{eff} < 0.99$ and $T_{avg} \leq$ [200]°F
- Mode 6 - Refueling: One or more reactor vessel head closure bolts are less than fully tensioned.

TSTF-431, Revision 3, generally allows a Mode 4 end state rather than a Mode 5 end state (with inclusion of a Required Action note as stated above) for selected initiating conditions in order to perform short-duration repairs which necessitate exiting the original Mode of operation. The affected TS LCOs are:

3.3.5 Engineered Safety Feature Actuation System (ESFAS) Instrumentation
3.3.6 ESFAS Manual Initiation
3.4.6 Reactor Coolant System (RCS) Loops - MODE 4
3.4.15 RCS Leakage Detection Instrumentation
3.5.4 Borated Water Storage Tank (BWST)
3.6.2 Containment Air Locks
3.6.3 Containment Isolation Valves

3.6.4 Containment Pressure
3.6.5 Containment Air Temperature
3.6.6 Containment Spray and Cooling Systems
3.7.7 Component Cooling Water System
3.7.8 Service Water System
3.7.9 Ultimate Heat Sink
3.7.10 Control Room Emergency Ventilation System (CREVS)
3.7.11 Control Room Emergency Air Temperature Control System (CREATCS)
3.8.1 AC Sources - Operating
3.8.4 DC Sources - Operating
3.8.7 Inverters – Operating
3.8.9 Distribution Systems – Operating

2.0 REGULATORY EVALUATION

In Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36, "Technical Specifications," the NRC established its regulatory requirements related to the content of TS. Pursuant to 10 CFR 50.36(c), TS are required to include items in the following five specific categories related to plant operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements (SRs); (4) design features; and (5) administrative controls. However, the regulation does not specify the particular requirements to be included in a plant's TS. The LCOs are the lowest functional capability, or performance levels, of equipment required for safe operation of the facility. When an LCO of a nuclear reactor is not met, the licensee shall follow any remedial actions permitted by the TS until the condition can be met or shall shut down the reactor.

Regulatory Guide (RG) 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," describes a risk-informed approach, acceptable to the NRC, for assessing the nature and impact of proposed permanent licensing-basis changes by considering engineering issues and applying risk insights. This RG also provides risk acceptance guidelines for evaluating the results of such evaluations. RG 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," describes an acceptable risk-informed approach specifically for assessing proposed permanent AOT and Surveillance Test Interval TS changes. This RG also provides risk acceptance guidelines for evaluating the results of such assessments. RG 1.177 identifies a three-tiered approach for the licensee's evaluation of the risk associated with a proposed Completion Time (CT) TS change, as explained in section 3.0. Per RG 1.177, the improved STS use the terminology "completion times" and "surveillance frequency" in place of "allowed outage time" and "surveillance test interval." The risk assessment provided in Topical Report BAW-2441 was done in accordance with RG 1.174 and RG 1.177.

In practice, the risk during shutdown operations is often addressed via voluntary actions and application of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Section 50.65(a)(4) states: "Before performing maintenance activities ... the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. The scope of the assessment may be limited to structures, systems, and components that a risk-informed evaluation process has shown to be significant to public health and safety." RG 1.182 "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," provides guidance on implementing the provisions of 10 CFR 50.65(a)(4) by endorsing the revised Section 11 (published separately) to NUMARC 93-01, Revision 2, "Industry Guidance for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Nuclear Management and Resource Council, Revision 3, July 2000. That section was subsequently incorporated into Revision 3 of NUMARC 93-01 (Reference 5). However, Revision 3 has not yet been formally endorsed by the NRC.

The changes in TSTF-431, Revision 3, are consistent with the rules, regulations, and associated regulatory guidance, as noted above.

3.0 TECHNICAL EVALUATION

[LICENSEE] adoption of TSTF-431, Revision 3, would modify the [PLANT] Technical Specifications (TS) requirements to permit an end state of hot shutdown (Mode 4) rather than the cold shutdown (Mode 5) end state. TSTF-431, Revision 3, incorporates the NRC approved Topical Report BAW-2441, Revision 2, for the B&W STS (NUREG -1430) modified by the inclusion of a specific Required Action note as stated in Sections 1.0 and 2.0. An overview of the generic evaluation and associated risk assessment is provided below, along with a summary of the associated TS changes.

3.1 Risk Assessment

The objective of the Topical Report BAW-2441, Revision 2, risk assessment was to show that any risk increases associated with the proposed changes in TS end states are either negligible or negative (i.e., a net decrease in risk). The Topical Report documents a risk-informed analysis of the proposed TS change. Probabilistic Risk Assessment (PRA) results and insights were used, in combination with results of deterministic assessments, to identify and propose changes in "end states" for B&W plants. This is in accordance with guidance provided in RG 1.174 and RG 1.177. The three-tiered approach for evaluating and monitoring the risk associated with a TS change described in RG 1.177, was followed. The first tier of the approach includes the assessment of the risk impact of the proposed change for comparison to acceptance guidelines consistent with the Commission's Safety Goal Policy Statement as documented in RG 1.174. In addition, the first tier aims at ensuring that there are no unacceptable temporary risk increases during the implementation of the proposed TS change, such as when equipment is taken out of service. The second tier addresses the need to preclude potentially high-risk configurations which could result if equipment is taken out of service concurrently with the implementation of the proposed TS changes. The third tier addresses the application of a configuration risk management program (CRMP), implemented to comply with 10 CFR 50.65(a)(4) of the Maintenance Rule, for identifying risk-significant configurations resulting from maintenance-related activities and taking appropriate compensatory measures to avoid such configurations.

The risk assessment approach of Topical Report BAW-2441, Revision 2, was found acceptable in the NRC SE for the topical report. The staff concluded that the analyses described in BAW-2441 show that the three-tiered approach for allowing TS changes are met as explained below:

- Risk Impact of the Proposed Change (Tier 1): The risk changes associated with the TS changes in TSTF-431, in terms of mean yearly increases in core damage frequency (CDF) and large early release frequency (LERF), are risk neutral or risk beneficial. In addition, there are no significant temporary risk increases, as defined by RG 1.177 criteria, associated with the implementation of the TS end state changes.

- Avoidance of Risk-Significant Configurations (Tier 2): The performed risk analyses, which are based on single LCOs, show that there are no high-risk configurations associated with the TS end state changes. The reliability of redundant trains is normally covered by a single LCO. To provide assurance that risk-significant plant equipment outage configurations will not occur when specific equipment is out of service, as part of the implementation of TSTF-431, the licensee will commit to follow Section 11 of NUMARC 93-01, Revision 3, and to include guidance in appropriate plant procedures and/or administrative controls to preclude high-risk plant configurations when the plant is at the proposed end state. The staff finds that such guidance is adequate for preventing risk-significant plant configurations.

