

September 25, 2026

Docket Nos.: 50-321
50-366

NL-26-0315
10 CFR 50.90

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

**Southern Nuclear Operating Company
Edwin I. Hatch Nuclear Plant – Units 1 and 2
Request to Remove Main Steam Tunnel High Temperature Isolation
from the Technical Specifications**

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) is submitting a request for an amendment to the Technical Specifications (TS) for Edwin I. Hatch Nuclear Plant (HNP), Units 1 and 2.

The proposed change would revise technical specification (TS) 3.3.6.1, "Primary Containment Isolation Instrumentation," Table 3.3.6.1-1, to eliminate the requirement for automatic main steam line isolation on high main steam tunnel temperature (Function 1.e). In lieu of automatic isolation, a revised specification, TS 3.7.10, "Main Steam Line Area Temperature," is proposed that requires monitoring the main steam tunnel area temperature and a plant shutdown if excessive main steam line leakage is detected. This proposed change is similar in nature to an application that was approved for HNP with License Amendments 315/260 (ML22101A094).

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

SNC requests approval of the proposed license amendments within nine months after NRC acceptance of this request. The proposed changes would be implemented within 90 days of issuance of the amendments.

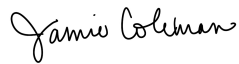
This letter contains no regulatory commitments. This letter has been reviewed and determined not to contain security-related information.

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

If you have any questions, please contact Ryan Joyce at (205) 992-6468.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 25th of September, 2026.

Respectfully submitted,

 Digitally signed by
JAMIEMCO
Date: 2026.09.25
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Jamie M. Coleman
Director, Regulatory Affairs
Southern Nuclear Operating Company

Enclosure: Evaluation of Proposed Change

cc: NRC Regional Administrator, Region II
NRR Project Manager – Hatch 1 & 2
Senior Resident Inspector – Hatch 1 & 2
Director, Environmental Protection Division – State of Georgia
Document Services RTYPE: CHA02.004

Enclosure to NL-26-0315

Evaluation of Proposed Change

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1. SUMMARY DESCRIPTION

The proposed change would revise technical specification (TS) 3.3.6.1, "Primary Containment Isolation Instrumentation," Table 3.3.6.1-1, to eliminate the requirement for automatic main steam line isolation on high main steam tunnel temperature (Function 1.e). In lieu of automatic isolation, a revised specification, TS 3.7.10, "Main Steam Line Area Temperature," is proposed that requires monitoring the main steam tunnel area temperature and a plant shutdown if excessive main steam line leakage is detected. This proposed change is similar in nature to an application that was approved for Hatch Nuclear Plant (HNP) with License Amendments 315/260 (ML22101A094).

2. DETAILED DESCRIPTION

2.1 System Design and Operation

Main Steam Line (MSL) leakage in the main steam tunnel is limited to protect the initial conditions assumed in the accident analyses. Analyses are performed for large MSL breaks, such as the Main Steam Line Break (MSLB) accident (see HNP Unit 2 Final Safety Analysis Report (FSAR) Section 15.3.4), but MSL leakage in the main steam tunnel is not considered in other design basis accident (DBA) or transient analyses. As a result, small MSL leaks in the main steam tunnel could result in post-accident doses that may exceed the analyzed values. Direct monitoring of small amounts of MSL leakage is not practical, so monitoring the maximum area temperatures near the MSLs is used as a surrogate indication of MSL leakage. The Allowable Value of $\leq 194^{\circ}\text{F}$ is chosen to detect a leak equivalent to 1% to 10% of rated steam flow.

The Main Steam Tunnel Temperature – High Function closes the MSL. The function monitors area temperature near the MSLs in the main steam tunnel. The Main Steam Tunnel Temperature – High Function receives input from 16 channels, four for each MSL. Each channel has one temperature element. One channel from each MSL inputs to one of the four trip strings. Two trip strings make up each trip system and both trip systems must trip to cause an MSL isolation. Each trip string has four inputs (one per MSL), any one of which will trip the trip string. The trip strings are arranged in a one-out-of-two taken twice logic. This is effectively a one-out-of-eight taken twice logic arrangement to initiate isolation of the main steam isolation valves (MSIVs).

While 16 channels of the Main Steam Tunnel Temperature – High Function are available, only 12 channels (6 per trip system) are required to be OPERABLE. This will ensure that no single instrument failure can preclude the isolation function, assuming a line break on any line (the instruments assigned to monitor one line can still detect a leak on another line due to their close proximity to one another and the small confines of the area).

2.2 Current Technical Specifications Requirements

Limiting Condition for Operation (LCO) 3.3.6.1 requires the primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 to be operable. Table 3.3.6.1-1, Function 1.e, "Main Steam Tunnel Temperature - High," requires 6 channels per trip

system to be Operable in Modes 1, 2, and 3. The Allowable Value for this Function is $\leq 194^{\circ}\text{F}$.

LCO 3.3.6.1, Action D requires isolation of the MSL in 12 hours, or to be in Mode 3 in 12 hours and Mode 4 in 36 hours, if:

- One or more required channels are inoperable, or
- One or more automatic functions with isolation capability is not maintained.

2.3 Reason for Proposed Change

The ambient temperature of the monitored main steam tunnel can trend close to the Group 1 isolation setpoint. This narrow operating margin can cause a trip channel to actuate (i.e., a half isolation) for reasons other than actual steam leaks in the area. This can occur because of hot weather, reduced efficiency or tripping of the Reactor Building/Radwaste chillers, or instrument drift. If both Main Steam Tunnel Temperature - High trip systems were to initiate an isolation signal, a full Group 1 isolation and reactor scram would result. Group 1 isolation closes the MSL, making the main feedwater system unavailable for scram recovery. HNP would rely on the alternate methods (e.g., high pressure coolant injection (HPCI), reactor core isolation cooling (RCIC), and suppression pool cooling) for core cooling and reactor water level control. Such a shutdown would be considered a complicated scram. It is HNP's practice to bypass instruments, reduce power, and possibly shutdown the plant to make repairs (e.g., recalibrate instrumentation or repair/service Reactor Building/Radwaste chillers) rather than risk a complicated scram due to the sudden closure of MSIVs on the MSL.

