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U. S. Nuclear Regulatory Commission
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Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant Units 1 and 2
Revise Technical Specification Requirements During Handling Irradiated Fuel and Core Alterations – TSTF-51

Ladies and Gentlemen:

References:
1. Standard Technical Specifications (STS) Change Traveler Technical Specifications Task Force (TSTF)-51-A, "Revise containment requirements during handling irradiated fuel and core alterations," Revision 2 (NRC Agencywide Documents Access and Management System (ADAMS) Accession No. ML040400343).

2. NRC NUREG-1433, "Standard Technical Specifications – General Electric BWR/4 Plants, Volume 1, Specifications," Revision 4.0 (NRC ADAMS Accession No. ML12104A192).

Ladies and Gentlemen:

Pursuant to the provisions of Section 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), Southern Nuclear Operating Company (SNC) hereby requests an amendment to the Technical Specifications (TSs) for Edwin I. Hatch Nuclear Plant (HNP) Unit 1 Renewed Facility Operating License DPR-57 and Unit 2 Renewed Facility Operating License NPF-5. The proposed amendment would revise certain TSs to remove the requirements for engineered safety feature (ESF) systems (e.g., secondary containment, secondary containment valve isolation capability, and standby gas treatment system) to be operable after sufficient radioactive decay of irradiated fuel has occurred following a plant shutdown. Following sufficient radioactive decay, these systems are no longer required during a fuel handling accident to ensure main control room personnel dose remains below the 10 CFR 50.67(b)(2)(iii) dose limit and off-site dose remains below the accident dose limit specified in the NRC standard review plan, which represents a small fraction of 10 CFR 50.67 dose limits.

This change represents a partial adoption of STS change traveler TSTF-51-A, Revision 2 (Reference 1).

The proposed amendment will allow HNP Units 1 and 2 the flexibility to move personnel and equipment and perform work which would affect secondary containment operability

during the handling of irradiated fuel. The proposed amendment would also align the HNP TSs more closely, as technically practicable, with the latest revision of the standard technical specifications (Reference 2).

SNC requests approval of the proposed license amendment by January 1, 2020 to support the Spring 2020 HNP Unit 1 refueling outage. The proposed amendment will be implemented within 60 days of issuance.

The enclosure provides a basis for the proposed change, including a proposed no significant hazards considerations analysis. Attachments 1 and 2 contain marked-up TS pages and revised TS pages, respectively. Attachment 3 contains revised TS Bases pages marked to show the accompanying proposed changes for information only.

This letter does not contain any new NRC regulatory commitments.

In accordance with 10 CFR 50.91, SNC is notifying the State of Georgia of this license amendment request by transmitting a copy of this letter, enclosure, and attachments to the designated State Official.

If you have any questions, please contact Jamie Coleman at 205.992.6611.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 24th day of April 2019.

Respectfully submitted,

Cheryl A. Gayheart
Director, Regulatory Affairs
Southern Nuclear Operating Company

CAG/RMJ

Enclosure: Basis for Proposed Change

Attachments:
1. HNP Unit 1 and Unit 2 Technical Specification Marked-up Pages
2. HNP Unit 1 and Unit 2 Revised Technical Specification Pages
3. HNP Unit 1 and Unit 2 Technical Specification Bases Marked-up Pages (For Information Only)

cc: Regional Administrator, Region II
NRR Project Manager – Hatch
Senior Resident Inspector – Hatch
Director, Environmental Protection Division – State of Georgia
RType: CHA02.004

**Edwin I. Hatch Nuclear Plant – Units 1 and 2**

**Revise Technical Specification Requirements During Handling Irradiated Fuel and Core Alterations – TSTF-51**

**Enclosure**

**Basis for Proposed Change**

**Enclosure to NL-19-0329**
**Basis for Proposed Change**

## 1. Summary Description

The proposed amendment to Hatch Nuclear Plant (HNP) – Units 1 and 2 renewed facility operating licenses would revise certain Technical Specifications (TSs) to remove the requirements for engineered safety feature (ESF) systems to be operable after sufficient radioactive decay of irradiated fuel has occurred following a plant shutdown. The subject ESF systems are: secondary containment, secondary containment isolation valves, standby gas treatment (SGT) system, and associated refueling floor exhaust radiation isolation instrumentation. Following sufficient radioactive decay, these systems are no longer required during a fuel handling accident (FHA) to ensure main control room personnel dose remains below the 10 CFR 50.67(b)(2)(iii) dose limit and off-site dose remains below the accident dose limit specified in the NRC standard review plan, which represents a small fraction of 10 CFR 50.67 dose limits.

This change represents a partial adoption of standard technical specification (STS) change traveler Technical Specification Task Force (TSTF) -51-A, Revision 2 (Ref. 1) and will align the HNP Units 1 and 2 technical specifications more closely, as technically practicable, with the STS described in NUREG 1433, Revision 4.0 (Ref. 2).

## 2. Detailed Description

### 2.1 System Design and Operation

The HNP Units 1 and 2 secondary containments are comprised of structures that completely enclose the respective primary containments and those components that may be postulated to contain primary system fluid. The secondary containment system includes the reactor building, SGT system, reactor building isolation control system, and main stack. When the equipment and refueling floor hatches between the respective reactor building and the refueling floor are open, secondary containment includes the common refueling area and the opposite unit reactor building volume, as applicable. These zones (i.e., reactor buildings and common refueling area) serve as the primary containment during unit refueling.

During refueling operations, the secondary containment structure forms a control volume that serves to hold up fission product radioactivity that may be released from the reactor core following an accident (i.e., FHA), such that off-site radiation exposures are maintained within the requirements of 10 CFR 50.67. In conjunction with operation of the SGT system and closure of the secondary containment isolation valves (SCIVs), the secondary containment is designed to reduce the activity level of the fission products prior to release to the environment.

The secondary containment isolation instrumentation automatically initiates closure of appropriate SCIVs and starts the SGT system. Secondary containment isolation and establishment of vacuum with the SGT system ensures that fission products that are released during an FHA are maintained within applicable limits.

Four exhaust radiation detectors from the refueling floor are located near the respective ventilation exhaust ductwork. The signal from each detector is input to an individual monitor whose trip outputs are assigned to an isolation channel. A high radiation signal

from either trip system initiates the SGT subsystems and isolates the automatic isolation valves (dampers) in each secondary containment penetration.

The Unit 1 and Unit 2 SGT systems each consists of two fully redundant subsystems, each with its own set of dampers, charcoal filter train, and controls. These subsystems automatically start and operate in response to actuation signals indicative of conditions or an accident that could require operation of the system.

2.2 Current Technical Specification Requirements

The following HNP Units 1 and 2 TSs currently include the Applicability, in part, “During movement of irradiated fuel assemblies…” and “During CORE ALTERATIONS:”

- TS 3.3.6.2, Secondary Containment Isolation Instrumentation
- TS 3.6.4.1, Secondary Containment
- TS 3.6.4.2, Secondary Containment Isolation Valves (SCIVs)
- TS 3.6.4.3, Standby Gas Treatment (SGT) System

These TSs also include applicable actions requiring immediate suspension of irradiated fuel assemblies and core alterations.

2.3 Reason for the Proposed Change

After sufficient radioactive decay of irradiated fuel following a reactor shutdown, the proposed amendment will allow HNP Units 1 and 2 the flexibility to move personnel and equipment and perform work which would affect secondary containment and SGT system operability during the handling of irradiated fuel. The proposed amendment would also align the HNP TSs more closely, as technically practicable, with the STS described in NUREG-1433, Revision 4.0 (Ref. 3).

2.4 Description of the Proposed Change

The proposed change revises the applicability requirements of several TSs to require these specifications, "During movement of recently irradiated fuel assemblies," and eliminate the applicability requirement, “During CORE ALTERATIONS.” The proposed term “recently,” as it relates to irradiated fuel, is described in the associated TS Bases as fuel that has occupied part of a critical reactor core within the previous 24 hours. The TS actions are revised to reflect the change to the TS applicability requirements. Specifically, the following TS applicability and action requirements proposed to be modified are (deleted text in ~~strikeout~~ and added text in *italics*):

<u>TS 3.3.6.2, Secondary Containment Isolation Instrumentation</u>

The following revisions are proposed to Table 3.3.6.2-1, “Secondary Containment Isolation Instrumentation:”

- Footnote (a) is revised to state, “During ~~CORE ALTERATIONS and during~~ movement of *recently* irradiated fuel assemblies within containment.”

- Mode 5 is deleted from the Applicable Modes or Other Specified Conditions column for Function 4, “Refueling Floor Exhaust Radiation – High.”

TS 3.6.4.1, Secondary Containment

The following revisions are proposed to the Applicability and Condition C:

- Applicability is revised to state, in part, “During movement of *recently* irradiated fuel assemblies in the secondary containment~~, During CORE ALTERATIONS~~.”

- Condition C is revised to state, "Secondary containment inoperable during movement of *recently* irradiated fuel assemblies in the secondary containment~~ or during CORE ALTERATIONS~~."

- Required Action C.1 is revised to state, “Suspend movement of *recently* irradiated fuel assemblies in the secondary containment,” and Required Action C.2 and associated logical connector “AND” and “Immediately” Completion Time are deleted. TS Actions table formatting is revised to support the proposed required action deletion.

TS 3.6.4.2, Secondary Containment Isolation Valve (SCIVs)

The following revisions are proposed to the Applicability and Condition D:

- Applicability is revised to state, in part, “During movement of *recently* irradiated fuel assemblies in the secondary containment~~, During CORE ALTERATIONS~~.”

- Condition D is revised to state, "Required Action and associated Completion Time of Condition A or B not met during movement of *recently* irradiated fuel assemblies in the secondary containment~~ or during CORE ALTERATIONS~~."

- Required Action D.1 is revised to state, “Suspend movement of *recently* irradiated fuel assemblies in the secondary containment,” and Required Action D.2 and associated logical connector “AND” and “Immediately” Completion Time are deleted. TS Actions table formatting is revised to support the proposed required action deletion.

TS 3.6.4.3, Standby Gas Treatment (SGT) System

The following revisions are proposed to the Applicability and Conditions D and F:

- Applicability is revised to state, in part, “During movement of *recently* irradiated fuel assemblies in the secondary containment~~, During CORE ALTERATIONS~~.”

- Condition D is revised to state, "Required Action and associated Completion Time of Condition A or B not met during movement of *recently* irradiated fuel assemblies in the secondary containment~~ or during CORE ALTERATIONS~~."

- Required Action D.2.1 is revised to state, “Suspend movement of *recently* irradiated fuel assemblies in the secondary containment,” and Required Action D.2.2 and associated logical connector “AND” and “Immediately” Completion Time are deleted.

TS Actions table formatting is revised to support the proposed required action deletion, including renumbering Required Action D.2.1 to D.2.

## 3. Technical Evaluation

### 3.1 Current Licensing Basis and Accident Analysis

As described in Subsection 15.3.5, "Fuel-Handling Accident (Event 34)," of the HNP Unit 2 Final Safety Analysis Report (FSAR), the FHA involves the drop of a spent fuel assembly during refueling operations. The analysis assumes 172 fuel rods will be damaged as a result of the postulated FHA, and thus instantaneously release of their available gap activity to the environment, taking no credit for reactor building closure or isolation. The depth of water over the damaged fuel is not less than 21 feet and is controlled by TS 3.7.8, "Spent Fuel Storage Pool Water Level," and TS 3.9.6, "Reactor Pressure Vessel (RPV) Water Level." Following reactor shutdown, decay of short lived fission products greatly reduces the fission product inventory present in irradiated fuel. Radiological dose analyses take credit for the normal decay of irradiated fuel. The FHA analysis evaluated radiological dose with a fission product decay period of 24 hours after shutdown. Two FHA cases were analyzed and results obtained:

- FHA assuming secondary containment isolates automatically and the SGT system draws a vacuum and filters the radioactivity prior to release to the environment. The radioactive release is filtered and elevated.
- FHA with no credit taken for secondary containment isolation or operation of the SGT system. The unfiltered radioactive release is assumed to be at ground level for the duration of the accident.

The postulated FHA involves a drop of a fuel assembly on top of other fuel assemblies in the reactor core during refueling operations. SNC has determined that the drop distance associated with this location bounds the maximum height that is allowed by the HNP refueling equipment configuration and this is the limiting case because it results in the maximum release of fission products to the secondary containment. Also, SNC has determined damage due to a fuel assembly drop over the core into the reactor vessel bounds a drop in the spent fuel pool.