- Configuration Risk Management (Tier 3): The licensee shall have a program, the CRMP, in place to comply with 10 CFR 50.65(a)(4) to assess and manage the risk from proposed maintenance activities. This program can be used to support a licensee decision in selecting the appropriate actions to control risk for most cases in which a risk-informed TS is entered. When multiple LCOs occur, which affect trains in several systems, the plant's risk-informed CRMP, implemented in response to the Maintenance Rule 10 CFR 50.65(a)(4), shall ensure that high-risk configurations are avoided.

The generic risk impact of the proposed end state mode change was evaluated subject to the following assumptions:

1. The entry into the proposed end state is initiated by the inoperability of a single train of equipment or a restriction on a plant operational parameter, unless otherwise stated in the applicable technical specification.

2. The primary purpose of entering the end state is to correct the initiating condition and return to power as soon as practical.

3. Plant implementation guidance for the proposed end state changes is developed to ensure that insights and assumptions made in the risk assessment are properly reflected in the plant-specific CRMP.

These assumptions are consistent with typical entries into Mode 4 for short duration repairs, which is the intended use of the TS end state changes.

Based on above, the staff concludes that, for the systems identified in Section 1.0 of this SE, going down to Mode 4 (hot shutdown) instead of going to Mode 5 (cold shutdown) in order to carry out equipment repairs and then return to power, does not have an adverse effect on plant risk.

3.2 Assessment of TS Changes

The following are the proposed changes, including a synopsis of the STS LCO, the change, and a conclusion regarding acceptability. TSTF-431, Revision 3, modifies every Required Action with the Mode 4 end state, and by a Note stating, "LCO 3.0.4.a is not applicable when entering

MODE 4." This specific Note applies to the proposed changes. Adding this Note into plant-specific TS requirements provides assurance that an inappropriate entry into Mode 4 utilizing the provisions of LCO 3.0.4.a during startup is not made. Therefore, the staff finds the inclusion of this Note to be acceptable.

3.2.1 TS 3.3.5, Engineering Safety Features Actuation System (ESFAS) Instruments

ESFAS instruments initiate high pressure injection (HPI), low pressure injection (LPI), containment spray and cooling, containment isolation, and onsite standby power source start. ESFAS also provides a signal to the Emergency Feedwater Isolation and Control (EFIC) System. This signal initiates emergency feed water (EFW) when HPI is initiated. All functions associated with these systems, structures and components (SSCs) can be initiated via operator action. This may be accomplished at the channel level or the individual component level.

LCO: Three channels of ESFAS instrumentation for the applicable parameters shall be operable in each ESFAS train.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.3.5 Condition B, Required Action B.2.3 and addresses only the reactor building (RB) High Pressure and RB High-High Pressure setpoints. Specifically, if two or more channels are inoperable or one channel is inoperable and the required action is not met, then the Mode 5 end state is prescribed within 36 hours subsequent to an initial cooldown to Mode 3 within 6 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action B.2.3 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: When operating in Mode 4, the reactor system thermal-hydraulic conditions are very different from those associated with a design basis accident (DBA) (at-power). That is, the energy in the RCS is only that associated with decay heat in the core and the stored energy in the reactor coolant system (RCS) components and RCS pressure is reduced (especially toward the lower end of Mode 4). This means that the likelihood of an initiating event occurring, for which ESFAS would provide mitigating functions, is greatly reduced when operating in Mode 4. Nonetheless, all redundant functions initiated by ESFAS can be manually initiated to mitigate transients that will proceed more slowly and with reduced challenge to the reactor and containment systems than those associated with at-power operations. Also, when operating toward the lower end of Mode 4, with the steam generators (SGs) in operation and shutdown cooling (SDC) not in operation, risk is reduced; risk associated with SDC operation is avoided. When operating in Mode 4 there are more mitigation systems available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These include the HPI (when any RCS cold leg temperature is $\geq$ [283]°F) and EFW systems. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.2 TS 3.3.6, ESFAS Manual Initiation

The ESFAS manual initiation capability allows the operator to actuate ESFAS functions from the main control room in the absence of any other initiation condition. Manually actuated functions include HPI, LPI, containment spray and cooling, containment isolation, and control room isolation. The ESFAS manual initiation ensures that the control room operator can rapidly initiate Engineered Safety Features (ESF) functions at any time. In the absence of manual ESFAS initiation capability, the operator can initiate any and all ESF functions individually at a lower level.

LCO: Two manual initiation channels of each one of the following ESFAS functions shall be operable: HPI, LPI, RB Cooling, RB Spray, RB Isolation, and Control Room Isolation.

Conditions Requiring Entry into end state: This proposed end state change is associated with LCO 3.3.6 Condition B, Required Action B.2. Specifically, if one or more ESFAS functions with one channel are inoperable and the required action and associated completion time are not met, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action B.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: When operating in Mode 4, the thermal-hydraulic conditions are very different than those associated with a DBA (at-power). That is, the energy in the RCS is only that associated with decay heat in the core and the stored energy in the RCS components and RCS pressure is reduced (especially toward the lower end of Mode 4). This means that the likelihood of an initiating event occurring, for which ESFAS manual initiation would provide mitigating functions, is greatly reduced when operating in Mode 4. Nonetheless, all redundant functions initiated by ESFAS manual initiation can be manually initiated via individual component controls. In this way transients, that will proceed more slowly and with reduced challenge to the reactor and containment systems than those associated with at-power operations, will be mitigated. Also, when operating toward the lower end of Mode 4, with the SGs in operation and SDC not in operation, risk is reduced (i.e., the risk associated with SDC avoided). When operating in Mode 4 there are more mitigation systems available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These include the HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW systems. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.3 TS 3.4.6, RCS Loops - MODE 4

The purpose of this LCO is to provide forced flow from at least one RCP or one decay heat removal (DHR) pump for core decay heat removal and transport. This LCO allows the two loops that are required to be operable to consist of any combination of RCS or DHR system loops. Any one loop in operation provides enough flow to remove the decay heat from the core. The second loop that is required to be operable provides redundant paths for heat removal. An ancillary function of the RCS and/or DHR loops is to provide mixing of boron in the RCS.