Replacing this automatic MSL isolation requirement with a monitoring requirement and a manual shutdown if MSL leakage is detected will eliminate the risk of an unnecessary plant transient while still providing the appropriate remedial actions to ensure the plant is operating safely and within analyzed plant conditions.

2.4 Description of Proposed Change

The proposed change deletes Function 1.e, "Main Steam Tunnel Temperature – High," from TS Table 3.3.6.1-1 of the Unit 1 and Unit 2 TS. Deletion of Function 1.e does not require modification to any Actions or Surveillance Requirements in TS 3.3.6.1. LCO 3.3.6.1, Action D which requires isolation of the MSL in 12 hours, or to be in Mode 3 in 12 hours and Mode 4 in 36 hours, is retained as it is referenced by other Functions.

The proposed change revises TS 3.7.10, "Turbine Building (TB) Maximum Area Temperature," as follows:

- Title is changed to "Main Steam Line (MSL) Area Temperature."
- The LCO is revised to cross-reference a new Table 3.7.10-1, which will contain the area temperature limits for the turbine building and the main steam tunnel.
- Condition A is revised to refer to the temperature limits in new Table 3.7.10-1.
- SR 3.7.10.1 is revised to reference the temperature limits of new Table 3.7.10-1. The SR Frequency will be controlled by the Surveillance Frequency Control Program (SFCP), with the initial frequency of verifying main steam tunnel temperature set at 24 hours.

As with the existing TS 3.7.10, if the main steam tunnel temperature limit is exceeded, the Required Action (RA) requires initiating immediate action to verify that no MSL leak exists, and periodic verification every 12 hours thereafter. If it cannot be verified that there is not an MSL leak or if the periodic verification is not performed, a plant shutdown is required. The plant must enter Mode 3 within 12 hours and Mode 4 must be entered within 36 hours. Associated changes would be made to the Unit 1 and Unit 2 TS Bases. The proposed TS 3.7.10 and associated TS Bases are shown in Attachments 1 and 3, respectively.

It should be noted that this request only removes the main steam tunnel high temperature MSL isolation from the TS. It does not authorize the deletion of this feature from the plant design. Following approval of the proposed TS change, a plant modification to remove the automatic MSL closure function on high main steam tunnel temperature will be evaluated by SNC without reliance on NRC approval of this license amendment request.

3. TECHNICAL EVALUATION

3.1 Technical Specification Evaluation

The proposed change replaces the TS automatic MSL isolation on high main steam tunnel temperature with a monitoring and evaluation requirement, and a manual reactor shutdown if MSL leakage exists.

There are two purposes for the MSL main steam tunnel high temperature MSL isolation function:

1. **Leak Before Break** - The basis of this criterion is to isolate in order to prevent the leak from becoming a break. There was historical evidence that leaks would grow and become a break if not isolated. Early intergranular stress corrosion crack (IGSCC) propagation studies on stainless steel reactor coolant pressure boundary pipes in the containment showed that isolating a small leak provided assurance that the leak would not grow to a break. This same basis was conservatively applied to main steam carbon steel piping in the main steam tunnel. However, later studies determined that cracks in main-steam piping are not subject to IGSCC due to the lack of a corrosive environment. As a conservative action, the proposed change TS 3.7.10 would require a plant shutdown if a leak is detected in the main steam tunnel.
2. **Dose Limits** – The Loss of Coolant Accident (LOCA) analysis does not assume any release of post-accident radioactive material into the main steam tunnel from small MSL leaks. If a small MSL leak was present and a LOCA occurred, the analyzed dose limits could be exceeded. A LOCA is not caused by a small MSL leak in the main steam tunnel, and it is unnecessary to assume they occur simultaneously. The proposed TS 3.7.10 revision provides assurance that an MSL leak would be promptly identified and requires an immediate shutdown should a leak exist, eliminating a small MSL leak as a preexisting condition in the LOCA analysis.

Neither of these purposes require an automatic isolation of the MSLs on main steam tunnel high temperature or are dependent on an immediate reactor scram to assure plant safety.

Given the purposes of the function, the consequences of an automatic reactor scram due to closure of the MSIVs on the MSL is unwarranted.

As an alternative, the TS 3.7.10 (as revised) will ensure that an MSL steam leak in the main steam tunnel will be promptly detected and corrected.

LCO 3.7.10, (as revised) requires that the main steam tunnel area temperature be $\leq 194^{\circ}\text{F}$. The limit of $\leq 194^{\circ}\text{F}$ is based on detecting a leak equivalent to 1% to 10% of rated steam flow and is the Allowable Value of the current Function 1.e. Main steam tunnel alarm functions which are below the maximum temperature) ensure that a 1% MSL leak would be rapidly identified by plant operators in the control room in advance of reaching the maximum temperature.

The Applicability of LCO 3.7.10 is Modes 1, 2, and 3. In Modes 1, 2, and 3, a DBA could result in the release of radioactive material into the main steam tunnel if there is a leak in the MSLs. In Modes 4 and 5, the probability and consequences of a DBA with fission product release into the main steam tunnel are reduced because of the pressure and temperature limitations in these modes. Therefore, maintaining main steam tunnel temperature within limits is not required in Mode 4 or 5. The proposed Applicability is the same as the current Function 1.e.

Surveillance Requirement (SR) 3.7.10.1 (as revised) will require verification that the main steam tunnel temperature is $\leq 194^{\circ}\text{F}$. The Frequency is controlled under the SFCP, and the initial frequency is every 24 hours. As stated in SR 3.0.1, SRs must be met between performances of the Surveillance. If the main steam tunnel temperature exceeds 194°F , indications in the main control room will alert operators to take actions.

The TS 3.7.10 Actions apply if main steam tunnel temperature is exceeded. RA A.1 requires initiation of immediate action to determine if there is an MSL leak. TS Section 1.3 defines a Completion Time of "Immediately," as, "the Required Action should be pursued without delay and in a controlled manner."