By letter dated August 28, 2008 (Ref. 3), the NRC issued Amendment No. 256 to Renewed Facility Operating License No. DPR-57 and Amendment No. 200 to Renewed Facility Operating License No. NPF-5 for HNP Units 1 and 2, respectively. These amendments, in part, approved full implementation of alternative source term (AST) radiological methodology. Full AST implementation replaced the previous accident source term used in HNP design basis radiological analyses and incorporated the total effective dose equivalent (TEDE) dose criteria.

In the August 28, 2008 NRC Safety Evaluation (SE) issued with HNP License Amendments 256 (Unit 1) and 200 (Unit 2) (Ref. 3), the NRC staff concluded, in part, that SNC used methods consistent with applicable regulations, guidance, and standards. The NRC staff concluded that the meteorological data complied with the guidance of NRC Regulatory Guide (RG) 1.23 (Ref. 4) or were determined acceptable by comparison calculations performed by the NRC staff. The inputs and assumptions used to calculate the control room atmospheric dispersion ($\chi/Q$) values were also consistent

with the guidance of NRC RG 1.194 (Ref. 5) or determined to be acceptable by comparison calculations performed by the NRC staff. The NRC staff also found that the exclusion area boundary (EAB) and low population zone (LPZ) χ/Q values for the design basis dose analyses given in Tables 3.1.1 and 3.1.2 of the SE (Ref. 3) were acceptable for use in calculating radiological consequences. The NRC staff concluded that the SNC's calculated dose results of an FHA given in Table 3.2 of the SE (Ref. 3) and the assumptions presented in Table 3.2.2 of the SE (Ref. 3) were acceptable.

The HNP χ/Q calculation as summarized in the AST license amendment request (LAR) (Ref. 6) and supplemented in NRC RAI response letters dated November 6 and November 27, 2006, August 13, 2007, and January 24 and April 1, 2008 (Refs. 7, 8, 9, 10, and 11), have not been revised as a result of the proposed change. A ground level release from the reactor building continues to be the most conservative source location for use in calculating the radiological consequences to personnel in the MCR following a design basis FHA.

The control of movement of loads heavier than a fuel assembly over irradiated fuel is described in SNC responses to Generic Letter 81-07, "Control of Heavy Loads," (Ref. 12) which references NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants" (Ref. 13). Subsection 10.20 of the Unit 1 HNP FSAR describes the licensing basis regarding control of heavy loads for both units and technical requirements manual (TRM) T 3.9.4, "Crane Travel," and associated bases provide administrative controls governing movement of heavy loads over fuel assemblies in the spent fuel storage pool racks.

As summarized in Unit 1 FSAR Sub-subsection 10.20.2, the Unit 1 reactor building crane provides service to both units. The Unit 1 reactor building crane is designed to withstand a single failure and maintain the capability to safely retain its load. The Unit 2 reactor building crane is not a single-failure-proof crane and therefore is used under strict administrative control over the refueling floor. A load drop analysis has been performed to determine maximum lifting heights above the floor and load paths to be followed whenever the Unit 2 reactor building crane is used over the refueling floor. TRM T 3.9.4 and associated bases limit heavy load lifts over the fuel assemblies in the spent fuel storage pool racks to use of the Unit 1 single-failure-proof crane in conjunction with the specified lifting devices in compliance with ANSI B30.9-1971, "Slings," and ANSI N14.6-1978, ""Standard For Special Lifting Devices for Shipping Containers Weighing 10,000 pounds (4500 kg) or More for Nuclear Materials." (Refs. 14 and 15).

The load drop analysis for handling of heavy loads over the refueling floor with the Unit 2 reactor building crane demonstrated that the moving of heavy loads within established safe load heights and paths was acceptable. Use of any hoist other than the Unit 1 reactor building crane over any equipment required to reach and maintain cold shutdown of either unit is prohibited. Therefore, core cooling capability and the integrity of the fuel cladding will be maintained. An inadvertent drop of a heavy load using the Unit 1 reactor building crane is precluded due to the single failure design of the crane and a load drop analysis demonstrates that an inadvertent drop of a heavy load using hoists or cranes other than the Unit 1 reactor building crane would have no impact on the health or safety of the public.

The proposed license amendment does not impact or alter the HNP load drop analysis or the calculations referenced in the HNP Units 1 and 2 refueling floor heavy load paths drawing referenced in HNP Unit 1 FSAR Subsection 10.20.

3.2 Update to the HNP FHA Radiological Consequences Analysis

Four updates have been made to the HNP design basis FHA radiological consequences analysis (Version 1) since issuance of HNP License Amendments 256 (Unit 1) and 200 (Unit 2) approving full implementation of AST radiological methodology (Ref. 3). The following provides a summary of the updates to the FHA radiological consequences analysis of record (AOR):

Version 2 dated February 23, 2015

- Corrected number of full-length rods in GE14 fuel bundle

  Value of equivalent full-length fuel rods was replaced with the correct value. The corrected value increased the fraction of the core with cladding failure (FC) resulting in an increase in the activity released from the fuel by 2%.

- Effect of GNF2 fuel

  Two effects were evaluated: the differing number of equivalent full-length rods in a GNF2 bundle and the core source term. The reduction in the number of equivalent full-length rods increases the FC value. Some of the GNF2 core source terms are greater than and some are less than those used in Version 1 of the FHA AOR. The combined effects were determined to increase onsite and offsite doses 2% compared to the base case.

The calculated increase of onsite and offsite doses 2% compared to the base case as a result of these changes did not alter the radiological consequence results of the FHA AOR. This increase was absorbed by the 10% margin applied in Version 1 of the FHA AOR. Thus, the radiological consequence results of the FHA AOR remained bounding.

Version 3 dated January 6, 2016

- For FHA case crediting the SGT system, reactor building drawdown time was increased from 2 minutes to 10 minutes. The FHA case crediting the SGT system is not the limiting case. Therefore, this change had no impact on the worst-case calculated dose results of the FHA AOR.
- Updated the dose calculation program LOCADOSE cases containing zero inleakage for the MCR and the technical support center (TSC) with inleakage values from the loss of coolant accident (LOCA) analysis. This change had no impact on the worst-case calculated dose results because the cases that were updated with LOCA inleakage values were not the limiting cases for the MCR and the TSC. The limiting cases assumed a conservative inleakage of 10,000 cfm, which has not been changed.
- Increased TSC filter efficiency from 90% to 95%. This change did not noticeably change the calculated TSC radiological consequence results of the FHA AOR.

These changes did not adversely impact the limiting radiological dose consequences of the HNP FHA AOR.

Version 4 dated September 14, 2017

- Effect of CEUP fuel

  Replacing GNF2 fuel with CEUP fuel results in a change in isotopic concentrations. The only change of significance is the increase in Pu-238 concentration. As Pu-238 is not released as part of the FHA, the evaluation for GNF2 fuel is still applicable. Thus, the radiological dose consequences of the HNP FHA AOR are not impacted.

Version 5 dated November 19, 2018

- Effect of GNF3 fuel

  The combined effects of the GNF3 equivalent number of full-length rods, the number of damaged fuel rods, and core source term would be expected to decrease onsite and offsite doses 1% compared to the base case. This increases the margin applied in the HNP FHA AOR to account for future fuel changes or power uprates. The radiological dose consequences of the HNP FHA AOR remain bounding.

- Updated effect of GE14 and GNF2 fuel

  The calculated number of damaged equivalent GE14 full length rods decreased and the number of equivalent GNF2 full length rods decreased. As a result, the FC in both cases decreased, thereby reducing the expected onsite and offsite doses compared to the base case and improving the margin applied in the HNP FHA AOR. The radiological dose consequences of the HNP FHA AOR remain bounding.

- Updated effect of CEUP fuel

  Replacing GNF3 fuel with CEUP fuel results in a change in isotopic concentrations. A change of significance is the increase in some Group 12 Cerium isotope concentrations. However, the Group 12 Cerium isotopes are not released as part of the FHA and the evaluation for GNF3 fuel is still applicable. Thus, the radiological dose consequences of the HNP FHA AOR are not impacted.

The updates to the HNP FHA AOR did not result in a change to the methodology or an adverse change in the dose consequences to offsite or MCR personnel previously documented in the NRC SE approving full implementation of AST radiological methodology at HNP (Ref. 3). The worst-case FHA dose to individuals at the EAB and LPZ continues to be 1.2 Roentgen equivalent man (rem) TEDE and remains below the 10 CFR 50.67(b)(2)(i) and (ii) radiation dose criteria of 25 rem TEDE and the radiation dose criterion of 6.3 rem TEDE specified in Table 1, "Accident Dose Criteria," of NRC NUREG-0800, Section 15.0.1 (Ref. 16) and Table 6, "Accident Dose Criteria," of NRC RG 1.183 (Ref. 17). The worst-case FHA dose to personnel in the MCR continues to be 3.5 rem TEDE. This FHA dose assumes isolation, pressurization, and filtration of the MCR. The worst-case calculated FHA dose to the MCR continues to remain below the 10 CFR 50.67(b)(2)(iii) radiation dose criterion of 5 rem TEDE.

3.3 Acceptability of the Proposed Change

Following reactor shutdown, decay of the short-lived fission products greatly reduces the fission product inventory present in irradiated fuel. The proposed change is based on the results of the HNP FHA analyses that assumes a decay period of at least 24 hours reducing the radionuclide inventory available for release to the environment in the event of an FHA. Following sufficient decay occurring, the primary success path for mitigating the FHA no longer includes the functioning of the active containment systems to ensure off-site and MCR doses remain below the 10 CFR 50.67 dose limits. Additionally, based on the design of HNP Units 1 and 2, the time required to disassemble the reactor (e.g., remove the reactor vessel head, steam dryer, steam separators, core shroud head, and internals) and expose the irradiated fuel after a reactor shutdown is greater than 24 hours. Based on these reasons, the proposed changes to the Applicability and Required Actions of the applicable TSs will continue to ensure appropriate mitigation systems are operable when required to mitigate an FHA.

When referring to movement of recently irradiated fuel in the proposed change, the term "recently" is described in the associated TS Bases, consistent with TSTF-51, as fuel that has occupied part of a critical reactor core within the previous 24 hours. This time is based on the input assumption in the FHA analysis, which shows that, following this decay period, off-site and MCR doses remain below the 10 CFR 50.67 dose limits without reliance on the secondary containment, SGT system, SCIVs, or secondary containment isolation instrumentation.

The operability requirements of the Technical Specifications specified herein are modified to reflect that reactor vessel water level, spent fuel pool water level, and decay time are the primary success path for mitigating an FHA. The isolation, pressurization, and filtration of the MCR continues to be assumed in the FHA, and therefore, these requirements are not modified by the proposed amendment request.

The proposed deletion of Mode 5 from the Applicable Modes or Other Specified Conditions column for Function 4, "Refueling Floor Exhaust Radiation – High," in Table 3.3.6.2-1, "Secondary Containment Isolation Instrumentation," is considered acceptable because the instrumentation continues to be required in Mode 5 when required for mitigation of an FHA involving handling recently irradiated fuel. Following sufficient radioactive decay in Mode 5, the secondary containment isolation instrumentation is no longer required during an FHA to ensure off-site and MCR doses are within the 10 CFR 50.67 dose limits. Additionally, elimination of Mode 5 from Function 4 applicability will require the refueling floor exhaust radiation instrumentation to be operable during movement of recently irradiated fuel assemblies in secondary containment irrespective of the plant operating mode. This proposed change is appropriate because irradiated fuel movement could occur in the refueling area regardless of the plant operational mode.

Additionally, SNC has committed to following the guidelines specified in Section 11 of NUMARC 93-01 (Ref. 18), as indicated in the NRC SE associated with HNP License Amendments 281 (Unit 1) and 225 (Unit 2) adopting TSTF-423, "Technical Specifications End States, NEDC-32988-A" (Ref. 19).

3.4 Variations from TSTF-51

The proposed amendment is based on the STS changes described in TSTF–51, Revision 2, but SNC proposes variations from the NUREG-1433 markups in TSTF-51, as identified below and include differing TS numbers and TS titles, where applicable.

1. The main control room environmental control (MCREC) system instrumentation and the MCREC system continue to be assumed to provide isolation, pressurization, and filtration of the MCR in the event of an FHA. Since this system and associated isolation instrumentation are mitigation systems necessary to maintain dose to personnel in the MCR below the regulatory and regulatory guidance limits for an FHA, the following TSs and support TSs and associated Bases are not modified:

   - TS 3.3.7.1, "Main Control Room Environmental Control (MCREC) System Instrumentation,"
   - TS 3.7.4, "Main Control Room Environmental Control (MCREC) System,"
   - TS 3.7.5, "Control Room Air Conditioning (AC) System,"
   - TS 3.8.2, "AC Sources – Shutdown,"
   - TS 3.8.5, "DC Sources – Shutdown," and
   - TS 3.8.8, "Distribution Systems – Shutdown."

