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2CAN121502

December 22, 2015

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: Application to Revise Technical Specifications to Adopt TSTF-426, "Revise or Add Actions to Preclude Entry Into LCO 3.0.3 - RITSTF Initiatives 6b & 6c," Using the Consolidated Line Item Improvement Process
Arkansas Nuclear One, Unit 2
Docket No. 50-368
License No. NPF-6

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy), is submitting a request for an amendment to the Technical Specifications (TSs) for Arkansas Nuclear One, Unit 2 (ANO-2). The proposed amendment would modify TS requirements to adopt the changes described in TSTF-426, Revision 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 – RITSTF Initiatives 6b & 6c."

Attachment 1 provides a description and assessment of the proposed changes, the requested confirmation of applicability, and plant-specific verifications. Attachment 2 provides the existing TS pages marked up to show the proposed changes. Attachment 3 provides revised (clean) TS pages. Attachment 4 provides existing TS Bases pages for information only, marked up to illustrate the proposed changes.

Approval of the proposed amendment is requested by December 1, 2016. Once approved, the amendment shall be implemented within 90 days.

In accordance with 10 CFR 50.91(b)(1), a copy of this application is being provided to the designated Arkansas state official.

No new commitments have been identified in this letter.

If you have any questions or require additional information, please contact Stephenie Pyle at 479-858-4704.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 22, 2015.

Sincerely,

ORIGINAL SIGNED BY JEREMY G. BROWNING

JGB/dbb

Attachments:

1. Description and Assessment
2. Proposed Technical Specification Changes (Mark-Up)
3. Revised Technical Specification Pages
4. Proposed Technical Specification Bases Changes (Mark-Up – For Information Only)

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Attachment 1 to

2CAN121502

Description and Assessment

Description and Assessment

1.0 DESCRIPTION

The proposed change provides a short Allowable Outage Time (AOT) to restore an inoperable system for conditions under which the existing Arkansas Nuclear One, Unit 2 (ANO-2) Technical Specifications (TSs) require a plant shutdown. The proposed amendment is consistent with TSTF-426, Revision 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 - RITSTF Initiatives 6b & 6c."

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Entergy Operations, Inc. (Entergy), has reviewed the model safety evaluation dated May 20, 2013, as part of the Federal Register Notice of Availability. This review included a review of the Nuclear Regulatory Commission (NRC) safety evaluation (SE), as well as the information provided in TSTF-426, Revision 5, and the referenced Topical Report WCAP-16125-NP-A, Revision 2, "Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent plant Shutdown". As described in the subsequent paragraphs, Entergy has concluded that the justifications presented in the TSTF-426 proposal and the model SE prepared by the NRC staff are applicable to ANO-2 and justify this amendment for the incorporation of the changes to the ANO-2 TSs.

2.2 Optional Changes and Variations

Entergy is proposing the following variations from the TS changes described in the TSTF-426, Revision 5, or the applicable parts of the NRC staff's model SE dated May 20, 2013.

With respect to the above, WCAP-16125-NP-A, Revision 2, system noun-names and acronyms differ in some cases from the equivalent ANO-2 system noun-names and acronyms. In addition, the ANO-2 TSs have not been converted to the improved standard version (NUREG 1432, *Standard Technical Specifications for Combustion Engineering Plants*) and, therefore, Action wording may differ slightly from TSTF-426 to maintain consistency with the ANO-2 TS vintage. The following table describes the minor differences in noun-names and acronyms. Entergy considers these differences to be administrative in nature such that these differences do not constitute a deviation from TSTF-426 that would require unique or additional NRC review. Wording differences between NUREG 1432 and TSTF-426, when compared with the affected ANO-2 TS Actions, are discussed further below.

WCAP Noun-Name	**WCAP Acronym**	**ANO Noun-Name**	**ANO Acronym**
Control Room Emergency Air Cleanup System	CREACS	Control Room Emergency Ventilation System	CREVS
Control Room Emergency Air Temperature Control System	CREATCS	Control Room Emergency Air Conditioning System	CREACS

Variation 1 – Pressurizer

As is common to Combustion Engineering plants, ANO-2 maintains two vital-powered groups of Pressurizer proportional heaters. In addition, four groups of non-vital powered backup heaters are available. The proportional heaters normally respond automatically to maintain Pressurzier pressure within required operating bands. The heaters are designated as "proportional" because the firing rate automatically adjusts depending on the amount of deviation between actual Pressurizer pressure and the pressure control setpoint of the heaters. The backup heaters are manually controlled by the Operator, either full on or full off, to assist Pressurizer pressure control during abnormal conditions.

The ANO-2 proportional and backup heater groups are not credited in the accident analyses, but the proportional heater groups have been maintained in the TSs since the heaters aid in controlling Pressurizer pressure during a natural circulation cool down (reference ANO-2 Safety Analysis Report (SAR) Section 5.5.10.2). While the proportional heaters support power operations and simplify plant heat up and cool down, these functions alone would not meet the criteria for inclusion in the TSs. However, a natural circulation cool down may be required following a loss of offsite power, since the Reactor Coolant Pumps (RCPs) are powered from a non-vital AC source. ANO-2 TS 3.4.4, Action (b), currently associates heater group inoperability only with the respective emergency power supply since, from a TS perspective, the proportional heater groups only support loss of offsite power natural circulation cool down, a condition requiring only the emergency power supply to be available. However, this Action fails to account for a heater bank with less than the required 150 kW of heater capacity available. NUREG 1432 provides a 72-hour restoration time for a single Pressurizer proportional heater group inoperability.

