



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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General Directions: This model SE provides the format for an SE of LARs to adopt traveler TSTF-580. TSTF-580 was approved as part of the CLIIP. This model SE can also be used as a template for LARs adopting TSTF-580 that have significant variations and are not using the CLIIP. The **bolded bracketed** information shows text that should be filled in for the specific amendment. The *italicized* wording provides guidance on what should be included in each section.

DRAFT MODEL SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR
REGULATION RELATED TO TSTF-580
AMENDMENT NO. [XXX] TO FACILITY OPERATING LICENSE NO. [XXX-XX]
AND AMENDMENT NO. [XXX] TO FACILITY OPERATING LICENSE NO. [XXX-XX]
[NAME OF LICENSEE]
[NAME OF FACILITY]
DOCKET NOS. 50-[XXX] AND 50-[XXX]

<u>Application (i.e., initial and supplements)</u>	<u>Safety Evaluation Date</u>
<ul style="list-style-type: none"> [Date], [ADAMS Accession No.] 	[Date]
	<u>Principal Contributors to Safety Evaluation</u>
	<ul style="list-style-type: none"> [Caroline Tilton]

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1.0 PROPOSED CHANGES

[Name of licensee] (the licensee) requested changes to the technical specifications (TSs) for **[name of facility]** by license amendment request (LAR, application). In its application, the licensee requested that the U.S. Nuclear Regulatory Commission (NRC, the Commission) process the proposed amendment under the Consolidated Line Item Improvement Process (CLIIP). The proposed changes would revise the “RHR [Residual Heat Removal] Shutdown Cooling System – Hot Shutdown,” TS based on Technical Specifications Task Force (TSTF) Traveler TSTF-580, Revision 1, “Provide Exception from Entering Mode 4 With No Operable RHR Shutdown Cooling” (TSTF-580) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21025A232), and the associated NRC staff safety evaluation (SE) of TSTF-580 (ADAMS Accession No. MLXXXXXXXXXX).

Irradiated fuel in the shutdown reactor core generates heat during the decay of fission products and increases the temperature of the reactor coolant. This decay heat must be removed to reduce the temperature of the reactor coolant to less than or equal to **[200]** degrees Fahrenheit (°F). This decay heat is removed by the RHR shutdown cooling system in preparation for performing refueling or maintenance operations, or for keeping the reactor in the hot shutdown condition or cold shutdown condition.

1
2 {NOTE: Ensure the following paragraph is accurate for the plant. If not, modify accordingly.}

3
4 The **[name of facility]** design consists of two redundant, manually controlled shutdown cooling
5 subsystems of the RHR system to provide decay heat removal. Each loop consists of
6 motor-driven pumps, a heat exchanger, and associated piping and valves. The RHR heat
7 exchangers transfer heat to the RHR service water system. Some piping and heat exchangers
8 that are passive components may be common to both subsystems.
9

10 TS **[3.4.8/3.4.9]** "Residual Heat Removal (RHR) Shutdown Cooling System – Hot Shutdown," is
11 applicable in Mode 3 when the reactor steam dome pressure is lower than the RHR cut-in
12 permissive pressure. The limiting condition for operation (LCO) requires two operable RHR
13 shutdown cooling subsystems and, if no recirculation pump is in operation, then at least one
14 RHR shutdown cooling subsystem needs to be in operation.
15

16 1.1 Proposed TS Changes to Adopt TSTF-580

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18 In accordance with NRC staff-approved TSTF-580, the licensee proposed changes that would
19 revise the TS **[3.4.8/3.4.9]** "Residual Heat Removal (RHR) Shutdown Cooling System – Hot
20 Shutdown," for **[name of facility]**. Specifically, the licensee proposed the following changes to
21 adopt TSTF-580:
22

- 23 • Condition A is changed to be limited to a single inoperable subsystem by revising it to
24 state: "One **[required]** RHR shutdown cooling subsystem inoperable" with a Required
25 Action to "Verify an alternate method of decay heat removal is available."
26
- 27 • Condition B addresses situations when Required Action A.1 and associated completion
28 time (CT) are not met. The plural "(s)" is deleted in Required Action B.1 as a conforming
29 change to Condition A which now addresses a single inoperable RHR shutdown cooling
30 subsystem.
31
- 32 • A new Condition C is added which addresses two RHR shutdown cooling subsystems
33 inoperable with a Required Action C.1 to verify an alternate method of decay heat
34 removal is available for each inoperable RHR shutdown cooling subsystem. The new
35 Condition C Required Action has a CT of 1 hour and once per 24 hours thereafter.
36
- 37 • A new Condition D is added to address situations when new Required Action C.1 and
38 associated CT are not met. New Required Action D.1 requires action be initiated to
39 restore one RHR shutdown cooling subsystem to operable status immediately.
40 Required Action D.1 is modified by a note that states that LCO 3.0.3 and all other LCO
41 Required Actions requiring a mode change to Mode 4 may be suspended until one RHR
42 shutdown cooling subsystem is restored to operable status.
43
- 44 • Existing Condition C and associated Required Actions are renumbered as a result of
45 new Conditions C and D.
46

