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February 17, 2021
L-20-185

10 CFR 50.90

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

SUBJECT:

Perry Nuclear Power Plant
Docket No. 50-440, License No. NPF-58
License Amendment Request for Adoption of Technical Specification Task Force (TSTF) Traveler TSTF-230 Rev.1, Add new Condition B to LCO 3.6.2.3 "Residual Heat Removal (RHR) Suppression Pool Cooling."

Pursuant to 10 CFR 50.90, Energy Harbor Nuclear Corp. is requesting an amendment to the Perry Nuclear Power Plant Technical Specifications (TSs). The proposed license amendment would add new Condition B to LCO 3.6.2.3 "Residual Heat Removal (RHR) Suppression Pool Cooling," to allow two RHR Suppression Pool Cooling subsystems to be inoperable for eight hours.

An evaluation of the proposed amendment is enclosed. Energy Harbor Nuclear Corp. is requesting NRC staff approval by February 28, 2022, and an implementation period of 120 days following issuance of the amendment.

There are no regulatory commitments contained in this submittal. If there are any questions or if additional information is required, please contact Mr. Phil H. Lashley, Manager – Fleet Licensing, at (330) 696-7208.

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I declare under penalty of perjury that the foregoing is true and correct. Executed on February 17, 2021.

Sincerely,



Rod L. Penfield

Enclosure: Evaluation of Proposed License Amendment

cc: NRC Region III Administrator
NRC Resident Inspector
NRC Project Manager
Executive Director, Ohio Emergency Management Agency, State of Ohio (NRC Liaison)
Utility Radiological Safety Board

EVALUATION OF PROPOSED LICENSE AMENDMENT

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Subject: License Amendment Request for Adoption of Technical Specification Task Force (TSTF) Traveler TSTF-230 Rev.1, Add new Condition B to LCO 3.6.2.3, "Residual Heat Removal (RHR) Suppression Pool Cooling"

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1. SUMMARY DESCRIPTION

Limiting Condition for Operation (LCO) 3.6.2.3, "Residual Heat Removal (RHR) Suppression Pool Cooling," is revised to add a new ACTION (ACTION B) to allow two RHR suppression pool cooling subsystems to be inoperable for 8 hours. Due to this change, the second part of existing CONDITION B is deleted, and the entire ACTION B is renumbered as ACTION C. This change is considered to be less restrictive than current requirements.

Attachment 1 provides the existing Technical Specification (TS) pages marked to indicate the proposed amendment. Attachment 2 provides the existing TS Bases pages annotated to indicate the proposed changes and is provided for information only.

2. DETAILED DESCRIPTION

2.1. System Design and Operation

The RHR system consists of three motor-driven pumps, four heat exchangers, and the valves and piping necessary to support operations. These components are divided into three independent closed loops, A, B, and C. All loops contain a motor-driven pump and the necessary valves and piping. Only loops A and B, however, contain heat exchangers. Emergency service water (ESW) is used as the cooling medium for the RHR heat exchangers. Each RHR subsystem contains a flow path capable of recirculating water from the suppression pool through the RHR heat exchanger and is manually initiated and independently controlled.

During normal plant operation, the suppression pool water must be kept less than 95 degrees Fahrenheit (°F) to ensure adequate condensation of the steam resulting from a design basis loss of cooling accident (LOCA) to prevent over pressurizing the containment. The suppression pool cooling mode is used to maintain proper suppression pool temperature during reactor core isolation cooling (RCIC) or safety relief valve operation, and to reduce suppression pool temperature in accident conditions. Both RHR loops A and B can be used for this mode. The two RHR subsystems perform suppression pool cooling function by circulating water from the suppression pool through the RHR heat exchangers and returning it to the suppression pool. ESW circulating through the tube side of the heat exchangers, exchanges heat with the suppression pool water and discharges this heat to the external heat sink.

The heat removal capability of one RHR subsystem is sufficient to meet the overall design basis accident (DBA) pool cooling requirement to limit peak temperature to 185°F for LOCAs and transient events such as a turbine trip without bypass or a stuck open safety relief valve (SRV). SRV leakage and RCIC system testing increase suppression pool temperature more slowly. The RHR suppression pool cooling system is also used to lower the suppression pool average water temperature following such events.