   This is a plant-specific variation from TSTF-51.

2. Mode 5 is deleted from the Applicable Modes or Other Specified Conditions column for Function 4, "Refueling Floor Exhaust Radiation – High," in Table 3.3.6.2-1 as described in Section 3.3 herein. Mode 5 is not specified in NUREG-1433 TS Table 3.3.6.2-1 for the equivalent function. Therefore, this is a plant-specific variation from TSTF-51.

3. Function 5, "Manual Initiation," of NUREG-1433 TS Table 3.3.6.2-1 is not applicable to HNP Units 1, and 2 and, therefore, marked up pages of the associated TS Bases are not included. This is an administrative variation from TSTF-51.

4. Condition G of NUREG-1433 TS 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," and NUREG-1433 TS 3.8.8, "Inverters – Shutdown," are not applicable to HNP Units 1 and 2 and, therefore, marked up pages of the associated TSs and Bases are not included. This is an administrative variation from TSTF-51.

5. TSTF-542, "Reactor Pressure Vessel Water Inventory Control," was approved for HNP Units 1 and 2 in License Amendments 290 and 235, respectively (Ref. 20) eliminating requirements related to operations with a potential for draining the reactor vessel. Therefore, variations related to the NUREG-1433 marked up TS and Bases pages consider these changes. This is an administrative variation from TSTF-51.

6. The TS Bases are revised, where applicable, consistent with TSTF-51. Plant-specific changes are made (additions, deletions, and/or changes) to reflect the plant-specific nomenclature, number, reference, system description, analysis, or licensing basis description, including the addition of the radioactive decay period of 24 hours assumed in the FHA radiological dose analysis. The proposed changes are considered administrative variations from TSTF-51.

SNC considers the differences from TSTF-51 listed herein to be either: 1) necessary variations to maintain the requirements for required safety systems assumed in the HNP FHA analysis; or 2) minor variations or deviations that are administrative in nature.

## 4. Regulatory Evaluation

4.1 Applicable Regulatory Requirements/Criteria

The TSs satisfy 10 CFR 50.36, "Technical specifications." The following systems and parameters meet one or more of the criteria of 10 CFR 50.36(c)(2)(ii):

- Secondary containment
- SCIVs and associated and refueling floor exhaust isolation instrumentation,
- SGT system associated actuation instrumentation,

The proposed amendment revises the TS applicability of these systems and parameters to eliminate the requirements during core alterations, and during movement of irradiated fuel assemblies that have decayed beyond the decay period assumed in the HNP FHA analysis because these requirements are no longer assumed in the mitigation of an FHA or the potential radioactive release as a result of dropping of a non-irradiated fuel assembly, source, or reactivity control component onto the reactor core during core alterations. The proposed amendment does not alter requirements associated with the MCREC system and associated instrumentation, which are assumed to mitigate the effects of a radiological release to the MCR during an FHA, and continues to maintain requirements associated with structures, systems, and components that are part of the primary success path and actuate to mitigate the related design basis accidents and transients. The proposed amendment continues to provide appropriate remedial actions and shutdown requirements required by 10 CFR 50.36(c)(2)(i) for any system requiring a limiting condition for operation pursuant the criteria of 10 CFR 50.36(c)(2)(ii).

10 CFR 50.67, "Accident source term" – The HNP FHA analysis of record meets the requirements of 10 CFR 50.67. Accident source terms have not been modified as a result of the proposed amendment. SNC has determined that the inputs and assumptions related to atmospheric dispersion related to the FHA analysis are not changed as a result of the proposed change. Therefore, the HNP FHA analysis continues to meet the requirements of 10 CFR 50.67.

HNP Unit 1 secondary containment and SGT systems were designed to the following applicable Atomic Energy Commission preliminary general design criteria (GDC) identified in Federal Register 32 FR 10213, published July 11, 1967 (ADAMS Accession No. ML043310029):

> 1967 GDC 10: The reactor building encompasses the primary containment and, in conjunction with the SGT system and main stack, provides secondary containment when the primary containment is closed and in service, in addition to providing containment when the primary containment is open, e.g., during refueling periods. The proposed change does not alter the design of the secondary containment system, SGT system, or main stack. The proposed change revises the applicability requirements of pertinent TSs to eliminate the

need for these systems when they are not required to mitigate an FHA to limit offsite and MCR dose to below the 10 CFR 50.67 dose limits (i.e., during movement of irradiated fuel assemblies that have sufficiently decayed and during core alterations). The proposed change continues to ensure appropriate mitigation systems, including the secondary containment and SGT systems are operable when required to mitigate an FHA.

1967 GDC 17: The proposed change does not alter the design of the refueling floor radiation monitoring instrumentation provided for fuel handling areas. Therefore, instrumentation will continue to be provided to monitor and provide alarm in the event of a radioactive release in the fuel handling area.

1967 GDCs 19, 20, and 21: The proposed amendment does not alter the design of any protection system, including the secondary containment isolation instrumentation. Therefore, the protection system design continues to provide high functional reliability and inservice testability commensurate with the safety functions to be performed and continues to be sufficient to assure no single failure or removal of from service any component or channel of a system will result in loss of the protection function. The refueling floor radiation monitoring instrumentation design continues to provide at least two channels of protection as previously licensed and approved by the NRC.

1967 GDC 22: The proposed change does not alter the design of any protection system, including the secondary containment isolation instrumentation. The protection systems continue to automatically override the plant normal operational control system (i.e., functions independently) to initiate appropriate protective action whenever the plant conditions monitored by the system exceed established limits, as previously licensed and approved by the NRC.

1967 GDC 23: The proposed change does not alter the design of any protection system, including the secondary containment isolation instrumentation. The system circuits continue to be separated precluding a circuit fault from inducing a fault in another circuit and reducing the likelihood that adverse conditions will encompass more than one circuit to the extent previously licensed and approved by the NRC.

1967 GDCs 62, 63, 64, and 65: The SGT system is designed to permit periodic testing of the system performance and the system can be physically inspected and its operability demonstrated. The proposed change does not alter the design of the secondary containment or the SGT system. Provisions to facilitate periodic inspections of active components and other important equipment of the secondary containment system, including the SGT system, is not altered by the proposed change.

1967 GDC 70: The proposed change does not alter the design of any plant ESF system, including the SGT system. The ESF systems required to limit the offsite doses under various design basis accidents (e.g., FHA) to levels below 10 CFR 100 dosage level guidelines are not altered by this change.

The HNP Unit 2 secondary containment and SGT systems were designed to the following 10 CFR Part 50, Appendix A GDCs for Nuclear Power Plants:

GDC 13: Instrumentation and control. The proposed change does not alter the design of the applicable instrumentation that monitor variables and systems over their anticipated ranges for normal operation for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety.

GDC 16: Containment design. The proposed change does not alter the containment design or the associated systems' design. The primary and secondary containments and associated systems, when required, will continue to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment as previously licensed and approved by the NRC.

GDC 19: Control room. The proposed change does not alter the design or operation of the control room envelop or the MCREC system. The FHA analysis results show that the radiological dose to the MCR personnel continues to be within the requirements of GDC-19 as updated for consistency with the TEDE criterion in 10 CFR 50.67.b.2.iii. Adequate radiation protection continues to be provided permitting access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem TEDE for the duration of the accident.

GDC 20: Protection system functions. The proposed change does not alter the design of reactivity control protection systems or instrumentation that sense accident conditions to initiate systems or components important to safety. The change relaxes the requirements for instrumentation of systems not assumed in the mitigation of an FHA.

GDC 21: Protection system reliability and testability. The proposed change does not alter the design of any protection system, including the secondary containment isolation instrumentation. Therefore, the protection system design continues to provide high functional reliability and inservice testability commensurate with the safety functions to be performed and continues to be sufficient to assure that (1) no single failure results in loss of the protection function and (2) removal from service of any component or channel does not result in loss of the required minimum redundancy. The secondary containment isolation instrumentation design continues to permit periodic testing of its functioning when the reactor is in operation as previously licensed and approved by the NRC.

GDC 22: Protection system independence. The proposed change does not alter the design of any protection system, including the secondary containment isolation instrumentation. Therefore, the protection system design continues to assure that the effects of natural phenomena, and of normal operating, maintenance, testing, and postulated accident conditions on redundant channels do not result in loss of the protection function to the extent previously licensed and approved by the NRC.

GDC 23: Protection system failure modes. The proposed change does not alter the design of any protection system, including the secondary containment isolation instrumentation. Therefore, the protection system design continues to fail into a safe state or into a state demonstrated to be acceptable as previously licensed and approved by the NRC.

GDC 24: Separation of protection and control systems. The proposed change does not alter the design of any protection system, including the secondary containment isolation instrumentation. Therefore, the protection system design continues to be separated from control systems as previously licensed and approved by the NRC.

GDCs 41, 42, and 43: Containment atmosphere cleanup, inspection, and testing. The proposed change does not alter the design of the SGT system. The proposed change revises the applicability requirements of pertinent TSs to eliminate the need for these systems when they are not required to mitigate an FHA to limit offsite and MCR dose to below the 10 CFR 50.67 dose limits (i.e., during movement of irradiated fuel assemblies that have sufficiently decayed and during core alterations). The proposed change continues to ensure appropriate mitigation systems are operable when required to mitigate an FHA. Provisions to facilitate periodic inspections of active components and other important equipment of the SGT system, isolation dampers, and associated actuation instrumentation, is not altered by the proposed change and the SGT system continues to provide sufficient test connections and isolation valves to permit periodic vacuum testing.

GDC 64: Monitoring radioactivity releases. The proposed change does not alter the design of any radioactivity monitoring instrumentation, including the secondary containment isolation instrumentation. Means continue to be provided for monitoring the reactor containment atmosphere, spaces containing components for recirculation of loss-of-coolant accident fluids, effluent discharge paths, and the plant environs for radioactivity that may be released from normal operations, including anticipated operational occurrences, and from postulated accidents (e.g., FHA).

4.2 Precedent

STS Travelers TSTF-51 was approved by the NRC staff and incorporated into the STS NUREGs, Revision 2, published in June 2001, which was also approved by the NRC staff. A number of facilities have adopted, as technically practicable, TSTF-51. For examples: Indian Point Nuclear Generating Unit 2, License Amendment 238 (NRC ADAMS Accession Nos. ML033160528 and ML033210260), North Anna Power Station, Units 1 and 2, License Amendments 231 and 212, respectively (NRC ADAMS Accession Nos. ML021200265, ML021220108, and ML021220166), Beaver Valley Units 1 and 2, License Amendments 278 and 161, respectively (NRC ADAMS Accession Nos. ML070160593 and ML070390284), Watts Bar Nuclear Plant, Unit 1, License Amendment 35 (NRC ADAMS Accession Nos. ML020100062 and ML020280264), and

Byron Units 1 and 2, License Amendments 147 and Braidwood Units 1 and 2, License Amendments 140 (NRC ADAMS Accession No. ML062340420).

4.3 No Significant Hazards Considerations Analysis

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) hereby requests an amendment to Hatch Nuclear Plant (HNP) Unit 1 Operating License DPR-57 and Unit 2 Operating License NPF-5. The proposed amendment revises certain Technical Specifications (TSs) to remove the requirements for engineered safety feature (ESF) systems to be operable after sufficient radioactive decay of irradiated fuel has occurred following a plant shutdown. The subject ESF systems are: secondary containment, secondary containment isolation valves, standby gas treatment (SGT) system, and associated refueling floor exhaust radiation isolation instrumentation. Following sufficient radioactive decay, these systems are no longer required during a fuel handling accident (FHA) to ensure main control room personnel dose remains below the 10 CFR 50.67(b)(2)(iii) dose limit and off-site dose remains below the accident dose limit specified in the NRC standard review plan (SRP), which represents a small fraction of 10 CFR 50.67 dose limits.

SNC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment 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 amendment does not affect accident initiators or precursors nor adversely alter the design assumptions, conditions, and configuration of the facility. The proposed amendment does not alter any plant equipment or operating practices with respect to such initiators or precursors in a manner that the probability of an accident is increased.