47 1.2 Additional Proposed TS Changes

48
49 {NOTE: Use this section if variations are proposed. Add additional subsections if needed.
50 Editorial variations discussed below in Section 1.2.1 do not warrant removal from the CLIIP and

1 *do not require any additional technical branches to be on the review. Variations discussed in*
2 *Section 1.2.2, may remove the LAR from the CLIP and may require additional technical review*
3 *depending on the significance of the variations.}*
4

5 In addition to the changes proposed consistent with the traveler discussed in Section 1.1, the
6 licensee proposed the following variations.

7
8 1.2.1 Editorial Variations

9
10 *{NOTE: Use this section if the plant has different numbering/nomenclature or modify*
11 *accordingly for other editorial changes made.}*

12
13 The licensee noted that **[name of facility]** TSs have different numbering **[and nomenclature]**
14 than standard technical specifications (STSs).

15
16 1.2.2 Other Variations

17
18 *{NOTE: Use this section if the plant has variations other editorial changes discussed in 1.2.1.}*
19

20 **2.0 REGULATORY EVALUATION**

21
22 The regulation at paragraph 50.36(c)(2) of Title 10 of the *Code of Federal Regulations* (10 CFR)
23 requires that TSs include LCOs. Per 10 CFR 50.36(c)(2)(i), LCOs “are the lowest functional
24 capability or performance levels of equipment required for safe operation of the facility.” The
25 regulation also requires that when an LCO of a nuclear reactor is not met, the licensee shall
26 shut down the reactor or follow any remedial action permitted by the TSs until the condition can
27 be met.

28
29 The NRC staff’s guidance for the review of TSs is in Chapter 16.0, “Technical Specifications,” of
30 NUREG-0800, Revision 3, “Standard Review Plan for the Review of Safety Analysis Reports for
31 Nuclear Power Plants: LWR [Light-Water Reactor] Edition” (SRP), March 2010 (ADAMS
32 Accession No. ML100351425). As described therein, as part of the regulatory standardization
33 effort, the NRC staff has prepared STSs for each of the LWR nuclear designs. Accordingly, the
34 NRC staff’s review includes consideration of whether the proposed changes are consistent with
35 the **[insert applicable NUREG from list in footnote]**¹, as modified by NRC-approved travelers.

36
37 Traveler TSTF-580 revised the STSs related to RHR shutdown cooling system. The NRC
38 approved TSTF-580, under the CLIP on **[Month, Day, 2021 (ADAMS Package Accession**
39 **No. MLXXXXXXXXXX)]**.

1 U.S. Nuclear Regulatory Commission, “Standard Technical Specifications, General Electric BWR/6 Plants” NUREG
1434, Volume 1, “Specifications,” and Volume 2, “Bases,” Revision 4.0, dated April 2012 (ADAMS Accession Nos.
ML12104A195 and ML12104A196, respectively).

U.S. Nuclear Regulatory Commission, “Standard Technical Specifications, Westinghouse Advanced Passive 1000
(AP1000) Plants,” NUREG 2194, Volume 1 “Specifications,” and Volume 2, “Bases,” Revision 0, dated April 2016
(ADAMS Accession Nos. ML16110A277 and ML16110A369, respectively).

1 3.0 TECHNICAL EVALUATION

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3 3.1 Proposed TS Changes to Adopt TSTF-580

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5 The NRC staff compared the licensee’s proposed TS changes in Section 1.1 of this SE against
6 the changes approved in TSTF-580. In accordance with the SRP Chapter 16.0, the NRC staff
7 determined that the STS changes approved in TSTF-580 are applicable because **[name of**
8 **facility]** is a boiling-water reactor (BWR) design plant and the NRC staff approved the
9 TSTF-580 changes for BWR designs. The NRC finds that the licensee’s proposed changes to
10 the **[name of facility]** TSs in Section 1.1 of this SE are consistent with those found acceptable
11 in TSTF-580.

