Southern Nuclear

Regulatory Affairs

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NL-24-0195
10 CFR 50.90

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

Edwin I. Hatch Nuclear Plant - Units 1 and 2
Response to Request for Additional Information Regarding
License Amendment Request to Revise Technical Specifications
to Adopt Risk Informed Completion Times for Residual Heat Removal Service
Water (RHRSW) and Plant Service Water (PSW) Systems

On December 6, 2023, in accordance with the provisions of Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), Southern Nuclear Operating Company (SNC) submitted a request for an amendment to the Technical Specifications (TS) for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (HNP) renewed facility operating licenses DPR-57 and NPF-5, respectively [ADAMS Accession No. ML23340A223].

The proposed amendment would modify TS requirements to permit the use of Risk Informed Completion Times for the condition of one pump inoperable for TS 3.7.1, Residual Heat Removal Service Water (RHRSW) System and for TS 3.7.2, Plant Service Water (PSW) System and Ultimate Heat Sink (UHS). The proposed amendment would also make corresponding changes to TS 5.5.16, Risk Informed Completion Time Program, and to TS 1.3, Completion Times, Example 1.3-8.

By email dated April 9, 2024, NRC staff issued a request for additional information (RAI) regarding this proposed TS amendment [ML24100A440]. SNC's response to this RAI is provided in the Enclosure to this letter.

This RAI response does not impact the scope or conclusions of the Technical Evaluation, Significant Hazards Consideration Determination, or Environmental Considerations of the original submittal.

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 of this license amendment request by transmitting a copy of this letter, with enclosure, to the designated State Official.

Should 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 7th day of May 2024.

Respectfully submitted,

Jamie M. Coleman
Director, Regulatory Affairs
Southern Nuclear Operating Company

JMC/RMJ

Enclosure: Response to Request for Additional Information

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
License Amendment Request to Revise Technical Specifications to Adopt Risk Informed Completion Times for Residual Heat Removal Service Water (RHRSW) and Plant Service Water (PSW) Systems

Enclosure to NL-24-0195

Response to Request for Additional Information

Introduction

By letter NL-23-0889 dated December 6, 2023 [ADAMS Accession No. ML23340A223], Southern Nuclear Operating Company (SNC) submitted a request for an amendment to the Technical Specifications (TS) for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (HNP) renewed facility operating licenses DPR-57 and NPF-5, respectively. The proposed amendment would modify TS requirements to permit the use of Risk Informed Completion Times (RICTs) for the condition of one pump inoperable for TS 3.7.1, Residual Heat Removal Service Water (RHRSW) System and for TS 3.7.2, Plant Service Water (PSW) System and Ultimate Heat Sink (UHS). The proposed amendment would also make corresponding changes to TS 5.5.16, Risk Informed Completion Time Program, and to TS 1.3, Completion Times, Example 1.3-8.

By email dated April 9, 2024, NRC staff issued a request for additional information (RAI) regarding this proposed TS amendment [ML24100A440]. The RAI is repeated below followed by SNC's response to the RAI.

NRC's RAI

Title 10 of the Code of Federal Regulations (10 CFR) Part 50.36, "Technical Specifications," specifies the content required to be included in TSs.

The methodology for implementing a RICT Program is described in Nuclear Energy Institute (NEI) Topical Report NEI 06-09, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines," Revision 0-A (ADAMS Accession No. ML12286A322) (hereafter referred to as NEI 06-09-A). Adherence to NEI 06-09-A is required by the RICT Program as specified in Hatch TS 5.5.16. The RICT program also requires that risk management actions (RMAs) be considered and implemented in accordance with NEI 06-09-A.

RAI-01

NRC staff notes that the role of RMAs (also known as compensatory measures) in managing risk may be more important for extended completion times (CTs). As this is a first-of-a-kind request to extend the backstop for select CTs to 45 days, the NRC is requesting additional details with respect to RMA examples, particularly for cases where incremental conditional core damage probability / incremental conditional large early release probability (ICCDP/ICLERP) thresholds could be exceeded if common cause failure (CCF) adjustment was accounted for in the RICT estimate.

Previous emergency LARs for one-time CT extensions for Hatch have provided more detailed discussion of compensatory measures. For examples, see (1) Enclosure 5 to the LAR supplement dated September 23, 2021 (ADAMS Accession No. ML21266A004), to support a CT extension to restore operability to Unit 1 PSW Pump C, and (2) the RAI response dated April 22, 2021 (ADAMS Accession No. ML21112A067), to support a CT extension to restore operability to Unit 2 Residual Heat Removal Pump 2D. The NRC staff recognize that the discussion of RMAs (or compensatory measures) may be more detailed in requests for one-time CT extensions because the planned configuration to restore specific equipment is known in advance. Furthermore, RG 1.174, Rev. 3 Section 2.6 further states, "… NRC management

would give increased attention to the application if the calculated values of the changes in the risk metrics and their base values, when appropriate, approach the acceptance guidelines."