Indications of a MSL leak in the main steam tunnel include, but are not limited to:

- An unexpected, sudden rise in area temperature,
- An unexpected increase in radiation monitor readings,
- An unexpected rise in reactor building sump levels, and
- An unexpected decrease in plant electrical output.

Main steam tunnel temperature may be elevated due to reasons other than an MSL leak, such as hot weather, reduced efficiency or trip of the Reactor Building/Radwaste chillers, and faulty temperature detectors. Verification will determine whether the elevated temperature is due to an MSL leak or another reason. Operations personnel are trained to perform proceduralized actions required to verify if leakage exists from the MSL pressure boundary. No additional training or new operator actions will be required to perform the actions of TS 3.7.10.

If the elevated temperature is determined to not be due to an MSL leak, as long as the main steam tunnel temperature exceeds 194°F RA A.2 requires periodic verification that no MSL

leak exists every 12 hours. During normal power operation, the monitored main steam tunnel area has elevated radiation levels and adverse environmental conditions. The 12-hour Completion Time balances the small likelihood of a MSL leak occurring since the last verification against the risks of exposing workers to the radiological and environmental conditions in order to perform the verification.

If an MSL leak is detected or if the periodic verification is not performed, the RAs require a plant shutdown. The plant must be brought to at least Mode 3 within 12 hours (RA B.1) and then to Mode 4 within 36 hours (RA B.2). The proposed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

3.2 Environmental Qualification of Electrical Equipment Important to Safety

The Environmental Qualification (EQ) program for HNP is established and maintained in accordance with 10 CFR 50.49, which requires a documented program to demonstrate qualification of electric equipment important to safety for the applicable design basis environmental conditions. The EQ Program identifies EQ environmental zones and details their respective environmental parameters (temperature, pressure, humidity, radiation, chemical and water spray, and submergence), which are derived from design calculations updated with plant operating experience. The EQ Program includes the basis for the environmental conditions credited for qualification of equipment within the main steam tunnel area and other areas.

At HNP, the EQ program procedures together with the Corrective Action Program (CAP) are used to identify, evaluate, and correct EQ-related concerns. At HNP station operations procedures (rounds) are used to specifically check main steam tunnel area temperatures each 12-hour shift. If the administrative temperature limit is exceeded Operations will document the condition with a Condition Report (CR). As required by the CAP process, the effects on Operability will be evaluated by Engineering upon discovery of a condition that affects compliance with 10 CFR 50.49. This evaluation must show that subsequent failure of the equipment, if under accident conditions, will not result in a consequential failure (i.e., loss of specified safety function). In summary, if elevated temperatures within the main steam tunnel area exceed the normal maximum operating temperature (160°F for Unit 1 and 175°F for Unit 2), this will result in initiating a CR which will be entered into CAP process. If temperatures cannot be readily restored, engineering would perform an evaluation which considers equipment performance and impacts for the affected areas.

Additionally, for the main steam tunnel, the EQ temperature profile is based on the design basis High Energy Line Break (HELB) analysis that instantaneously initiates MSL closure based on the high steam flow function, thus limiting the highest temperature to 300°F. In this manner, the HELB analysis demonstrates that peak temperature is reached within a few seconds, and that the assumed EQ temperature profiles remain conservative and bounding. No credit is taken for the main steam tunnel high temperature isolation.

Accordingly, the HNP EQ zone in the main steam tunnel is expected to remain within the originally analyzed design basis conditions, and EQ equipment in this zone will continue to be controlled under the existing HNP EQ program.

3.3 Radiological Dose Considerations

While a small MSL break in the steam tunnel (1–10% rated steam flow) is not a DBA, SNC has used the initial conditions, inputs, and assumptions associated with the DBA MSLB as a bounding event for a small MSLB in the main steam tunnel to assure that the regulatory requirements associated with accident dose criteria are met (i.e., the offsite radiological dose requirements specified in 10 CFR 50.67(b)(2), and main control room occupant dose limits specified in GDC 19).

The DBA MSLB assumes the instantaneous severance of one of the four MSLs. The release terminates with the closure of the MSIVs on high flow. The DBA MSLB dose analysis assumes the release of 31,600 lbm of steam from the break directly to the environment for offsite dose or to the turbine building for main control room dose. The released steam is assumed to contain reactor water iodine concentrations based on the plant operating at either the TS equilibrium specific activity limit of 0.2 $\mu\text{Ci/gm}$ dose equivalent I-131 or the maximum specific activity of 2.0 $\mu\text{Ci/gm}$ dose equivalent I-131 (pre-accident iodine spike).

As noted in HNP Unit 2 FSAR Section 11.1.1.1.2, the carryover of iodine to main steam from reactor water is less than or equal to 2%. However, the DBA MSLB dose analysis applies the reactor coolant concentrations to all the main steam released. Thus, the DBA MSLB dose analysis substantially overestimates the iodine concentrations in the main steam released. This conservative assumption applied in the DBA MSLB is not applicable to the postulated release for a small MSLB, which is high-quality steam. Therefore, the iodine release for a small MSLB event is bounded by the iodine release for the DBA MSLB dose analysis if less than 1,580,000 lbm of main steam (31,600 lbm/2%) is released in the postulated event. For a break corresponding to 1-10% of rated steam flow (3,042,500 lbm/hr) in a single steam line, this correlates to approximately 5-50 hours to release this amount of steam. For reasons previously stated (increase in main steam tunnel temperature, decrease in MWe output, increase in radiation monitor readings, and increase in reactor building sump levels) there is assurance that the main control room operators would be readily alerted to a small MSLB in the main steam tunnel and would take timely action to isolate the break within these time periods.

It should also be noted that a small MSLB break in the main steam tunnel would result in condensation and deposition/plateout of iodine in the released steam, which would further reduce the iodine released to the environment, as compared to the DBA MSLB where the steam is assumed to be released directly to the environment for offsite dose and the turbine building for control room dose, and deposition/plateout is not credited.

