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CENG
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CALVERT CLIFFS
NUCLEAR POWER PLANT

November 13, 2013

U. S. Nuclear Regulatory Commission
Washington, DC 20555

**ATTENTION:** Document Control Desk

**SUBJECT:** Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Application for Technical Specification Improvement to Adopt TSTF–426-A, Revision 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 – RITSTF Initiatives 6b and 6c"

In accordance with 10 CFR 50.90, Calvert Cliffs Nuclear Power Plant, LLC is submitting a request for an amendment to the Technical Specifications for Calvert Cliffs Nuclear Power Plant (Calvert Cliffs) Units 1 and 2. The proposed amendment would modify the Technical Specification requirements to adopt the changes described in Technical Specification Task Force (TSTF)–426-A, Revision 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 – RITSTF Initiatives 6b and 6c."

The changes are consistent with Nuclear Regulatory Commission-approved Industry TSTF Standard Technical Specification Change Traveler, TSTF–426-A, Revision 5. The availability of this Technical Specification improvement was announced in the Federal Register on May 30, 2013 (78FR32476) as part of the consolidated line item improvement process.

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 Technical Specification pages marked up to show the proposed changes. Attachment (3) provides the existing Technical Specification Bases pages marked up to show the proposed changes. Calvert Cliffs Nuclear Power Plant requests approval of the proposed license amendment by November 30, 2014 with the amendment being implemented within 60 days.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Maryland Official.

There are no regulatory commitments contained in this letter.

A001
NRR

Should you have questions regarding this matter, please contact Mr. Douglas E. Lauver at (410) 495-5219.

I declare under penalty of perjury that the foregoing is true and correct. Executed on November 13, 2013.

Very truly yours,

GHG/PSF/bjd

Attachments: (1) Description and Assessment of Proposed Changes
(2) Marked up Technical Specification Pages
(3) Marked up Technical Specification Bases Pages

cc: N. S. Morgan, NRC
W. M. Dean, NRC
Resident Inspector, NRC
S. Gray, DNR

# ATTACHMENT (1)

## DESCRIPTION AND ASSESSMENT OF PROPOSED CHANGES

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## ATTACHMENT (1)

## DESCRIPTION AND ASSESSMENT OF PROPOSED CHANGES

### 1.0 DESCRIPTION

This letter is a request for an amendment to Renewed Operating Licenses DPR-53 and DPR-69 for Calvert Cliffs Nuclear Power Plant (Calvert Cliffs), Units 1 and 2. The proposed change provides a short completion time to restore an inoperable system for conditions under which existing Technical Specifications (TSs) require a plant shutdown.

This change is consistent with Technical Specification Task Force (TSTF) change traveler TSTF-426-A, Revision 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 – RITSTF Initiatives 6b and 6c." The availability of this TS improvement was announced in the Federal Register on May 30, 2013 (78 FR 32476) as part of the consolidated line item improvement process.

### 2.0 ASSESSMENT

#### 2.1 Applicability of Published Safety Evaluation

Calvert Cliffs has reviewed TSTF-426-A, Revision 5, and the model safety evaluation dated May 20, 2013 (ADAMS Accession No. ML13036A381). This review included a review of the Nuclear Regulatory Commission (NRC) staff evaluation, as well as the information provided in TSTF-426-A, 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, Calvert Cliffs has concluded that the justifications presented in TSTF-426-A, Revision 5 and the model safety evaluation prepared by the NRC staff are applicable to Calvert Cliffs Unit Nos. 1 and 2 and justify this amendment for the incorporation of the changes to the Calvert Cliffs TS.

#### 2.2 Optional Change and Variations

Calvert Cliffs is not proposing any technical variations or deviations from the TS changes described in TSTF-426-A, Revision 5 or the applicable parts of the NRC staff's model safety evaluation dated May 20, 2013. However, Calvert Cliffs is proposing the following administrative variations.

1. Calvert Cliffs uses different numbering and titles than the Improved Standard Technical Specifications (ISTS) in several instances. The specific differences are shown in the table below.

| | |
|---|---|
| Calvert Cliffs TS 3.6.8, "Iodine Removal System" | ISTS 3.6.10, "Iodine Cleanup System (ICS)" |
| Calvert Cliffs TS 3.7.8, "Control Room Emergency Ventilation System" | ISTS 3.7.11, "Control Room Emergency Air Cleanup System" |
| Calvert Cliffs TS 3.7.12, "Penetration Room Exhaust Ventilation System" | ISTS 3.7.15, "Penetration Room Exhaust Air Cleanup System" |

   These differences are administrative and do not affect the applicability of TSTF-426-A, Revision 5 to the Calvert Cliffs TS.