With respect to ANO-2 TS 3.8.1.1, Action b.3, the associated Emergency Diesel Generator (EDG) must be restored within 14 days provided the ANO Alternate AC Diesel Generator (AACDG) is functional. The AACDG is the site's station blackout power supply, capable of supplying the required loads of both ANO units during a site-wide blackout condition (reference ANO-2 SAR Section 8.3.3 for additional information). If the AACDG is not available, the EDG, and likewise the associated Pressurizer heater group, must be restored within 72 hours, consistent with NUREG 1432. However, the wording of TS 3.4.4, Action (b) states that the proportional heater group must be restored as "required by" TS 3.8.1.1, Action b.3. TS 3.8.1.1, Action b.3, does not specifically refer to TS 3.4.4 or the proportional heaters; therefore, Entergy proposes to slightly modify the current wording of TS 3.4.4, Action (b), to provide clarity:

(b) With the pressurizer inoperable due to an inoperable emergency power supply to the pressurizer heaters, either restore the inoperable emergency power supply in accordance with~~as required by~~ TS 3.8.1.1, A~~a~~ction b.3, for an inoperable Emergency Diesel Generator, or be in at least HOT SHUTDOWN within 12 hours.

Entergy considers the above change administrative in nature, being neither more or less restrictive than the current Action statement.

To gain better consistency with NUREG 1432, Entergy proposes to modify TS 3.4.4 to add Action (c), addressing heater group capacity consistent with NUREG 1432. In the absence of such an Action, a plant shutdown could be required in accordance with TS 3.0.3 for a single proportional heater group inoperability, which is contrary to all other TS requirements associated with single train impacts. TS 3.0.3 is generally applied when a plant's configuration is not

described in the associated TS governing the required structure, system, or component (SSC). The new Acton (c) provides the clarification necessary to assist Operators in initiating appropriate corrective action upon single proportional heater group inoperability and avoids the risk and SSC challenges that would be realized during an unnecessary shutdown of the plant. This addition is also necessary to permit adoption of the TSTF-426 Action associated with two heater group inoperabilities.

(c) With the pressurizer inoperable due to a single proportional heater group having less than a 150 kW capacity, restore the inoperable proportional heater group to OPERABLE status within 72 hours, or be in at least HOT SHUTDOWN within 12 hours.

A review of the original ANO-2 TSs noted that TS 3.4.4 did not include an Action specific to the capacity of a single heater group, although operability was established as requiring at least 150 kW of capacity. It is extremely unusual for a TS to include a surveillance (operability) requirement without establishing an Action to address not meeting the stated requirement. Therefore, Entergy believes this to be on oversight in development of the original ANO-2 TSs.

Consistent with NUREG 1432, the 72-hour AOT is reasonable considering that a heater demand caused by loss of offsite power would be unlikely during this period (reference associated NUREG 1432 TS Bases). In addition, the AACDG can be utilized to energize either proportional heater group should a single failure of an EDG occur concurrent with a loss of offsite power event. The remaining proportional heater group or, in the absence of a loss of offsite power, the non-vital backup Pressurizer heater banks are sufficient to support Pressurizer pressure control during normal operations or plant cool down. Note, however, that the AACDG or an EDG can be aligned to supply power to backup heater groups under emergency conditions. The design total capacity of the four backup heater groups is approximately 921 kW (reference Operations Systems Training Manual 2-03-1), well above the minimum 150 kW required of the proportional heater group.

Minor wording and formatting differences between TSTF-426 and the proposed changes to ANO-2 TS 3.4.4 have been included to support the format and wording used in the non-standard ANO-2 TSs. These differences continue to meet the intent of TSTF-426.

Entergy believes the above changes are necessary to support adoption of TSTF-426 and are acceptable based on consistency with NUREG 1432 and consistency with TS requirements associated with single train inoperabilities. In light of the necessary changes described above, TSTF-426, Action (c), will be designated as Action (d) in ANO-2 TS 3.4.4. However, no non-administrative differences between this ANO-2 Action adoption and TSTF-426 are proposed.

Variation 2 – Containment Spray

The ANO-2 Containment Spray System (CSS) is credited to support post-accident iodine removal from the Containment Building atmosphere (reference SAR Sections 6.2.2.2.1, 6.2.3.3.1.1, and 15.1.13.1); therefore, associated TSTF-426 changes are applicable to ANO-2. However, NUREG 1432 combines requirements for the CSS and the Containment Cooling System (CCS) in a single TS. These requirements are separate for ANO-2 (TS 3.6.2.1 for CSS and TS 3.6.2.3 for CCS). The associated ANO-2 actions are consistent with NUREG 1432, with the exception that one train of CSS can be inoperable for only 72 hours (NUREG 1432 permits up to 7 days) and only a shutdown to Mode 4 is required (CSS is only required to be operable in

Modes 1, 2, and 3 for ANO-2). Nevertheless, TSTF-426 and the associated WCAP are applicability to ANO-2 for adopting an Action to permit both CSS trains to be inoperable for a short period of time.