For these reasons, it is concluded that for small MSLBs outside of Primary Containment (i.e., breaks that do not result in MSIV isolation on high flow) the DBA MSLB remains bounding without credit for MSL area high temperature automatic isolation.

4 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The proposed change has been evaluated to determine whether applicable regulations and requirements continue to be met. SNC has determined that the proposed change

does not require any exemptions or relief from regulatory requirements. The following applicable regulations and regulatory requirements were reviewed in making this determination:

- The NRC's regulatory requirements related to the content of TS are set forth in 10 CFR 50.36. The NRC has provided guidance for the contents of TS in its "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" (Final Policy Statement), 58 FR 39132, July 22, 1993. The Final Policy Statement identified four criteria to be used in determining whether particular safety functions are required to be included in the TS. The criteria set forth in the Final Policy Statement have been codified and incorporated into 10 CFR 50.36 (60 FR 36953, July 19, 1995). The criteria are (1) installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary; (2) a process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier; (3) a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier; and (4) a structure, system, or component which operating experience or probabilistic risk assessment (PRA) has shown to be significant to public health and safety. As a result, TS requirements which satisfy any of the criteria in 10 CFR 50.36 must be retained in the TS.

MSL leakage in the main steam tunnel is monitored to protect the assumptions of the accident dose analysis. Therefore, the requirement to monitor main steam tunnel temperature is treated as an operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier and is maintained in the TS per Criterion 2. Revising the requirement from a TS-required automatic isolation to TS manual detection and shutdown does not affect the ability to satisfy Criterion 2 in that:

- the parameter remains in TS,
 - corrective actions remain in TS,
 - periodic verification remains in TS,
 - plant shutdown remains required if leakage cannot be ruled out.
- General Design Criteria 54 requires that:
Piping systems penetrating primary reactor containment shall be provided with leak detection, isolation, and containment having redundancy, reliability, and performance capabilities which reflect the importance to safety of isolating these piping systems.

The HNP design incorporates various and diverse leak detection and containment isolation features to meet the requirements of GDC 54. It is proposed that the Main Steam Tunnel Temperature - High isolation function be removed from the TS for containment isolation instrumentation. Appropriate automatic isolations for the MSL are still retained in accordance with GDC 54 by other diverse leakage detection features

such as detection of low reactor water level, high main steam line flow, and low main steam line pressure.

4.2 Precedent

Edwin I. Hatch Nuclear Plant Unit Nos. 1 and 2, "Issuance of Amendments Nos. 315 and 260, Regarding Request to Eliminate Automatic Main Steam Line Isolation on High Turbine Building Area Temperature" May 20, 2022 (ML22101A094).

Limerick Generating Station "Issuance of Amendments Nos. 263 and 255 Re: Technical Specifications for Main Steam Line Tunnel Temperature," July 29, 2024 (ML24204A071).

LaSalle County Station, Units 1 and 2, "Issuance of Amendment Nos. 271 and 255 to Eliminate Automatic Main Steam Line Valve Closure On High Temperature," August 19, 2026 (ML26219A154).

4.3 Significant Hazards Consideration

Southern Nuclear Operating Company (SNC) has proposed a change to the Edwin I. Hatch Nuclear Plant (HNP), Units 1 and 2, Technical Specifications (TS). TS 3.3.6.1, "Primary Containment Isolation Instrumentation," Table 3.3.6.1-1, to replace the requirement for automatic main steam line isolation on high main steam tunnel temperature (Function 1.e) with a revised TS 3.7.10, "Main Steam Line Area Temperature," that requires monitoring the main steam tunnel temperature and a plant shutdown if main steam line leakage is detected.

SNC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No

The proposed change eliminates the automatic main steam line (MSL) isolation function associated with Main Steam Tunnel High Temperature from the requirements of the Technical Specifications (TS) and creates TS requirements for main steam tunnel temperature monitoring in a revised TS 3.7.10. The proposed change therefore deletes Function 1.e from TS Table 3.3.6.1-1. The revised TS 3.7.10 requires periodic monitoring of main steam tunnel temperature and a plant shutdown if MSL leakage is detected.

Automatic isolation of the MSL on high main steam tunnel temperature is not an initiator of any accident previously evaluated. A manual plant shutdown initiated because MSL leakage in the main steam tunnel is not an initiator of any accident previously evaluated.

There is no credit taken in any licensing basis analysis for MSL isolation on main steam tunnel high temperature, and there are no calculations that credit the subject isolation function as a mitigative feature. A review of Chapters 6 and 15 of the Unit 2 Final Safety Analysis Report (FSAR), which are common to both units, confirmed that the MSL isolation function on main steam tunnel high temperature was not credited in any analysis for mitigating: fuel cladding damage, challenges to vessel integrity, or dose to plant staff or the general public. This conclusion is consistent with the discussion of the function in the current TS Bases Section B 3.3.6.1. Therefore, requiring a manual plant shutdown in lieu of a TS-driven automatic isolation of the MSL (resulting in an automatic plant scram) has no effect on the consequences of any accident previously evaluated.

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

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

Response: No

The proposed change eliminates the TS-required automatic MSL isolation function associated with main steam tunnel high temperature from the requirements of the TS and creates TS requirements for main steam line area temperature monitoring in a revised TS 3.7.10. The proposed change therefore deletes Function 1.e. The revised TS 3.7.10 requires periodic monitoring of main steam tunnel temperature and a plant shutdown if MSL leakage is detected. Eliminating the automatic isolation of the MSLs in the TS (and resulting reactor scram) will not create a new or different kind of accident from those previously evaluated as a Main Steam Line Break has been evaluated. Elimination of the TS-required automatic isolation function will not create a new failure mechanism as a plant shutdown continues to be required if an MSL leak is detected. The proposed regulatory change from a TS-required automatic MSL isolation to a required manual shutdown will not create any credible new failure mechanisms, malfunctions, or accident initiators not considered in the design and licensing bases. The unlikely failure to manually detect an MSL leak and shutdown the plant and that failure leading to a Main Steam Line Break has already been evaluated and is not a new type of accident.