   The proposed amendment does not involve a physical change to the secondary containment or spent fuel area systems, nor does it change the safety function of the secondary containment, secondary containment isolation valves, SGT system, and associated refueling floor exhaust radiation isolation instrumentation. The subject ESF systems are not assumed in the mitigation of an FHA after sufficient radioactive decay of irradiated fuel has occurred. In addition, FHA dose analysis shows that MCR dose remains below the 10 CFR 50.67(b)(2)(iii) dose limit and off-site dose remains below the accident dose limit specified in the NRC SRP, which represents a small fraction of 10 CFR 50.67 dose limits.

   As a result, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different accident from any accident previously evaluated?

   Response: No

   With respect to a new or different kind of accident, there are no proposed design changes to the safety related plant structures, systems, and components (SSCs); nor are there any changes in the method by which safety related plant SSCs perform their specified safety functions. The proposed amendment will not affect the normal method of plant operation or revise any operating parameters. No new accident scenarios, transient precursor, failure mechanisms, or limiting single failures will be introduced as a result of this proposed change and the failure modes and effects analyses of SSCs important to safety are not altered as a result of this proposed change. The proposed amendment does not alter the design or performance of the related SSCs, and, therefore, does not constitute a new type of test.

   No changes are being proposed to the procedures that operate the plant equipment and the change does not have a detrimental impact on the manner in which plant equipment operates or responds to an actuation signal.

   Therefore, the proposed change will not create the possibility of a new or different accident previously evaluated.

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

   Response: No.

   The margin of safety is related to the ability of the fission product barriers to perform their design functions during and following an accident. These barriers include the fuel cladding, the reactor coolant system, and the containment.

   Instrumentation safety margin is established by ensuring the limiting safety system settings (LSSSs) automatically actuate the applicable design function to correct an abnormal situation before a safety limit is exceeded. Safety analysis limits are established for reactor trip system and ESF actuation system instrumentation functions related to those variables having significant safety functions. The proposed change does not alter the design of these protection systems; nor are there any changes in the method by which safety related plant SSCs perform their specified safety functions.

   The proposed amendment does not involve a physical change to the secondary containment or spent fuel area systems, nor does it change the safety function of the secondary containment, secondary containment isolation valves, SGT system, and associated refueling floor exhaust radiation isolation instrumentation. The subject ESF systems are not assumed in the mitigation of an FHA after sufficient radioactive decay of irradiated fuel has occurred. The HNP FHA dose analysis shows that MCR dose remains below the 10 CFR 50.67(b)(2)(iii) dose limit and off-site dose remains below the accident dose limit specified in the NRC SRP, which represents a small fraction of 10 CFR 50.67 dose limits.

The controlling parameters established to isolate or actuate required ESF systems during an accident or transient are not affected by the proposed amendment and no design basis or safety limit is altered 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, SNC 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.

4.4 Conclusions

In conclusion, based on the considerations discussed herein, (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.

## 5. Environmental Consideration

SNC has determined that the proposed amendment does not change a surveillance requirement and does not alter the design or operation of the normal or emergency radwaste treatment and filtration systems. The proposed amendment revises certain technical specifications to remove the requirements for engineered safety feature systems to be operable after sufficient radioactive decay of irradiated fuel has occurred. Following sufficient radioactive decay, these systems are no longer required during a fuel handling accident to ensure off-site doses and main control room doses remain below the limits specified in 10 CFR 50.67. The proposed amendment 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 off site, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criteria 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 to be prepared in connection with the proposed amendment.

## 6. References

1. STS Change Traveler TSTF-51-A, ‘‘Revise containment requirements during handling irradiated fuel and core alterations," Revision 2, dated November 1, 1999 (NRC Agencywide Documents Access and Management System (ADAMS) Accession No. ML040400343).

2. NRC NUREG-1433, "Standard Technical Specifications – General Electric BWR/4 Plants, Volume 1 Specifications," Revision 4.0 (NRC ADAMS Accession No. ML ML12104A192).

3. Letter from R. E. Martin (NRC) to D. R. Madison (HNP), "Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2, Issuance of Amendments Regarding Alternate Source Term (TAC Nos. MD2934 AND MD2935)," dated August 28, 2008 (NRC ADAMS Accession No. ML081770075).

4. NRC Regulatory Guide 1.23, “Meteorological Monitoring Programs for Nuclear Power Plants,” dated March 2007.

5. NRC Regulatory Guide 1.194, "Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants," dated June 2003.

6. Letter from L. M. Stinson (SNC) to Document Control Desk (NRC), “Edwin I. Hatch Nuclear Plant Request to Implement an Alternative Source Term,” dated August 29, 2006 (NRC ADAMS Accession No. ML062490239).

7. Letter from L. M. Stinson (SNC) to Document Control Desk (NRC), “Edwin I. Hatch Nuclear Plant Request to Implement an Alternative Source Term Atmospheric Dispersion Factor Information,” dated November 6, 2006 (NRC ADAMS Accession No. ML063170194).

8. Letter from L. M. Stinson (SNC) to Document Control Desk (NRC), “Edwin I. Hatch Nuclear Plant Request to Implement an Alternative Source Term RADTRAD Input Files,” dated November 27, 2006, (NRC ADAMS Accession No. ML063380180).

9. Letter from L. M. Stinson (SNC) to Document Control Desk (NRC), “Edwin I. Hatch Nuclear Plant Request to Implement an Alternative Source Term Response to Request for Additional Information Regarding the Development of Atmospheric Dispersion Factors,” dated August 13, 2007 (NRC ADAMS Accession No. ML072260380).

10. Letter from L. M. Stinson (SNC) to Document Control Desk (NRC), “Edwin I. Hatch Nuclear Plant Request to Implement an Alternative Source Term Response to Request for Additional Information Regarding Atmospheric Dispersion Factors,” dated January 24, 2008 (NRC ADAMS Accession No. ML080250254).

11. Letter from L. M. Stinson (SNC) to Document Control Desk (NRC), “Edwin I. Hatch Nuclear Plant Request to Implement an Alternative Source Term Response to Request for Additional Information Regarding Atmospheric Dispersion Factors,” dated April 1, 2008 (NRC ADAMS Accession No. ML080980247).

12. NRC Generic Letter 81-07, “Control of Heavy Loads,” dated February 3, 1981.

13. NRC NUREG-0612, “Control of Heavy Loads at Nuclear Power Plants - Resolution of Generic Technical Activity A-36,” dated July 1980 (NRC ADAMS Accession No. ML070250180).

14. ANSI B30.9-1971, “Slings,” dated 1971.

15. ANSI N14.6-1978, “Standard for Special Lifting Devices for Shipping Containers Weighing 10,000 pounds (4500 kg) or More for Nuclear Materials,” dated 1978.

16. NRC NUREG-0800, Standard Review Plan, Section 15.0.1, “Radiological Consequence Analyses Using Alternative Source Terms,” Revision 0, dated July 2000 (NRC ADAMS Accession No. ML003734190).

17. NRC Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," dated July 2000.

18. Nuclear Energy Institute NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Revision 4A, April 2011 (NRC ADAMS Accession No. ML11116A198).

19. Letter from M. D. Orenak (NRC) to C. R. Pierce (SNC), “Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2 - Issuance of Amendments to Adopt TSTF-423, Revision 1, ‘Technical Specifications End States, NEDC-32988-A’ (CAC Nos. MF7197 and MF7198),” dated December 19, 2016 (NRC ADAMS Accession No. ML16257A724).

20. Letter from J. R. Hall (NRC) to C. A Gayheart (SNC), “Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2 - Issuance of Amendments to Adopt TSTF-542, Revision 2, ‘Reactor Pressure Vessel Water Inventory Control’ (CAC Nos. MF9662 and MF9663; EPID L-2017-LLA-0215),” dated May 31, 2018 (NRC ADAMS Accession No. ML18123A368).

**Edwin I. Hatch Nuclear Plant – Units 1 and 2**

**Revise Technical Specification Requirements During Handling Irradiated Fuel and Core Alterations – TSTF-51**

**Attachment 1**

**HNP Unit 1 and Unit 2 Technical Specification Marked-up Pages**

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

| | FUNCTION | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS | REQUIRED CHANNELS PER TRIP SYSTEM | SURVEILLANCE REQUIREMENTS | ALLOWABLE VALUE |
|---|---|---|---|---|---|
| 1. | Reactor Vessel Water Level Low - Low, Level 2 | 1 ,2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.2<br>SR 3.3.6.2.4<br>SR 3.3.6.2.5 | ≥ -47 inches |
| 2. | Drywell Pressure - High | 1, 2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.2<br>SR 3.3.6.2.4<br>SR 3.3.6.2.5 | ≤ 1.92 psig |
| 3. | Reactor Building Exhaust Radiation - High | 1, 2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.3<br>SR 3.3.6.2.5 | ≤ 80 mR/hr |
| 4. | Refueling Floor Exhaust Radiation - High | 1, 2, 3, ~~5.~~(a) | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.3<br>SR 3.3.6.2.5 | ≤ 80 mR/hr |

(a) During ~~CORE ALTERATIONS and during~~ movement of irradiated fuel assemblies in secondary containment.

recently

## 3.6 CONTAINMENT SYSTEMS

### 3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment,
~~During CORE ALTERATIONS.~~

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. Secondary containment inoperable in MODE 1, 2, or 3. | A.1 Restore secondary containment to OPERABLE status. | 4 hours |
| B. Required Action and associated Completion Time of Condition A not met. | B.1 ----------NOTE---------<br>LCO 3.0.4.a is not applicable when entering MODE 3.<br>----------<br>Be in MODE 3. | 12 hours |
| C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~. | C.1 ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br>Suspend movement of recently irradiated fuel assemblies in the secondary containment.<br>~~AND~~ | Immediately<br>~~(continued)~~ |

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| C. (continued) | C.2 Suspend CORE ALTERATIONS. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.1.1 | Verify all secondary containment equipment hatches are closed and sealed. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.1.2 | Verify one secondary containment access door in each access opening is closed, except when the access opening is being used for entry and exit. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.1.3 | ----------NOTE----------<br>The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration.<br>----------<br>Verify secondary containment can be drawn down to ≥ 0.20 inch of vacuum water gauge in ≤ 10 minutes using required standby gas treatment (SGT) subsystem(s). | In accordance with the Surveillance Frequency Control Program |

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment,
~~During CORE ALTERATIONS.~~ :

ACTIONS

----------NOTES----------
1. Penetration flow paths may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.
---

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One or more penetration flow paths with one SCIV inoperable. | A.1 Isolate the affected penetration flow path by use of at least one closed and deactivated automatic valve, closed manual valve, or blind flange.<br><br>AND<br><br>A.2 ----------NOTES----------<br>1. Isolation devices in high radiation areas may be verified by use of administrative means. | 8 hours |

(continued)

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. (continued) | 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means.<br>----------<br>Verify the affected penetration flow path is isolated. | Once per 31 days |
| B. One or more penetration flow paths with two SCIVs inoperable. | B.1 Isolate the affected penetration flow path by use of at least one closed and deactivated automatic valve, closed manual valve, or blind flange. | 4 hours |
| C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | C.1 Be in MODE 3.<br><br>AND<br><br>C.2 Be in MODE 4. | 12 hours<br><br><br><br>36 hours |
| D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~. | D.1 ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br>Suspend movement of irradiated fuel assemblies in the secondary containment. | Immediately |

recently

recently

~~(continued)~~

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| D. (continued) | AND | |
| | D.2 Suspend CORE ALTERATIONS | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.2.1 | ----------NOTES----------<br>1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.<br>2. Not required to be met for SCIVs that are open under administrative controls.<br>----------<br>Verify each secondary containment isolation manual valve and blind flange that is not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.2.2 | Verify the isolation time of each power operated, automatic SCIV is within limits. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.2.3 | Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal. | In accordance with the Surveillance Frequency Control Program |

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 The Unit 1 and Unit 2 SGT subsystems required to support LCO 3.6.4.1, "Secondary Containment," shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment~~,~~ :
~~During CORE ALTERATIONS.~~

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One required Unit 1 SGT subsystem inoperable while:<br><br>1. Four SGT subsystems required OPERABLE, and<br><br>2. Unit 1 reactor building-to-refueling floor plug not installed. | A.1 Restore required Unit 1 SGT subsystem to OPERABLE status. | 30 days from discovery of failure to meet the LCO |
| B. One required Unit 2 SGT subsystem inoperable.<br><br>OR<br><br>One required Unit 1 SGT subsystem inoperable for reasons other than Condition A. | B.1 Restore required SGT subsystem to OPERABLE status. | 7 days |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3. | 12 hours |
| D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~. | ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- D.1 Place remaining OPERABLE SGT subsystem(s) in operation. OR D.2~~.1~~ Suspend movement of irradiated fuel assemblies in secondary containment. AND ~~D.2.2 Suspend CORE ALTERATIONS.~~ | Immediately Immediately ~~Immediately~~ |
| E. Two or more required SGT subsystems inoperable in MODE 1, 2, or 3. | E.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3. | 12 hours |