2.2. Current Technical Specification Requirements

TS 3.6.2.3, "Residual Heat Removal (RHR) Suppression Pool Cooling System," requires two RHR suppression pool cooling subsystems to be OPERABLE in Modes 1,2, and 3.

The required action for one RHR suppression pool cooling subsystem inoperable (Condition A) of TS 3.6.2.3, requires the operators to restore the RHR suppression pool cooling subsystem to OPERABLE status within 7 days (Required Action A.1).

The required actions and associated completion time of Condition A not met or two RHR suppression pool cooling subsystems inoperable (Condition B) of TS 3.6.2.3, requires the unit to be in Mode 3 within 12 hours (Required Action B.1) and be in Mode 4 within 36 hours (Required Action B.2).

2.3. Reason for the Proposed Change

Per the current TS 3.6.2.3, the action and completion time for two RHR suppression pool cooling subsystems inoperable (Condition B) requires the unit to be in Mode 3 within 12 hours and be in Mode 4 within 36 hours. The immediate plant shutdown (which is what is currently required) has the potential for resulting in a unit scram and discharge of steam to the suppression pool, when both suppression pool cooling subsystems are inoperable and incapable of removing the generated heat.

2.4. Description of the Proposed Change

The proposed change will revise TS 3.6.2.3, "Residual Heat Removal (RHR) Suppression Pool Cooling." This change proposes a new Condition B when two RHR suppression pool cooling subsystems are inoperable. The new Required Action B.1 requires operators to restore one RHR suppression pool cooling subsystem to OPERABLE status within 8 hours.

Current Condition B and its required actions were renamed C, C.1, and C.2, respectively since new condition B was added. New Condition C is applicable to current Condition A and new Condition B. Required Action C.1 requires the unit to be in MODE 3 within 12 hours and Required Action C.2 requires the unit to be in MODE 4 within 36 hours.

3. TECHNICAL EVALUATION

Following a DBA, the RHR suppression pool cooling system removes heat from the suppression pool. The suppression pool is designed to absorb the sudden input of heat from the primary system. In the long term, the pool continues to absorb residual heat generated by fuel in the reactor core. The capability to remove heat from the

suppression pool must be provided in order to maintain the temperature inside the primary containment within design limits.

The current TS requires a unit shutdown in the event both RHR suppression pool cooling subsystems become inoperable. This change would allow 8 hours to restore one RHR suppression pool cooling subsystem to OPERABLE status before initiating a unit shutdown. The proposed 8 hour limit is considered appropriate since an immediate plant shutdown, which is currently required, has the potential to result in a unit scram and discharge of steam to the suppression pool. With both suppression pool cooling subsystems inoperable, there would be no available means to remove heat from the suppression pool. The 8 hour limit provides time to restore one of the subsystems prior to requiring the unit to shut down yet is short enough that it does not significantly increase the time that the subsystems would be unavailable in the event of an accident. This proposed change also serves to provide consistency between the requirements for RHR suppression pool cooling and LCO 3.6.1.7, "Residual Heat Removal (RHR) Containment Spray System," required action B.1 which currently allows 8 hours to restore one containment spray subsystem OPERABLE status.

This proposed change is consistent with TSTF-230, Revision 1.

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The following regulatory requirements and criteria were reviewed during development of the proposed license amendment:

- 10 CFR 50, Appendix A, Criterion 34 – "Residual heat removal"
- 10 CFR 50.36, "Technical Specifications"

Energy Harbor Nuclear Corp. has determined that the proposed amendment is consistent with the regulatory requirements and criteria described in the above cited documents.

4.2 Precedent

TSTF-230 has previously been approved for incorporation in the TS for River Bend Station, Unit 1, by license amendment dated August 11, 2009 (Reference 2).

4.3 No Significant Hazards Consideration Analysis

TSTF-230 modifies LCO 3.6.2.3 to be less restrictive. However, the LCO continues to assure that the necessary quality of systems and components is maintained, and that facility operation will be within safety limits. Therefore, the proposed less restrictive

change still affords adequate assurance of safety when judged against current regulatory standards.