Due to formatting differences, the single train restoration Action in TS 3.6.2.1 is now designated Action a). The new two-train restoration Action is designated as Action b). Minor wording and formatting differences between TSTF-426 and the proposed changes to ANO-2 TS 3.6.2.1 have been included to support the format and wording used in the non-standard ANO-2 TSs. These differences continue to meet the intent of TSTF-426.

Entergy has determined that the aforementioned administrative differences do not impact the adoption of the TSTF-426 Action associated with two inoperable CSS trains into the ANO-2 TSs. Note that it is not necessary to add an Action requiring TS 3.0.3 entry to gain further consistency with NUREG 1432 since such entry is required whenever a configuration exists that is not addressed by the TSs. Neither the ANO-2 CSS TS or the CCS TS permit a combination of three of the four trains (two CSS trains and two CCS trains) to be inoperable at any time; therefore, such inoperability would require immediate entry into TS 3.0.3.

Variation 3 – CREVS and CREACS

Separate TSs are provided in NUREG 1432 for the CREVS and CREACS. These two systems are contained in a single ANO-2 TS. Nevertheless, the associated ANO-2 Actions are consistent with NUREG 1432, given that ANO-2 has previously adopted TSTF-422, *Change in Technical Specifications End States*, which revised the associated shutdown requirements for single CREVS and CREACS train inoperabilities. These single-train differences have no impact on the applicability of two-train inoperability Actions of TSTF-426 to ANO-2.

Because the two systems are contained in one specification and due to ANO-2 TS formatting, TS 3.7.6.1 Action e is modified to address two inoperable CREVS trains and current Action f through Action j are relabeled to permit a new Action f addressing two inoperable CREACS trains, consistent with TSTF-426. Other minor wording and formatting differences between TSTF-426 and the proposed changes to ANO-2 TS 3.7.6.1 have been included to support the format and wording used in the non-standard ANO-2 TSs. Entergy considers these changes to be administrative in nature, having no impact on the applicability of TSTF-426 to ANO-2.

The shutdown statements associated with two train inoperability of CREVS or CREACS differs from TSTF-426 to match the shutdown statements of other Modes 1, 2, 3, and 4 Actions, consistent with the previous adoption of TSTF-422 as mentioned previously. In accordance with the intent of TSTF-422, remaining within the Applicability (Mode 4) of the LCO is acceptable because in MODE 4 there are more accident mitigation systems available and there is more redundancy and diversity in core heat removal mechanisms than in MODE 5. Specifically, Mode 4 permits core cooling by either decay heat removal systems or the Steam Generators, while Mode 5 is limited to decay heat removal systems only. In addition, accident scenarios which may occur in Mode 4 are much less severe when compared to the SAR assumption that the applicable accidents are initiated at full power operation. Therefore, Entergy has concluded that the nuclear safety benefit of TSTF-422 should equally applied to conditions where two CREVS or CREACS are inoperable.

Related to the above, the shutdown statements for each Mode 1, 2, 3, and 4 Action are equivalent. Therefore, Entergy proposes to remove the shutdown statement from each individual Mode 1, 2, 3, and 4 Action and relocate to a single shutdown statement following these Actions:

> With ACTIONS a, b, c, d, e, and/or f not met, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

Entergy considers this change to be administrative in nature, having no impact on the applicability of TSTF-426 to ANO-2.

Note that WCAP-16125-NP-A, Revision 2, implies that the CREVS emergency radiation mode and toxic gas mode are different. With respect to ANO-2, both operational modes are equivalent, isolating and pressurizing the control room with filtered air. This “emergency mode” of operation is automatically initiated following receipt of a high radiation or high chlorine level signal. While the Control Room will isolate on smoke detection, should a fire occur internal to the Control Room, the system may be aligned to exhaust smoke from the area if necessary. This minor difference from the WCAP discussion has no impact on the acceptability of applying TSTF-426 to the ANO-2 CREVS.

ANO-2 design does not include Pressurizer Power Operated Relief Valves, a Shield Building Exhaust Air Cleanup System, Iodine Cleanup System, or Emergency Core Cooling System Pump Room Exhaust Air Cleanup System. The ANO-2 TSs do not include the Penetration Room Exhaust Air Cleanup System as this system is not credited in the ANO-2 accident analyses. Therefore the TSTF-426 changes for those systems are not included.

Attachment 4 includes a mark-up (for information only) of the associated ANO-2 TS Bases to include the information added via TSTF-426; however, the ANO-2 TS Bases have not been converted to the improved standard version and do not contain the detail of NUREG 1432. Therefore, minor wording and editorial changes were required to accommodate TSTF-426 inserts.

2.3 Licensee Verifications

Entergy confirms that plant procedures can establish temporary alternate means of Control Room cooling, as assumed in the justification of the proposed change to the CREACS (reference procedure OP-2014.007, *Control Room Emergency Air Conditioning and Ventilation*).

