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RS-22-060 10 CFR 50.90

May 24, 2022

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

Clinton Power Station, Unit 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

Subject: Request for License Amendment to Adopt TSTF-230, Revision 1, "Add New Condition B to LCO 3.6.2.3, RHR Suppression Pool Cooling"

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Constellation Energy Generation, LLC (CEG) requests an amendment to Facility Operating License No. NPF-62 for Clinton Power Station (CPS), Unit 1. The proposed change is consistent with NRC-approved Technical Specification Task Force (TSTF) Traveler 230-A, Revision 1, "Add New Condition B to LCO 3.6.2.3, RHR Suppression Pool Cooling." Specifically, the proposed change modifies Technical Specifications (TS) 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.

This request is subdivided as follows.

- Attachment 1 provides a description and evaluation of the proposed change.
- Attachment 2 provides a markup of the affected TS page.
- Attachment 3 provides a markup of the affected TS Bases page. The TS Bases page is provided for information only and does not require NRC approval.

The proposed change has been reviewed by the Plant Operations Review Committee in accordance with the requirements of the CEG Quality Assurance Program.

CEG requests approval of the proposed change by May 24, 2023. Once approved, the amendment will be implemented within 60 days. This implementation period will provide adequate time for the affected station documents to be revised using the appropriate change control mechanisms.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), CEG is notifying the State of Illinois of this application for license amendment by transmitting a copy of this letter and its attachments to the designated State Official.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 24th day of May 2022.

Respectfully,

Patrick R. Simpson
Sr. Manager Licensing
Constellation Energy Generation, LLC

Attachments:
1. Evaluation of Proposed Change
2. Markup of Technical Specifications Page
3. Markup of Technical Specifications Bases Page (For Information Only)

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector – Clinton Power Station
Illinois Emergency Management Agency – Division of Nuclear Safety

ATTACHMENT 1
Evaluation of Proposed Change

1.0 SUMMARY DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Constellation Energy Generation, LLC (CEG) requests an amendment to Facility Operating License No. NPF-62 for Clinton Power Station (CPS), Unit 1. The proposed change is consistent with NRC-approved Technical Specification Task Force (TSTF) Traveler 230-A, Revision 1, "Add New Condition B to LCO 3.6.2.3, RHR Suppression Pool Cooling" (i.e., Reference 1). Specifically, the proposed change modifies Technical Specifications (TS) 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. The NRC approved TSTF-230-A, Revision 1, in Reference 2.

2.0 DETAILED DESCRIPTION

TS 3.6.2.3 currently requires two RHR suppression pool cooling subsystems to be operable in Modes 1, 2, and 3. Condition A applies when one RHR suppression pool cooling subsystem is inoperable, and Condition C applies when two RHR suppression pool cooling subsystems are inoperable. The Required Actions and associated Completion Times for Condition C require the unit to be in Mode 3 within 12 hours (i.e., Required Action C.1) and in Mode 4 within 36 hours (i.e., Required Action C.2). The immediate plant shutdown that 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.

The proposed change revises the Required Action associated with Condition C. Specifically, Required Action C.1 is modified to require one RHR suppression pool cooling subsystem to be restored to operable status with a Completion Time of 8 hours. In addition, new Condition D is added to provide a condition that applies when the Required Action and associated Completion Time of Condition C is not met. The Required Actions and associated Completion Times for Condition D require the unit to be in Mode 3 within 12 hours (i.e., Required Action D.1) and in Mode 4 within 36 hours (i.e., Required Action D.2).

A markup of the proposed TS changes is provided in Attachment 1. Attachment 2 provides a markup of the affected TS Bases page. The TS Bases page is provided for information only and does not require NRC approval.

3.0 TECHNICAL EVALUATION

The RHR system is composed of three independent loops. Each loop contains its own motor-driven pump, piping, valves, instrumentation, and controls. Each loop has a suction source from the suppression pool and is capable of discharging water to the reactor vessel via a separate nozzle, or back to the suppression pool via a full flow test line. In addition, the A and B loops have heat exchangers which are cooled by shutdown service water. Loops A and B can also take suction from the reactor recirculation system suction and can discharge into the reactor via the feedwater line, or to the containment spray spargers. The A and B loops are connected to the feedwater system and have the capability to create a water seal on the feedwater system

containment isolation check valves. The A loop can also take suction from the fuel pool cooling system surge tanks and return to the fuel pools for supplementing the fuel pool cooling capacity when required.

Following a design basis accident (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. This function is provided by two redundant RHR suppression pool cooling subsystems.