2. The Calvert Cliffs design does not include a Shield Building Exhaust Air Cleanup System. In addition, the Calvert Cliffs TS do not include TS for the Emergency Core Cooling System Pump Room Exhaust Air Cleanup System. Therefore, the TSTF-426-A, Revision 5 changes for those systems are not included. This variation is administrative and does not affect the applicability of TSTF-426-A, Revision 5 to the Calvert Cliffs TS.

3. Calvert Cliffs TS 3.4.11, "Pressurizer Power Operated Relief Valves," currently contain Actions for two PORVs inoperable and not capable of being manually cycled. The Required Action requires restoration of one PORV to OPERABLE status in 72 hours. Additionally, this TS contains an Action for two block valves inoperable which requires restoration of one block valve to OPERABLE status within 72 hours. Although a change to the equivalent TS was approved in TSTF-426-A, Revision 5, Calvert Cliffs is not pursuing the change. Since each TS change was evaluated separately in WCAP-16125-NP-A, Revision 2, failure to adopt this change will not have an impact on the acceptability of adopting the remaining changes which apply. This variation is administrative and does not affect the applicability of TSTF-426-A, Revision 5, to the Calvert Cliffs TS.

4. A change to Calvert Cliffs TS 3.7.9, Control Room Emergency Temperature System, was not included in the WCAP-16125-NP-A, Revision 2 evaluation for the equivalent TS. Therefore, the TSTF-426-A, Revision 5 changes for the equivalent system are not included in this request. Since each TS change was evaluated separately in WCAP-16125-NP-A, Revision 2, failure to adopt this change will not have an impact on the acceptability of adopting the remaining changes which apply. This variation is administrative and does not affect the applicability of TSTF-426-A, Revision 5 to the Calvert Cliffs TS.

2.3 Licensee Verifications

Calvert Cliffs confirms that no licensee verifications are required.

## 3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration

Calvert Cliffs Nuclear Power Plant, LLC requests adoption of Technical Specification Task Force (TSTF)-426-A, Revision 5, "Revise of Add Actions to Preclude Entry into LCO 3.0.3 – RITSTF Initiatives 6b & 6c," which is an approved change to the standard technical specifications into the Calvert Cliffs Unit Nos. 1 and 2 Technical Specifications. The proposed change provides a short Completion Time to restore an inoperable system for conditions under which the existing Technical Specifications require a plant shutdown to begin within one hour in accordance with Limiting Condition for Operation 3.0.3.

This proposed change has been evaluated against the standards in 10 CFR 50.92 and has been determined to involve no significant hazards considerations, in that operation of the facility in accordance with the proposed amendment would not:

*1. Involve a significant increase in the probability or consequences of an accident previously evaluated; or*

No.

The proposed change provides a short Completion Time to restore an inoperable system for conditions under which the existing Technical Specifications require a plant shutdown to begin within one hour in accordance with Limiting Condition for Operation 3.0.3. Entering into Technical Specification 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 Completion Times 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, operation of the facility in accordance with the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. *Create the possibility of a new or different type of accident from any accident previously evaluated; or*

   No.

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

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

3. *Involve a significant reduction in a margin of safety.*

   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.

   Therefore, the proposed amendment would not involve a significant reduction in a margin of safety.

Based on the above, Calvert Cliffs concludes that the proposed amendment does not involve a 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 Part 20, and 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 effluent 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 conjunction with the proposed change.

# ATTACHMENT (2)

## MARKED UP TECHNICAL SPECIFICATION PAGES

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

a. Pressurizer water level ≥ 133 inches and ≤ 225 inches; and

b. Two banks of pressurizer heaters OPERABLE with the capacity of each bank ≥ 150 kW and capable of being powered from an emergency power supply.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

| CONDITION | REQUIRED ACTION | | COMPLETION TIME |
|---|---|---|---|
| A. Pressurizer water level not within limit. | A.1 | Be in MODE 3 with reactor trip breakers open. | 6 hours |
| | AND | | |
| | A.2 | Be in Mode 4. | 12 hours |
| B. One required bank of pressurizer heaters inoperable. | B.1 | Restore required bank of pressurizer heaters to OPERABLE status. | 72 hours |
| C. --NOTE-- Not applicable when second bank of pressurizer heaters intentionally made inoperable. --- Two required banks of pressurizer heaters inoperable. | C.1 | Restore at least one bank of required pressurizer heaters to OPERABLE status. | 24 hours |