LCO: Two loops consisting of any combination of RCS loops and DHR loops shall be operable and one loop shall be in operation.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.4.6 Condition A, Required Action A.2. Specifically, if one required loop is inoperable, then action is taken immediately to restore a second loop to operable status. Further, if the remaining operable loop is a DHR loop, then entry into Mode 5 is required within 24 hours.

Proposed Modification for end state Required Actions: It is proposed that Required Action A.2 be deleted, thus allowing continued operations in Mode 4.

Assessment and Finding: When operating in Mode 4, if both RCS loops and one DHR loop are inoperable, the existing LCO requires cooldown to Mode 5. In this situation, SGs are available for core heat removal and transport via natural circulation (NC) in Mode 4 without the need for significant RCS heatup. Proceeding to Mode 5 makes few if any additional systems available for decay heat removal (assuming a failure of the remaining DHR system). The one system that can be made available in Mode 5 to provide backup to the DHR system is the BWST. It can provide gravity draining to the RCS after cooldown to Mode 5 and subsequent RCS drain down and removal of SG primary side manway covers. This would require a considerable time delay, during which RC temperature would be increasing. Given these considerations and magnitude of feedwater systems available to feed the SGs, continued use of SGs for this situation will adequately cool the core while avoiding the additional risk associated with SDC. RC boron concentration will have been adjusted prior to cooldown to Mode 4 to provide 1% shutdown margin (SDM) at the target cooldown temperature. Thus, boron concentration adjustments would not be necessary; RC boron would be sufficiently mixed to an equilibrium concentration by this time. When operating in Mode 4 there are more mitigation systems available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These include the HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW systems. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.4 TS 3.4.15, RCS Leakage Detection Instrumentation

One method of protecting against large RCS leakage derives from the ability of instruments to rapidly detect extremely small leaks. This LCO requires instruments of diverse monitoring principles to be operable to provide a high degree of confidence that extremely small leaks are detected in time to allow actions to place the plant in a safe condition when RCS leakage indicates possible RC pressure boundary (RCPB) degradation. The LCO requirements are satisfied when monitors of diverse measurement means are available.

LCO: The following RCS leakage detection instrumentation shall be operable:

a. One containment sump monitor and
b. One containment atmosphere radioactivity monitor (gaseous or particulate).

Conditions Requiring Entry into end state: This proposed end state change is associated with LCO 3.4.15 Condition C, Required Action C.2. Specifically, if either the sump monitor or containment atmosphere radioactivity monitor are inoperable and cannot be restored to operability within 30 days, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action C.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: Due to reduced RCS pressures when operating in Mode 4, especially toward the lower end of Mode 4, the likelihood of occurrence of a LOCA is very small; LOCA initiating event frequencies are reduced compared to at-power operation. Because of this and because the reactor is shut down with significant radionuclide decay having occurred, the probability of occurrence of a LOCA is decreased while the consequence of such an event is not increased. Additional instruments are available to provide secondary indication of a LOCA, e.g., additional containment radioactivity monitors, grab samples of containment atmosphere, humidity, temperature and pressure. Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. When operating in Mode 4 (not on SDC) there are more mitigation systems {e.g., HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW} available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.5 TS 3.5.4, Borated Water Storage Tank (BWST)

The BWST supports the emergency core cooling system (ECCS) and the reactor building spray (RBS) system by providing a source of borated water for ECCS and containment spray pump operation. The BWST supplies two ECCS trains, each by a separate, redundant supply header. Each header also supplies one train of RBS. A normally open motor operated isolation valve is provided in each header to allow the operator to isolate the BWST from the ECCS after the ECCS pump suction has been transferred to the containment sump following depletion of the BWST during a LOCA. The ECCS and RBS are provided with recirculation lines that ensure each pump can maintain minimum flow requirements when operating at shutoff head conditions. This LCO ensures that: the BWST contains sufficient borated water to support the ECCS during the injection phase; sufficient water volume exists in the containment sump to support continued operation of the ECCS and containment spray pumps at the time of transfer to the recirculation mode of cooling; and the reactor remains subcritical following a LOCA. Insufficient water inventory in the BWST could result in insufficient cooling capacity of the ECCS when the transfer to the recirculation mode occurs. Improper boron concentrations could result in a reduction of SDM or excessive boric acid precipitation in the core following a LOCA, as well as excessive caustic stress corrosion of mechanical components and systems inside containment.

LCO: The BWST shall be operable.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.5.4 Condition C, Required Action C.2. Specifically, if boron concentration is not within limits for 8 hours, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action C.2, as it relates to the boron concentration requirement of this LCO, is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours. No change is being proposed for the water temperature requirement of the LCO. The end state associated with existing C.2 is proposed to be changed as follows:

1. Split existing Condition A into two conditions (A and C) such that boron concentration and water temperature are addressed separately, i.e., Condition A would address boron concentration and Condition C would address water temperature. In either case the Required Action, i.e., A.1 and C.1 would be to restore the BWST to operable status within 8 hours.

2. A new Condition B would address boron concentration not within limits and the Required Action and associated Completion Time not met. Required Action B.1 would be to be in Mode 3 within 6 hours and B.2 would be to be in Mode 4 within 12 hours.

3. Existing Condition B would be renamed Condition D and would address BWST inoperable for reasons other than Conditions A or C with a Required Action D.1 to restore the BWST to operable status within 1 hour.

Existing Condition C would be renamed Condition E and would address Required Action and associated Completion Time for Conditions other than Condition C or D not met. It would have the Required Action to be in Mode 3 within 6 hours and Mode 5 within 36 hours.

Assessment and Finding: The limit for minimum boron concentration in the BWST was established to ensure that, following a DBA large break loss of coolant accident (LBLOCA), with a minimum BWST level, the reactor will remain shut down in the cold condition following mixing of the BWST and RCS water volumes. LBLOCA accident analyses assume that all control rods remain withdrawn from the core. When operating in Mode 4, the control rods will either be inserted or the regulating rod groups will be inserted with one or more of the safety rod groups cocked and armed for automatic RPS insertion. Hence, all rods will not be out should an initiating event occur. Also, given the highly unlikely possibility of a LBLOCA occurring, it can be assumed all control rods will be inserted should an initiating event occur while in Mode 4. This provides for the reactor shutdown margin to be very conservative, i.e., in excess of approximately -9.0% $\Delta k/k$. For these reasons, and the design basis assumptions that (a) deviations in boron concentration will be relatively slow and small and (b) boric acid addition systems would normally be available (can be powered by [onsite standby power sources]), the staff finds that the above requested change is acceptable.