Please address the following:

a) Provide additional discussion as to what RMAs would be considered to help ensure mitigation of high-risk scenarios, such as maintaining containment venting capability (e.g., protecting equipment required for containment venting, briefings on hardened containment vent procedures). The NRC notes that use of the hardened containment vent system may be more risk significant for scenarios in which the normal means of suppression pool cooling is lost.

b) Provide additional details as to what RMAs may be considered for specific high-risk fire zones (e.g., limiting hot work or transient combustible permits) when either a PSW or RHRSW pump is out of service.

SNC Response to RAI-01

RAI-01a Response

As stated in Enclosure 12 of the Hatch LAR ML23340A223, RMAs will be implemented in accordance with current procedures no later than the time at which an Incremental Core Damage Probability (ICDP) of 1E-6 is reached, or no later than the time when an Incremental Large Early Release Probability (ILERP) of 1E-7 is reached (whichever occurs first). If, as the result of an emergent condition, the Instantaneous Core Damage Frequency (ICDF) or the Instantaneous Large Early Release Frequency (ILERF) exceeds 1E-3 per year or 1E-4 per year, respectively, RMAs are also required to be implemented.

By determining which Structures, Systems, or Components (SSCs) are most important from a CDF or LERF perspective for a specific plant configuration, RMAs may be created to protect these SSCs. Similarly, knowledge of the initiating event or sequence contribution to the configuration-specific CDF or LERF allows development of RMAs that enhance the capability to mitigate such events. The RMA process also makes use of existing qualitative programs such as the Protected Train/Equipment and Switchyard Work controls. If the planned activity or emergent condition includes an SSC that is identified to impact Fire PRA, as identified in the current Configuration Risk Management Program (CRMP), Fire PRA specific RMAs associated with that SSC will be implemented per the current plant procedure. RMAs are developed based on the Protected Train/Equipment program and on the CRMP tool to identify configuration-specific RMA candidates to manage the risk associated with internal events, internal flooding, and fire events.

Site procedures classify RMAs into the three categories (Tier 1, 2, & 3), in accordance with NEI 06-09-A. A list of example RMAs associated with these categories are included in Enclosure 12 of the Hatch LAR [ML23340A223]. The information provided below are additional details to the list of example RMAs.

Tier 1 RMAs to increase risk awareness, control of the activity, and rigor associated with planning of activities are not limited to, but may include:

- Increase control of activities that could result in an initiating event (e.g., loss of offsite power). These initiating events should be identified using the Initiator Importance portion of the RMA candidates report.
- Protect functional components that are most important for mitigating risk significant events in the CRMP. These components should be identified using the In-Service Component Importance portion of the RMA candidates report.

Tier 2 RMAs to minimize the duration of maintenance activities (usually addressed in system outage plans for planned entries) and reduce the magnitude of risk increase are not limited to, but may include:

- Establish contingency plans to restore to functional status any existing out-of-service components that are most important to accident mitigation.
- Defer activities that could result in an initiating event (e.g., loss of offsite power). These initiating events should be identified using the Initiator Importance portion of the RMA candidates report.
- Protect a greater number of the functional components that are most important for mitigating non-fire and fire events. These components should be identified using the In-Service Component Importance portion of the RMA candidates report.

Tier 3 RMAs to minimize the magnitude of the risk increase:

- Take immediate action to restore to functional status those out of service components that are most important to accident mitigation. These components should be identified using the Out-of-Service Component Importance portion of the RMAs candidates report.

Applicable to Fire Specific RMAs:

- Select important fire zones for increased controls from the Fire Zone Initiator Importance portion and the Fire Zone Component Importance portion of the FIRE RMAs candidates report.

Current site procedures state an extent of condition evaluation is performed when executing a RICT. As stated in Enclosure 12 of the Hatch LAR [ML23340A223], for emergent conditions where the extent of condition is not performed prior to entering into the Risk Management Action Times or the extent of condition cannot rule out the potential for common cause failure, common cause RMAs are expected to be implemented to mitigate common cause failure potential and impact.

Using the information above, an example of RMA development for a RICT for where the plant configuration has only PSW Pump 1B out-of-service is discussed below. The pump has failed and the RICT is an emergent one. An extent of condition evaluation has not been completed. Current site procedures use the Tier approach and common cause RMAs are to be developed and implemented. Alternatively, as allowed by current site procedures, a decision can be made to make an adjustment to the RICT calculation of PSW Pump 1B to numerically account for the increased possibility of common cause failure. While quantitative changes to the PRA are not required, the PRA is used to provide insights for the qualitative treatment of potential common cause failures and RMAs that may be applied for the affected configuration.

Case 1 is when common cause RMAs are implemented.

Figures 1 through 3 show the top ranked items from the In-Service Component Importance, Fire Zone Initiator Importance, and Fire Zone Component Importance sections of the RMA candidates report mentioned above for a PSW Pump 1B RICT. The Initiator Importance section for this scenario did not have an increase in initiator importance; therefore, it is not included below.