Energy Harbor Nuclear Corp. has evaluated if 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 change relaxes the Required Actions of LCO 3.6.2.3 by allowing 8 hours to restore one RHR suppression pool cooling subsystem to OPERABLE status when both subsystems have been determined to be inoperable. Required Actions and their associated Completion Times are not initiating conditions for any accident previously evaluated. The proposed 8 hour Completion Time provides time to restore required subsystem(s) to OPERABLE status yet is short enough that operating an additional 8 hours is not a significant risk. The Required Actions in the proposed change have been developed to provide assurance that appropriate remedial actions are taken in response to the degraded condition, considering the operability status of the RHR suppression pool cooling system and the capability of minimizing the risk associated with continued operation. As a result, neither the probability nor the consequences of any accident previously evaluated are significantly increased.

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

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

Response: No

The proposed change does not involve a physical modification or alteration of plant equipment (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The Required Actions and associated Completion Times in the proposed change have been evaluated to ensure that no new accident initiators are introduced.

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

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

Response: No

The relaxed Required Actions do not involve a significant reduction in a margin of safety. The proposed change has been evaluated to minimize the risk of continued operation with both RHR suppression pool cooling subsystems inoperable. The operability status of the RHR suppression pool cooling system, a reasonable time for repair or replacement of required features, and the low probability of a design basis accident occurring during the repair period have been considered in the evaluation.

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

Based on the above, Energy Harbor Nuclear Corp. concludes that the proposed amendment does not involve a no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusions

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

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. Final Safety Evaluation of TSTF-230, Revision 1, "Add new Condition B to LCO 3.6.2.3, RHR Suppression Pool Cooling," June 15, 1999 (ADAMS Accession No. ML040570110)
2. River Bend Station, Unit 1, License Amendment No.165, Modify Technical Specifications to Adopt NRC-approved Generic Changes TS Task Force (TSTF)-163, TSTF-220, TSTF-230, and TSTF-306, August 11, 2009 (ADAMS Accession No. ML092010370)

Attachment 1
Evaluation of Proposed License Amendment

Proposed Technical Specification Page Markup
(1 page follows)

3.6 CONTAINMENT SYSTEMS

3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling System

LCO 3.6.2.3 Two RHR suppression pool cooling subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------|
| A. One RHR suppression pool cooling subsystem inoperable. | A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status. | 7 days |
| <u>B. Two RHR suppression pool cooling subsystems inoperable.</u> | <u>B.1 Restore one RHR suppression pool cooling subsystem to OPERABLE status.</u> | <u>8 hours</u> |
| <u>CB.</u> Required Action and associated Completion Time of Condition A not met. OR Two RHR suppression pool cooling subsystems inoperable. | <u>CB.1</u> Be in MODE 3. <u>AND</u> <u>CB.2</u> Be in MODE 4. | 12 hours 36 hours |

Attachment 2
Evaluation of Proposed License Amendment

Technical Specification Bases Page Mark-Up (for information only)
(1 page follows)

FOR INFORMATION ONLY

BASES

ACTIONS
(continued)

B.1

With two RHR suppression pool cooling subsystems inoperable, one subsystem must be restored to OPERABLE status within 8 hours. In this condition, there is a substantial loss of the primary containment pressure and temperature mitigation function. The 8 hour Completion Time is based on this loss of function and is considered acceptable due to the low probability of a DBA and the potential avoidance of a plant shutdown transient that could result in the need for the RHR suppression pool cooling subsystems to operate.

CB.1 and CB.2

If the Required Action and associated Completion Time ~~of Condition A cannot be met~~ ~~or if two RHR suppression pool cooling subsystems are inoperable~~, 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.

SURVEILLANCE
REQUIREMENTS

SR 3.6.2.3.1

Verifying the correct alignment for manual, power operated, and automatic valves, in the RHR suppression pool cooling mode flow path provides assurance that the proper flow path exists for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to being locked, sealed, or secured. A valve that receives an initiation signal is allowed to be in the nonaccident position, provided the valve will automatically reposition in the proper stroke time. This is acceptable, since the RHR suppression pool cooling mode is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

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

(continued)