3.2.6 TS 3.6.2, Containment Air Locks

Containment air locks form part of the containment pressure boundary and provide a means for personnel access during all Modes of operation. As such, air lock integrity and leak tightness is essential for maintaining the containment leakage rate within limits in the event of a DBA. Each air lock is fitted with redundant seals and doors as a design feature for mitigating the DBA.

LCO: Two containment air locks shall be operable.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.6.2 Condition D, Required Action D.2. Specifically, if one or more containment air locks are inoperable, then restore the air lock to operable within 24 hours or Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action D.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: The energy that can be released to the RB when operating in Mode 4 is only a fraction of that associated with a DBA, thus RB pressure will be only slightly higher should a LOCA occur when operating in Mode 4 as compared to operating in Mode 5. Required Action C.2 requires at least one air lock door to be closed, which combined with reduced RB pressure should result in small containment air lock leakage. Also, significant radionuclide decay will have occurred, i.e., due to plant shutdown. For these reasons, no increase in large early release frequency (LERF) is expected. In the unlikely event that at least one door cannot be closed, evaluation of the effect on plant risk and implementation of any required compensatory measures will be accomplished in accordance with 10 CFR 50.65, i.e., the “Maintenance Rule.” Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5 because there are more mitigation systems {e.g., HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW} available to respond to initiating events that could challenge RCS inventory or decay heat removal. In addition, the redundant containment spray and cooling systems required to be operable in Mode 4 but not in Mode 5, will be available to ensure that containment pressure remains low should a LOCA occur. Also, the likelihood of occurrence of a LOCA is very remote, thus the probability of occurrence of a LOCA is decreased while the consequence of such event is not increased. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.7 <u>TS 3.6.3, Containment Isolation Valves (CIVs)</u>

The CIVs form part of the containment pressure boundary and provide a means for fluid penetrations not serving accident consequence limiting systems to be provided with two isolation barriers that are closed on an automatic isolation signal. Two barriers in series are provided for each penetration so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analyses. One of these barriers may be a closed system. These barriers (typically CIVs) make up the Containment Isolation System. Containment isolation occurs upon receipt of a high containment pressure or diverse containment isolation signal. The containment isolation signal closes automatic containment isolation valves in fluid penetrations not required for operation of ESF to prevent leakage of radioactive material. Upon actuation of HPI, automatic containment valves also isolate systems not required for containment or RCS heat removal. Other penetrations are isolated by the use of valves in the closed position or blind flanges. As a result, the CIVs (and blind flanges) help ensure that the containment atmosphere will be isolated in the event of a release of radioactive material to containment atmosphere from the RCS following a DBA. Operability of the containment isolation valves (and blind flanges) supports containment operability during accident conditions. The operability requirements for containment isolation valves help ensure that containment is isolated within the time limits assumed in the safety analyses. Therefore, the operability requirements provide assurance that the containment function assumed in the safety analyses will be maintained.

<u>LCO</u>: Each containment isolation valve shall be operable.

<u>Condition Requiring Entry into end state</u>: This proposed end state change is associated with LCO 3.6.3 Condition E, Required Action E.2. Specifically, if the required action and associated completion time cannot be met for penetration flow paths with inoperable isolation valves or RB purge valve leakage limits (Conditions A, B, C and Required Actions A.1, A.2, B.1, C.1 and C.2), then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

<u>Proposed Modification for end state Required Actions</u>: The end state associated with Required Action E.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: When in Mode 4 (not on SDC) there are more mitigation systems available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. The redundant RBS and RB cooling systems will be available to ensure that containment pressure remains low should a LOCA occur. Because the energy that can be released to the RB when operating in Mode 4 is only a fraction of that associated with a DBA, RB pressure will be only slightly higher should a LOCA occur when operating in Mode 4 as compared to when operating in Mode 5. For these reasons, containment leakage associated with CIVs is small, and with the plant shutdown significant radionuclide decay will have occurred, therefore no increase in LERF is expected. Due to reduced RCS pressures when operating in Mode 4, especially toward the lower end of Mode 4, the likelihood of occurrence of a LOCA is very small, i.e., LOCA initiating event frequencies are reduced compared to at-power operation. The probability of occurrence of a LOCA is decreased while the consequence of such an event is not increased. Thus, plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.8 TS 3.6.4, Containment Pressure

The containment pressure is limited during normal operation to preserve the initial conditions assumed in the accident analyses for a LOCA or steam line break (SLB). The containment air pressure limit also prevents the containment pressure from exceeding the containment design negative pressure differential with respect to the outside atmosphere in the event of inadvertent actuation of the containment spray system. Maintaining containment pressure less than or equal to the LCO upper pressure limit (in conjunction with maintaining the containment temperature limit) ensures that: in the event of a DBA, the resultant peak containment accident pressure will remain below the containment design pressure; the containment environmental qualification operating envelope is maintained; and, the ability of containment to perform its design function is ensured. The containment high pressure limit is an initial condition used in the DBA analyses to establish the maximum peak containment internal pressure. The low containment pressure limit is based on inadvertent full (both trains) actuation of the RB spray system. Invoking any condition associated with the LCOs being proposed for an end state change cannot initiate this event; however, should it occur, there is ample time for operator response to mitigate it.

LCO: Containment pressure shall be ≥[-2.0] PSIG and ≤ [+3.0] PSIG.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.6.4 Condition B, Required Action B.2. Specifically, if containment pressure exceeds the limit and cannot be restored within one hour, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action B.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: The redundant RBS and RB cooling systems will be available to ensure that containment pressure remains low should a LOCA occur. Because the energy that can be released to the RB when operating in Mode 4 is only a fraction of that associated with a DBA, RB pressure will be only slightly higher should a LOCA occur when operating in Mode 4 as compared to when operating in Mode 5. In such a situation, the margin to the RB design pressure will be large, i.e., on the order of several tens of PSI. Also, the occurrence of a LOCA of any kind during operation in Mode 4 is considered highly unlikely. Because of this and the occurrence of significant radionuclide decay (i.e., the plant has been shut down), no increase in LERF is expected should the LCO for high containment pressure be invoked while in Mode 4. This is especially germane considering that operations personnel will commence actions to restore RB pressure to within the limit immediately upon notification that it has exceeded the limit. RB vacuum conditions will not compromise containment integrity of large dry containment of either pre-stressed or reinforced concrete designs. One plant has a steel containment configuration fitted with a vacuum breaker to mitigate vacuum conditions. The risk associated with Mode 4 operation and RB pressure below the LCO low pressure limit coincident with inadvertent RB spray actuation is considered to be so low as to be inconsequential (a search of available data bases found no record of this situation having occurred to date at any B&W design plants). Also, operations personnel will commence actions to restore RB pressure to within the limit on notification that it has exceeded the limit.

Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Also, when operating in Mode 4 (not on SDC) there are more mitigation systems {e.g., HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW} available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These considerations ultimately lead to reduced challenges to the RB when operating in Mode 4 versus Mode 5. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.9 <u>TS 3.6.5, Containment Air Temperature</u>

The containment average air temperature is limited during normal operation to preserve the initial conditions assumed in the accident analyses for a LOCA or SLB. The containment average air temperature limit is derived from the input conditions used in the containment functional analyses and the containment structure external pressure analysis. This LCO ensures that initial conditions assumed in the analysis of a DBA are not violated during unit operations. The total amount of energy to be removed from the RB Cooling system during post accident conditions is dependent upon the energy released to the containment due to the event as well as the initial containment temperature and pressure. A higher initial temperature will result in a higher peak containment pressure and temperature. Exceeding containment design pressure may result in leakage greater than that assumed in the accident analysis. Operation with containment temperature in excess of the LCO limit violates an initial condition assumed in the accident analysis. The limit for containment average air temperature ensures that operation is maintained within the assumptions used in the DBA analysis for containment. By maintaining containment air temperature at less than the initial temperature assumed in the LOCA analysis, the reactor building design condition will not be exceeded. As a result, the ability of containment to perform its design function is ensured.

<u>LCO</u>: Containment average air temperature shall be < [130]°F.

<u>Condition Requiring Entry into end state</u>: This proposed end state change is associated with LCO 3.6.5 Condition B, Required Action B.2. Specifically, if containment air temperature exceeds the limit and cannot be restored within 8 hours, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action B.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: The redundant RBS and RB cooling systems will be available to ensure that containment temperature remains low should a LOCA occur. Because the energy that can be released to the RB when operating in Mode 4 is only a fraction of that associated with a DBA, the attendant RB temperature (and associated pressure) rise will be well below that associated with a DBA. Also, the occurrence of a LOCA of any kind during operation in Mode 4 is considered highly unlikely. For these reasons and because of the occurrence of significant radionuclide decay (i.e., the plant has been shut down), no increase in LERF is expected. Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Also, when operating in Mode 4 (not on SDC) there are more mitigation systems {e.g., HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW} available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These considerations ultimately lead to reduced challenges to the RB when operating in Mode 4 versus Mode 5. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.10 TS 3.6.6, Containment Spray and Cooling Systems

The containment spray and cooling systems provide containment atmosphere cooling to limit post accident pressure and temperature in containment to less than the design values. Reduction of containment pressure and the iodine removal capability of the spray reduces the release of fission product radioactivity from containment to the environment, in the event of a DBA.

LCO: Two containment spray trains and two containment cooling trains shall be operable.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.6.6 Condition B, Required Action B.2 (containment spray system) and Condition F, Required Action F.2 (containment cooling system). Specifically: if one containment spray train is inoperable (Condition A) and cannot be restored within 7 days of discovery of failure to meet the LCO, then Mode 3 is prescribed within 6 hours and Mode 5 within 84 hours; and, if two containment cooling trains are inoperable (Condition E) and cannot be restored within 72 hours, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action B.2 of this LCO is being proposed to be changed from Mode 5 within 84 hours to Mode 4 within 60 hours, and the end state associated with Required Action F.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: In Mode 4 the release of stored energy to the RB would be only that associated with decay heat energy and energy stored in the RCS components. That is, over 95% of the energy assumed to be released to the RB during the DBA LOCA is associated with the core thermal power resulting from 100% full power. Since the reactor is already shut down, such a thermal release to the RB is not possible; only a small fraction of this energy could be released. Occurrence of the DBA, a 28 inch cold leg guillotine break at a RCP discharge, is considered to be very unlikely to occur at anytime much less while operating in Mode 4. Indeed, the occurrence of a LOCA of any kind during operation in Mode 4 is considered highly unlikely. Due to the redundancy of the containment spray and cooling systems, both their functions are available to control and maintain RB pressure well below the design limit; the function to remove radioactive iodine from the containment atmosphere will also be available.

Because the energy that can be released to the RB when operating in Mode 4 is only a fraction of that associated with a DBA, RB pressure will be only slightly higher should a LOCA occur when operating in Mode 4 as compared to when operating in Mode 5. For these reasons containment leakage is small and because significant radionuclide decay will have occurred, (i.e., because the plant has been shut down), no increase in LERF is expected.

Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Also, when operating in Mode 4 (not on SDC) there are more mitigation systems {e.g., HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW} available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These considerations ultimately lead to reduced challenges to the containment spray and cooling systems when operating in Mode 4 versus Mode 5. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.11 <u>LCO 3.7.7, Component Cooling Water (CCW) System</u>

This system provides cooling for ECCS equipment including EFW pumps that function to mitigate loss of feedwater initiating event and containment control equipment.

<u>LCO</u>: Two CCW trains shall be operable.

<u>Condition Requiring Entry into end state</u>: This proposed end state change is associated with LCO 3.7.7 Condition B, Required Action B.2. Specifically, if a CCW train becomes inoperable and cannot be restored within 72 hours, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

<u>Proposed Modification for end state Required Actions</u>: The end state associated with Required Action B.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

<u>Assessment and Finding</u>: In Mode 4 the stored energy of the reactor system would be only that associated with reduced decay heat energy and energy stored in the RCS components. Because of this, heat loads on the CCW system will be greatly reduced from those associated with the DBA, i.e., a LOCA. Also, occurrence of a design bases LOCA is considered to be very unlikely to occur at anytime much less while operating in Mode 4. Indeed, the occurrence of a LOCA of any kind during operation in this Mode is considered highly unlikely. Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Also, when operating in Mode 4 (not on SDC) there are more mitigation systems {e.g., HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW} available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These considerations ultimately lead to reduced challenges to the CCW system when operating in Mode 4 versus Mode 5. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.12 TS 3.7.8, Service Water System (SWS)

This system provides cooling for equipment that supplies boron to the RCS, i.e., HPI and emergency boration system.