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(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| F. Two or more required SGT subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~. | F.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of irradiated fuel assemblies in secondary containment. | Immediately |
| | ~~AND~~ | |
| | ~~F.2~~ ~~Suspend CORE ALTERATIONS.~~ | ~~Immediately~~ |

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SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.3.1 | Operate each required SGT subsystem for ≥ 15 continuous minutes. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.3.2 | Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP). | In accordance with the VFTP |
| SR 3.6.4.3.3 | Verify each required SGT subsystem actuates on an actual or simulated initiation signal. | In accordance with the Surveillance Frequency Control Program |

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

| | FUNCTION | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS | REQUIRED CHANNELS PER TRIP SYSTEM | SURVEILLANCE REQUIREMENTS | ALLOWABLE VALUE |
|---|---|---|---|---|---|
| 1. | Reactor Vessel Water Level - Low Low, Level 2 | 1, 2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.2<br>SR 3.3.6.2.4<br>SR 3.3.6.2.5 | ≥ -47 inches |
| 2. | Drywell Pressure - High | 1, 2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.2<br>SR 3.3.6.2.4<br>SR 3.3.6.2.5 | ≤ 1.92 psig |
| 3. | Reactor Building Exhaust Radiation - High | 1, 2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.3<br>SR 3.3.6.2.5 | ≤ 80 mR/hr |
| 4. | Refueling Floor Exhaust Radiation - High | 1, 2, 3, ~~5.~~(a) | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.3<br>SR 3.3.6.2.5 | ≤ 80 mR/hr |

(a) During ~~CORE ALTERATIONS and during~~ movement of irradiated fuel assemblies recently in secondary containment.

## 3.6 CONTAINMENT SYSTEMS

### 3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment~~,~~ .
~~During CORE ALTERATIONS.~~

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. Secondary containment inoperable in MODE 1, 2, or 3. | A.1 Restore secondary containment to OPERABLE status. | 4 hours |
| B. Required Action and associated Completion Time of Condition A not met. | B.1 ----------NOTE---------<br>LCO 3.0.4.a is not applicable when entering MODE 3.<br>----------<br>Be in MODE 3. | 12 hours |
| C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~. | C.1 ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br>Suspend movement of recently irradiated fuel assemblies in the secondary containment.<br>~~AND~~ | Immediately<br>~~(continued)~~ |

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| C. (continued) | C.2 Suspend CORE ALTERATIONS. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.1.1 | Verify all secondary containment equipment hatches are closed and sealed. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.1.2 | Verify one secondary containment access door in each access opening is closed, except when the access opening is being used for entry and exit. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.1.3 | ----------NOTE----------<br>The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration.<br>----------<br>Verify secondary containment can be drawn down to ≥ 0.20 inch of vacuum water gauge in ≤ 10 minutes using required standby gas treatment (SGT) subsystem(s). | In accordance with the Surveillance Frequency Control Program |

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment,
~~During CORE ALTERATIONS.~~

ACTIONS

----------NOTES----------
1. Penetration flow paths may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.
---

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One or more penetration flow paths with one SCIV inoperable. | A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.<br><br>AND<br><br>A.2 ----------NOTES----------<br>1. Isolation devices in high radiation areas may be verified by use of administrative means. | 8 hours |

(continued)

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. (continued) | 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means.<br>----------<br>Verify the affected penetration flow path is isolated. | Once per 31 days |
| B. One or more penetration flow paths with two SCIVs inoperable. | B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. | 4 hours |
| C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | C.1 Be in MODE 3.<br>AND<br>C.2 Be in MODE 4. | 12 hours<br>36 hours |
| D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~. | D.1 ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br>Suspend movement of irradiated fuel assemblies in the secondary containment. | Immediately |

recently

recently

~~(continued)~~

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| D. (continued) | AND<br>D.2 Suspend CORE ALTERATIONS. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.2.1 | ----------NOTES----------<br>1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.<br>2. Not required to be met for SCIVs that are open under administrative controls.<br>----------<br>Verify each secondary containment isolation manual valve and blind flange that is not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.2.2 | Verify the isolation time of each power operated, automatic SCIV is within limits. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.2.3 | Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal. | In accordance with the Surveillance Frequency Control Program |

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 The Unit 1 and Unit 2 SGT subsystems required to support LCO 3.6.4.1, "Secondary Containment," shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment,
~~During CORE ALTERATIONS.~~

ACTIONS

----------NOTE----------
When two Unit 1 SGT subsystems are placed in an inoperable status solely for inspection of the Unit 1 hardened vent rupture disk, entry into associated Conditions and Required Actions may be delayed for up to 24 hours, provided both Unit 2 SGT subsystems are OPERABLE.
---

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One required Unit 1 SGT subsystem inoperable while:<br>1. Four SGT subsystems required OPERABLE, and<br>2. Unit 1 reactor building-to-refueling floor plug not installed. | A.1 Restore required Unit 1 SGT subsystem to OPERABLE status. | 30 days from discovery of failure to meet the LCO |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| B. One required Unit 2 SGT subsystem inoperable.<br><br>OR<br><br>One required Unit 1 SGT subsystem inoperable for reasons other than Condition A. | B.1 Restore required SGT subsystem to OPERABLE status. | 7 days |
| C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | C.1 ----------NOTE---------<br>LCO 3.0.4.a is not applicable when entering MODE 3.<br>----------<br><br>Be in MODE 3. | <br><br><br><br>12 hours |
| D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~. | ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br><br>D.1 Place remaining OPERABLE SGT subsystem(s) in operation.<br><br>OR<br><br>D.2~~.1~~ Suspend movement of irradiated fuel assemblies in secondary containment.<br><br>~~AND~~<br><br>~~D.2.2 Suspend CORE ALTERATIONS.~~ | <br><br><br><br>Immediately<br><br><br><br>Immediately<br><br><br><br>~~Immediately~~ |

recently

recently

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| E. Two or more required SGT subsystems inoperable in MODE 1, 2, or 3. | E.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3. | 12 hours |
| F. Two or more required SGT subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~. | F.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of irradiated fuel assemblies in secondary containment. | Immediately |
| | ~~AND~~ | |
| | ~~F.2~~ ~~Suspend CORE ALTERATIONS.~~ | ~~Immediately~~ |

recently

recently

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.3.1 | Operate each required SGT subsystem for ≥ 15 continuous minutes. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.3.2 | Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP). | In accordance with the VFTP |

(continued)

**Edwin I. Hatch Nuclear Plant – Units 1 and 2**

**Revise Technical Specification Requirements During Handling Irradiated Fuel and Core Alterations – TSTF-51**

**Attachment 2**

**HNP Unit 1 and Unit 2 Revised Technical Specification Pages**

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

| | FUNCTION | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS | REQUIRED CHANNELS PER TRIP SYSTEM | SURVEILLANCE REQUIREMENTS | ALLOWABLE VALUE |
|---|---|---|---|---|---|
| 1. | Reactor Vessel Water Level Low - Low, Level 2 | 1 ,2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.2<br>SR 3.3.6.2.4<br>SR 3.3.6.2.5 | ≥ -47 inches |
| 2. | Drywell Pressure - High | 1, 2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.2<br>SR 3.3.6.2.4<br>SR 3.3.6.2.5 | ≤ 1.92 psig |
| 3. | Reactor Building Exhaust Radiation - High | 1, 2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.3<br>SR 3.3.6.2.5 | ≤ 80 mR/hr |
| 4. | Refueling Floor Exhaust Radiation - High | 1, 2, 3, (a) | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.3<br>SR 3.3.6.2.5 | ≤ 80 mR/hr |

(a) During movement of recently irradiated fuel assemblies in secondary containment.

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. Secondary containment inoperable in MODE 1, 2, or 3. | A.1 Restore secondary containment to OPERABLE status. | 4 hours |
| B. Required Action and associated Completion Time of Condition A not met. | B.1 ----------NOTE---------<br>LCO 3.0.4.a is not applicable when entering MODE 3.<br>----------<br>Be in MODE 3. | 12 hours |
| C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment. | C.1 ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br>Suspend movement of recently irradiated fuel assemblies in the secondary containment. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.1.1 | Verify all secondary containment equipment hatches are closed and sealed. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.1.2 | Verify one secondary containment access door in each access opening is closed, except when the access opening is being used for entry and exit. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.1.3 | ----------NOTE----------<br>The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration.<br>----------<br>Verify secondary containment can be drawn down to ≥ 0.20 inch of vacuum water gauge in ≤ 10 minutes using required standby gas treatment (SGT) subsystem(s). | In accordance with the Surveillance Frequency Control Program |

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment.

ACTIONS

----------NOTES----------

1. Penetration flow paths may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

---

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One or more penetration flow paths with one SCIV inoperable. | A.1 Isolate the affected penetration flow path by use of at least one closed and deactivated automatic valve, closed manual valve, or blind flange.<br><br>AND<br><br>A.2 ----------NOTES----------<br>1. Isolation devices in high radiation areas may be verified by use of administrative means. | 8 hours |

(continued)

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. (continued) | 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means.<br>----------<br>Verify the affected penetration flow path is isolated. | Once per 31 days |
| B. One or more penetration flow paths with two SCIVs inoperable. | B.1 Isolate the affected penetration flow path by use of at least one closed and deactivated automatic valve, closed manual valve, or blind flange. | 4 hours |
| C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | C.1 Be in MODE 3.<br>AND<br>C.2 Be in MODE 4. | 12 hours<br>36 hours |
| D. Required Action and associated Completion Time of Condition A or B not met during movement of recently irradiated fuel assemblies in the secondary containment. | D.1 ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br>Suspend movement of recently irradiated fuel assemblies in the secondary containment. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.2.1 | ----------NOTES----------<br>1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.<br><br>2. Not required to be met for SCIVs that are open under administrative controls.<br>----------<br><br>Verify each secondary containment isolation manual valve and blind flange that is not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.2.2 | Verify the isolation time of each power operated, automatic SCIV is within limits. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.2.3 | Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal. | In accordance with the Surveillance Frequency Control Program |

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 The Unit 1 and Unit 2 SGT subsystems required to support LCO 3.6.4.1, "Secondary Containment," shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One required Unit 1 SGT subsystem inoperable while:<br><br>1. Four SGT subsystems required OPERABLE, and<br><br>2. Unit 1 reactor building-to-refueling floor plug not installed. | A.1 Restore required Unit 1 SGT subsystem to OPERABLE status. | 30 days from discovery of failure to meet the LCO |
| B. One required Unit 2 SGT subsystem inoperable.<br><br>OR<br><br>One required Unit 1 SGT subsystem inoperable for reasons other than Condition A. | B.1 Restore required SGT subsystem to OPERABLE status. | 7 days |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | C.1 ----------NOTE---------<br>LCO 3.0.4.a is not applicable when entering MODE 3.<br>----------<br>Be in MODE 3. | 12 hours |
| D. Required Action and associated Completion Time of Condition A or B not met during movement of recently irradiated fuel assemblies in the secondary containment. | ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br>D.1 Place remaining OPERABLE SGT subsystem(s) in operation.<br>OR<br>D.2 Suspend movement of recently irradiated fuel assemblies in secondary containment. | Immediately<br><br>Immediately |
| E. Two or more required SGT subsystems inoperable in MODE 1, 2, or 3. | E.1 ----------NOTE---------<br>LCO 3.0.4.a is not applicable when entering MODE 3.<br>----------<br>Be in MODE 3. | 12 hours |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| F. Two or more required SGT subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment. | F.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in secondary containment. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.3.1 | Operate each required SGT subsystem for ≥ 15 continuous minutes. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.3.2 | Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP). | In accordance with the VFTP |
| SR 3.6.4.3.3 | Verify each required SGT subsystem actuates on an actual or simulated initiation signal. | In accordance with the Surveillance Frequency Control Program |

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

| | FUNCTION | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS | REQUIRED CHANNELS PER TRIP SYSTEM | SURVEILLANCE REQUIREMENTS | ALLOWABLE VALUE |
|---|---|---|---|---|---|
| 1. | Reactor Vessel Water Level - Low Low, Level 2 | 1, 2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.2<br>SR 3.3.6.2.4<br>SR 3.3.6.2.5 | ≥ -47 inches |
| 2. | Drywell Pressure - High | 1, 2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.2<br>SR 3.3.6.2.4<br>SR 3.3.6.2.5 | ≤ 1.92 psig |
| 3. | Reactor Building Exhaust Radiation - High | 1, 2, 3 | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.3<br>SR 3.3.6.2.5 | ≤ 80 mR/hr |
| 4. | Refueling Floor Exhaust Radiation - High | 1, 2, 3, (a) | 2 | SR 3.3.6.2.1<br>SR 3.3.6.2.3<br>SR 3.3.6.2.5 | ≤ 80 mR/hr |

(a) During movement of recently irradiated fuel assemblies in secondary containment.