Name	Description
1R43S001B	EMERGENCY DIESEL GENERATOR 1B
1R43S001A	EMERGENCY DIESEL GENERATOR 1A
1P41C001A	PLANT SERVICE WATER PUMP 1A (MSPI)

Figure 1. In-Service Component Importance

Name	Description
1101F	Condensate Polishing Room
1101A	Under Main Condenser
0101B	U1 Turbine Bearing # 1 - # 7
1101J	Work Floor - H2 Seal Oil Unit, NW SWGR Area
0608	Diesel Generator 1B, Unit 1 and 2 Pullboxes and Associated Ductbanks (West of DG Building)
1101C	Condensate Pump Area
0606	Division I, Unit 1 and 2 Underground Pullboxes and Associated Ductbanks (West of DG Building)
1412	SWGR Room 1E
1408	SWGR Room 1F
0031	Control Room Roof

Figure 2. Fire Zone Initiator Importance

Name	Description
1407	DG Room 1B
1411	DG Room 1A
0501	Intake Structure

Figure 3. Fire Zone Component Importance

RMAs would then be developed using the importance rankings above as input. Note, the importance rankings are based on plant configuration no matter if it is a low-risk scenario or a high-risk scenario. Different input into developing RMAs would be considered given a different configuration (e.g., other equipment out-of-service, different train alignments, etc.) or a different scenario (e.g., a different PSW pump RICT or an RHRSW pump RICT). The following are some RMA examples given the PSW Pump 1B RICT scenario importance rankings (Case 1).

- Tier 1. Actions to increase risk awareness and control.
    - Briefing of the on-shift operations crew concerning the unit activities, including any compensatory measures established, and review of the appropriate emergency operating procedures for a Loss of Plant Service Water. Remind the

crew that PSW may be conditionally critical for continued full power operation with less than 4 pumps available.
    - Notification of the Transmission Control Center (TCC) of the configuration so that any planned activities with the potential to cause a grid disturbance are deferred.
    - Periodic walkdowns by on-shift SROs and/or management personnel to verify implementation of established risk management actions.
    - The following equipment is protected as required by SNC procedure NMP-OS-010-002 for PSW Pump 1B out-of-service:
        - PSW Pump 1D
        - 4160V Bus 1F Frame 2
        - PSW Pump 1D Control Switch
- Tier 2. Actions to reduce the duration of maintenance activities.
    - No maintenance will be performed on piping in the following areas:
        - Diesel Generator 1A and 1B rooms
        - Turbine Building – Condensate Pumps Area, East Corridor, and 130′ Working Floor
    - Engage specialty contractors or subject matter experts.
- Tier 3. Actions to minimize the magnitude of the risk increase.
    - Protect all Unit 1 startup transformers and their associated 230KV breakers.
    - Protect Diesel Generator 1A and 1B.
    - Protect HPCI (High Pressure Coolant Injection) and RCIC (Reactor Core Isolation Cooling).
    - Protect the following Division 1 PSW Pumps and Standby Service Water (SSW) Pump:
        - PSW Pumps 1A and 1C
        - SSW Pump 1P41C002

Part of the Tier 3 actions would be the fire related items included in RAI-01b response. RMAs pertaining to containment venting were not necessary for the PSW Pump 1B scenario because equipment related to containment venting did not show up as increasing in importance due to the configuration. However, if the containment hardened vent became significantly more important for a given configuration, similar RMAs to ensure capability to operate the system would be considered.

Case 2 is with the PSW common cause pump events adjusted per NEI-06-09-A. This shortens the time to reach the Tier 1, 2, and 3 action levels.

The top ranked items from the Initiator Importance, In-Service Component Importance, Fire Zone Initiator Importance, and Fire Zone Component Importance sections of the RMA candidates report are the same as mentioned above for Case 1, including the response to RAI-01b, of the PSW Pump 1B RICT scenario. Therefore, the RMAs would be the same as mentioned above except for PSW Pump 1C and SSW Pump 1P41C002.

RAI-01b Response

The following are some Fire RMA examples given the PSW Pump 1B RICT scenario importance rankings. Different input into developing Fire RMAs would be considered given a

different configuration (e.g., other equipment out-of-service, different train alignments, etc.) or a different scenario (e.g., a different PSW pump RICT or an RHRSW pump RICT):

- Verify and maintain functionality of fire detection, suppression, and barriers in the following locations:
    - Turbine Building – 1101J and 1101C
    - Diesel Building – DG 1A and 1B rooms, SWGR 1E and 1F rooms
    - Intake Structure
- No maintenance activities that could cause fires, including movement of transient combustibles, in Turbine Building 1101J and 1101C, DG 1A and 1B rooms, SWGR 1E and 1F rooms, Control Building Roof (0031) and west of the Diesel Building in areas 0606 and 0608. Note 0101B, 1101A, and 1101F are locked high rad areas while the plant is at power, which already provides a significant barrier to activities that could cause fires in those areas.