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

Entergy Operations, Inc., (Entergy) requests adoption of TSTF-426, Revision 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 – RITSTF Initiatives 6b & 6c," which is an approved change to the standard technical specifications (STS), into the non-standard Arkansas Nuclear One, Unit 2 (ANO-2) Technical Specifications (TSs). The proposed change provides a short Allowable Outage Time (AOT) to restore an inoperable system for conditions under which the existing TSs require a plant shutdown to begin within one hour in accordance with Limiting Condition for Operation (LCO) 3.0.3.

A new Action to address one Pressurizer proportional heater group have a capacity of less than 150 kW is also proposed. This latter change was not part of TSTF-426, but was necessary to meet the functional flow of the TS in light of TSTF-426 adoption.

Entergy has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed 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 provides a short AOT to restore an inoperable system for conditions under which the existing TSs require a plant shutdown to begin within one hour in accordance with LCO 3.0.3. In addition, a new TS Action associated with Pressurizer proportional heater capacity for a single proportional heater group is proposed. Entering into TS Actions is not an initiator of any accident previously evaluated. As a result, the probability of an accident previously evaluated is not significantly increased. The consequences of any accident previously evaluated that may occur during the proposed AOTs are no different from the consequences of the same accident during the existing one-hour allowance. As a result, the consequences of any accident previously evaluated are not significantly increased.

   Therefore, the proposed change does 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.

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

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

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

   Response: No.

   The proposed change increases the time the plant may operate without the ability to perform an assumed safety function. The analyses in WCAP-16125-NP-A, "Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent plant Shutdown," Revision 2, August 2010, demonstrated that there is an acceptably small increase in risk due to a limited period of continued operation in these conditions and that this risk is balanced by avoiding the risks associated with a plant shutdown. As a result, the change to the margin of safety provided by requiring a plant shutdown within one hour is not significant.

   The new Pressurizer proportional heater capacity Action permits 72 hours to restore the affect heater group to an operable status, consistent with the STS and consistent with TS requirements associated with single train inoperabilities. The proportional heaters are not credited in the ANO-2 accident analyses, but aid in Pressurizer pressure control during a loss of offsite power event that results in the need to perform a natural circulation cool down of the plant. The associated STS bases for the standard 72-hour AOT assumes the likelihood of a loss of offsite power event during this time period that would require a demand on the proportional heaters is minimal and acknowledges the use of non-vital powered backup heater groups absent a loss of offsite power event. Note also that under emergency conditions, an Emergency Diesel Generator or the Alternate AC Diesel Generator (i.e., Station Blackout diesel) can be aligned to power any of the non-vital Pressurizer backup heater groups. As a result, the change to the margin of safety provided by the new 72-hour AOT for a single proportional heater train is not significant.

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

Based on the above, Entergy concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.0 ENVIRONMENTAL EVALUATION

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

5.0 REFERENCES

1. Federal Register Notice (78 FR 32476), dated May 30, 2013, "Models for Plant-Specific Adoption of TSTF-426, Revision 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 – RITSTF Initiatives 6b & 6c," Using the Consolidated Line Item Improvement Process" (ML13036A371)

2. Technical Specification Task Force Improved Technical Specification Change Traveler, TSTF-426, Revision 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 – RITSTF Initiatives 6b & 6c," dated November 22, 2011 (ML113260461)

3. Topical Report WCAP-16125-NP-A, Revision 2, "Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent plant Shutdown," dated August 2010 (ML110070499)

Attachment 2

2CAN121502

Proposed Technical Specification Changes (mark-up)

REACTOR COOLANT SYSTEM

PRESSURIZER

LIMITING CONDITION FOR OPERATION

3.4.4 The pressurizer shall be OPERABLE with a water volume of ≤ 910 cubic feet (equivalent to ≤ 82% of wide range indicated level) and both pressurizer proportional heater groups shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

(a) With the pressurizer inoperable due to water volume ≥ 910 cubic feet, be in at least HOT SHUTDOWN with the reactor trip breakers open within 12 hours.

(b) With the pressurizer inoperable due to an inoperable emergency power supply to the pressurizer heaters, either restore the inoperable emergency power supply in accordance with~~as required by~~ TS 3.8.1.1, A~~a~~ction b.3, for an inoperable Emergency Diesel Generator, or be in at least HOT SHUTDOWN within 12 hours.

(c) With the pressurizer inoperable due to a single proportional heater group having less than a 150 KW capacity, restore the inoperable proportional heater group to OPERABLE status within 72 hours, or be in at least HOT SHUTDOWN within 12 hours.

(d) With the pressurizer inoperable due to both proportional heater groups being inoperable for any reason (Note 1), restore at least one proportional heater group to OPERABLE status within 24 hours, or be in at least HOT SHUTDOWN within 12 hours.

SURVEILLANCE REQUIREMENTS

4.4.4.1 The pressurizer water volume shall be determined to be within its limits at least once per 12 hours.

4.4.4.2 The pressurizer proportional heater groups shall be determined to be OPERABLE.

(a) At least once per 12 hours by verifying emergency power is available to the heater groups, and

(b) At least once per 18 months by verifying that the summed power consumption of the two proportional heater groups is ≥ 150 KW.

Note 1: Action (d) is not applicable when the second group of required pressurizer heaters is intentionally made inoperable.