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. Secondary containment inoperable in MODE 1, 2, or 3. | A.1 Restore secondary containment to OPERABLE status. | 4 hours |
| B. Required Action and associated Completion Time of Condition A not met. | B.1 ----------NOTE---------<br>LCO 3.0.4.a is not applicable when entering MODE 3.<br>----------<br>Be in MODE 3. | 12 hours |
| C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment. | C.1 ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br>Suspend movement of recently irradiated fuel assemblies in the secondary containment. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.1.1 | Verify all secondary containment equipment hatches are closed and sealed. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.1.2 | Verify one secondary containment access door in each access opening is closed, except when the access opening is being used for entry and exit. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.1.3 | ----------NOTE----------<br>The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration.<br>----------<br>Verify secondary containment can be drawn down to ≥ 0.20 inch of vacuum water gauge in ≤ 10 minutes using required standby gas treatment (SGT) subsystem(s). | In accordance with the Surveillance Frequency Control Program |

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment.

ACTIONS

----------NOTES----------

1. Penetration flow paths may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

---

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One or more penetration flow paths with one SCIV inoperable. | A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.<br><br>AND<br><br>A.2 ----------NOTES----------<br>1. Isolation devices in high radiation areas may be verified by use of administrative means. | 8 hours |

(continued)

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. (continued) | 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means.<br>----------<br>Verify the affected penetration flow path is isolated. | Once per 31 days |
| B. One or more penetration flow paths with two SCIVs inoperable. | B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. | 4 hours |
| C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | C.1 Be in MODE 3.<br>AND<br>C.2 Be in MODE 4. | 12 hours<br>36 hours |
| D. Required Action and associated Completion Time of Condition A or B not met during movement of recently irradiated fuel assemblies in the secondary containment. | D.1 ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br>Suspend movement of recently irradiated fuel assemblies in the secondary containment. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.2.1 | ----------NOTES----------<br>1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.<br><br>2. Not required to be met for SCIVs that are open under administrative controls.<br>----------<br><br>Verify each secondary containment isolation manual valve and blind flange that is not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.2.2 | Verify the isolation time of each power operated, automatic SCIV is within limits. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.2.3 | Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal. | In accordance with the Surveillance Frequency Control Program |

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 The Unit 1 and Unit 2 SGT subsystems required to support LCO 3.6.4.1, "Secondary Containment," shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment.

ACTIONS

----------NOTE----------
When two Unit 1 SGT subsystems are placed in an inoperable status solely for inspection of the Unit 1 hardened vent rupture disk, entry into associated Conditions and Required Actions may be delayed for up to 24 hours, provided both Unit 2 SGT subsystems are OPERABLE.
---

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One required Unit 1 SGT subsystem inoperable while:<br>1. Four SGT subsystems required OPERABLE, and<br>2. Unit 1 reactor building-to-refueling floor plug not installed. | A.1 Restore required Unit 1 SGT subsystem to OPERABLE status. | 30 days from discovery of failure to meet the LCO |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| B. One required Unit 2 SGT subsystem inoperable.<br><br>OR<br><br>One required Unit 1 SGT subsystem inoperable for reasons other than Condition A. | B.1 Restore required SGT subsystem to OPERABLE status. | 7 days |
| C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | C.1 ----------NOTE---------<br>LCO 3.0.4.a is not applicable when entering MODE 3.<br>----------<br><br>Be in MODE 3. | <br><br><br><br>12 hours |
| D. Required Action and associated Completion Time of Condition A or B not met during movement of recently irradiated fuel assemblies in the secondary containment. | ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br><br>D.1 Place remaining OPERABLE SGT subsystem(s) in operation.<br><br>OR<br><br>D.2 Suspend movement of recently irradiated fuel assemblies in secondary containment. | <br><br><br><br>Immediately<br><br><br><br>Immediately |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| E. Two or more required SGT subsystems inoperable in MODE 1, 2, or 3. | E.1 ----------NOTE---------<br>LCO 3.0.4.a is not applicable when entering MODE 3.<br>----------<br>Be in MODE 3. | 12 hours |
| F. Two or more required SGT subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment. | F.1 ----------NOTE----------<br>LCO 3.0.3 is not applicable.<br>----------<br>Suspend movement of recently irradiated fuel assemblies in secondary containment. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.6.4.3.1 | Operate each required SGT subsystem for ≥ 15 continuous minutes. | In accordance with the Surveillance Frequency Control Program |
| SR 3.6.4.3.2 | Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP). | In accordance with the VFTP |

(continued)

**Edwin I. Hatch Nuclear Plant – Units 1 and 2**

**Revise Technical Specification Requirements During Handling Irradiated Fuel and Core Alterations – TSTF-51**

**Attachment 3**

**HNP Unit 1 and Unit 2 Technical Specification Bases Marked-up Pages (For Information Only)**

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

3., 4. Reactor Building and Refueling Floor Exhaust Radiation - High (continued)

Radiation - High is detected, secondary containment isolation and actuation of the SGT System are initiated to limit the release of fission products as assumed in the FSAR safety analyses (Ref. 4).

The Exhaust Radiation - High signals are initiated from radiation detectors that are located near the ventilation exhaust ductwork coming from the reactor building and the refueling floor zones, respectively. The signal from each detector is input to an individual monitor whose trip outputs are assigned to an isolation channel. Four channels of Reactor Building Exhaust Radiation - High Function and four channels of Refueling Floor Exhaust Radiation - High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Values are chosen to ensure radioactive releases do not exceed offsite dose limits.

The Reactor Building and Refueling Floor Exhaust Radiation - High Functions are required to be OPERABLE in MODES 1, 2, and 3 where considerable energy exists; thus, there is a probability of pipe breaks resulting in significant releases of radioactive steam and gas. In MODES 4 and 5, the probability and consequences of these events are low due to the RCS pressure and temperature limitations of these MODES; thus, these Functions are not required. The Refueling Floor Exhaust Radiation - High Function is also required to be OPERABLE during ~~CORE ALTERATIONS, MODE 5, and~~ movement of recently irradiated fuel assemblies in the secondary containment because the capability of detecting radiation releases due to fuel failures (e.g., due to a dropped fuel assembly) must be provided to ensure that offsite dose limits are not exceeded. Due to radioactive decay, this Function is only required to isolate secondary containment during fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours).

ACTIONS

A Note has been provided to modify the ACTIONS related to secondary containment isolation instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition.

(continued)

BASES

BACKGROUND (continued)

a. All hatches separating Zone III from Zone I are closed and sealed; and

b. At least one door in each access path separating Zone III from Zone I is closed.

To prevent ground level exfiltration while allowing the secondary containment to be designed as a conventional structure, the secondary containment requires support systems to maintain the control volume pressure at less than the external pressure. Requirements for these systems are specified separately in LCO 3.6.4.2, "Secondary Containment Isolation Valves (SCIVs)," and LCO 3.6.4.3, "Standby Gas Treatment (SGT) System." When one or more zones are excluded from secondary containment, the specific requirements for the support systems will also change (e.g., securing particular SGT or drain isolation valves).

APPLICABLE SAFETY ANALYSES

There are two principal accidents for which credit is taken for secondary containment OPERABILITY. These are a loss of coolant accident (LOCA) (Ref. 1) and a fuel handling accident involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours) inside secondary containment (Ref. 2). The secondary containment performs no active function in response to either of these limiting events; however, its leak tightness is required to ensure that the release of radioactive materials from the primary containment is restricted to those leakage paths and associated leakage rates assumed in the accident analysis and that fission products entrapped within the secondary containment structure will be treated by the Unit 1 and Unit 2 SGT Systems prior to discharge to the environment. Postulated LOCA leakage paths from the primary containment into secondary containment include those into both the reactor building and refueling floor areas (e.g., drywell head leakage).

Secondary containment satisfies Criterion 3 of the NRC Policy Statement (Ref. 4).

LCO

An OPERABLE secondary containment provides a control volume into which fission products that bypass or leak from primary containment, or are released from the reactor coolant pressure boundary

(continued)

BASES

LCO (continued)

components located in secondary containment, can be diluted and processed prior to release to the environment. For the secondary containment to be considered OPERABLE, it must have adequate leak tightness to ensure that the required vacuum (0.20 inch of vacuum) can be established and maintained. The secondary containment boundary required to be OPERABLE is dependent on the operating status of both units, as well as the configuration of doors, hatches, refueling floor plugs, SCIVs, and available flow paths to SGT Systems. The required boundary encompasses the zones which can be postulated to contain fission products from accidents required to be considered for the Condition of each unit, and furthermore, must include zones not isolated from the SGT subsystems being credited for meeting LCO 3.6.4.3. Allowed configurations, associated SGT subsystem requirements, and associated SCIV requirements are detailed in the Technical Requirements Manual (Ref. 3).

APPLICABILITY

In MODES 1, 2, and 3, a LOCA could lead to a fission product release to primary containment that leaks to secondary containment (the reactor building zone and potentially the refueling floor zone). Therefore, secondary containment OPERABILITY is required during the same operating conditions that require primary containment OPERABILITY.

In MODES 4 and 5, the probability and consequences of the LOCA are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining secondary containment OPERABLE is not required in MODE 4 or 5 to ensure a control volume, except for other situations for which significant releases of radioactive material can be postulated, such as ~~during CORE ALTERATIONS, or~~ during movement of recently irradiated fuel assemblies in the secondary containment. ~~(Note: Moving irradiated fuel assemblies in the secondary containment may also occur in MODES 1, 2, and 3.)~~ Due to radioactive decay, secondary containment is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours). Since ~~CORE ALTERATIONS and~~ movement of recently irradiated fuel assemblies are only postulated to release radioactive material to the refueling floor zone, the secondary containment configuration may consist of only Zone III during ~~these~~ this condition~~s~~.

(continued)

BASES

ACTIONS (continued)

C.1 ~~and C.2~~

Movement of recently irradiated fuel assemblies in the secondary containment ~~and CORE ALTERATIONS~~ can be postulated to cause significant fission product release to the secondary containment. In such a case~~s~~, the secondary containment is the only barrier to release of fission products to the environment. ~~CORE ALTERATIONS and~~Therefore, movement of recently irradiated fuel assemblies must be immediately suspended if the secondary containment is inoperable.

Suspension of ~~these~~ this ~~activities~~ activity shall not preclude completing an action that involves moving a component to a safe position.

Required Action C.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving recently irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.1

Verifying that secondary containment equipment hatches are closed ensures that the infiltration of outside air of such a magnitude as to prevent maintaining the desired negative pressure does not occur and provides adequate assurance that exfiltration from the secondary containment will not occur. SR 3.6.4.1.1 also requires equipment hatches to be sealed. In this application, the term "sealed" has no connotation of leak tightness. When the secondary containment configuration excludes Zone I and/or Zone II, this SR also includes verifying the hatches separating the common refueling floor zone from the reactor building(s). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.6.4.1.2

Verifying that one secondary containment access door in each access opening is closed provides adequate assurance that exfiltration from the secondary containment will not occur. An access opening contains one inner and one outer door. The intent is to not breach the secondary containment, which is achieved by maintaining the inner or outer portion of the barrier closed except when the access opening is being used for entry and exit. The phrase “being used for entry and exit” ensures the time both doors may be open simultaneously is limited to the time it takes to traverse through a door, which is insignificant. When the secondary containment configuration

(continued)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

BASES

BACKGROUND

The function of the SCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs). Secondary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that fission products that leak from primary containment following a DBA, or that are released during certain operations when primary containment is not required to be OPERABLE or take place outside primary containment, are maintained within the secondary containment boundary.