LCO: Two SWS trains shall be operable.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.7.8 Condition B, Required Action B.2. Specifically, if an SWS train becomes inoperable and cannot be restored within 72 hours, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action B.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: In Mode 4 the stored energy of the reactor system would be only that associated with reduced decay heat energy and energy stored in the RCS components. Because of this, heat loads on the SWS will be greatly reduced from those associated with the DBA, i.e., a LOCA. Also, occurrence of a design bases LOCA is considered to be very unlikely to occur at anytime much less while operating in Mode 4. Indeed, the occurrence of a LOCA of any kind during operation in this Mode is considered highly unlikely. Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Also, when operating in Mode 4 (not on SDC) there are more mitigation systems {e.g., HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW} available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These considerations ultimately lead to reduced challenges to the SWS when operating in Mode 4 versus Mode 5. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.13 TS 3.7.9, Ultimate Heat Sink (UHS)

The UHS provides a heat sink for process and operating heat from safety related components during a transient or accident as well as during normal operation. The UHS has been defined as that complex of water sources, including necessary retaining structures (e.g., a pond with its dam, or a river with its dam), and the canals or conduits connecting the sources with, but not including, the cooling water system intake structures. The two principal functions of the UHS are the dissipation of residual heat after a reactor shutdown, and dissipation of residual heat after an accident. The UHS is the sink for heat removal from the reactor core following all accidents and anticipated occurrences (AOs) in which the unit is cooled down and placed on DHR. Its maximum post accident heat load occurs approximately 20 minutes after a design basis LOCA. Near this time, the unit switches from injection to recirculation and the containment cooling systems are required to remove the core decay heat.

LCO: The UHS shall be operable.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.7.9 Condition C, Required Action C.2. Specifically, if the UHS complex becomes inoperable due to inoperability of one cooling tower fan in one or more cooling towers (Condition A) and cannot be restored within 7 days then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours (Condition C).

Proposed Modification for end state Required Actions: The end state associated with Required Action C.2 as it relates to Condition A only, is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours. It is proposed that a new Action B be added, that addresses Condition A only. The Required Action of the new Condition B if Required Action and associated Completion Time of Condition A is not met is proposed to be Mode 3 within 6 hours and Mode 4 within 12 hours. Existing Condition B would be re-lettered to Condition C and existing Condition C would be re-lettered to Condition D. The first Boolean statement of Condition D would refer only to Condition C.

Assessment and Finding: In Mode 4 the stored energy of the reactor system would be only that associated with reduced decay heat energy and energy stored in the RCS components. Because of this, heat loads on the UHS will be greatly reduced from those associated with the DBA, i.e., a LOCA. Also, occurrence of a design basis LOCA is considered to be very unlikely to occur at anytime much less while operating in Mode 4. The occurrence of a LOCA of any kind during operation in this Mode is considered highly unlikely. Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Also, when operating in Mode 4 (not on SDC) there are more mitigation systems {e.g., HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW} available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These considerations ultimately lead to reduced challenges to the UHS when operating in Mode 4 versus Mode 5. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.14 TS 3.7.10, Control Room Emergency Ventilation System (CREVS)

The CREVS provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity, [chemicals, or toxic gas]. The CREVS consists of two independent, redundant, fan filter assemblies. Upon receipt of the activating signal(s), the normal control room ventilation system is automatically shut down and the CREVS can be manually started. The CREVS is designed to maintain the control room for 30 days of continuous occupancy after a DBA without exceeding a 5 rem whole body dose or its equivalent to any part of the body.

LCO: Two CREVS trains shall be operable.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.7.10 Condition C, Required Action C.2. Specifically, if one train of CREVS becomes inoperable and cannot be restored within 7 days or two CREVS trains become inoperable (due to inoperable control room boundary) and cannot be restored within 24 hours, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action C.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: This system would be required in the event the main control room (MCR) was isolated. Such an isolation would be directly due to an uncontrolled release of radioactivity, [chemicals, or toxic gas]. Uncontrolled release of radioactivity would be associated with a LOCA. A LOCA is considered highly unlikely to occur during Mode 4 operations. This is especially true of operations toward the lower end of Mode 4 while operating on SGs (SDC not in operation). Regardless of the CREVS status, the risks associated with Mode 4 are lower than the Mode 5 operating state. Relative to the uncontrolled release of [chemicals, or toxic gas], this situation is the same as when operating in Mode 5, i.e., frequencies for occurrence of these initiating events are the same in Mode 5 as Mode 4. Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Also, when operating in Mode 4 there are more mitigation systems available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These include the HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW systems. These considerations should ultimately lead to reduced challenges to CREVS when operating in Mode 4 versus Mode 5. Therefore, the staff finds that the above requested change is acceptable.

3.2.15 TS 3.7.11, Control Room Emergency Air Temperature Control System (CREATCS)

The CREATCS provides temperature control for the control room following isolation of the control room. The CREATCS consists of two independent and redundant trains that provide cooling of recirculated control room air. A cooling coil and a water cooled condensing unit are provided for each system to provide suitable temperature conditions in the control room for operating personnel and safety related control equipment. Ductwork, valves or dampers, and instrumentation also form part of the system. Two redundant air cooled condensing units are provided as a backup to the water cooled condensing unit. Both the water cooled and air cooled condensing units must be operable for the CREATCS to be operable. During emergency operation, the CREATCS maintains the temperature between 70°F and 85°F. The CREATCS is a subsystem of CREVS providing air temperature control for the control room.

LCO: Two CREATCS trains shall be operable.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.7.11 Condition B, Required Action B.2. Specifically, if a CREATCS train becomes inoperable and cannot be restored within 30 days, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action B.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: This system is a subsystem of CREVS and would be required in the event the MCR was isolated. Such an isolation would be directly due to an uncontrolled release of radioactivity, [chemicals, or toxic gas]. Uncontrolled release of radioactivity would be associated with a LOCA. A LOCA is considered highly unlikely to occur during Mode 4 operations. This is especially true of operations toward the lower end of Mode 4 while operating on SGs (SDC not in operation). Relative to the uncontrolled release of [chemicals, or toxic gas], this situation is the same as when operating in Mode 5, i.e., frequencies for occurrence of these initiating events are the same in Mode 5 as in Mode 4. When operating in Mode 4 there are more mitigation systems available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These include the HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW systems. This should ultimately lead to reduced challenges to CREACTS when operating in Mode 4 versus Mode 5. Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.16 TS 3.8.1, AC Sources - Operating

The unit Class 1E AC Electrical Power Distribution System alternating current (AC) sources consist of the offsite power sources (preferred power sources, normal and alternate(s)) and the [onsite standby power sources]. The AC electrical power system provides independence and redundancy to ensure an available source of power to the ESF systems. The onsite Class 1E AC Distribution System is divided into redundant load groups (trains) so that the loss of any one group does not prevent the minimum safety functions from being performed. Each train has connections to two preferred offsite power sources and a single [onsite standby power source]. Offsite power is supplied to the unit switchyard(s) from the transmission network by [two] transmission lines. From the switchyard(s), two electrically and physically separated circuits provide AC power, through [step down station auxiliary transformers] to the 4.16 kV ESF buses.