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

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

Response: No.

The proposed change eliminates the TS-required automatic MSL isolation function associated with main steam tunnel high temperature from the requirements of the TS and creates TS requirements for main steam line area temperature monitoring in a revised TS 3.7.10. The proposed change therefore deletes Function 1.e from TS Table 3.3.6.1-1. The revised TS 3.7.10 requires periodic monitoring of main steam tunnel temperature and a plant shutdown if MSL leakage is detected.

The proposed change does not affect any Safety Limits or controlling numerical values for a parameter established in the updated final safety analysis report or any specific values that define margin that are established in the plant's licensing basis. The MSL isolation function on main steam tunnel high temperature is not credited as a mitigating feature in any analysis which establishes thermal limits, evaluates peak vessel pressure, evaluates peak containment or drywell pressure, or evaluates onsite and offsite radiological consequences. As a result, changing the requirement from a TS-required automatic MSL isolation to a manual plant shutdown if an MSL leak were to be detected will not have any significant effect on any safety margins established in the license basis.

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

Based on the above, it is concluded 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

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

5 ENVIRONMENTAL CONSIDERATION

SNC has evaluated this license amendment request against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.22. The requested amendment is confined to changes to surveillance, inspection, or testing requirements as described in 10 CFR 51.22(d)(1). The proposed action does not disturb any previously undisturbed ground and there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, does not result in a significant increase in individual or cumulative public or occupational radiation exposure, and does not result in a significant increase in the potential for or consequences from radiological accidents. Therefore, pursuant to 10 CFR 51.22, neither an environmental assessment nor an environmental impact statement is required.

Attachment 1

Technical Specification Change Marked-up Pages

Primary Containment Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 1 of 5)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -113 inches
b. Main Steam Line Pressure - Low	1	2	E	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 825 psig
c. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 138% rated steam flow
d. Condenser Vacuum - Low	1, 2(a), 3(a)	2	D	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 7 inches Hg vacuum
e. Main Steam Tunnel Temperature - High	1,2,3	6	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 194°F
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 0 inches
b. Drywell Pressure - High	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig

(continued)

(a) With any turbine stop valve not closed.

~~Turbine Building (TB) Maximum Area Temperature~~
3.7.10

Main Steam Line (MSL)

3.7 PLANT SYSTEMS

3.7.10 ~~Turbine Building (TB) Maximum Area Temperature~~

MSL

The MSL area temperature for each area in Table 3.7.10-1 shall be less than or equal to the limit.

LCO 3.7.10 ~~TB maximum area temperature shall be ≤ 200 °F.~~

APPLICABILITY: MODES 1, 2, and 3.

NOTE

Separate Condition entry is allowed for each MSL area.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. TB maximum area temperature > 200 °F.	A.1 Initiate action to verify no main steam line leak. <u>AND</u> A.2 Verify no main steam line leak.	Immediately Once per 12 hours thereafter
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours

MSL area temperature greater than the limit in Table 3.7.10-1.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.10.1 Verify TB maximum area temperature is ≤ 200 °F.	In accordance with the Surveillance Frequency Control Program

Verify each MSL area temperature is less than or equal to its limit in Table 3.7.10-1.

Insert 1 (next page)



Table 3.7.10-1 (page 1 of 1)
MSL Area Temperature Limits

MSL AREA	TEMPERATURE LIMIT
1. Main Steam Tunnel	194 °F
2. Turbine Building	200 °F

Primary Containment Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 1 of 5)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ -113 inches
b. Main Steam Line Pressure - Low	1	2	E	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 825 psig
c. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 138% rated steam flow
d. Condenser Vacuum - Low	1, 2(a), 3(a)	2	D	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 7 inches Hg vacuum
e. Main Steam Tunnel Temperature - High	1,2,3	6	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 104°F
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 0 inches
b. Drywell Pressure - High	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig

(continued)

(a) With any turbine stop valve not closed.

Main Steam Line (MSL)

~~Turbine Building (TB) Maximum Area Temperature~~
3.7.10

MSL

The MSL area temperature for each area in Table 3.7.10-1 shall be less than or equal to the limit.

3.7 PLANT SYSTEMS

3.7.10 ~~Turbine Building (TB) Maximum Area Temperature~~

LCO 3.7.10 ~~TB maximum area temperature shall be ≤ 200 °F.~~

APPLICABILITY: MODES 1, 2, and 3.

-----NOTE-----
Separate Condition entry is allowed for each MSL area.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. TB maximum area temperature > 200 °F.	A.1 Initiate action to verify no main steam line leak. <u>AND</u> A.2 Verify no main steam line leak.	Immediately Once per 12 hours thereafter
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours

MSL area temperature greater than the limit in Table 3.7.10-1.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.10.1 Verify TB maximum area temperature is ≤ 200 °F.	In accordance with the Surveillance Frequency Control Program

Verify each MSL area temperature is less than or equal to its limit in Table 3.7.10-1.

Insert 1 (next page)



Table 3.7.10-1 (page 1 of 1)
MSL Area Temperature Limits

MSL AREA	TEMPERATURE LIMIT
1. Main Steam Tunnel	194 °F
2. Turbine Building	200 °F

Attachment 2

Technical Specification Change Retyped Pages

Primary Containment Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 1 of 5)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -113 inches
b. Main Steam Line Pressure - Low	1	2	E	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 825 psig
c. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 138% rated steam flow
d. Condenser Vacuum - Low	1, 2(a), 3(a)	2	D	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 7 inches Hg vacuum
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 0 inches
b. Drywell Pressure - High	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig
(continued)					

(a) With any turbine stop valve not closed.