The OPERABILITY requirements for SCIVs help ensure that an adequate secondary containment boundary is maintained during and after an accident by minimizing potential paths to the environment. These isolation devices consist of either passive devices or active (automatic) devices. Manual valves, de-activated automatic valves secured in their closed position, check valves with flow through the valve secured, and blind flanges are considered passive devices.

Automatic SCIVs close on a secondary containment isolation signal to establish a boundary for untreated radioactive material within secondary containment following a DBA or other accidents.

Other penetrations are isolated by the use of valves in the closed position or blind flanges.

APPLICABLE SAFETY ANALYSES

The SCIVs must be OPERABLE to ensure the secondary containment barrier to fission product releases is established. The principal accidents for which the secondary containment boundary is required are a loss of coolant accident (Ref. 1) and a fuel handling accident involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours) inside secondary containment (Ref. 2). The secondary containment performs no active function in response to either of these limiting events, but the boundary established by SCIVs is required to ensure that leakage from the primary containment is processed by the Standby Gas Treatment (SGT) System before being released to the environment.

Maintaining SCIVs OPERABLE with isolation times within limits ensures that fission products will remain trapped inside secondary

(continued)

BASES

APPLICABILITY (continued)

MODE 4 or 5, except for other situations under which significant radioactive releases can be postulated, such as ~~during CORE ALTERATIONS or~~ during movement of recently irradiated fuel assemblies in the secondary containment. Due to radioactive decay, SCIVs are only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours). ~~(Note: Moving irradiated fuel assemblies in the secondary containment may also occur in MODES 1, 2, and 3.)~~

ACTIONS

The ACTIONS are modified by three Notes. The first Note allows penetration flow paths to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated.

The second Note provides clarification that for the purpose of this LCO separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable SCIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable SCIVs are governed by subsequent Condition entry and application of associated Required Actions.

The third Note ensures appropriate remedial actions are taken, if necessary, if the affected system(s) are rendered inoperable by an inoperable SCIV.

A.1 and A.2

In the event that there are one or more penetration flow paths with one SCIV inoperable, the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this Criterion are a closed and deactivated automatic SCIV, a closed manual valve, and a blind flange. For penetrations isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available device to secondary containment. The Required Action must be completed within the 8 hour Completion Time. The specified time period is reasonable considering the time required to

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

D.1 ~~and D.2~~

If any Required Action and associated Completion Time of Condition A or B are not met, the plant must be placed in a condition in which the LCO does not apply. If applicable, ~~CORE ALTERATIONS and~~ the movement of recently irradiated fuel assemblies in the secondary containment must be immediately suspended. Suspension of ~~these~~ this ~~activities~~ activity shall not preclude completion of movement of a component to a safe position.

Required Action D.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving recently irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations.

Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

This SR verifies that each secondary containment manual isolation valve and blind flange that is not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the secondary containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification that those isolation devices in secondary containment that are capable of being mispositioned are in the correct position. This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

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

(continued)

BASES

BACKGROUND (continued)

exfiltration of air from the building when exposed to winds as high as 31 mph.

The demister is provided to remove entrained water in the air, while the electric heater reduces the relative humidity of the airstream (Refs. 2 and 3). (However, credit is not taken for the operation of the heater. Accordingly, laboratory testing of the charcoal efficiency is performed at a relative humidity of 95%.) The prefilter removes large particulate matter, while the HEPA filter removes fine particulate matter and protects the charcoal from fouling. The charcoal adsorbers remove gaseous elemental iodine and organic iodides, and the final HEPA filter collects any carbon fines exhausted from the charcoal adsorber.

The Unit 1 and Unit 2 SGT Systems automatically start and operate in response to actuation signals indicative of conditions or an accident that could require operation of the system. Following initiation, all required charcoal filter train fans start. Upon verification that the required subsystems are operating, the redundant required subsystem is normally shut down.

APPLICABLE SAFETY ANALYSES

The design basis for the Unit 1 and Unit 2 SGT Systems is to mitigate the consequences of a loss of coolant accident and fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours) (Refs. 2 and 3). For all events analyzed, the SGT Systems are shown to be automatically initiated to reduce, via filtration and adsorption, the radioactive material released to the environment.

The SGT System satisfies Criterion 3 of the NRC Policy Statement (Ref. 5).

LCO

Following a DBA, a minimum number of SGT subsystems are required to maintain the secondary containment at a negative pressure with respect to the environment and to process gaseous releases. Meeting the LCO requirements for OPERABLE subsystems ensures operation of the minimum number of SGT subsystems in the event of a single active failure. The required number of SGT subsystems is dependent on the configuration required to meet LCO 3.6.4.1, "Secondary Containment." For secondary containment OPERABILITY consisting of all three zones, the required number of SGT subsystems is four. With secondary containment OPERABILITY consisting of one reactor building and the common refueling floor zones, the required number of SGT subsystem is three. Allowed

(continued)

BASES

LCO (continued)

configurations and associated SGT subsystem requirements are detailed in the Technical Requirements Manual (Ref. 4).

In addition, with secondary containment in modified configurations, the SGT System valves to excluded zone(s) are not included as part of SGT System OPERABILITY (i.e., the valves may be secured closed and are not required to open on an actuation signal).

APPLICABILITY

In MODES 1, 2, and 3, a LOCA could lead to a fission product release to primary containment that leaks to secondary containment. Therefore, Unit 1 and Unit 2 SGT Systems OPERABILITY are required during these MODES.

In MODES 4 and 5, the probability and consequences of a LOCA are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the SGT Systems in OPERABLE status is not required in MODE 4 or 5, except for other situations under which significant releases of radioactive material can be postulated, such as ~~during CORE ALTERATIONS or~~ during movement of recently irradiated fuel assemblies in the secondary containment. Due to radioactive decay, the SGT Systems are only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours).

ACTIONS

A.1 and B.1

With one required Unit 1 or Unit 2 SGT subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status. In this condition, the remaining required OPERABLE SGT subsystems are adequate to perform the required radioactivity release control function. However, the overall system reliability is reduced because a single failure in one of the remaining required OPERABLE subsystems could result in the radioactivity release control function not being adequately performed. The 7 and 30 day Completion Times are based on consideration of such factors as the availability of the OPERABLE redundant SGT subsystems and the low probability of a DBA occurring during this period. Additionally, the 30 day Completion Time of Required Action A.1 is based on three remaining OPERABLE SGT subsystems, of which two are Unit 2 subsystems, and the secondary containment volume in the Unit 1 reactor building being open to the common refueling floor where the two Unit 2 SGT subsystems can readily provide rapid drawdown of vacuum. Testing and analysis has shown that in this configuration, even with an

(continued)

BASES

ACTIONS

A.1 and B.1 (continued)

additional single failure (which is not necessary to assume while in ACTIONS) the secondary containment volume may be drawn to a vacuum in the time required to support assumptions of analyses.

C.1

If the SGT subsystem cannot be restored to OPERABLE status within the required Completion Time in MODE 1, 2, or 3, 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 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 6), because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action C.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

D.1~~, D.2.1,~~ and D.2~~.2~~

During movement of recently irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~, when Required Action A.1 or B.1 cannot be completed within the required Completion Time, the remaining required OPERABLE SGT subsystems should immediately be placed

(continued)

BASES

ACTIONS

D.1~~, D.2.1,~~ and D.2~~.2~~ (continued)

in operation. This action ensures that the remaining subsystems are OPERABLE, that no failures that could prevent automatic actuation have occurred, and that any other failure would be readily detected.

An alternative to Required Action D.1 is to immediately suspend activities that represent a potential for releasing a significant amount of radioactive material to the secondary containment, thus placing the plant in a condition that minimizes risk. If applicable, ~~CORE ALTERATIONS and~~ movement of recently irradiated fuel assemblies must immediately be suspended. Suspension of ~~these~~ this ~~activities~~ activity must not preclude completion of movement of a component to a safe position.

The Required Actions of Condition D have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving recently irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

E.1

If two or more required SGT subsystems are inoperable in MODE 1, 2 or 3, the Unit 1 and Unit 2 SGT Systems may not be capable of supporting the required radioactivity release control function. Therefore, 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 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 6) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action E.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met.

(continued)

BASES

ACTIONS

E.1 (continued)

However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

The allowed Completion Time is 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 ~~and F.2~~

When two or more required SGT subsystems are inoperable, if applicable, ~~CORE ALTERATIONS and~~ movement of recently irradiated fuel assemblies in secondary containment must immediately be suspended. Suspension of ~~these~~ this ~~activities~~ activity shall not preclude completion of movement of a component to a safe position.

Required Action F.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving recently irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

3., 4. Reactor Building and Refueling Floor Exhaust Radiation - High (continued)

Radiation - High is detected, secondary containment isolation and actuation of the SGT System are initiated to limit the release of fission products as assumed in the FSAR safety analyses (Ref. 4).

The Exhaust Radiation - High signals are initiated from radiation detectors that are located near the ventilation exhaust ductwork coming from the reactor building and the refueling floor zones, respectively. The signal from each detector is input to an individual monitor whose trip outputs are assigned to an isolation channel. Four channels of Reactor Building Exhaust Radiation - High Function and four channels of Refueling Floor Exhaust Radiation - High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Values are chosen to ensure radioactive releases do not exceed offsite dose limits.

The Reactor Building and Refueling Floor Exhaust Radiation - High Functions are required to be OPERABLE in MODES 1, 2, and 3 where considerable energy exists; thus, there is a probability of pipe breaks resulting in significant releases of radioactive steam and gas. In MODES 4 and 5, the probability and consequences of these events are low due to the RCS pressure and temperature limitations of these MODES; thus, these Functions are not required. The Refueling Floor Exhaust Radiation - High Function is also required to be OPERABLE during ~~CORE ALTERATIONS, MODE 5, and~~ movement of recently irradiated fuel assemblies in the secondary containment because the capability of detecting radiation releases due to fuel failures (e.g., due to a dropped fuel assembly) must be provided to ensure that offsite dose limits are not exceeded. Due to radioactive decay, this Function is only required to isolate secondary containment during fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours).

ACTIONS

A Note has been provided to modify the ACTIONS related to secondary containment isolation instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition.

(continued)

BASES

BACKGROUND (continued)

a. All hatches separating Zone III from Zone II are closed and sealed; and

b. At least one door in each access path separating Zone III from Zone II is closed.

To prevent ground level exfiltration while allowing the secondary containment to be designed as a conventional structure, the secondary containment requires support systems to maintain the control volume pressure at less than the external pressure. Requirements for these systems are specified separately in LCO 3.6.4.2, "Secondary Containment Isolation Valves (SCIVs)," and LCO 3.6.4.3, "Standby Gas Treatment (SGT) System." When one or more zones are excluded from secondary containment, the specific requirements for the support systems will also change (e.g., securing particular SGT or drain isolation valves).

APPLICABLE SAFETY ANALYSES

There are two principal accidents for which credit is taken for secondary containment OPERABILITY. These are a loss of coolant accident (LOCA) (Ref. 1) and a fuel handling accident involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours) inside secondary containment (Ref. 2). The secondary containment performs no active function in response to either of these limiting events; however, its leak tightness is required to ensure that the release of radioactive materials from the primary containment is restricted to those leakage paths and associated leakage rates assumed in the accident analysis and that fission products entrapped within the secondary containment structure will be treated by the Unit 1 and Unit 2 SGT Systems prior to discharge to the environment. Postulated LOCA leakage paths from the primary containment into secondary containment include those into both the reactor building and refueling floor zones (e.g., drywell head leakage).

Secondary containment satisfies Criterion 3 of the NRC Policy Statement (Ref. 4).

LCO

An OPERABLE secondary containment provides a control volume into which fission products that bypass or leak from primary containment, or are released from the reactor coolant pressure boundary

(continued)

BASES

LCO (continued)

components located in secondary containment, can be diluted and processed prior to release to the environment. For the secondary containment to be considered OPERABLE, it must have adequate leak tightness to ensure that the required vacuum (0.20 inch of vacuum) can be established and maintained. The secondary containment boundary required to be OPERABLE is dependent on the operating status of both units, as well as the configuration of doors, hatches, refueling floor plugs, SCIVs, and available flow paths to SGT Systems. The required boundary encompasses the zones which can be postulated to contain fission products from accidents required to be considered for the condition of each unit, and furthermore, must include zones not isolated from the SGT subsystems being credited for meeting LCO 3.6.4.3. Allowed configurations, associated SGT subsystem requirements, and associated SCIV requirements are detailed in the Technical Requirements Manual (Ref. 3).