LCO: The following AC electrical power sources shall be operable:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System,

b. Two diesel generators (DG) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System, and

[c. Automatic load sequencers for Train A and Train B.]

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.8.1 Condition G, Required Action G.2. Specifically, if the required actions and associated completion times of Condition A, B, C, D, E or F cannot be met, then Mode 3 is prescribed within 12 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action G.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: The initial conditions of DBA and transient analyses in the safety analysis report (SAR) assume ESF systems are operable. The AC electrical power sources are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded. During operations in Mode 4 there is always a need to assure power is available to SSCs that support the critical safety functions. To this end, AC power sources are assured during occurrence of a loss of offsite power (LOOP) by operation of one of two redundant [onsite standby power sources]. This situation is no different than when operating in Mode 4 or Mode 5.

The operability requirements of the AC electrical power sources are predicated on initial assumptions of the accident analyses most notably design basis LOCAs. A design basis LOCA is considered highly unlikely to occur during at-power operations, much less during Mode 4; indeed, the occurrence of a LOCA of any kind during operation in Mode 4 is considered highly unlikely. This is especially true of operations toward the lower end of Mode 4 while operating on SGs (SDC not in operation). Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Also, when operating in Mode 4 there are more mitigation systems {e.g., HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW} available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. This consideration is particularly germane as it relates to loss of AC power sources because with the SGs operating in Mode 4, turbine driven EFW pumps (TDEFWPs) are immediately available with SG pressure of [50 PSIG (298°F RCS temperature)]. These considerations ultimately lead to reduced challenges to CDF and LERF when operating in Mode 4 versus operations in Mode 5. The redundant nature of the AC power sources, including [onsite standby power sources], provides for availability of AC power even if one source becomes inoperable.

Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.17 TS 3.8.4, DC Sources - Operating

The station direct current (DC) electrical power system provides the alternating current (AC) emergency power system with control power. It also provides both motive and control power to selected safety related equipment and preferred AC vital bus power (via inverters). The DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. The [125/250] voltage DC (VDC) electrical power system consists of two independent and redundant safety related Class 1E DC electrical power subsystems ([Train A and Train B]). The need for DC power to support the ESFs is assured during a LOOP by operation of one redundant train of station DC power as supported from the [onsite standby power sources] via the associated battery charger. This situation is no different for Mode 4 or Mode 5.

LCO: The Train A and Train B DC electrical subsystems shall be operable.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.8.4 Condition D, Required Action D.2. Specifically, if one DC electrical power subsystem becomes inoperable and cannot be restored within 2 hours, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action D.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: The operability requirements of the DC electrical power sources are predicated on initial assumptions of the accident analyses most notably design basis LOCAs. A design basis LOCA is considered highly unlikely to occur during at-power operations, much less during Mode 4; indeed, the occurrence of a LOCA of any kind during operation in Mode 4 is considered highly unlikely. This is especially true of operations toward the lower end of Mode 4 while operating on SGs (SDC not in operation). Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Also, when operating in Mode 4 there are more mitigation systems available to respond to initiating events that could challenge decay heat removal, than when operating in Mode 5. These include the HPI and EFW systems. This consideration is particularly germane as it relates to loss of DC power sources (control and circuit breaker closure power for plant equipment) because with the SGs operating in Mode 4, TDEFWPs are immediately available with SG pressure of [50 PSIG (298°F RCS temperature)]. These considerations should ultimately lead to reduced challenges to CDF and LERF when operating in Mode 4 versus operations in Mode 5. The redundant nature of the DC power sources, provides for availability of DC power even if one source becomes inoperable. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.18 TS 3.8.7, Inverters - Operating

The function of the inverter is to provide AC electrical power to the vital bus. The inverters can be powered from an internal AC source/rectifier or from the station battery. The station battery provides an uninterruptible power source for the instrumentation and controls for the RPS and the ESFAS. The initial conditions for DBAs and transient analyses assume ESF systems are operable. The inverters are designed to provide the required capacity, capability, redundancy, and reliability to ensure the availability of necessary power to the RPS and ESFAS instrumentation and controls so that the fuel, RCS, and containment design limits are not exceeded. The operability of the inverters is consistent with the initial assumptions of the accident analyses and is based on meeting the design basis of the unit. This includes maintaining required AC vital buses operable during accident conditions in the event of:

a. An assumed loss of all offsite AC electrical power or all onsite AC electrical power,
b. A worst-case single failure.

The inverters ensure the availability of AC electrical power for the systems instrumentation required to shut down the reactor and maintain it in a safe condition after an AOO or a postulated DBA. Maintaining the required inverters operable ensures that the redundancy incorporated into the design of the RPS and ESFAS instrumentation and controls is maintained. The four inverters [(two per train)] ensure an uninterruptible supply of AC electrical power to the AC vital buses even if the 4.16 kV safety buses are de-energized. Operable inverters require the associated vital bus to be powered by the inverter with output voltage and frequency within tolerances, and power input to the inverter from a 125 VDC station battery. Alternatively, power supply may be from an internal AC source via rectifier as long as the station battery is available as the uninterruptible power supply.

LCO: The required Train A and Train B inverters shall be operable.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.8.7 Condition B, Required Action B.2. Specifically, if one [required] inverter becomes inoperable and cannot be restored within 24 hours, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action B.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: The operability requirements of the inverters are to provide the required capacity, capability, redundancy, and reliability to ensure the availability of necessary power to the RPS and ESFAS instrumentation and controls so that the fuel, Reactor Coolant System, and containment design limits are not exceeded in the event of a Design Basis LOCA. A design basis LOCA is considered highly unlikely to occur during at-power operations, much less during Mode 4; indeed, the occurrence of a LOCA of any kind during operation in Mode 4 is considered highly unlikely. This is especially true of operations at the lower end of Mode 4 while operating on SGs (SDC not in operation). Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Also, when operating in Mode 4 there are more mitigation systems available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These include the HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW systems. This consideration is particularly germane as it relates to loss of electrical power distribution systems because with the SGs operating in Mode 4, TDEFWPs are immediately available with SG pressure of [50 PSIG (298°F RCS temperature)]. This consideration should ultimately lead to reduced challenges to CDF and LERF when operating in Mode 4 versus operations in Mode 5. The redundant nature of the AC vital bus electrical power distribution systems, including [onsite standby power sources], provides for availability of electrical power even if one power distribution system becomes inoperable. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.2.19 TS 3.8.9, Distribution Systems - Operating

The onsite Class 1E AC, DC, and AC vital bus electrical power distribution systems are divided by train into [two] redundant and independent AC, DC, and AC vital bus electrical power distribution subsystems. The required power distribution systems ensure the availability of AC, DC, and AC vital bus electrical power for the systems required to shut down the reactor and maintain it in a safe condition after an AOO or a postulated DBA. Maintaining the train A and B, AC, DC, and AC vital bus electrical power distribution subsystems operable ensures that the redundancy incorporated into the design of ESF is not defeated.