3/4.6.2 DEPRESSURIZATION, COOLING, AND pH CONTROL SYSTEMS

CONTAINMENT SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.1 Two independent containment spray systems shall be OPERABLE with each spray system capable of taking suction from the RWT on a Containment Spray Actuation Signal (CSAS) and automatically transferring suction to the containment sump on a Recirculation Actuation Signal (RAS). Each spray system flow path from the containment sump shall be via an OPERABLE shutdown cooling heat exchanger.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one containment spray system inoperable, restore the inoperable spray system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With both containment spray systems inoperable (Note 1):

1. Within 1 hour verify both CREVS trains are OPERABLE, and

2. Restore at least one containment spray system to OPERABLE status within 24 hours.

Otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.1 Each containment spray system shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1. Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.

2. Verifying that the system piping is full of water from the RWT to at least elevation 505' (equivalent to > 12.5% indicated narrow range level) in the risers within the containment.

b. Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head when tested pursuant to the Inservice Testing Program.

Note 1: ACTION b is not applicable when the second containment spray system is intentionally made inoperable.

3/4.7.6 CONTROL ROOM EMERGENCY VENTILATION AND AIR CONDITIONING SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6.1 Two independent control room emergency ventilation and air conditioning systems shall be OPERABLE. (Note 1)

APPLICABILITY: MODES 1, 2, 3, 4, or during handling of irradiated fuel.

ACTION:

MODES 1, 2, 3, and 4

a. With one control room emergency air conditioning system (CREACS) inoperable, restore the inoperable system to OPERABLE status within 30 days ~~or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN~~.

b. With one control room emergency ventilation system (CREVS) inoperable for reasons other than ACTION d, restore the inoperable system to OPERABLE status within 7 days ~~or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN~~.

c. With one CREVS inoperable for reasons other than ACTION d and one CREACS inoperable, restore the inoperable CREVS to OPERABLE status within 7 days and restore the inoperable CREACS to OPERABLE status within 30 days ~~or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN~~.

d. With one or more CREVS inoperable due to an inoperable CRE boundary:

1. Immediately initiate action to implement mitigating actions, and

2. Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits within 24 hours, and

3. Restore the CRE boundary to OPERABLE status within 90 days

~~Otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.~~

e. With two CREVS inoperable for reasons other than ACTION d (Note 2): ~~or with two CREACS inoperable, enter Specification 3.0.3.~~

1. Immediately initiate action to implement mitigating actions, and

2. Within 1 hour, verify LCO 3.4.8, “Specific Activity,” is met, and

3. Within 24 hours, restore at least one CREVS to OPERABLE status.

f. With two CREACS inoperable (Note 2), restore at least one CREACS to OPERABLE status within 24 hours.

With ACTIONS a, b, c, d, e, and/or f not met, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

Note 1: The control room envelope (CRE) boundary may be open intermittently under administrative controls.

Note 2: ACTION e is not applicable if the second CREVS is intentionally made inoperable. ACTION f is not applicable if the second CREACS is intentionally made inoperable.

3/4.7.6 CONTROL ROOM EMERGENCY VENTILATION AND AIR CONDITIONING SYSTEM

LIMITING CONDITION FOR OPERATION

During Handling of Irradiated Fuel

gf. With one CREACS inoperable, restore the inoperable system to OPERABLE status within 30 days or immediately place the OPERABLE system in operation; otherwise, suspend all activities involving the handling of irradiated fuel.

hg. With one CREVS inoperable, restore the inoperable system to OPERABLE status within 7 days or immediately place the control room in the emergency recirc mode of operation; otherwise, suspend all activities involving the handling of irradiated fuel.

ih. With one CREVS inoperable for reasons other than ACTION d and one CREACS inoperable:

1. restore the inoperable CREVS to OPERABLE status within 7 days or immediately place the CRE in the emergency recirc mode of operation, and

2. restore the inoperable CREACS to OPERABLE status within 30 days or immediately place the OPERABLE system in operation;

3. otherwise, suspend all activities involving the handling of irradiated fuel.

ji. With both CREACS inoperable, immediately suspend all activities involving the handling of irradiated fuel.

kj. With both CREVS inoperable or with one or more CREVS inoperable due to an inoperable CRE boundary, immediately suspend all activities involving the handling of irradiated fuel.

Attachment 3

2CAN121502

Revised Technical Specification Pages

REACTOR COOLANT SYSTEM

PRESSURIZER

LIMITING CONDITION FOR OPERATION

3.4.4 The pressurizer shall be OPERABLE with a water volume of ≤ 910 cubic feet (equivalent to ≤ 82% of wide range indicated level) and both pressurizer proportional heater groups shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

(a) With the pressurizer inoperable due to water volume ≥ 910 cubic feet, be in at least HOT SHUTDOWN with the reactor trip breakers open within 12 hours.

(b) With the pressurizer inoperable due to an inoperable emergency power supply to the pressurizer heaters, either restore the inoperable emergency power supply in accordance with TS 3.8.1.1, Action b.3, for an inoperable Emergency Diesel Generator, or be in at least HOT SHUTDOWN within 12 hours.