APPLICABILITY

In MODES 1, 2, and 3, a LOCA could lead to a fission product release to primary containment that leaks to secondary containment (the reactor building zone and potentially the refueling floor zone). Therefore, secondary containment OPERABILITY is required during the same operating conditions that require primary containment OPERABILITY.

In MODES 4 and 5, the probability and consequences of the LOCA are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining secondary containment OPERABLE is not required in MODE 4 or 5 to ensure a control volume, except for other situations for which significant releases of radioactive material can be postulated, such as ~~during CORE ALTERATIONS, or~~ during movement of recently irradiated fuel assemblies in the secondary containment. ~~(Note, moving irradiated fuel assemblies in the secondary containment may also occur in MODES 1, 2, and 3.)~~ Due to radioactive decay, secondary containment is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours). Since ~~CORE ALTERATIONS and~~ movement of recently irradiated fuel assemblies are only postulated to release radioactive material to the refueling floor zone, the secondary containment configuration may consist of only Zone III during ~~these~~ this condition~~s~~.

(continued)

BASES (continued)

ACTIONS

A.1

If secondary containment is inoperable, it must be restored to OPERABLE status within 4 hours. The 4 hour Completion Time provides a period of time to correct the problem that is commensurate with the importance of maintaining secondary containment during MODES 1, 2, and 3. This time period also ensures that the probability of an accident (requiring secondary containment OPERABILITY) occurring during periods where secondary containment is inoperable is minimal.

B.1

If secondary containment 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 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 5), because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action B.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

C.1 ~~and C.2~~

Movement of recently irradiated fuel assemblies in the secondary containment ~~and CORE ALTERATIONS~~ can be postulated to cause

(continued)

BASES

ACTIONS

C.1 ~~and C.2~~ (continued)

significant fission product release to the secondary containment. In such a case~~s~~, the secondary containment is the only barrier to release of fission products to the environment. ~~CORE ALTERATIONS and~~ Therefore, movement of recently irradiated fuel assemblies must be immediately suspended if the secondary containment is inoperable.

Suspension of ~~these~~ this ~~activities~~ activity shall not preclude completing an action that involves moving a component to a safe position.

Required Action C.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving recently irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.1

Verifying that secondary containment equipment hatches are closed ensures that the infiltration of outside air of such a magnitude as to prevent maintaining the desired negative pressure does not occur and provides adequate assurance that exfiltration from the secondary containment will not occur. SR 3.6.4.1.1 also requires equipment hatches to be sealed. In this application, the term "sealed" has no connotation of leak tightness. When the secondary containment configuration excludes Zone I and/or Zone II, this SRs also includes verifying the hatches and doors separating the common refueling floor zone from the reactor building(s). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.6.4.1.2

Verifying that one secondary containment access door in each access opening is closed provides adequate assurance that exfiltration from the secondary containment will not occur. An access opening contains one inner and one outer door. The intent is to not breach the secondary containment, which is achieved by maintaining the inner or outer portion of the barrier closed except when the access opening is being used for entry and exit. The phrase “being used for entry and exit” ensures the time both doors may be open simultaneously is limited to the time it takes to traverse through a door, which is insignificant. When the secondary containment configuration excludes Zone I and/or Zone II, this SR also includes verifying the doors separating the common refueling floor zone from the reactor building(s).

(continued)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

BASES

BACKGROUND

The function of the SCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs). Secondary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that fission products that leak from primary containment following a DBA, or that are released during certain operations when primary containment is not required to be OPERABLE or take place outside primary containment, are maintained within the secondary containment boundary.

The OPERABILITY requirements for SCIVs help ensure that an adequate secondary containment boundary is maintained during and after an accident by minimizing potential paths to the environment. These isolation devices consist of either passive devices or active (automatic) devices. Manual valves, de-activated automatic valves secured in their closed position, check valves with flow through the valve secured, and blind flanges are considered passive devices.

Automatic SCIVs close on a secondary containment isolation signal to establish a boundary for untreated radioactive material within secondary containment following a DBA or other accidents.

Other penetrations are isolated by the use of valves in the closed position or blind flanges.

APPLICABLE SAFETY ANALYSES

The SCIVs must be OPERABLE to ensure the secondary containment barrier to fission product releases is established. The principal accidents for which the secondary containment boundary is required are a loss of coolant accident (Ref. 1) and a fuel handling accident involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours) inside secondary containment (Ref. 2). The secondary containment performs no active function in response to either of these limiting events, but the boundary established by SCIVs is required to ensure that leakage from primary containment is processed by the Standby Gas Treatment (SGT) System before being released to the environment.

Maintaining SCIVs OPERABLE with isolation times within limits ensures that fission products will remain trapped inside secondary

(continued)

BASES

APPLICABILITY (continued)

MODE 4 or 5, except for other situations under which significant radioactive releases can be postulated, such as ~~during CORE ALTERATIONS or~~ during movement of recently irradiated fuel assemblies in the secondary containment. Due to radioactive decay, SCIVs are only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours). ~~(Note: Moving irradiated fuel assemblies in the secondary containment may also occur in MODES 1, 2, and 3.)~~

ACTIONS

The ACTIONS are modified by three Notes. The first Note allows penetration flow paths to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated.

The second Note provides clarification that for the purpose of this LCO separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable SCIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable SCIVs are governed by subsequent Condition entry and application of associated Required Actions.

The third Note ensures appropriate remedial actions are taken, if necessary, if the affected system(s) are rendered inoperable by an inoperable SCIV.

A.1 and A.2

In the event that there are one or more penetration flow paths with one SCIV inoperable, the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic SCIV, a closed manual valve, and a blind flange. For penetrations isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available device to secondary containment. The Required Action must be completed within the 8 hour Completion Time. The specified time period is reasonable considering the time required to

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

D.1 ~~and D.2~~

If any Required Action and associated Completion Time of Condition A or B are not met, the plant must be placed in a condition in which the LCO does not apply. If applicable, ~~CORE ALTERATIONS and~~ the movement of recently irradiated fuel assemblies in the secondary containment must be immediately suspended. Suspension of ~~these~~ this ~~activities~~ activity shall not preclude completion of movement of a component to a safe position.

Required Action D.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving recently irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations.

Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

This SR verifies that each secondary containment manual isolation valve and blind flange that is not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the secondary containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification that those isolation devices in secondary containment that are capable of being mispositioned are in the correct position. This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

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

(continued)

BASES

BACKGROUND (continued)

exfiltration of air from the building when exposed to winds as high as 31 mph.

The demister is provided to remove entrained water in the air, while the electric heater reduces the relative humidity of the airstream (Refs. 2 and 3). (However, credit is not taken for the operation of the heater. Accordingly, laboratory testing of the charcoal efficiency is performed at a relative humidity of 95%.) The prefilter removes large particulate matter, while the HEPA filter removes fine particulate matter and protects the charcoal from fouling. The charcoal adsorbers remove gaseous elemental iodine and organic iodides, and the final HEPA filter collects any carbon fines exhausted from the charcoal adsorber.

The Unit 1 and Unit 2 SGT Systems automatically start and operate in response to actuation signals indicative of conditions or an accident that could require operation of the system. Following initiation, all required charcoal filter train fans start. Upon verification that the required subsystems are operating, the redundant required subsystem is normally shut down.

APPLICABLE SAFETY ANALYSES

The design basis for the Unit 1 and Unit 2 SGT Systems is to mitigate the consequences of a loss of coolant accident and fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours) (Refs. 2, 3, 4, and 5). For all events analyzed, the SGT Systems are shown to be automatically initiated to reduce, via filtration and adsorption, the radioactive material released to the environment.

The SGT System satisfies Criterion 3 of the NRC Policy Statement (Ref. 7).

LCO

Following a DBA, a minimum number of SGT subsystems are required to maintain the secondary containment at a negative pressure with respect to the environment and to process gaseous releases. Meeting the LCO requirements for OPERABLE subsystems ensures operation of the minimum number of SGT subsystems in the event of a single active failure. The required number of SGT subsystems is dependent on the configuration required to meet LCO 3.6.4.1, "Secondary Containment." For secondary containment OPERABILITY consisting of all three zones, the required number of SGT subsystems is four. With secondary containment OPERABILITY consisting of one reactor building and the common refueling floor zones, the required number of SGT subsystem is three. Allowed

(continued)

BASES

LCO (continued)

configurations and associated SGT subsystem requirements are detailed in the Technical Requirements Manual (Ref. 6).

In addition, with secondary containment in modified configurations, the SGT System valves to excluded zone(s) are not included as part of SGT System OPERABILITY (i.e., the valves may be secured closed and are not required to open on an actuation signal).

APPLICABILITY

In MODES 1, 2, and 3, a LOCA could lead to a fission product release to primary containment that leaks to secondary containment. Therefore, Unit 1 and Unit 2 SGT Systems OPERABILITY are required during these MODES.

In MODES 4 and 5, the probability and consequences of a LOCA are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the SGT Systems in OPERABLE status is not required in MODE 4 or 5, except for other situations under which significant releases of radioactive material can be postulated, such as ~~during CORE ALTERATIONS or~~ during movement of recently irradiated fuel assemblies in the secondary containment. Due to radioactive decay, the SGT Systems are only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours).

ACTIONS

The Actions are modified by a Note to indicate that when both Unit 1 SGT subsystems are placed in an inoperable status for inspection of the Unit 1 hardened vent rupture disk, entry into associated Conditions and Required Actions may be delayed for up to 24 hours, provided both Unit 2 SGT subsystems are OPERABLE. Upon completion of the inspection or expiration of the 24 hour allowance, the Unit 1 SGT subsystems must be returned to OPERABLE status or the applicable Conditions entered and Required Actions taken. The 24 hour allowance is based upon precluding a dual unit shutdown to perform the inspection, yet minimizing the time both Unit 1 SGT subsystems are inoperable.

A.1 and B.1

With one required Unit 1 or Unit 2 SGT subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status. In this condition, the remaining required OPERABLE SGT subsystems are adequate to perform the required radioactivity release control function. However, the overall system reliability is reduced because a single

(continued)

BASES

ACTIONS

C.1 (continued)

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

In the event that a Unit 1 SGT subsystem is the one not restored to OPERABLE status as required by Required Action A.1 or B.1, operation of Unit 2 can continue provided that Unit 1 is shut down, the Unit 1 reactor building zone is isolated from the remainder of secondary containment and the SGT System, and the Unit 1 Technical Specifications do not require Operability of Zone I. In this modified secondary containment configuration, only three SGT subsystems are required to be OPERABLE to meet LCO 3.6.4.3, and no limitation is applied to the inoperable Unit 1 SGT subsystem. This in effect is an alternative to restoring the inoperable Unit 1 SGT subsystem, i.e., shut down Unit 1 and isolate its reactor building zone from secondary containment and SGT System.

D.1~~, D.2.1,~~ and D.2~~.2~~

During movement of recently irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~, when Required Action A.1 or B.1 cannot be completed within the required Completion Time, the remaining required OPERABLE SGT subsystems should immediately be placed in operation. This action ensures that the remaining subsystems are OPERABLE, that no failures that could prevent automatic actuation have occurred, and that any other failure would be readily detected.

An alternative to Required Action D.1 is to immediately suspend activities that represent a potential for releasing a significant amount of radioactive material to the secondary containment, thus placing the plant in a condition that minimizes risk. If applicable, ~~CORE ALTERATIONS and~~ movement of recently irradiated fuel assemblies must immediately be suspended. Suspension of ~~these~~ this ~~activities~~ activity must not preclude completion of movement of a component to a safe position.

The Required Actions of Condition D have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving recently irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor

(continued)

BASES

ACTIONS

D.1~~, D.2.1,~~ and D.2~~.2~~ (continued)

operations. Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

E.1

If two or more required SGT subsystems are inoperable in MODE 1, 2 or 3, the Unit 1 and Unit 2 SGT Systems may not be capable of supporting the required radioactivity release control function. Therefore, 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 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 8) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action E.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES

ACTIONS (continued)

F.1 ~~and F.2~~

When two or more required SGT subsystems are inoperable, if applicable, ~~CORE ALTERATIONS and~~ movement of recently irradiated fuel assemblies in secondary containment must immediately be suspended. Suspension of ~~these~~ this ~~activities~~ activity shall not preclude completion of movement of a component to a safe position.

Required Action F.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving recently irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.3.1

Operating each required Unit 1 and Unit 2 SGT subsystem for ≥ 15 continuous minutes ensures that they 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. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.6.4.3.2

This SR verifies that the required Unit 1 and Unit 2 SGT filter testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). 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.

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