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| D. Required Action and associated Completion Time of Condition B or C not met. | D.1 Be in MODE 3. | 6 hours |
| | AND | |
| | D.2 Be in Mode 4. | 12 hours |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.4.9.1 | Verify pressurizer water level is ≥ 133 inches and ≤ 225 inches. | 12 hours |
| SR 3.4.9.2 | Verify capacity of each required bank of pressurizer heaters ≥ 150 kW. | 24 months |

## 3.6 CONTAINMENT SYSTEMS

### 3.6.6 Containment Spray and Cooling Systems

LCO 3.6.6 Two containment spray trains and two containment cooling trains shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.
MODE 3, except containment spray is not required to be OPERABLE when pressurizer pressure is < 1750 psia.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One containment spray train inoperable. | A.1 Restore containment spray train to OPERABLE status. | 72 hours<br><br>AND<br><br>10 days from discovery of failure to meet the Limiting Condition for Operation |
| ~~B. Required Action and associated Completion Time of Condition A not met.~~ | ~~B.1 Be in MODE 3.~~<br><br>~~AND~~<br><br>~~B.2 Be in MODE 3 with pressurizer pressure < 1750 psia.~~ | ~~6 hours~~<br><br><br><br>~~12 hours~~ |

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| B. One containment cooling train inoperable. → Insert 3.6.6 | B.1 Restore containment cooling train to OPERABLE status. | 7 days<br><br>AND<br><br>10 days from discovery of failure to meet the Limiting Condition for Operation |
| D. Two containment cooling trains inoperable. | D.1 Restore one containment cooling train to OPERABLE status. | 72 hours |
| E. Required Action and associated Completion Time ~~of Condition C or D~~ not met. | E.1 Be in MODE 3.<br><br>AND<br><br>E.2 Be in MODE 4. | 6 hours<br><br><br><br>12 hours |
| F. ~~Two containment spray trains inoperable.~~<br><br>~~OR~~<br><br>Any combination of three or more trains inoperable. | F.1 Enter LCO 3.0.3. | Immediately |

3.6 CONTAINMENT SYSTEMS

3.6.8 Iodine Removal System (IRS)

LCO 3.6.8 Three IRS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One IRS train inoperable. | A.1 Restore IRS train to OPERABLE status. | 7 days |
| B. Two IRS trains inoperable. | B.1 Restore one IRS train to OPERABLE status. | 1 hour |
| C. Required Action and associated Completion Time not met. | C.1 Be in MODE 3.<br>AND | 6 hours |
| | C.2 Be in MODE 5. | 36 hours |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | FREQUENCY |
|---|---|
| SR 3.6.8.1 Operate each IRS train for ≥ 15 minutes. | 31 days |

- - - - NOTE - - - -
Not applicable when the second IRS train intentionally made inoperable.
- - - - - - - - - - - -

B.1 Verify at least one train of containment spray is OPERABLE.

1 hour

AND

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| ~~F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met in MODE 1, 2, 3, or 4.~~ | ~~F.1 Be in MODE 3.~~<br>~~AND~~<br>~~F.2 Be in MODE 5.~~ | ~~6 hours~~<br><br>~~36 hours~~ |
| G. Required Action and associated Completion Time of Condition B not met during movement of irradiated fuel assemblies.<br><br>OR<br><br>One or more CREVS trains inoperable due to an inoperable CRE boundary during movement of irradiated fuel assemblies. | G.1 Suspend movement of irradiated fuel assemblies. | Immediately |

Insert 3.7.8 →

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| H. Two CREVS trains inoperable for reasons other than Condition A, B, C, or D ~~in MODE 1, 2, 3, 4 or~~ during movement of irradiated fuel assemblies.<br><br>OR<br><br>One or more ducts with two outside air intake isolation valves inoperable ~~in MODE 1, 2, 3, 4 or~~ during movement of irradiated fuel assemblies.<br><br>OR<br><br>Two exhaust to atmosphere isolation valves inoperable ~~in MODE 1, 2, 3, 4 or~~ during movement of irradiated fuel assemblies. | ~~H.1 Enter LCO 3.0.3.~~<br><br>~~AND~~<br><br>H.~~2~~1 Suspend movement of irradiated fuel assemblies. | ~~Immediately~~<br><br>Immediately |

I. Required Action and associated Completion Time of Condition A, B, C, D, E or F not met in MODE 1, 2, 3 or 4.

| | |
|---|---|
| I.1 Be in MODE 3 | 6 hours |
| AND | |
| I.2 Be in MODE 5 | 36 hours |

3.7 PLANT SYSTEMS

3.7.12 Penetration Room Exhaust Ventilation System (PREVS)

LCO 3.7.12 Two PREVS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One PREVS train inoperable. | A.1 Restore PREVS train to OPERABLE status. | 7 days |
| C. Required Action and associated Completion Time not met. | C.1 Be in MODE 3. | 6 hours |
| | AND | |
| | C.2 Be in MODE 4. | 12 hours |

Insert 3.7.12

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.7.12.1 | Operate each PREVS train for ≥ 15 minutes. | 31 days |
| SR 3.7.12.2 | Verify required PREVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP). | In accordance with the VFTP |

**Insert 3.6.6**

| | | | |
|---|---|---|---|
| C. ----------NOTE---------- Not applicable when second containment spray train intentionally made inoperable. ---------- Two containment spray trains inoperable. | C.1 | Verify LCO 3.7.11, "CREVS," is met. | 1 hour |
| | AND | | |
| | C.2 | Restore at least one containment spray train to OPERABLE status. | 24 hours |

**Insert 3.7.8**

| | | | |
|---|---|---|---|
| F. ----------NOTE---------- Not applicable when second CREVS train intentionally made inoperable. ---------- Two CREVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition D. | F.1 | Initiate action to implement mitigating actions. | Immediately |
| | AND | | |
| | F.2 | Verify LCO 3.4.16, "RCS Specific Activity," is met. | 1 hour |
| | AND | | |
| | F.3 | Restore at least one CREVS train to OPERABLE status. | 24 hours |

**Insert 3.7.12**

| | | | |
|---|---|---|---|
| B. ----------NOTE---------- Not applicable when second PREVS train intentionally made inoperable. ---------- Two PREVS trains inoperable. | B.1 | Verify at least one train of containment spray is OPERABLE. | 1 hour |
| | AND | | |
| | B.2 | Restore at least one PREVS train to OPERABLE status. | 24 hours |

# ATTACHMENT (3)

## MARKED UP TECHNICAL SPECIFICATION BASES PAGES

BASES

ACTIONS

A.1 and A.2

With pressurizer water level not within the limit, action must be taken to restore the plant to operation within the bounds of the safety analyses. To achieve this status, the unit must be brought to MODE 3, with the reactor trip breakers open, within 6 hours and to MODE 4 within 12 hours. This takes the plant out of the applicable MODEs and restores the plant to operation within the bounds of the safety analyses. Six hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. Further P/T reduction to MODE 4 brings the plant to a MODE where the LCO is not applicable. The 12 hour time to reach the nonapplicable MODE is reasonable based on operating experience for that evolution.

B.1

If one required bank of pressurizer heaters is inoperable, restoration is required within 72 hours. The Completion Time 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 normal station powered heaters.

Insert B3.4.9

D

~~C~~.1 and ~~C~~.2

or more

If one required bank of pressurizer heaters is inoperable and cannot be restored within the allowed Completion Time ~~of~~ ~~Required Action B.1~~, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 6 hours and to MODE 4 within 12 hours. The Completion Time of six hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging safety systems. Similarly, the Completion Time of 12 hours is reasonable, based on operating experience to reach MODE 4 from full power to an orderly manner and without challenging plant systems.

S

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.9.1

This SR ensures that during steady-state operation, pressurizer water level is maintained below the nominal upper limit to provide a minimum space for a steam bubble. The surveillance test is performed by observing the indicated level. The 12 hour interval has been shown by operating practice to be sufficient to regularly assess the level for any deviation and verify that operation is within safety analyses assumptions. Alarms are also available for early detection of abnormal level indications.

SR 3.4.9.2

The SR is satisfied when the power supplies are demonstrated to be capable of producing the minimum power and the associated pressurizer heaters are verified to be at their design rating. (This may be done by testing the power supply output and by performing an electrical check on heater element continuity and resistance.) The Frequency of 24 months is considered adequate to detect heater degradation and has been shown by operating experience to be acceptable.

REFERENCES

1. NUREG-0737, II.E.3.1, "Clarification of TMI Action Plan Requirements," November 1980

2. WCAP-16125-NP-A, "Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent Plant Shutdown," Revision 2, August 2010

BASES

The Containment Spray System is only required to be OPERABLE in MODE 3 with pressurizer pressure ≥ 1750 psia.

In MODE 3 with pressurizer pressure < 1750 psia, and in MODEs 4, 5, and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODEs. Thus, the Containment Spray System is not required to be OPERABLE in MODE 3 with pressurizer pressure < 1750 psia, and the Containment Spray and Cooling Systems are not required to be OPERABLE in MODEs 4, 5, and 6.

ACTIONS

A.1

With one containment spray train inoperable, the inoperable containment spray train must be restored to OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE spray and cooling trains are adequate to perform the iodine removal and containment cooling functions. The 72 hour Completion Time takes into account the redundant heat removal capability afforded by the Containment Spray System, reasonable time for repairs, and the low probability of a DBA occurring during this period.

The 10 day portion of the Completion Time for Required Action A.1 is based upon engineering judgment. It takes into account the low probability of coincident entry into two Conditions in this Specification coupled with the low probability of an accident occurring during this time. Refer to Specification 1.3, for a more detailed discussion of the purpose of the "from discovery of failure to meet the LCO" portion of the Completion Time.

~~B.1 and B.2~~

~~If the inoperable containment spray train cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 3 with pressurizer pressure < 1750 psia within 12 hours. The allowed Completion Time of six hours is reasonable, based on operating experience, to reach MODE 3 from full power~~

~~conditions in an orderly manner, and without challenging plant systems. The extended interval to reach MODE 3 with pressurizer pressure < 1750 psia allows additional time for the restoration of the containment spray train and is reasonable when considering that the driving force for a release of radioactive material from the RCS is reduced in MODE 3.~~

B.1

~~With one required containment cooling train inoperable, the inoperable containment cooling train must be restored to OPERABLE status within seven days. The remaining OPERABLE containment spray and cooling components provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The seven day Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray and Cooling Systems, and the low probability of a DBA occurring during this period.~~

Insert B 3.6.6 B

The 10 day portion of the Completion Time for Required Action C.1 is based upon engineering judgment. It takes into account the low probability of coincident entry into two Conditions in this Specification coupled with the low probability of an accident occurring during this time. Refer to Specification 1.3 for a more detailed discussion of the purpose of the "from discovery of failure to meet the LCO" portion of the Completion Time.

Insert B 3.6.6 C

D.1

With two required containment cooling trains inoperable, one of the required containment cooling trains must be restored to OPERABLE status within 72 hours. The remaining OPERABLE containment spray components provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray and Cooling Systems, the iodine removal function of the Containment Spray System, and the low probability of a DBA occurring during this period.

E.1 and E.2

If the Required Actions and associated Completion Times ~~of Conditions C or D of this LCO~~ are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

F.1

With ~~two containment spray trains or~~ any combination of three or more Containment Spray and Cooling Systems trains inoperable, the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.6.6.1

Verifying the correct alignment for manual, power-operated, and automatic valves in the containment spray flow path provides assurance that the proper flow paths will exist for Containment Spray System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to being secured. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This SR does not require any testing or valve manipulation. Rather, it involves verifying, through a system walkdown, that those valves outside the Containment Structure and capable of potentially being mispositioned are in the correct position.

SR 3.6.6.2

Starting each containment cooling train fan unit from the Control Room and operating it for $\geq$ 15 minutes ensures that all trains are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected and corrective action taken. The 31 day Frequency of this SR

was developed considering the known reliability of the fan units and controls, the two train redundancy available, and the low probability of a significant degradation of the containment cooling train occurring between surveillances and has been shown to be acceptable through operating experience.

SR 3.6.6.3

Verifying a service water flow rate of ≥ 2000 gpm to each cooling unit when the full flow service water outlet valves are fully open provides assurance that the design flow rate assumed in the safety analyses will be achieved (Reference 1, Chapter 7). Also considered in selecting this Frequency were the known reliability of the Service Water System, the two train redundancy, and the low probability of a significant degradation of flow occurring between surveillance tests.

SR 3.6.6.4

Verifying that each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray pump performance has not degraded during the cycle. Flow and differential pressure are normal tests of centrifugal pump performance required by Reference 2. Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

SR 3.6.6.5 and SR 3.6.6.6

These SRs verify that each automatic containment spray valve actuates to its correct position and that each containment spray pump starts upon receipt of an actual or simulated actuation signal (i.e., the appropriate Engineered Safety Feature Actuation System signal). This SR is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. The

BASES

REFERENCES

1. UFSAR

3 2. American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section XI, "Rules for In-Service Inspection of Nuclear Power Plant Components"

2. WCAP-16125-NP-A, "Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions leading to Exigent Plant Shutdown," Revision 2, August 2010

b. The fact that, even with no IRS train in operation, almost the same amount of iodine would be removed from the containment atmosphere through absorption by the Containment Spray System; and

c. The fact that the Completion Time is adequate to make most repairs.

B.1

Insert B 3.6.8

~~If two IRS trains are inoperable, one must be restored to OPERABLE status within one hour. The one hour Completion Time allows the swing train to be aligned to the appropriate bus to ensure each of the two remaining trains are powered from separate and independent buses. The one hour, also allows time to restore one train to OPERABLE status prior to initiating a plant shutdown. This is reasonable considering that a plant shutdown is a plant transient.~~

C.1 and C.2 (s)

If the IRS train cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.8.1

Initiating each IRS train from the Control Room and operating it for ≥ 15 minutes ensures that all trains are OPERABLE and that all associated controls are functioning properly. It also ensures that motor failure can be detected for corrective action. The 31 day Frequency was developed considering the known reliability of fan motors and controls, the two train redundancy available, and the iodine removal capability of the Containment Spray System independent of the IRS.

BASES

SR 3.6.8.2

This SR verifies that the required IRS filter testing is performed in accordance with the Ventilation Filter Testing Program. The IRS filter tests are in accordance with portions of Reference 2. 3 The Ventilation Filter Testing Program includes testing high efficiency particulate air filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the Ventilation Filter Testing Program.

SR 3.6.8.3

The automatic startup test verifies that both trains of equipment start upon receipt of an actual or simulated test signal (Engineered Safety Feature Actuation System). The 24 month Frequency is based on the need to perform this surveillance test under the conditions that apply during a plant outage and the potential for an unplanned transient if the surveillance test were performed with the reactor at power. Operating experience has shown that these components usually pass the surveillance test when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint. Furthermore, the Frequency was developed considering that the system equipment OPERABILITY is demonstrated on a 31 day Frequency by SR 3.6.8.1.

REFERENCES

1. UFSAR

3 2. Regulatory Guide 1.52, Revision 2, "Design, Testing, and Maintenance Criteria for Postaccident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants," March 1978

2. WCAP-16125-NP-A, "Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent Plant Shutdown," Revision 2, August 2010

challenge from smoke. Required Action D.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Reference 2. These compensatory measures may also be used as mitigating actions as required by Required Action D.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY. 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 analysis 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 determination that the mitigating actions will ensure protection of the 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.

E.1

With one CREVS train inoperable for reasons other than Conditions A, B, C, or D in MODEs 1, 2, 3, or 4, action must be taken to restore OPERABLE status within seven days. In this Condition, the remaining OPERABLE CREVS subsystem is adequate to perform CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE CREVS train could result in loss of CREVS function. The seven day Completion Time is based on the low probability of a DBA occurring during this time period, and the ability of the remaining train to provide the required capability.

Insert B 3.7.8 F

~~F.1 and F.2~~

~~If the Required Actions and associated Completion Times of Conditions A, B, C, D, or E are not met in MODEs 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 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.~~

G.1

Action G provides the actions to be taken when the Required Action and associated Completion Time of Condition B cannot be met or with one or more CREVS trains inoperable due to an inoperable CRE boundary. It requires the immediate suspension of movement of irradiated fuel assemblies. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies to a safe position. Since only one CREVS train must be OPERABLE for movement of irradiated fuel assemblies, the Required Action is applicable only to the required CREVS train.

H.1

If both CREVS trains are inoperable for reasons other than Conditions A, B, C, or D, or if one or more ducts have two outside air intake isolation valves inoperable, or if two exhaust to atmosphere isolation valves are inoperable, ~~if in MODEs 1, 2, 3, or 4, or~~ during movement of irradiated fuel assemblies, the CREVS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, ~~LCO 3.0.3 must be entered immediately and~~ movement of irradiated fuel must be suspended immediately. This does not preclude the movement of fuel assemblies to a safe condition.

Insert B 3.7.8 I

SURVEILLANCE REQUIREMENTS

SR 3.7.8.1

Standby systems should be checked periodically to ensure that they function properly. Since the environment and

normal operating conditions on this system are not severe, testing each required CREVS filter train once every month provides an adequate check on this system.

The 31 day Frequency is based on the known reliability of the equipment, and the two filter train redundancy available.

SR 3.7.8.2

This SR verifies that the required CREVS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The CREVS filter tests are in accordance with portions of Reference 2. The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test Frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.8.3

This SR verifies each CREVS train starts and operates on an actual or simulated actuation signal (CRRS). This test is conducted on a 24 month Frequency. This Frequency is adequate to ensure the CREVS is capable of starting and operating on an actual or simulated CRRS.

SR 3.7.8.4

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

The CRE is considered habitable when the radiological dose to the CRE occupants calculated in the licensing basis analysis of DBA consequences is no more than 5 rem TEDE and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analysis of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition E must be entered. Options for restoring the CRE boundary to OPERABLE status include changing the

licensing basis DBA consequences analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

REFERENCES

1. UFSAR

42. Regulatory Guide 1.52, Revision 2, "Design, Testing, and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants," March 1978

21. Regulatory Guide 1.196, Revision 0, "Control Room Habitability at Light-Water Nuclear Power Reactors," May 2003

3. WCAP-16125-NP-A, "Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent Plant Shutdown," Revision 2, August 2010

B 3.7 PLANT SYSTEMS

B 3.7.12 Penetration Room Exhaust Ventilation System (PREVS)

BASES

BACKGROUND

The PREVS filters air from the penetration room.

The PREVS consists of two independent and redundant trains. Each train consists of a prefilter, a HEPA filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, and instrumentation also form part of the system. The system initiates filtered ventilation following receipt of a containment isolation actuation signal.

The PREVS is a standby system, which may also operate during normal unit operations. During emergency operations, the PREVS dampers are realigned, and fans are started to initiate filtration. Upon receipt of the actuating Engineered Safety Feature Actuation System signal(s), normal air discharges from the penetration room, and the stream of ventilation air discharges through the system filter trains. The prefilters remove any large particles in the air to prevent excessive loading of the HEPA filters and charcoal adsorbers.

The PREVS is discussed in Reference 1, Section 6.6.2, as it may be used for normal, as well as post-accident, atmospheric cleanup functions.

APPLICABLE SAFETY ANALYSES

The design basis of the PREVS is established by the Maximum Hypothetical Accident. The system is credited with filtering the radioactive material released through the containment vent when the line is open. Also commensurate with the guidance in Reference 1, 2, a conservative bypass fraction from the Containment to the penetration rooms is assumed. Following a LOCA, the containment isolation signal will start both of the fans associated with the PREVS, filtering the exhaust through the HEPA and charcoal filters, and directing the exhaust into the ventilation stack. The analysis of the effects and consequences of a Maximum Hypothetical Accident are presented in Reference 1, Section 14.24 and follows. the guidance presented in Reference 1, 3.

BASES

during this time period, and the consideration that the remaining train can provide the required capability.

Insert B 3.7.12

C B.1 and C B.2

If the inoperable train cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.12.1

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system.

The test is performed by initiating the system from the Control Room, ensuring flow through the HEPA filter and charcoal adsorber train, and verifying this system operates for $\geq$ 15 minutes. The 31 day Frequency is based on the known reliability of the equipment and the two train redundancy available.

SR 3.7.12.2

This SR verifies the performance of PREVS filter testing in accordance with the VFTP. The PREVS filter tests are in accordance with portions of Reference 25. The VFTP includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

BASES

SR 3.7.12.3

This SR verifies that each PREVS train starts and operates on an actual or simulated actuation signal (Containment Isolation Signal). This test is conducted on a 24 month Frequency. This Frequency is adequate to ensure the PREVS is capable of starting and operating on an actual or simulated Containment Isolation Signal.

REFERENCES

1. UFSAR

5.2 Regulatory Guide 1.52, Revision 2, "Design, Testing, and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants," March 1978

2.3 Regulatory Guide 1.194, Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants, June 2003

3.4 Regulatory Guide 1.183, Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors, July 2000

4. WCAP-16125-NP-A, "Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent Plant Shutdown," Revision 2, August 2010

**Insert B 3.4.9**

C.1
If two required banks of pressurizer heaters are inoperable, restoring at least one bank of pressurizer heaters to OPERABLE status is required within 24 hours. The Condition is modified by a Note stating it is not applicable if the second bank of required pressurizer heaters is intentionally declared inoperable. The Condition is not intended for voluntary removal of redundant systems or components from service. The Condition is only applicable if one bank of required pressurizer heaters is inoperable for any reason and the second bank of required pressurizer heaters is discovered to be inoperable, or if both banks of required pressurizer heaters are discovered to be inoperable at the same time. If both required banks 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 banks of required pressurizer heaters during the 24 hour Completion Time has been shown to be acceptable based on the infrequent use of the Required Action and the small incremental effect on plant risk (Reference 2).

**Insert B 3.6.6 B**

With one required containment cooling train inoperable, the inoperable containment cooling train must be restored to OPERABLE status within seven days. The remaining OPERABLE containment spray and cooling components are capable of providing greater than 100% of the heat removal needs (for the condition of one containment cooling train inoperable) after an accident. The seven day Completion Time was developed based on the same reasons as those for Required Action A.1.

**Insert B 3.6.6 C**

C.1 and C.2
With two required containment spray trains inoperable, at least one of the required containment spray trains must be restored to OPERABLE status within 24 hours. Both trains of containment cooling must be OPERABLE or Condition F is also entered. The Condition is modified by a Note stating it is not applicable if the second containment spray train is intentionally declared inoperable. The Condition does not apply to voluntary removal of redundant systems or components from service. The Condition 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. In addition, LCO 3.7.11, CREVS, must be verified to be met within one hour. The OPERABLE containment cooling system components are capable of providing greater than 100% of the heat removal needs after an accident. The Completion Time is based on Reference 2 which demonstrated that the 24 hour Completion Time is acceptable based on the redundant heat removal capabilities afforded by the Containment Cooling System, the iodine removal capability of the Control Room Emergency Ventilation System, the infrequent use of the Required Action, and the small incremental effect on plant risk.

**Insert B 3.6.8**

If two IRS trains are inoperable, at least one IRS train must be returned to OPERABLE status within 24 hours. The Condition is modified by a Note stating it is not applicable if the second IRS train is intentionally declared inoperable. The Condition does not apply to voluntary removal of redundant systems or components from service. The Condition 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. In addition, at least one train of containment spray must be verified to be OPERABLE within one hour. In the event of an accident, containment spray reduces the potential radioactive release from the containment, which reduces the consequences of the inoperable IRS trains. The Completion

Time is based on Reference 2 which demonstrated that the 24 hour Completion Time is acceptable based on the infrequent use of the Required Actions and the small incremental effect on plant risk.

**Insert B 3.7.8 F**

F.1, F.2 and F.3

If both CREVS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable Control Room boundary (i.e., Condition D), at least one CREVS train must be returned to OPERABLE status within 24 hours. The Condition is modified by a Note stating it is not applicable if the second CREVS train is intentionally declared inoperable. The Condition does not apply to voluntary removal of redundant systems or components from service. The Condition 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.

Specification 3.4.16, 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 the CREVS trains are inoperable. Therefore, it must be verified within one hour that LCO 3.4.16 is met. This Required Action does not require additional RCS sampling beyond that normally required by LCO 3.4.16.

At least one CREVS train must be returned to OPERABLE status within 24 hours. The Completion Time is based on Reference 3 which demonstrated that the 24 hour Completion Time is acceptable based on the infrequent use of the Required Actions and the small incremental effect on plant risk.

**Insert B 3.7.8 I**

I.1 and I.2

If the inoperable CREVs or Control Room boundary cannot be restored to OPERABLE status within the associated Completion Time in MODE 1, 2, 3, or 4, the unit must be placed in at least MODE 3 within six hours and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

**Insert B 3.7.12**

B.1 and B.2

With two PREVS trains inoperable, action must be taken to restore at least one PREVS train to OPERABLE status within 24 hours. The Condition is modified by a Note stating it is not applicable if the second PREVS train is intentionally declared inoperable. The Condition does not apply to voluntary removal of redundant systems or components from service. The Condition 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. In addition, at least one train of containment spray must be verified to be OPERABLE within one hour. In the event of an accident, containment spray reduces the potential radioactive release from the containment, which reduces the consequences of the inoperable PREVS trains. The Completion Time is based on Reference 4 which demonstrated that the 24 hour Completion Time is acceptable based on the infrequent use of the Required Actions and the small incremental effect on plant risk.