(c) With the pressurizer inoperable due to a single proportional heater group having less than a 150 KW capacity, restore the inoperable proportional heater group to OPERABLE status within 72 hours, or be in at least HOT SHUTDOWN within 12 hours.

(d) With the pressurizer inoperable due to both proportional heater groups being inoperable for any reason (Note 1), restore at least one proportional heater group to OPERABLE status within 24 hours, or be in at least HOT SHUTDOWN within 12 hours.

SURVEILLANCE REQUIREMENTS

4.4.4.1 The pressurizer water volume shall be determined to be within its limits at least once per 12 hours.

4.4.4.2 The pressurizer proportional heater groups shall be determined to be OPERABLE.

(a) At least once per 12 hours by verifying emergency power is available to the heater groups, and

(b) At least once per 18 months by verifying that the summed power consumption of the two proportional heater groups is ≥ 150 KW.

Note 1: Action (d) is not applicable when the second group of required pressurizer heaters is intentionally made inoperable.

3/4.6.2 DEPRESSURIZATION, COOLING, AND pH CONTROL SYSTEMS

CONTAINMENT SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.1 Two independent containment spray systems shall be OPERABLE with each spray system capable of taking suction from the RWT on a Containment Spray Actuation Signal (CSAS) and automatically transferring suction to the containment sump on a Recirculation Actuation Signal (RAS). Each spray system flow path from the containment sump shall be via an OPERABLE shutdown cooling heat exchanger.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one containment spray system inoperable, restore the inoperable spray system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With both containment spray systems inoperable (Note 1):

1. Within 1 hour verify both CREVS trains are OPERABLE, and

2. Restore at least one containment spray system to OPERABLE status within 24 hours.

Otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.1 Each containment spray system shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1. Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.

2. Verifying that the system piping is full of water from the RWT to at least elevation 505' (equivalent to > 12.5% indicated narrow range level) in the risers within the containment.

b. Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head when tested pursuant to the Inservice Testing Program.

Note 1: ACTION b is not applicable when the second containment spray system is intentionally made inoperable.

3/4.7.6 CONTROL ROOM EMERGENCY VENTILATION AND AIR CONDITIONING SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6.1 Two independent control room emergency ventilation and air conditioning systems shall be OPERABLE. (Note 1)

APPLICABILITY: MODES 1, 2, 3, 4, or during handling of irradiated fuel.

ACTION:

MODES 1, 2, 3, and 4

a. With one control room emergency air conditioning system (CREACS) inoperable, restore the inoperable system to OPERABLE status within 30 days.

b. With one control room emergency ventilation system (CREVS) inoperable for reasons other than ACTION d, restore the inoperable system to OPERABLE status within 7 days.

c. With one CREVS inoperable for reasons other than ACTION d and one CREACS inoperable, restore the inoperable CREVS to OPERABLE status within 7 days and restore the inoperable CREACS to OPERABLE status within 30 days.

d. With one or more CREVS inoperable due to an inoperable CRE boundary:

   1. Immediately initiate action to implement mitigating actions, and

   2. Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits within 24 hours, and

   3. Restore the CRE boundary to OPERABLE status within 90 days

e. With two CREVS inoperable for reasons other than ACTION d (Note 2):

   1. Immediately initiate action to implement mitigating actions, and

   2. Within 1 hour, verify LCO 3.4.8, “Specific Activity,” is met, and

   3. Within 24 hours, restore at least one CREVS to OPERABLE status.

f. With two CREACS inoperable (Note 2), restore at least one CREACS to OPERABLE status within 24 hours.

With ACTIONS a, b, c, d, e, and/or f not met, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. LCO 3.0.4.a is not applicable when entering HOT SHUTDOWN.

Note 1: The control room envelope (CRE) boundary may be open intermittently under administrative controls.

Note 2: ACTION e is not applicable if the second CREVS is intentionally made inoperable. ACTION f is not applicable if the second CREACS is intentionally made inoperable.

3/4.7.6 CONTROL ROOM EMERGENCY VENTILATION AND AIR CONDITIONING SYSTEM

LIMITING CONDITION FOR OPERATION

During Handling of Irradiated Fuel

g. With one CREACS inoperable, restore the inoperable system to OPERABLE status within 30 days or immediately place the OPERABLE system in operation; otherwise, suspend all activities involving the handling of irradiated fuel.

h. With one CREVS inoperable, restore the inoperable system to OPERABLE status within 7 days or immediately place the control room in the emergency recirc mode of operation; otherwise, suspend all activities involving the handling of irradiated fuel.

i. With one CREVS inoperable for reasons other than ACTION d and one CREACS inoperable:

   1. restore the inoperable CREVS to OPERABLE status within 7 days or immediately place the CRE in the emergency recirc mode of operation, and

   2. restore the inoperable CREACS to OPERABLE status within 30 days or immediately place the OPERABLE system in operation;

   3. otherwise, suspend all activities involving the handling of irradiated fuel.

j. With both CREACS inoperable, immediately suspend all activities involving the handling of irradiated fuel.

k. With both CREVS inoperable or with one or more CREVS inoperable due to an inoperable CRE boundary, immediately suspend all activities involving the handling of irradiated fuel.

Attachment 4

2CAN121502

Proposed Technical Specification Bases Changes (Mark-Up)
(For Information Only)

3/4.4.2 and 3/4.4.3 SAFETY VALVES

The pressurizer code safety valves operate to prevent the RCS from being pressurized above its Safety Limit of 2750 psia. Each safety valve is designed to relieve 453,817 lbs. per hour of saturated steam at 3% overpressure. The relief capacity of a single safety valve is adequate to relieve any overpressure condition which could occur during shutdown.

Two safety valves are required in MODES 1, 2 and 3. One safety valve is required in MODE 4 with T_c > 220 °F. For the remainder of MODES 4, 5 and 6 with the reactor vessel head in place, overpressure protection is provided by the operating procedures and LCO 3.4.12, “Low Temperature Overpressure Protection (LTOP) System”.

During operation, all pressurizer code safety valves must be OPERABLE to prevent the RCS from being pressurized above its safety limit of 2750 psia. The combined relief capacity of these valves is sufficient to limit the Reactor Coolant System pressure to within its Safety Limit of 2750 psia following a complete loss of turbine generator load while operating at RATED THERMAL POWER and assuming no reactor trip until the first Reactor Protective System trip setpoint (Pressurizer Pressure-High) is reached (i.e., no credit is taken for a direct reactor trip on the loss of turbine) and also assuming no operation of the steam dump valves.

Demonstration of the safety valves' lift setting will occur only during shutdown and will be performed in accordance with the provisions of the ASME Operation and Maintenance Code.

3/4.4.4 PRESSURIZER

A steam bubble in the pressurizer ensures that the RCS is not a hydraulically solid system and is capable of accommodating pressure surges during operation. The steam bubble also protects the pressurizer code safety valves against water relief. The steam bubble functions to relieve RCS pressure during all design transients.

The requirement that 150 KW of pressurizer proportional heaters per group~~bank~~ and the~~ir~~ associated controls be capable of being supplied electrical power from an emergency bus provides assurance that these heaters can be energized during a loss-of-offsite power condition to maintain natural circulation at HOT STANDBY. Action (b) is applicable to conditions when a single proportional heater group~~bank~~ is inoperable due to ~~afor any reason, whether~~ loss of an emergency power supply ~~or the loss of capability (less than 150 KW output per bank as required by Surveillance 4.4.4.2(b))~~. ACTION~~ction~~ (b) requires that the AOT associated with a single inoperable EDG (TS 3.8.1.1 ACTION~~ction~~ b.3) be entered when a heater group~~bank~~ has an inoperable emergency power supply. This ACTION~~action~~ allows 14 days to restore an inoperable EDG to OPERABLE status provided the AACDG is available. If the AACDG is not available, the EDG must be restored to OPERABLE status within 72 hours. In the event the circuit between the AACDG and the proportional heater bank is unavailable (480 V Load Center breaker supplying the heater group~~bank~~ is open or other similar break in the circuit), the AACDG cannot be considered available to the heater group~~bank~~. Likewise, if a proportional heater group~~bank~~ output capability is known to be < 150 KW, the availability of the AACDG provides no additional capability. Both of these cases require the proportional heater group~~bank~~ to be restored to OPERABLE status within 72 hours in accordance with Note 1 of EDG TS 3.8.1.1 ACTION~~ction~~ b.3) (Reference Licensing Memo LIC 04-045 and -046) or ACTION (c) below.

ACTION (c) is applicable if one group of pressurizer proportional heaters is inoperable due to having less than the required 150 KW capacity, with restoration required within 72 hours. The AOT of 72 hours is reasonable considering that a demand caused by loss of offsite power would be unlikely in this period. Pressure control may be maintained during this time using the redundant group of proportional heaters or the backup heater groups.

If two required groups of pressurizer heaters are inoperable for any reason, restoring at least one group of pressurizer heaters to OPERABLE status is required within 24 hours. ACTION (d) is modified by a Note stating it is not applicable if the second group of required pressurized heaters is intentionally declared inoperable. ACTION (d) is not intended for voluntary removal of redundant systems or components from service. The ACITON is only applicable if one group of required pressurized heaters is inoperable for any reason and the second group of required pressurized heaters is discovered to be inoperable, or if both groups of required pressurized heaters are discovered to be inoperable at the same time. If both required groups of pressurizer heaters are inoperable, the pressurizer heaters may not be available to help maintain subcooling in the RCS loops during a natural circulation cooldown following a loss of offsite power. The inoperability of two groups of required pressurizer heaters during the 24-hour AOT has been shown to be acceptable based on the infrequent use of the ACTION and the small incremental effect on plant risk (Reference WCAP-16125-NP-A, “Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent Plant Shutdown,” Revision 2, August 2010).

3/4.6.2.1 CONTAINMENT SPRAY SYSTEM (continued)

The CSS and the Containment Cooling System (CCS) provide post-accident cooling and mixing of the containment atmosphere; however, the CCS is not redundant to the CSS. The CSS also provides a mechanism for removing iodine from the containment atmosphere and therefore the time requirements for restoring an inoperable spray system to OPERABLE status have been maintained consistent with that assigned other inoperable ESF equipment.