3.7 PLANT SYSTEMS

3.7.10 Main Steam Line (MSL) Area Temperature

LCO 3.7.10 The MSL area temperature for each area in Table 3.7-10-1 shall be less than or equal to the limit.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each MSL area.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. MSL area temperature greater than the limit in Table 3.7.10-1.	A.1 Initiate action to verify no main steam line leak.	Immediately
	<u>AND</u> A.2 Verify no main steam line leak.	Once per 12 hours thereafter
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.10.1 Verify each MSL area temperature is less than or equal to its limit in Table 3.7.10-1.	In accordance with the Surveillance Frequency Control Program

Table 3.7.10-1 (page 1 of 1)
MSL Area Temperature Limits

MSL AREA	TEMPERATURE LIMIT
1. Main Steam Tunnel	194 °F
2. Turbine Building	200 °F

Primary Containment Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 1 of 5)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ -113 inches
b. Main Steam Line Pressure - Low	1	2	E	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 825 psig
c. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 138% rated steam flow
d. Condenser Vacuum - Low	1, 2(a), 3(a)	2	D	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 7 inches Hg vacuum
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 0 inches
b. Drywell Pressure - High	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig
(continued)					

(a) With any turbine stop valve not closed.

3.7 PLANT SYSTEMS

3.7.10 Main Steam Line (MSL) Area Temperature

LCO 3.7.10 The MSL area temperature for each area in Table 3.7-10-1 shall be less than or equal to the limit.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each MSL area.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. MSL area temperature greater than the limit in Table 3.7.10-1.	A.1 Initiate action to verify no main steam line leak.	Immediately
	<u>AND</u> A.2 Verify no main steam line leak.	Once per 12 hours thereafter
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.10.1 Verify each MSL area temperature is less than or equal to its limit in Table 3.7.10-1.	In accordance with the Surveillance Frequency Control Program

Table 3.7.10-1 (page 1 of 1)
MSL Area Temperature Limits

MSL AREA	TEMPERATURE LIMIT
1. Main Steam Tunnel	194 °F
2. Turbine Building	200 °F

Attachment 3

Technical Specifications Bases Change Markup Pages (Information Only)

BASES

BACKGROUND

1. Main Steam Line Isolation (continued)

reactor water sample valves. The MSL drain line has two isolation valves with one two-out-of-two logic system associated with each valve. The reactor water sample line also has two isolation valves with similar logic.

The exceptions to this arrangement ~~are the Main Steam Line Flow - High Function and Area Temperature Functions.~~  The Main Steam Line Flow - High Function uses 16 flow channels, four for each steam line. One channel from each steam line inputs to one of the four trip strings. Two trip strings make up each trip system and both trip systems must trip to cause an MSL isolation. Each trip string has four inputs (one per MSL), any one of which will trip the trip string. The trip strings are arranged in a one-out-of-two taken twice logic. This is effectively a one-out-of-eight taken twice logic arrangement to initiate isolation of the MSIVs. Similarly, the 16 flow channels are connected into two two-out-of-two logic trip systems (effectively, two one-out-of-four twice logic), with each trip system isolating one of the two MSL drain valves and one of the two reactor water sample valves.

~~The Main Steam Tunnel Temperature High Function receives input from 16 channels. The logic is arranged similar to the Main Steam Line Flow High Function.~~

MSL Isolation Functions isolate the Group 1 valves.

2. Primary Containment Isolation

Most Primary Containment Isolation Functions receive inputs from four channels. The outputs from these channels are arranged into two two-out-of-two logic trip systems. One trip system initiates isolation of all inboard primary containment isolation valves, while the other trip system initiates isolation of all outboard primary containment isolation valves. Each logic closes one of the two valves on each

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY
(continued)

1.e. Main Steam Tunnel Temperature - High

~~Main Steam Tunnel temperature is provided to detect a leak in the RCPB and APPLICABILITY provides diversity to the high flow instrumentation. The isolation occurs when a very small leak has occurred. If the small leak is allowed to continue without isolation, offsite dose limits may be reached. However, credit for these instruments is not taken in any transient or accident analysis in the FSAR, since bounding analyses are performed for large breaks, such as MSLBs.~~

~~Temperature signals are initiated from RTDs for the Main Steam Tunnel Temperature - High Function located in the main steam tunnel. While 16 channels of Main Steam Tunnel Temperature - High Function are available, only 12 channels (6 per trip system) are required to be OPERABLE. This will ensure that no single instrument failure can preclude the isolation function, assuming a line break on any line (the instruments assigned to monitor one line can still detect a leak on another line due to their close proximity to one another and the small confines of the area).~~

~~The ambient temperature monitoring Allowable Value is chosen to detect a leak equivalent to between 1% and 10% rated steam flow.~~

~~This Function isolates the Group 1 valves.~~

2. Primary Containment Isolation

2.a. Reactor Vessel Water Level - Low, Level 3

Low RPV water level indicates that the capability to cool the fuel may be threatened. The valves whose penetrations communicate with the primary containment are isolated to limit the release of fission products. The isolation of the primary containment on Level 3 supports actions to ensure that offsite dose limits of 10 CFR 50.67 are not exceeded. The Reactor Vessel Water Level - Low, Level 3

(continued)

B 3.7 PLANT SYSTEMS

B 3.7.10 ~~Turbine Building (TB) Maximum Area Temperature~~

Main Steam Line
(MSL)

The MSL area
consists of the
turbine building
(TB) area and the
main steam tunnel.

BASES

BACKGROUND

The main steam
tunnel temperature
is monitored by 16
temperature
elements arranged
in two 8-element
strings to monitor
all the MSLs.

Main Steam Line (MSL) leakage is limited to ensure that the accident analyses demonstrate that the offsite and control room dose limits are met. For purposes of this Technical Specification, MSL leakage is defined as leakage from any of the four MSLs or any unisolable branch off the MSL in the area from the Main Steam Isolation Valves (MSIVs) up to the steam chest. Direct detection of small amounts of MSL leakage is not practical, so monitoring the area temperatures near the MSLs is used as a surrogate indication of an MSL leak. The ~~turbine building (TB) maximum area temperature~~ monitoring also provides diversity to the MSL high flow instrumentation which will detect a large MSL leak.

The TB area temperature is monitored by 64 temperature elements arranged to monitor all of the MSLs. The temperature elements are placed so that no more than 40 feet separates any two temperature elements to ensure that no areas are unmonitored.