LCO: The Train A and Train B AC, DC and AC vital bus electrical power distribution subsystems shall be operable.

Condition Requiring Entry into end state: This proposed end state change is associated with LCO 3.8.9 Condition D, Required Action D.2. Specifically, if the required actions and associated completion times of Condition A (one or more AC electrical power distribution subsystems inoperable), Condition B (one or more AC vital buses inoperable) or Condition C (one or more DC electrical power distribution subsystems inoperable), cannot be met, then Mode 3 is prescribed within 6 hours and Mode 5 within 36 hours.

Proposed Modification for end state Required Actions: The end state associated with Required Action D.2 of this LCO is being proposed to be changed from Mode 5 within 36 hours to Mode 4 within 12 hours.

Assessment and Finding: A single failure within any system or within the electrical power distribution subsystems will not prevent safe shutdown of the reactor due to the redundancy in design. Providing for reactor shutdown is not a concern while operating in Mode 4. However, maintaining safe plant conditions is always a concern and requires that at least one redundant electrical distribution system be operable. This is assured by the redundant electrical distribution system design and the ability to power one of these systems via batteries backed by [onsite standby power sources] for DC distribution and AC vital buses, and [onsite standby power sources] for AC distribution. There is no difference in this situation whether the plant is operating in Mode 4 or 5.

The operability requirements of the AC, DC, and AC vital bus electrical power distribution systems are predicated on providing the necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded in the event of a design basis LOCA. A design basis LOCA is considered highly unlikely to occur during at-power operations, much less during Mode 4; indeed, the occurrence of a LOCA of any kind during operation in Mode 4 is considered highly unlikely. This is especially true of operations at the lower end of Mode 4 while operating on SGs (SDC not in operation). Plant risk is lower when operating in Mode 4 (not on SDC) than when operating in Mode 5; risk associated with SDC operation is avoided. Also, when operating in Mode 4 there are more mitigation systems available to respond to initiating events that could challenge RCS inventory or decay heat removal, than when operating in Mode 5. These include the HPI (when any RCS cold leg temperature is ≥ [283]°F) and EFW systems. This consideration is particularly germane as it relates to loss of electrical power distribution systems because with the SGs operating in Mode 4, TDEFWPs are immediately available with SG pressure of [50 PSIG (298°F RCS temperature)]. This consideration should ultimately lead to reduced challenges to CDF and LERF when operating in Mode 4 versus operations in Mode 5. The redundant nature of the AC, DC, and AC vital bus electrical power distribution systems, including [onsite standby power sources], provides for availability of electrical power even if one power distribution system becomes inoperable. Based on the above analysis, the staff finds that the above requested change is acceptable.

3.3 Summary

The NRC staff has reviewed the [LICENSEE] proposed adoption of TSTF-431, Revision 3, to modify the TS requirements to permit an end state of hot shutdown mode with the implementation of Topical Report BAW-2441-A, Revision 2, and found the changes to be consistent with the approved Topical Report.

4.0 STATE CONSULTATION

{NOTE: Per LIC-101, the PM is responsible for contacting the state official and verifying that this statement is correct.}

In accordance with the Commission's regulations, the [Name of State] State official was notified of the proposed issuance of the amendment. The State official had [no] comments. [If comments were provided, they should be addressed here].

5.0 ENVIRONMENTAL CONSIDERATION

{NOTE: Caution per LIC-101: The environmental consideration discussed below is written for a categorical exclusion based on 10 CFR 51.22(c)(9). The PM is responsible to ensure that this is accurate for the specific amendment being issued.}

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments 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 has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding ([ ] FR [ ]). Accordingly, the amendments 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 issuance of the amendments.

6.0 CONCLUSION

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

7.0 REFERENCES

1. Topical Report BAW-2441-A, Revision 2, “Risk-Informed Justification for LCO end-state Changes,” January 19, 2004. (ADAMS Accession No. ML040260016)

2. Federal Register, Vol. 58, No. 139, p. 39136, “Final Policy Statement on Technical Specifications Improvements for Nuclear Power Plants,” July 22, 1993.

3. 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.”

4. Regulatory Guide 1.182, “Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants,” May 2000. (ADAMS Accession No. ML003699426)

5. NUMARC 93-01, “Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” Nuclear Management and Resource Council, Revision 3, July 2000.

6. NRC Safety Evaluation for Topical Report BAW-2441, Revision 2, August 25, 2006. (ADAMS Accession No. ML062130286)

7. TSTF-431, Revision 2, “Change in Technical Specifications End States, BAW-2441-A.”

8. TSTF-IG-07-01, Implementation Guidance for TSTF-431, Revision 1, "Change in Technical Specifications End States, BAW-2441-A," April 2007. (ADAMS Accession No. ML071000281)

9. Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decision Making on Plant Specific Changes to the Licensing Basis," USNRC, July 1998. (ADAMS Accession No. ML003740133)

10. Regulatory Guide 1.177, "An Approach for Pant Specific Risk-Informed Decision Making: Technical Specifications," USNRC, August 1998. (ADAMS Accession No. ML003740176).

11. Regulatory Issue Summary 2007-06, "Regulatory Guide 1.200 Implementation," USNRC, March 22, 2007.

12. TSTF-431, Revision 3, "Change in Technical Specifications End States, BAW-2441-A." (ADAMS Accession No. ML093570241)

13. Industry comments on TSTF-431, Revision 2. (ADAMS Accession No. ML073600706)

14. Letter from Bruce A. Boger (NRC) to the Technical Specifications Task Force, "Requested Revision of Risk-Informed End States in Standard Technical Specifications." (ADAMS Accession No. ML091340273).

Principal Contributor:

Date: