# Technical Specifications Task Force
# Improved Standard Technical Specifications Change Traveler

**Extend Shield Building Completion Time After Refueling**

NUREGs Affected: ☐ 1430 ☑ 1431 ☑ 1432 ☐ 1433 ☐ 1434 ☐ 2194

Classification: 1) Technical Change — Recommended for CLIIP?: Yes

Correction or Improvement: Improvement — NRC Fee Status: Not Exempt

Benefit: Shortens Outages — Changes Marked on ISTS Rev 5.0

PWROG RISD & PA (if applicable): PA-LSC-1955 RS-2022-001

See attached.

## Revision History

### OG Revision 0 — Revision Status: Active

Revision Proposed by: PWROG

Revision Description:
Original Issue

### Owners Group Review Information

Date Originated by OG: 26-May-23

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 14-Jun-23

### TSTF Review Information

TSTF Received Date: 14-Jun-23 Date Distributed for Review 14-Jun-23

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 06-Jul-23

## Affected Technical Specifications

| | | |
|---|---|---|
| Action 3.6.8.A | Shield Building | NUREG(s)- 1431 Only |
| | Change Description: Renamed B and revised. | |
| Action 3.6.8.A | Shield Building | NUREG(s)- 1431 Only |
| | Change Description: New Action | |
| Action 3.6.8.A Bases | Shield Building | NUREG(s)- 1431 Only |
| | Change Description: New Action | |

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|---|---|---|---|
| Action 3.6.8.A Bases | Shield Building | | NUREG(s)- 1431 Only |
| | Change Description: | Renamed B and revised. | |
| Action 3.6.8.B | Shield Building | | NUREG(s)- 1431 Only |
| | Change Description: | Renamed C. | |
| Action 3.6.8.B Bases | Shield Building | | NUREG(s)- 1431 Only |
| | Change Description: | Renamed C. | |
| Action 3.6.13.B | SBACS | | NUREG(s)- 1431 Only |
| | Change Description: | New Action | |
| Action 3.6.13.B | SBACS | | NUREG(s)- 1431 Only |
| | Change Description: | Renamed C and revised. | |
| Action 3.6.13.B Bases | SBACS | | NUREG(s)- 1431 Only |
| | Change Description: | Renamed C and revised. | |
| Action 3.6.13.B Bases | SBACS | | NUREG(s)- 1431 Only |
| | Change Description: | New Action | |
| Action 3.6.8.B | SBEACS | | NUREG(s)- 1432 Only |
| | Change Description: | Renamed C and revised. | |
| Action 3.6.8.B | SBEACS | | NUREG(s)- 1432 Only |
| | Change Description: | New Action. | |
| Action 3.6.8.B Bases | SBEACS | | NUREG(s)- 1432 Only |
| | Change Description: | New Action. | |
| Action 3.6.8.B Bases | SBEACS | | NUREG(s)- 1432 Only |
| | Change Description: | Renamed C and revised. | |
| Action 3.6.8.C | SBEACS | | NUREG(s)- 1432 Only |
| | Change Description: | Renamed D. | |
| Action 3.6.8.C Bases | SBEACS | | NUREG(s)- 1432 Only |
| | Change Description: | Renamed D. | |
| Action 3.6.11.A | Shield Building | | NUREG(s)- 1432 Only |
| | Change Description: | New Action | |
| Action 3.6.11.A | Shield Building | | NUREG(s)- 1432 Only |
| | Change Description: | Renamed B and Revised. | |
| Action 3.6.11.A Bases | Shield Building | | NUREG(s)- 1432 Only |
| | Change Description: | New Action | |
| Action 3.6.11.A Bases | Shield Building | | NUREG(s)- 1432 Only |
| | Change Description: | Renamed B and Revised. | |
| Action 3.6.11.B | Shield Building | | NUREG(s)- 1432 Only |
| | Change Description: | Renamed C. | |

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|---|---|---|
| Action 3.6.11.B Bases | Shield Building | NUREG(s)- 1432 Only |
| | Change Description: Renamed C. | |

## 1. SUMMARY DESCRIPTION

The proposed change revises the shield building Technical Specifications (TS) and the TS for the shield building air filtration system to add a new Action that is applicable prior to criticality following a refueling outage. The proposed change affects the Standard Technical Specifications (STS) in NUREG-1431 and NUREG-1432[1].

## 2. DETAILED DESCRIPTION

### 2.1. System Design and Operation

In both the Westinghouse and Combustion Engineering design for some plants, the shield building is a structure that surrounds the containment. The shield building has several other plant-specific names, such as the enclosure building and the secondary containment. In this document, the STS term "shield building" is used, but the change encompasses all designs. Between the containment and the shield building inner wall is an annular space that collects containment leakage that may occur following an accident. The shield building ensures that the release of radioactive material from the containment atmosphere is restricted to the leakage paths and associated leakage rates assumed in the accident analyses. The annular space also allows for periodic inspection of the outer surface of the containment.

The shield building air filtration system is called the Shield Building Air Cleanup System (SBACS) in the Westinghouse STS and the Shield Building Exhaust Air Cleanup System (SBEACS) in the Combustion Engineering STS. These systems have several other plant-specific names, such as the supplementary leak collection and release system, the emergency gas treatment system, and the shield building ventilation system. In this document, the STS terms SBACS and SBEACS are used, but the change encompasses all designs. The SBACS and SBEACS are both used to establish a negative pressure in the annulus between the shield building and the containment following an accident. Filters in the system then control the release of radioactive materials to the environment. The LCO Bases for both systems states that, in the event of a Design Basis Accident (DBA), one train is required to provide the minimum particulate iodine removal assumed in the safety analysis.

The SBACS and SBEACS consist of two separate and redundant trains. During normal operation, the shield building cooling system is aligned to bypass the filters and charcoal adsorbers. For post-accident operation, bypass dampers automatically reposition to draw the air through the filters and adsorbers. The SBACS and SBEACS initiate and maintain a negative air pressure in the shield building by means of filtered exhaust ventilation following receipt of an initiation signal.

The Shield Building, SBACS, and SBEACS design basis is established by the consequences of the limiting DBA, which is a large break loss of coolant accident (LOCA). Less severe DBAs, such as rod ejection and small break LOCA, may also credit the shield building and shield building air filtration system.

[1] NUREG-1431 provides the STS for Westinghouse plant designs.
NUREG-1432 provides the STS for Combustion Engineering plant designs.

## 2.2. Current Technical Specifications Requirements

Shield Building

NUREG-1431, Specification 3.6.8, "Shield Building (Dual and Ice Condenser)," requires the shield building to be operable in Modes 1, 2, 3, and 4.

NUREG-1432, Specification 3.6.11, "Shield Building (Dual)," requires the shield building to be operable in Modes 1, 2, 3, and 4.

In both specifications, if the shield building is inoperable, it must be restored to operable status within 24 hours. Otherwise, the unit must be in Mode 3 within 6 hours. The Westinghouse STS requires being in Mode 5 in 36 hours and the Combustion Engineering STS requires being in Mode 4 within 12 hours. This difference is due to TSTF-422[2], which is only applicable to Combustion Engineering plants.

The Surveillances applicable to the shield building require the annulus negative pressure to be greater than a plant-specific limit and at least one access door in each access opening to be closed, as well as other tests related to structural integrity and negative pressure "draw-down" time.

SBACS and SBEACS

NUREG-1431, Specification 3.6.13, "Shield Building Air Cleanup System," requires two SBACS trains to be operable in Modes 1, 2, 3, and 4.

NUREG-1432, Specification 3.6.8, "Shield Building Exhaust Air Cleanup System," requires two SBEACS trains to be operable in Modes 1, 2, 3, and 4.

In both specifications, if one train is inoperable it must be restored within 7 days. Otherwise, the unit must be in Mode 3 within 6 hours. The Westinghouse STS requires being in Mode 4 in 12 hours and the Combustion Engineering STS requires being in Mode 5 within 36 hours. This difference is due to TSTF-432[3], which is only applicable to Westinghouse plants.

In NUREG-1431, if two trains of SBACS are inoperable, LCO 3.0.3 applies.

In NUREG-1432, if two trains of SBEACS are inoperable and were not intentionally made inoperable, at least one train of containment spray must be verified to be operable within 1 hour

[2] TSTF-422, Rev. 2, "Change in Technical Specifications End States (CE NPSD-1186)." The Notice of Availability was published in the Federal Register on May 11, 2012 (76 FR 19510). The traveler is available at NRC Agencywide Documents Access and Management System (ADAMS) Accession No. ML093570241.
[3] TSTF-432, Rev. 1, "Change in Technical Specifications End States (WCAP-16294)." The Notice of Availability was published in the Federal Register on May 11, 2012 (77 FR 27814). The traveler is available at NRC ADAMS Accession No. ML103360003.

and at least one SBEACS train must be restored to operable status within 24 hours. This difference is due to TSTF-426[4], which is only applicable to Combustion Engineering plants.

The Surveillances applicable to the SBACS and SBEACS require verification of the train flow rate, as well as other tests. The train flow rate verification is performed in conjunction with the shield building draw-down time test.

## 2.3. Reason for the Proposed Change

During a refueling outage, sections of the shield building boundary are removed to allow access to the containment equipment hatch. At the end of the outage after the equipment hatch is installed, restoring the shield building boundary, including the cure time for sealants, and performing the necessary surveillance tests to verify the building's integrity, are among the last activities performed prior to entering Mode 4. This places restoration of the shield building on or near the outage critical path.

The purpose of the shield building is to contain radioactive releases from the containment following a DBA and to direct radioactive material to the SBACS or SBEACS for filtration prior to release to the environment. However, following a refueling outage and prior to criticality, the radionuclide inventory and decay heat (the driving force for pushing post-accident radioactivity into the shield building) are significantly reduced. As a result, it is appropriate to provide a longer Completion Time for the shield building and the SBACS or SBEACS in Modes 4 and 3 after a refueling and prior to criticality. The longer Completion Time will permit the establishment of shield building and SBACS or SBEACS operability to occur in Modes 4 and 3 prior to criticality and avoid those activities from potentially affecting the startup.

## 2.4. Description of the Proposed Change

Shield Building

NUREG-1431, Specification 3.6.8, and NUREG-1432, Specification 3.6.11, are revised to add a new Action A:

[4] TSTF-426, Rev. 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 - RITSTF Initiatives 6b & 6c." The Notice of Availability was published in the Federal Register on May 30, 2013 (78 FR 32476). The traveler is available at NRC ADAMS Accession No. ML113260461.

| | | | |
|---|---|---|---|
| A. ----------NOTE----------<br>Only applicable if MODE 2 has not been entered following refueling.<br>----------<br><br>Shield building inoperable in MODE 3 or 4 following refueling. | A.1 | Restore shield building to OPERABLE status. | 72 hours |

The existing Action A is renamed Action B and the Condition is modified to state, "Shield building inoperable for reasons other than Condition A." The Required Action and Completion Time are unaffected. Existing Action B is renamed Action C but otherwise unchanged.

SBACS and SBEACS

NUREG-1431, Specification 3.6.13, and NUREG-1432, Specification 3.6.8, are revised to add a new Action B:

| | | | |
|---|---|---|---|
| B. ----------NOTE----------<br>Only applicable if MODE 2 has not been entered following refueling.<br>----------<br><br>Two [SBACS/SBEACS] trains inoperable in MODE 3 or 4 following refueling. | B.1 | Restore at least one [SBACS/SBEACS] train to OPERABLE status. | 72 hours |

In NUREG-1431, the existing Action B is renamed Action C and the Condition is modified to state, "Required Action and associated Completion time of Condition A not met." The Required Actions and Completion Times are unaffected.

In NUREG-1432, the existing Action B is renamed Action C and the Condition is modified to state, "Two SBEACS trains inoperable for reasons other than Condition B." The Required Actions and Completion Times are unaffected. Existing Action C is renamed Action D but is otherwise unchanged.

The TS Bases are revised to describe the changes to the TS.

The proposed change does not justify the adoption of TSTF-422, TSTF-426, or TSTF-432.

A model application is attached. The model may be used by licensees desiring to adopt the traveler following NRC approval.

## 3. TECHNICAL EVALUATION

At the end of a refueling outage, the following containment systems must be operable prior to entry into Mode 4 (i.e., average reactor coolant temperature above approximately 200°F):

- Primary containment;
- Containment air locks;
- Containment isolation valves;
- Containment Spray System; and
- Containment Cooling System (if applicable).

In addition, the primary containment air temperature and pressure must be within limits.

Under the current TS, the shield building must also be operable prior to entering Mode 4. An operable shield building must be able to be maintained at a negative pressure. Both NUREG-1431 and NUREG-1432 contain a Surveillance Requirement to verify shield building boundary integrity by confirming that one SBACS or SBEACS train can establish the required negative pressure within a specific time (typically 1 minute). In order to perform the test, shield building boundary integrity must be established.

Prior to entering Mode 4, the shield building boundary must be sealed and successfully tested. This requires:

- Removing all required outage-related materials and equipment from the containment;
- Installing the containment equipment hatch. The containment equipment hatch is a large device, and installation requires use of a crane;
- The shield building opening outside of the containment equipment hatch must be closed. This may be a metal cover or shield blocks.
- The shield building enclosure or shield blocks must be sealed with chemical sealant.
- All other shield building openings (a few dozen) must be closed and mechanically or chemically sealed.
- The chemical sealant must be allowed to dry.

- Some licensees perform smoke testing of the sealed surfaces.

- A draw-down test must be performed, and any necessary repairs made, or additional sealant applied.

- The draw-down Surveillance Requirements must be performed successfully.

The SBACS and SBEACS contain a Surveillance Requirement to ensure the flow rate is adequate to reduce the shield building pressure as required. This test is typically performed in conjunction with the shield building boundary integrity test.

Restoring the shield building boundary, including the cure time for sealants, and performing the Surveillance Requirement to verify the building's integrity, are among the last activities performed prior to entering Mode 4. This places restoration of the shield building on or near the outage critical path for Mode 4 entry. Any delays in establishing the boundary, performing any needed repairs, or performing any retesting can disrupt the outage schedule, which has been created, reviewed, and approved to ensure plant safety.

The shield building, SBACS, and SBEACS are designed to limit the consequences of a design basis LOCA, which assumes conservatively large amounts of radionuclides in the reactor core and a conservatively high post-accident decay heat generation rate. However, during a refueling outage approximately one-third of the fuel assembles are replaced with unirradiated fuel. Due to this replacement and the radioactive decay that occurs while the reactor is shut down, the radionuclide inventory and the reactor decay heat are both substantially reduced from the conditions assumed in the LOCA analyses. Should a DBA occur in Mode 4 or Mode 3 prior to the reactor becoming critical (i.e., Mode 2), there would be less radioactive material available to be released to the primary containment and there would be less decay heat to raise the pressure in the primary containment to drive the radioactive material into the shield building. These reduced consequences warrant a longer Completion Time should the shield building and SBACS or SBEACS be inoperable.

The proposed change provides a 72-hour Completion Time for an inoperable shield building and for two inoperable trains of SBACS or SBEACS if the plant is in Mode 3 or 4 after a refueling and the reactor has not entered Mode 2 (i.e., the reactor has not become critical since refueling). Under the proposed change, the shield building and SBACS or SBEACS would be declared inoperable on entry into Mode 4, but the licensee could invoke the provisions of LCO 3.0.4.b to permit entry into the Applicability (Mode 4 and Mode 3) while relying on the new Action. LCO 3.0.4 prohibits entry into a Mode or other specified condition in the Applicability unless certain conditions are met. LCO 3.0.4.b permits entry into the Applicability after performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the Mode or other specified condition in the Applicability, and establishment of risk management actions, if appropriate. It is anticipated that an LCO 3.0.4.b evaluation for entering Mode 4 and Mode 3 following refueling and prior to criticality with the shield building and SBACS or SBEACS inoperable would be successful based on the low risk associated with the plant conditions and the availability of the primary containment and associated systems to mitigate any events.

The proposed Completion Time of 72 hours is based on the time to establish the shield building boundary and perform the required tests, and includes time to perform any required repairs and retesting. During a normal post-refueling startup, it takes less than 72 hours to transition into Mode 4 and to be prepared to enter Mode 2, and restoration of the shield building and SBACS or SBEACS would be scheduled to be completed in less than the proposed Completion Time. Additional time is included to permit repairs and retesting, if needed, without the need to transition to Mode 5. The justification for the longer Completion Time is not dependent on a specific time, but on the fact that the plant has not entered Mode 2.

The SBACS or SBEACS could be considered operable when the shield building is inoperable if the Surveillance Requirements are met. However, the definition of "Operable/Operability" states that in order to be operable, a system must be capable of performing its specified safety function. The SBACS and SBEACS LCO Bases state that the specified safety function of the system is to, "In the event of a DBA, … provide the minimum particulate iodine removal assumed in the safety analysis." That safety function cannot be performed unless the shield building is operable. Also, as discussed above, the SBACS and SBEACS flow rate tests are typically performed in conjunction with the shield building boundary integrity test. In order to avoid confusion, the proposed change provides the same allowance for the SBACS and SBEACS as for the shield building.

Specific aspects of the proposed change are made considering the existing STS allowances.

- The wording of the new shield building, SBACS, and SBEACS Actions is modeled on an existing, similar allowance in NUREG-1431 and NUREG-1432, "Auxiliary Feedwater (AFW) System," Action A. The Action permits a longer Completion Time for an inoperable turbine driven AFW pump in Mode 3 following refueling if Mode 2 has not been entered.

- NUREG-1431, Specification 3.6.13, provides a Mode 4 end state if one SBACS train is inoperable and not restored within 24 hours. The analysis in TSTF-432 only evaluated the inoperability of one train of SBACS and the Mode 4 end state was not justified for two inoperable trains. Therefore, the default condition (Condition B, which is renamed Condition C), is modified to only apply if the required action and associated Completion Time of Condition A (one train inoperable) is not met. If the required action and associated Completion Time of new Condition B is not met, or if two SBACS trains are inoperable and Condition B does not apply, then LCO 3.0.3 is applicable as in the current TS.

- NUREG-1432, Specification 3.6.11, provides a Mode 4 end state if the shield building is inoperable and is not restored to operable status within 24 hours. The analysis in TSTF-422 considered the shield building to be inoperable for any reason. As a result the Mode 4 end state would be applicable to new Condition A and no exception was necessary.

The shield building is a single train system that prohibits the release of radioactive materials. NUREG-1022, "Event Report Guidelines, 10 CFR 50.72 and 50.73," Section 3.2.7, "Event or Condition that Could Have Prevented Fulfillment of a Safety Function," provides guidance on

reporting criteria 50.72(b)(3)(v) and 50.73(a)(2)(v), both of which refer to systems which "control the release of radioactive material," such as the shield building. The NUREG states, "reports are not required when systems are declared inoperable as part of a planned evolution for maintenance or surveillance testing when done in accordance with an approved procedure and the plant's TS." Using the proposed TS change and LCO 3.0.4.b to enter Mode 3 or 4 following a refueling outage and prior to entering Mode 2 while the shield building and SBACS or SBEACS are inoperable would not be reportable because it would be part of a planned evolution performed in accordance with the plant's TS.

In summary, the proposed change provides an extended Completion Time for the shield building, SBACS, and SBEACS, based on the low decay heat and radionuclide inventory following a refueling and prior to criticality, and due to the low probability of an accident occurring that would require the systems to operate. In addition, the primary containment and associated systems are required to be operable to provide a barrier to radioactive release in the low-energy condition. The proposed change will permit restoration of the systems to occur while in Mode 4 and 3, potentially avoiding a disruption of the planned startup sequence.

## 4. REGULATORY EVALUATION

The regulation at Title 10 of the Code of Federal Regulations (10 CFR) Section 50.36(b) requires:

> Each license authorizing operation of a … utilization facility … will include technical specifications. The technical specifications will be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to [10 CFR] 50.34 ["Contents of applications; technical information"]. The Commission may include such additional technical specifications as the Commission finds appropriate.

Per 10 CFR 50.90, whenever a holder of a license desires to amend the license, application for an amendment must be filed with the Commission, fully describing the changes desired, and following as far as applicable, the form prescribed for original applications.

Per 10 CFR 50.92(a), in determining whether an amendment to a license will be issued to the applicant, the Commission will be guided by the considerations which govern the issuance of initial licenses to the extent applicable and appropriate.

Section IV, "The Commission Policy," of the "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" (58FR39132), dated July 22, 1993, states in part that improved STS have been developed and will be maintained for each NSSS owners group. The Commission Policy encourages licensees to use the improved STS as the basis for plant-specific Technical Specifications." The industry's proposal of travelers and the NRC's approval of travelers is the method used to maintain the improved STS as described in the Commission's Policy. Following NRC approval, licensees adopt travelers into their plant-specific technical specifications following the requirements of 10 CFR 50.90. Therefore, the traveler process facilitates the Commission's policy while satisfying the requirements of the applicable regulations.

The regulation at 10 CFR 50.36(a)(1) also requires the application to include a "summary statement of the bases or reasons for such specifications, other than those covering administrative controls." The proposed traveler revises the Bases to be consistent with the Technical Specifications, and therefore, is in compliance with 10 CFR 50.36(a)(1).

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

## 5. REFERENCES

None.

**Model Application**

[DATE] 10 CFR 50.90

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

DOCKET NO.PLANT NAME
[50]-[xxx]
SUBJECT: Application to Revise Technical Specifications to Adopt TSTF-601, "Extend Shield Building Completion Time After Refueling"

Pursuant to 10 CFR 50.90, [LICENSEE] is submitting a request for an amendment to the Technical Specifications (TS) for [PLANT NAME, UNIT NOS.].

[LICENSEE] requests adoption of TSTF-601, "Extend Shield Building Completion Time After Refueling," which is an approved change to the Standard Technical Specifications (STS), into the [PLANT NAME, UNIT NOS] TS. TSTF-601 revises the [shield building] TS and the TS for the [shield building air filtration system] to add a new Action that is applicable prior to criticality following a refueling outage.

The enclosure provides a description and assessment of the proposed changes. Attachment 1 provides the existing TS pages marked to show the proposed changes. Attachment 2 provides revised (clean) TS pages. Attachment 3 provides the existing TS Bases pages marked to show revised text associated with the proposed TS changes and is provided for information only.

[LICENSEE] requests that the amendment be reviewed under the Consolidated Line Item Improvement Process (CLIIP). Approval of the proposed amendment is requested within 6 months of completion of the NRC's acceptance review. Once approved, the amendment shall be implemented within [90] days.

There are no regulatory commitments in this letter.

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

[In accordance with 10 CFR 50.30(b), a license amendment request must be executed in a signed original under oath or affirmation. This can be accomplished by attaching a notarized affidavit confirming the signature authority of the signatory, or by including the following statement in the cover letter: "I declare under penalty of perjury that the foregoing is true and correct. Executed on (date)." The alternative statement is pursuant to 28 USC 1746. It does not require notarization.]

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

Sincerely,

[Name, Title]

Enclosure: Description and Assessment

Attachments:
1. Proposed Technical Specification Changes (Mark-Up)
2. Revised Technical Specification Pages
3. Proposed Technical Specification Bases Changes (Mark-Up) – For Information Only

[The attachments are to be provided by the licensee and are not included in the model application.]

cc: NRC Project Manager
NRC Regional Office
NRC Resident Inspector
State Contact

ENCLOSURE

DESCRIPTION AND ASSESSMENT

## 1.0 DESCRIPTION

[LICENSEE] requests adoption of TSTF-601, "Extend Shield Building Completion Time After Refueling," which is an approved change to the Standard Technical Specifications (STS), into the [PLANT NAME, UNIT NOS] Technical Specifications (TS). TSTF-601 revises the [shield building] TS and the TS for the [shield building air filtration system] to add a new Action that is applicable prior to criticality following a refueling outage.

## 2.0 ASSESSMENT

### 2.1 Applicability of Safety Evaluation

[LICENSEE] has reviewed the safety evaluation for TSTF-601 provided to the Technical Specifications Task Force in a letter dated [DATE]. This review included the NRC staff's evaluation, as well as the information provided in TSTF-601. [LICENSEE] has concluded that the justifications presented in TSTF-601 and the safety evaluation prepared by the NRC staff are applicable to [PLANT, UNIT NOS.] and justify this amendment for the incorporation of the changes to the [PLANT] TS.

### 2.2 Variations

[LICENSEE is not proposing any variations from the TS changes described in TSTF-601 or the applicable parts of the NRC staff's safety evaluation.] [LICENSEE is proposing the following variations from the TS changes described in TSTF-601 or the applicable parts of the NRC staff's safety evaluation:]

[The [PLANT] TS utilize different [numbering][and][titles] than the STS on which TSTF-601 was based. Specifically, [describe differences between the plant-specific TS numbering and/or titles and the TSTF-601 numbering and titles.] These differences are administrative and do not affect the applicability of TSTF-601 to the [PLANT] TS.]

[The [PLANT] TS contain requirements that differ from the STS on which TSTF-601 was based but are encompassed in the TSTF-601 justification. [The [PLANT] TS do not include the changes in TSTF-422, Rev. 2, "Change in Technical Specifications End States (CE NPSD-1186)," TSTF-432, Rev. 1, "Change in Technical Specifications End States (WCAP-16294)," TSTF-426, Rev. 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 - RITSTF Initiatives 6b & 6c."] [Describe the difference between the plant TS and the STS.] These differences do not affect the applicability of TSTF-601 to the [PLANT] TS.

[The [PLANT] TS are not based on the STS and do not include the STS provision in LCO 3.0.4.b. Absent that allowance, the proposed Actions are modified by a note stating that the provisions of Specification 3.0.4 are not applicable, which is the equivalent allowance for a non-STS plant TS. This difference does not affect the applicability of TSTF-601 to the [PLANT] TS.]

## 3.0 REGULATORY ANALYSIS

### 3.1 No Significant Hazards Consideration Analysis

[LICENSEE] requests adoption of TSTF-601, "Extend Shield Building Completion Time After Refueling," which is an approved change to the Standard Technical Specifications (STS), into the [PLANT NAME, UNIT NOS] Technical Specifications (TS). TSTF-601 revises the [shield building] TS and the TS for the [shield building air filtration system] to add a new Action that is applicable prior to criticality following a refueling outage.

[LICENSEE] has evaluated if 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 amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The proposed change provides a longer Completion Time for the [shield building] and [shield building air filtration system] to be inoperable in Modes 4 and 3 following the refueling of the reactor and prior to reactor criticality. The [shield building] and [shield building air filtration] systems are not initiators of any accident previously evaluated. As a result, the probability of an accident during the extended Completion Time is not significantly increased. The consequences of a previously analyzed accident during the extended Completion Time are no different than the consequences of the accident during the existing Completion Time. Hence, the consequences 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 amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No

   The proposed change provides a longer Completion Time for the [shield building] and [shield building air filtration system] to be inoperable in Modes 4 and 3 following the refueling of the reactor and prior to reactor criticality. No new or different accidents result from utilizing the proposed change. The change does not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed). Permitting the systems to be restored to operable status in Modes 3 and 4 instead of Mode 5 does not create a significant change in the methods governing normal plant operation. In addition, the changes do not impose any new or different requirements or alter the 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 accident previously evaluated.

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

Response: No

The proposed change provides a longer Completion Time for the [shield building] and [shield building air filtration system] to be inoperable in Modes 4 and 3 following the refueling of the reactor and prior to reactor criticality. The proposed change does not adversely affect existing plant safety margins, or significantly affect the reliability of the equipment assumed to operate in the safety analysis. As such, there are no changes being made to safety analysis assumptions, safety limits or limiting safety system settings that would adversely affect plant safety as a result of the proposed change.

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

Based on the above, [LICENSEE] 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.

3.2 Conclusion

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

4.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment 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 amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a 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 amendment 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 amendment.

**Technical Specifications Changes**

3.6 CONTAINMENT SYSTEMS

3.6.8 Shield Building (Dual and Ice Condenser)

LCO 3.6.8 The shield building shall be OPERABLE.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| **A. ----------NOTE---------- Only applicable if MODE 2 has not been entered following refueling. ---------- Shield building inoperable in MODE 3 or 4 following refueling.** | **A.1 Restore shield building to OPERABLE status.** | **72 hours** |
| **B~~A~~.** Shield building inoperable **for reasons other than Condition A**. | **B~~A~~.1** Restore shield building to OPERABLE status. | 24 hours |
| **C~~B~~.** Required Action and associated Completion Time not met. | **C~~B~~.1** Be in MODE 3.<br>AND<br>**C~~B~~.2** Be in MODE 5. | 6 hours<br><br>36 hours |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.8.1 | [ Verify annulus negative pressure is > [5] inches | [ 12 hours |

3.6 CONTAINMENT SYSTEMS

3.6.13 Shield Building Air Cleanup System (SBACS) (Dual and Ice Condenser)

LCO 3.6.13 Two SBACS trains shall be OPERABLE.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One SBACS train inoperable. | A.1 Restore SBACS train to OPERABLE status. | 7 days |
| **B. ----------NOTE---------- Only applicable if MODE 2 has not been entered following refueling. ---------- Two SBACS trains inoperable in MODE 3 or 4 following refueling.** | **B.1 Restore at least one SBACS train to OPERABLE status.** | **72 hours** |
| **C~~B~~.** Required Action and associated Completion Time **of Condition A** not met. | **C~~B~~.1** Be in MODE 3.<br>AND<br>**C~~B~~.2** ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ----------<br>Be in MODE 4. | 6 hours<br><br>12 hours |

SURVEILLANCE REQUIREMENTS

BASES

ACTIONS

**A.1**

**If the shield building is inoperable in MODE 3 or MODE 4 following a refueling, shield building OPERABILITY must be restored within 72 hours. Condition A is modified by a Note which limits the applicability of the Condition to when the unit has not entered MODE 2 following a refueling. Condition A allows the shield building to be inoperable for 72 hours instead of the 24 hour Completion Time in Condition B. The 72 hour Completion Time is reasonable in MODE 3 or 4 immediately following a refueling when the reactor has not been critical because of the minimal decay heat levels and reduced radionuclide inventory, and the low probability of an event requiring the shield building.**

B~~A~~.1

In the event shield building OPERABILITY is not maintained **for reasons other than Condition A**, shield building OPERABILITY must be restored within 24 hours. Twenty-four hours is a reasonable Completion Time considering the limited leakage design of containment and the low probability of a Design Basis Accident occurring during this time period.

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

If the shield building 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

Verifying that shield building annulus negative pressure is within limit ensures that operation remains within the limit assumed in the containment analysis. [ The 12 hour Frequency of this SR was developed considering operating experience related to shield building annulus pressure variations and pressure instrument drift during the applicable MODES.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

APPLICABILITY (continued)

In MODES 5 and 6, the probability and consequences of a DBA are low due to the pressure and temperature limitations in these MODES. Under these conditions, the Filtration System is not required to be OPERABLE (although one or more trains may be operating for other reasons, such as habitability during maintenance in the shield building annulus).

ACTIONS

A.1

With one SBACS train inoperable, the inoperable train must be restored to OPERABLE status within 7 days. The components in this degraded condition are capable of providing 100% of the iodine removal needs after a DBA. The 7 day Completion Time is based on consideration of such factors as the availability of the OPERABLE redundant SBACS train and the low probability of a DBA occurring during this period. The Completion Time is adequate to make most repairs.

**B.1**

**If two SBACS trains are inoperable in MODE 3 or MODE 4 following a refueling, at least one SBACS train must be restored to OPERABLE status within 72 hours. Condition B is modified by a Note which limits the applicability of the Condition to when the unit has not entered MODE 2 following a refueling. Condition B allows both SBACS trains to be inoperable for 72 hours instead of entering LCO 3.0.3. The 72 hour Completion Time is reasonable in MODE 3 and 4 immediately following a refueling when the reactor has not been critical because of the minimal decay heat levels and reduced radionuclide inventory, and the low probability of an event requiring the SBACS.**

~~B~~**C**.1 and ~~B~~**C**.2

If the SBACS train cannot be restored to OPERABLE status within the required Completion Time **of Condition A**, the plant must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours.

Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 4). In MODE 4 the steam generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 4, the steam turbine driven auxiliary feedwater pump

3.6 CONTAINMENT SYSTEMS

3.6.8 Shield Building Exhaust Air Cleanup System (SBEACS) (Dual)

LCO 3.6.8 Two SBEACS trains shall be OPERABLE.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One SBEACS train inoperable. | A.1 Restore train to OPERABLE status. | 7 days |
| **B. ----------NOTE---------- Only applicable if MODE 2 has not been entered following refueling. ---------- Two SBEACS trains inoperable in MODE 3 or 4 following refueling.** | **B.1 Restore at least one SBEACS train to OPERABLE status.** | **72 hours** |
| **C~~B~~.** ---------- NOTE ---------- Not applicable when second SBEACS train intentionally made inoperable. ---------- Two SBEACS trains inoperable **for reasons other than Condition B**. | **C~~B~~.1** Verify at least one train of containment spray is OPERABLE.<br>AND<br>**C~~B~~.2** Restore at least one SBEACS train to OPERABLE status. | 1 hour<br><br>24 hours |
| **D~~C~~.** Required Action and Associated Completion Time not met. | **D~~C~~.1** Be in MODE 3.<br>AND | 6 hours |

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| | D~~C~~.2 Be in MODE 5. | 36 hours |

3.6 CONTAINMENT SYSTEMS

3.6.11 Shield Building (Dual)

LCO 3.6.11 Shield building shall be OPERABLE.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| **A. ----------NOTE---------- Only applicable if MODE 2 has not been entered following refueling. ---------- Shield building inoperable in MODE 3 or 4 following refueling.** | **A.1 Restore shield building to OPERABLE status.** | **72 hours** |
| **B~~A~~.** Shield building inoperable **for reasons other than Condition A**. | **B~~A~~.1** Restore shield building to OPERABLE status. | 24 hours |
| **C~~B~~.** Required Action and associated Completion Time not met. | **C~~B~~.1** Be in MODE 3.<br><br>AND<br><br>**C~~B~~.2** ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ----------<br><br>Be in MODE 4. | 6 hours<br><br><br><br><br><br>12 hours |

BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could lead to fission product release to containment that leaks to the shield building. The large break LOCA, on which this system's design is based, is a full power event. Less severe LOCAs and leakage still require the system to be OPERABLE throughout these MODES. The probability and severity of a LOCA decrease as core power and Reactor Coolant System pressure decrease. With the reactor shut down, the probability of release of radioactivity resulting from such an accident is low.

In MODES 5 and 6, the probability and consequences of a DBA are low due to the pressure and temperature limitations in these MODES. Under these conditions, the Filtration System is not required to be OPERABLE.

ACTIONS

A.1

With one SBEACS train inoperable, the inoperable train must be restored to OPERABLE status within 7 days. The components in this degraded condition are capable of providing 100% of the iodine removal needs after a DBA. The 7 day Completion Time is based on consideration of such factors as the availability of the OPERABLE redundant SBEACS train and the low probability of a DBA occurring during this period.

**B.1**

**If two SBEACS trains are inoperable in MODE 3 or MODE 4 following a refueling, at least one SBEACS train must be restored to OPERABLE status within 72 hours. Condition B is modified by a Note which limits the applicability of the Condition to when the unit has not entered MODE 2 following a refueling. Condition B allows both SBEACS trains to be inoperable for 72 hours instead of the 24 hour Completion Time provided by Condition C. The 72 hour Completion Time is reasonable in MODE 3 and 4 immediately following a refueling when the reactor has not been critical because of the minimal decay heat levels and reduced radionuclide inventory, and the low probability of an event requiring the SBEACS.**

~~B~~**C**.1 and ~~B~~**C**.2

If two SBEACS trains are inoperable **for reasons other than Condition B**, at least one SBEACS 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 SBEACS 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 1 hour. In the event of an accident, containment spray reduces the potential radioactive release from the containment, which reduces the consequences of the inoperable SBEACS 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.

BASES

ACTIONS (continued)

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

If the SBEACS train**(s)** 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

Operating each SBEACS train for ≥ 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 for corrective action. Experience from filter testing at operating units indicates that the 10 hour period is adequate for moisture elimination on the adsorbers and HEPA filters. [ 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.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
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BASES

ACTIONS

**A.1**

**If the shield building is inoperable in MODE 3 or MODE 4 following a refueling, shield building OPERABILITY must be restored within 72 hours. Condition A is modified by a Note which limits the applicability of the Condition to when the unit has not entered MODE 2 following a refueling. Condition A allows the shield building to be inoperable for 72 hours instead of the 24 hour Completion Time in Condition B. The 72 hour Completion Time in MODE 3 or 4 is reasonable immediately following a refueling when the reactor has not been critical because of the minimal decay heat levels and reduced radionuclide inventory, and the low probability of an event requiring the shield building.**

**B** ~~A~~.1

In the event shield building OPERABILITY is not maintained **for reasons other than Condition A**, shield building OPERABILITY must be restored within 24 hours.

Twenty-four hours is a reasonable Completion Time considering the limited leakage design of the containment and the low probability of a DBA occurring during this time period.

**C** ~~B~~.1 and **C** ~~B~~.2

----------REVIEWER'S NOTE ----------
Adoption of a MODE 4 end state requires the licensee to make the following commitments:

1. [LICENSEE] will follow the guidance established in Section 11 of NUMARC 93-01, "Industry Guidance for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Nuclear Management and Resource Council, Revision [4F].

2. [LICENSEE] will follow the guidance established in Revision 2 of WCAP-16364-NP, "Implementation Guidance for Risk Informed Modification to Selected Required Action End States at Combustion Engineering NSSS Plants (TSTF-422)," Westinghouse, May 2010.

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If the shield building cannot be restored to OPERABLE status within the required Completion Time, 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 12 hours.