APPLICABLE SAFETY ANALYSES

Area temperature monitoring is provided to detect small MSL leakage (between 1% and 10% of rated steam flow) in the condenser bay area of the TB. Should a large MSL break occur, the main steam isolation valves (MSIVs) will automatically close based on a Main Steam Line Flow – High signal.

and the main
steam tunnel

or main steam tunnel

Analyses are performed for large MSL breaks, such as the Main Steam Line Break (MSLB) accident, but small amounts of MSL leakage in the ~~TB~~ is not considered in other design basis accident (DBA) or transient analyses. As a result, small MSL leaks in the TB could result in post-accident doses that may exceed the analyzed values. To prevent this from occurring, the TB is monitored for MSL leakage and steps are taken to correct the condition if a small MSL leak is detected. This preserves the initial conditions assumed in the DBA and transient analyses.

Limiting MSL

and main steam tunnel are

~~TB maximum~~ area temperature satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

~~The TB maximum area temperature limit of $\leq 200^{\circ}\text{F}$ ensures there is not an MSL leak in the TB. The limit of $\leq 200^{\circ}\text{F}$ is based on detecting an MSL leak equivalent to 1% to 10% of rated steam flow and ensures that small MSL leaks will be detected and corrected.~~

(continued)

HATCH UNIT 1

The MSL area temperature limits in Table 3.7.10-1 ensure there is not a MSL leak in the TB or main steam tunnel. The temperature limits are

REVISION 120

Main Steam Line (MSL)

→ Turbine Building (TB) Maximum Area Temperature
B 3.7.10

or main steam tunnel

BASES (continued)

APPLICABILITY

In MODES 1, 2, and 3, a DBA could result in the release of radioactive material into the TB if there is a leak in the MSLs. In MODES 4 and 5, the probability and consequences of a DBA with fission product release into the TB are reduced because of the pressure and temperature limitations in these MODES. Therefore, maintaining TB area temperature within limits is not required in MODE 4 or 5.

MSL

ACTIONS

A.1 and A.2

If a MSL area temperature exceeds its limit

If TB maximum area temperature exceeds 200°F, immediate action must be taken to confirm there is no MSL leak into the TB. Indications of a small MSL leak in the turbine building include, but are not limited to:

- An unexpected, sudden rise in area temperature,
- An unexpected increase in radiation monitor readings,
- An unexpected rise in turbine building sump levels,
- An unexpected decrease in plant electrical output, and
- Visual and sound indications.

that area

or reactor building

MSL

TB area temperature may be elevated due to reasons other than an MSL leak, such as hot weather, reduced turbine building area chiller capacity, other leaks (i.e., not MSL leakage) in the turbine building (e.g., leaks past seals, packing and gaskets), and faulty temperature detectors.

or main steam tunnel

If the TB maximum area temperature exceeds 200°F, verification that no MSL leak exists must be performed periodically. The 12-hour Completion Time is acceptable considering the likelihood of a MSL leak occurring.

MSL area

B.1 and B.2

If it cannot be confirmed that no MSL leak in the TB exists or the periodic verification is not performed, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

The Required Actions provide appropriate compensatory measures for separate MSL areas. As such, a Note has been provided that allows separate Condition entry for each MSL area with temperature above the limit.

(continued)

Main Steam Line (MSL)

~~Turbine Building (TB) Maximum Area Temperature~~
B 3.7.10

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.7.10.1

Verification that the ~~maximum area temperature is $\leq 200^{\circ}\text{F}$ ensures~~ there is no MSL leak in the TB. ~~In order to ensure timely detection of an MSL leak, each MSL must be monitored with sufficient detectors to ensure no more than 40 feet separates two in-service temperature elements.~~

The TB area temperature alarm ~~function~~ is not required for this SR to be met.

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

REFERENCES

None.

For the TB, in order to

temperatures are within limits ensures

MSL

or main steam tunnel

functions are

and main steam tunnel

For the main steam tunnel, in order to ensure timely detection of an MSL leak, 12 temperature elements (6 per string) are required to ensure main steam tunnel high temperature detection.

BASES

BACKGROUND

1. Main Steam Line Isolation (continued)

reactor water sample valves. The MSL drain line has two isolation valves with one two-out-of-two logic system associated with each valve. The reactor water sample line also has two isolation valves with similar logic.

The exceptions to this arrangement are the Main Steam Line Flow - High Function and Area Temperature Functions. The Main Steam Line Flow - High Function uses 16 flow channels, four for each steam line. One channel from each steam line inputs to one of the four trip strings. Two trip strings make up each trip system and both trip systems must trip to cause an MSL isolation. Each trip string has four inputs (one per MSL), any one of which will trip the trip string. The trip strings are arranged in a one-out-of-two taken twice logic. This is effectively a one-out-of-eight taken twice logic arrangement to initiate isolation of the MSIVs. Similarly, the 16 flow channels are connected into two two-out-of-two logic trip systems (effectively, two one-out-of-four twice logic), with each trip system isolating one of the two MSL drain valves and one of the two reactor water sample valves.

~~The Main Steam Tunnel Temperature High Function receives input from 16 channels. The logic is arranged similar to the Main Steam Line Flow High Function.~~

MSL Isolation Functions isolate the Group 1 valves.

2. Primary Containment Isolation

Most Primary Containment Isolation Functions receive inputs from four channels. The outputs from these channels are arranged into two two-out-of-two logic trip systems. One trip system initiates isolation of all inboard primary containment isolation valves, while the other trip system initiates isolation of all outboard primary containment isolation valves. Each logic closes one of the two valves on each

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY
(continued)

1.e. Main Steam Tunnel Temperature High

~~Main Steam Tunnel temperature is provided to detect a leak in the RCPB and provides diversity to the high flow instrumentation. The isolation occurs when a very small leak has occurred. If the small leak is allowed to continue without isolation, offsite dose limits may be reached. However, credit for these instruments is not taken in any transient or accident analysis in the FSAR, since bounding analyses are performed for large breaks, such as MSLBs.~~

~~Temperature signals are initiated from RTDs (for the Main Steam Tunnel Temperature High Function) located in the main steam tunnel. While 16 channels of Main Steam Tunnel Temperature High Function are available, only 12 channels (6 per trip system) are required to be OPERABLE. This will ensure that no single instrument failure can preclude the isolation function, assuming a line break on any line (the instruments assigned to monitor one line can still detect a leak on another line due to their close proximity to one another and the small confines of the area).~~

~~The ambient temperature monitoring Allowable Value is chosen to detect a leak equivalent to between 1% and 10% rated steam flow.~~

~~This Function isolates the Group 1 valves.~~

2. Primary Containment Isolation

2.a. Reactor Vessel Water Level - Low, Level 3

Low RPV water level indicates that the capability to cool the fuel may be threatened. The valves whose penetrations communicate with the primary containment are isolated to limit the release of fission products. The isolation of the primary containment on Level 3 supports actions to ensure that offsite dose limits of 10 CFR 50.67 are not exceeded. The Reactor Vessel Water Level - Low, Level 3

(continued)

B 3.7 PLANT SYSTEMS

B 3.7.10 ~~Turbine Building (TB) Maximum Area Temperature~~

Main Steam Line
(MSL)

The MSL area
consists of the
turbine building
(TB) area and the
main steam tunnel.

BASES

BACKGROUND

The main steam
tunnel temperature
is monitored by 16
temperature
elements arranged
in two 8-element
strings to monitor
all the MSLs.

Main Steam Line (MSL) leakage is limited to ensure that the accident analyses demonstrate that the offsite and control room dose limits are met. For purposes of this Technical Specification, MSL leakage is defined as leakage from any of the four MSLs or any unisolable branch off the MSL in the area from the Main Steam Isolation Valves (MSIVs) up to the steam chest. Direct detection of small amounts of MSL leakage is not practical, so monitoring the area temperatures near the MSLs is used as a surrogate indication of an MSL leak. The ~~turbine building (TB) maximum area temperature~~ monitoring also provides diversity to the MSL high flow instrumentation which will detect a large MSL leak.

The TB area temperature is monitored by 64 temperature elements arranged to monitor all of the MSLs. The temperature elements are placed so that no more than 40 feet separates any two temperature elements to ensure that no areas are unmonitored.

APPLICABLE SAFETY ANALYSES

Area temperature monitoring is provided to detect small MSL leakage (between 1% and 10% of rated steam flow) in the condenser bay area of the TB. Should a large MSL break occur, the main steam isolation valves (MSIVs) will automatically close based on a Main Steam Line Flow – High signal.

or main steam tunnel

and the main
steam tunnel

Analyses are performed for large MSL breaks, such as the Main Steam Line Break (MSLB) accident, but small amounts of MSL leakage in the ~~TB~~ is not considered in other design basis accident (DBA) or transient analyses. As a result, small MSL leaks in the TB could result in post-accident doses that may exceed the analyzed values. To prevent this from occurring, the TB is monitored for MSL leakage and steps are taken to correct the condition if a small MSL leak is detected. This preserves the initial conditions assumed in the DBA and transient analyses.

and main steam tunnel are

Limiting MSL

~~TB maximum~~ area temperature satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

~~The TB maximum area temperature limit of $\leq 200^{\circ}\text{F}$ ensures there is not an MSL leak in the TB. The limit of $\leq 200^{\circ}\text{F}$ is based on detecting an MSL leak equivalent to 1% to 10% of rated steam flow and ensures that small MSL leaks will be detected and corrected.~~

Main Steam Line (MSL)

Turbine Building (TB) Maximum Area Temperature
B 3.7.10

BASES (continued)

APPLICABILITY

In MODES 1, 2, and 3, a DBA could result in the release of radioactive material into the TB if there is a leak in the MSLs. In MODES 4 and 5, the probability and consequences of a DBA with fission product release into the TB are reduced because of the pressure and temperature limitations in these MODES. Therefore, maintaining TB area temperature within limits is not required in MODE 4 or 5.

ACTIONS

A.1 and A.2

If TB maximum area temperature exceeds 200°F, immediate action must be taken to confirm there is no MSL leak into the TB. Indications of a small MSL leak in the turbine building include, but are not limited to:

- An unexpected, sudden rise in area temperature,
- An unexpected increase in radiation monitor readings,
- An unexpected rise in turbine building sump levels,
- An unexpected decrease in plant electrical output, and
- Visual and sound indications.

TB area temperature may be elevated due to reasons other than an MSL leak, such as hot weather, reduced turbine building area chiller capacity, other leaks (i.e., not MSL leakage) in the turbine building (e.g., leaks past seals, packing and gaskets), and faulty temperature detectors.

If the TB maximum area temperature exceeds 200°F, verification that no MSL leak exists must be performed periodically. The 12-hour Completion Time is acceptable considering the likelihood of a MSL leak occurring.

B.1 and B.2

If it cannot be confirmed that no MSL leak in the TB exists or the periodic verification is not performed, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

If a MSL area temperature exceeds its limit

The Required Actions provide appropriate compensatory measures for separate MSL areas. As such, a Note has been provided that allows separate Condition entry for each MSL area with temperature above the limit.

or reactor building

or main steam tunnel

MSL area

(continued)

Main Steam Line (MSL)

Turbine Building (TB) Maximum Area Temperature
B 3.7.10

temperatures are within limits ensures

BASES (continued)

For the TB, in order to

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1

MSL

Verification that the maximum area temperature is $\leq 200^{\circ}\text{F}$ ensures there is no MSL leak in the TB. In order to ensure timely detection of an MSL leak, each MSL must be monitored with sufficient detectors to ensure no more than 40 feet separates two in-service temperature elements.

or main steam tunnel

The TB area temperature alarm function is not required for this SR to be met.

functions are

and main steam tunnel

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

REFERENCES

None.

For the main steam tunnel, in order to ensure timely detection of an MSL leak, 12 temperature elements (6 per string) are required to ensure main steam tunnel high temperature detection.