Each RHR subsystem contains a pump and one heat exchanger and is manually initiated and independently controlled. The two RHR subsystems perform the suppression pool cooling function by circulating water from the suppression pool through the RHR heat exchangers and returning it to the suppression pool. Shutdown service water, 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 DBA pool cooling requirement to limit peak temperature to 185°F for loss-of-coolant accidents and transient events such as a turbine trip without bypass or a stuck open safety/relief valve (S/RV). S/RV leakage and Reactor Core Isolation Cooling system testing increase suppression pool temperature more slowly. The RHR suppression pool cooling system is also used to lower the suppression pool water bulk temperature following such events.

The current TS require a unit shutdown in the event both RHR suppression pool cooling subsystems become inoperable. The proposed 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 limiting condition for operation (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 to operable status.

4.0 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," and
- 10 CFR 50.36, "Technical specifications."

CEG has determined that the proposed amendment is consistent with the regulatory requirements and criteria described in the above cited documents.

4.2 Precedent

An example of a plant-specific NRC approval of the changes in TSTF-230-A, Revision 1, is Perry Nuclear Power Plant, Unit 1, Amendment No. 195, dated November 5, 2021 (i.e., Reference 3).

4.3 No Significant Hazards Consideration

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Constellation Energy Generation, LLC (CEG) requests an amendment to Facility Operating License No. NPF-62 for Clinton Power Station (CPS), Unit 1. The proposed change is consistent with NRC-approved Technical Specification Task Force (TSTF) Traveler 230-A, Revision 1, "Add New Condition B to LCO 3.6.2.3, RHR Suppression Pool Cooling." Specifically, the proposed change modifies Technical Specifications (TS) 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.

According to 10 CFR 50.92, "Issuance of amendment," paragraph (c), a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

(1) Involve a significant increase in the probability or consequences of any accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

CEG has evaluated the proposed change, using the criteria in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The following information is provided to support a finding of no significant hazards consideration.

1. Does the proposed change 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 subsystem 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 change 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 (i.e., no new or different type of equipment will be installed) or a change to 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 change 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 subsystem, 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 evaluation, CEG concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92, paragraph (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 the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

CEG 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, "Standards for Protection Against Radiation." However, the proposed amendment does not involve: (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released 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, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," paragraph (c)(9). Therefore, pursuant to 10 CFR 51.22, paragraph (b), no environmental impact statement or environmental assessment needs to be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. TSTF-230-A, Revision 1, "Add New Condition B to LCO 3.6.2.3, RHR Suppression Pool Cooling"

2. Letter from W. D. Beckner (U.S. NRC) to J. Davis (Nuclear Energy Institute), dated July 26, 1999

3. Letter from S. P. Wall (U.S. NRC) to R. L. Penfield (Energy Harbor Nuclear Corp.), "Perry Nuclear Power Plant, Unit No. 1 – Issuance of Amendment No. 195 Regarding the Adoption of TSTF-230, "Add New Condition B to LCO 3.6.2.3, 'RHR Suppression Pool Cooling'" (EPID L-2021-LLA-0019)," dated November 5, 2021

ATTACHMENT 2
Markup of Technical Specifications Page

Clinton Power Station, Unit 1

Facility Operating License No. NPF-62

REVISED TECHNICAL SPECIFICATIONS PAGE

3.6-32

3.6 CONTAINMENT SYSTEMS

3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling

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

----------NOTE----------
One RHR suppression pool cooling subsystem may be inoperable during alignment and operation for decay heat removal with reactor steam dome pressure less than the residual heat removal cut in permissive pressure.

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 OR In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time of Condition A not met. Restore one RHR suppression pool cooling subsystem to OPERABLE status.	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- B.1 Be in MODE 3.	12 hours
C. Two RHR suppression pool cooling subsystems inoperable.	C.1 ~~Be in MODE 3.~~ ~~AND~~ ~~C.2 Be in MODE 4.~~	~~12~~ hours 8 ~~36 hours~~
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	12 hours 36 hours

ATTACHMENT 3
Markup of Technical Specifications Bases Page

Clinton Power Station, Unit 1

Facility Operating License No. NPF-62

REVISED TECHNICAL SPECIFICATIONS BASES PAGE

B 3.6-58

BASES

ACTIONS (continued)

B.1

If the Required Action and required Completion Time of Condition A cannot be met, the plant must be brought to a MODE in which the overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours. Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 2) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action B.1 is modified by a Note that prohibits the application of LCO 3.0.4.a. This Note clarifies the intent of the Required Action by indicating that it is not permissible under LCO 3.0.4.a to enter MODE 3 from MODE 4 with the LCO not met. While remaining in MODE 3 presents an acceptable level of risk, it is not the intent of the Required Action to allow entry into, and continue operation in, MODE 3 from MODE 4 in accordance with LCO 3.0.4.a. However, where allowed, a risk assessment may be performed in accordance with LCO 3.0.4.b. Consideration of the results of this risk assessment is required to determine the acceptability of entering MODE 3 from MODE 4 when this LCO is not met.

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

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

If the Required Action and required Completion Time of Condition C cannot be met

~~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.

(continued)

C.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.