12
13 In the SE of TSTF-580, the NRC staff concluded that TSTF-580 changes to STS **[3.4.8/3.4.9]**
14 “Residual Heat Removal (RHR) Shutdown Cooling System – Hot Shutdown,” are acceptable
15 because, without an operable RHR shutdown cooling subsystem and in a period of high decay
16 heat load, it may not be possible to reduce the reactor coolant system temperature to the
17 Mode 4 entry condition within the CT. Under this condition, remaining in Mode 3 allows fission
18 product decay heat and other residual heat from the reactor core to be transferred at a rate such
19 that specified acceptable fuel design limits and the design conditions of the reactor coolant
20 pressure boundary will not be exceeded. The CT reflects the importance of restoring a normal
21 path for heat removal. Therefore, the NRC staff finds that proposed new Condition D, including
22 its associated Required Action A.1 and CT, is acceptable because it continues to meet the
23 requirements of 10 CFR 50.36(c)(2)(i), by providing remedial actions and shutting down the
24 reactor if the remedial actions cannot be met.

25
26 The NRC staff finds that proposed changes to LCO **[3.4.8/3.4.9]** “Residual Heat Removal (RHR)
27 Shutdown Cooling System – Hot Shutdown,” correctly specifies the lowest functional capability
28 or performance levels of equipment required for safe operation of the facility. Also, the NRC
29 staff finds that proposed changes to the Actions of LCO **[3.4.8/3.4.9]** are adequate remedial
30 actions to be taken until each LCO can be met provide protection to the health and safety of the
31 public. Thus, the proposed changes continue to meet the requirements of 10 CFR 50.36(c)(2)(i)
32 as discussed in Section 3.0 of the NRC staff’s SE of TSTF-580.

33
34 3.2 Additional Proposed TS Changes

35
36 *{NOTE: Use this section if variations are proposed. Add additional subsections if needed.*
37 *Variations evaluated in Section 3.2.2, may remove the LAR from the CLIP and may require*
38 *additional technical review depending on the significance of the variations. Additionally, the*
39 *variations may require additional regulations/guidance being included in the Regulatory*
40 *Evaluation Section.}*

41
42 3.2.1 Editorial

43
44 *{NOTE: Use this section if the plant has different numbering/nomenclature or modify*
45 *accordingly for other editorial changes made.}*

46
47 The licensee noted that **[name of facility]** TSs have different numbering **[and nomenclature]**
48 than STS. The NRC staff finds that the different TS numbering **[and nomenclature]** changes
49 are acceptable because they do not substantively alter TS requirements.

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1 3.2.2 Other Variations

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3 *{NOTE: Use this section if the plant has variations other editorial changes discussed in 3.2.1.}*

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5 3.3 TS Change Consistency

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7 The NRC staff reviewed the proposed TS changes for technical clarity and consistency with the
8 existing requirements for customary terminology and formatting. The NRC staff finds that the
9 proposed changes are consistent with Chapter 16.0 of the SRP and are therefore acceptable.

10

11 4.0 CONCLUSION

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

19

NOTICES AND ENVIRONMENTAL FINDINGS
 RELATED TO
 AMENDMENT NO. [XXX] TO FACILITY OPERATING LICENSE NO. [XXX-XX]
 AND AMENDMENT NO. [XXX] TO FACILITY OPERATING LICENSE NO. [XXX-XX]
[NAME OF LICENSEE]
[NAME OF FACILITY]
 DOCKET NOS. 50-[XXX] AND 50-[XXX]

<u>Application (i.e., initial and supplements)</u>	<u>Safety Evaluation Date</u>
<ul style="list-style-type: none"> [Date], [ADAMS Accession No.] 	[Date]

1.0 INTRODUCTION

The PM should prepare this required section.

[Name of licensee] (the licensee) requested changes to the technical specifications (TSs) for **[name of facility]** by license amendment request (LAR, application). In its application, the licensee requested that the U.S. Nuclear Regulatory Commission (NRC, the Commission) process the proposed amendment under the Consolidated Line Item Improvement Process (CLIIP). The proposed changes would revise the “RHR [Residual Heat Removal] Shutdown Cooling System – Hot Shutdown,” TS based on Technical Specifications Task Force (TSTF) Traveler TSTF-580, Revision 1, “Provide Exception from Entering Mode 4 With No Operable RHR Shutdown Cooling” (TSTF-580) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21025A232), and the associated NRC staff safety evaluation of TSTF-580 (ADAMS Accession No. MLXXXXXXXXXX).

2.0 STATE CONSULTATION

The PM should prepare this required section.

In accordance with the Commission's regulations, the **[Name of State]** State official was notified of the proposed issuance of the amendment on **[insert date]**. The State official had **[no]** comments. **[If comments were provided, they should be addressed here].**

3.0 ENVIRONMENTAL CONSIDERATION

The PM should prepare this required section.

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding **[enter**

Federal Register citation (XX FR XXXX) and date]. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.