If one~~the~~ inoperable C~~ontainment Spray Pump~~SS train cannot be restored to an OPERABLE status within the allowable outage time (AOT), the plant must be brought to a MODE in which overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within the following 6 hours. Remaining within the Applicability of the LCO is acceptable because the plant risk in MODE 4 is similar to or lower than MODE 5 (reference CE NPSD-1186-A, Technical Justification for the Risk Informed Modification to Selected Required Action End States for CEOG PWRs, October, 2001). In MODE 4 there are more accident mitigation systems available and there is more redundancy and diversity in core heat removal mechanisms than in MODE 5. However, voluntary entry into MODE 5 may be made as it is also an acceptable low-risk state.

With two required CSS trains inoperable, at least one of the required CSS trains must be restored to OPERABLE status within 24 hours. Both trains of CCS must be OPERABLE (refer to LCO 3.6.2.3) and both CREVS trains must be verified to be OPERABLE within 1 hour (refer to LCO 3.7.6.1). ACTION b is modified by a Note stating it is not applicable if the second CSS train is intentionally declared inoperable. The ACTION does not apply to voluntary removal of redundant systems or components from service. The ACTION is only applicable if one train is inoperable for any reason and the second train is discovered to be inoperable, or if both trains are discovered to be inoperable at the same time. The components in this degraded condition are capable of providing greater than 100% of the heat removal needs after an accident. The AOT is based on WCAP-16125-NP-A, “Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent Plant Shutdown,” Revision 2, August 2010, which demonstrated that the 24-hour AOT is acceptable based on the redundant heat removal capabilities afforded by the CCS, the iodine removal capability of the CREVS, the infrequent use of the ACTION, and the small incremental effect on plant risk. If at least one CSS train is not restored to OPERABLE status within 24 hours, the plant must be shutdown as described above.

SR 4.6.2.1.a.2 requires verification of the CSS header level once every 31 days. Verifying that the CSS header piping is full of water to the Elevation 505’ level minimizes the time required to fill the header upon a Containment Spray Actuation Signal (CSAS). This ensures that spray flow will be admitted to the Containment Building atmosphere within the time frame assumed in the accident analysis. This SR is not associated with subject matter related to gas accumulation. TS-required systems must always be maintained sufficiently full of water to ensure the specified safety function will be performed when called upon.

SR 4.6.2.1.d ensures that each spray nozzle is unobstructed and provides assurance that spray coverage of the containment during an accident is not degraded. Confirmation that the spray nozzles are unobstructed may be obtained by such means as foreign materials exclusion (FME) controls during maintenance, a visual inspection of the affected portions of the system, by an air or smoke flow test following maintenance involving opening portions of the system downstream

d. (continued)

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

With the allowable outage times of Actions “a”, “b”, “c” or “d” not met, the plant must be brought to a MODE in which overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within the following 6 hours. Remaining within the Applicability of the LCO is acceptable because the plant risk in MODE 4 is similar to or lower than MODE 5 (reference CE NPSD-1186-A, Technical Justification for the Risk Informed Modification to Selected Required Action End States for CEOG PWRs, October, 2001). In MODE 4 there are more accident mitigation systems available and there is more redundancy and diversity in core heat removal mechanisms than in MODE 5. However, voluntary entry into MODE 5 may be made as it is also an acceptable low-risk state. These Actions are modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

e.

With both trains of CREVS for reasons other than ACTION d and/or both trains of the CREACS inoperable, at least one CREVS train must be returned to OPERABLE status within 24 hours. The ACTION is modified by a Note stating it is not applicable if the second CREVS or CREACS train, as applicable, is intentionally declared inoperable. The ACTION does not apply to voluntary removal of redundant systems or components from service. The ACTION is only applicable if one train is inoperable for any reason and the second train is discovered to be inoperable, or if both trains are discovered to be inoperable at the same time.

During the period that the CREVS trains are inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from potential hazards while both trains of CREVS are inoperable. In the event of a DBA, the mitigating actions will reduce the consequences of radiological exposures to the CRE occupants.~~the function of the systems has been lost, requiring immediate action to place the unit in a MODE where the specification does not apply~~. In addition, TS 3.4.8, "RCS Specific Activity," allows limited operation with the RCS activity significantly greater than the LCO limit. This presents a risk to the plant operator during an accident when all CREVS trains are inoperable. Therefore, it must be verified within 1 hour that LCO 3.4.8 is met. This ACTION does not require additional RCS sampling beyond that normally required by LCO 3.4.8.

With both CREACS trains inoperable, contingency measures may be required to ensure the CRE remains habitable and to limit temperature effects on electrical equipment housed within the Control Room. OP-2104.007 contains additional guidance to aid maintenance of the CRE during this limited 24-hour period.

At least one CREVS train and/or one CREACS train, as applicable, must be returned to OPERABLE status within 24 hours. The AOT is based on WCAP-16125-NP-A, “Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent Plant Shutdown,” Revision 2, August 2010, which demonstrated that the 24-hour AOT is acceptable based on the infrequent use of the ACTION and the small incremental effect on plant risk.

If both CREVS trains and/or CREACS trains, as applicable, remain inoperable beyond the 24-hour AOT in MODE 1, 2, 3, or 4, the unit must be placed in a MODE that minimizes the accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within the following 30 hours. The allowed outage times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.