

June 16, 2021

TSTF-21-04
PROJ0753

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

SUBJECT: TSTF Comments on Draft Safety Evaluation for Traveler TSTF-580, Revision 1, "Provide Exception from Entering Mode 4 With No Operable RHR Shutdown Cooling"

REFERENCE: Letter from Victor G. Cusumano (NRC) to the TSTF, "Draft Safety Evaluations of Technical Specifications Task Force Traveler TSTF-580, Revision 1, 'Provide Exception from Entering Mode 4 With No Operable RHR Shutdown Cooling,' (EPID L-2020-PMP-0012)," May 26, 2021 (ADAMS Accession No. ML21054A281).

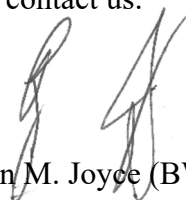
On January 26, 2021, the TSTF submitted traveler TSTF 580, Revision 1, "Provide Exception from Entering Mode 4 With No Operable RHR Shutdown Cooling," to the Nuclear Regulatory Commission (NRC) for review (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21025A232). In the referenced letter, the NRC provided the draft Safety Evaluations for TSTF-580 for comment.

Attachment 1 contains summary tables providing the TSTF's comments on the draft Safety Evaluations. Attachment 2 contains a mark-up reflecting the TSTF's comments.

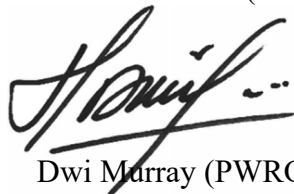
Should you have any questions, please do not hesitate to contact us.



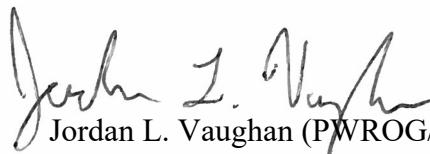
James P. Miksa (PWROG/CE)



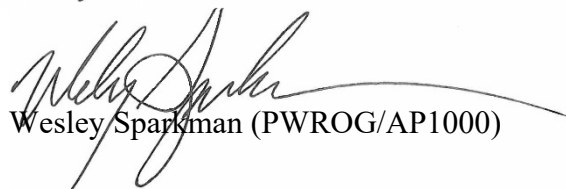
Ryan M. Joyce (BWROG)



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Attachment 1 TSTF Comments on the TSTF-580 Draft Safety Evaluations
Attachment 2 TSTF Markup of Draft Safety Evaluation

cc: Michelle Honcharik, Technical Specifications Branch, NRC
Victor Cusumano, Technical Specifications Branch, NRC

Attachment 1
TSTF Comments on the TSTF-580 Draft Safety Evaluations

Comments on Traveler Draft Safety Evaluation

Page(s)	Line(s)¹	Comment
7	35	There is an extra period following "(c)(2)(i)," which is removed.

Comments on Draft Model Safety Evaluation

Page(s)	Line(s)²	Comment
3	35	The model SE footnote references NUREG-2194 instead of NUREG-1433.
4	26-28	The sentence refers to proposed changes to LCO [3.4.8/3.4.9]. TSTF-580 does not propose any changes to the LCO. It is recommended that the sentence be deleted.
4	30	The word "and" is missing and is added.

¹ Line numbers correspond to the attached proposed revision, not to the documents provided by the NRC.

² Line numbers correspond to the attached proposed revision, not to the documents provided by the NRC.

Attachment 2
TSTF Markup of Draft Safety Evaluations

1 DRAFT SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

2 TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER

3 TSTF-580, REVISION 1

4 “PROVIDE EXCEPTION FROM ENTERING MODE 4

5 WITH NO OPERABLE RHR SHUTDOWN COOLING”

6 USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS

7 (EPID L-2020-PMP-0012)

8
9 1.0 INTRODUCTION

10
11 By letter dated January 26, 2021 (Agencywide Documents Access and Management System
12 (ADAMS) Accession No. ML21025A232), the Technical Specifications Task Force (TSTF)
13 submitted Traveler TSTF-580, Revision 1, “Provide Exception from Entering Mode 4 With No
14 Operable RHR [Residual Heat Removal] Shutdown Cooling,” to the U.S. Nuclear Regulatory
15 Commission (NRC). Traveler TSTF-580, Revision 1, proposed changes to the Standard
16 Technical Specifications (STS) for boiling-water reactor (BWR) designs.¹ These changes
17 would be incorporated into future revisions of NUREG-1433 (BWR/4) and NUREG-1434
18 (BWR/6).

19
20 The proposed changes would revise the “RHR Shutdown Cooling System – Hot Shutdown,”
21 specification by adding an exception to entering Mode 4 if both required RHR shutdown cooling
22 subsystems are inoperable. This STS change will be made available to licensees through the
23 consolidated line item improvement process (CLIP).

24
25 2.0 REGULATORY EVALUATION

26
27 2.1 Description of the Residual Heat Removal Shutdown Cooling System

28
29 Irradiated fuel in the shutdown reactor core generates heat during the decay of fission products
30 and increases the temperature of the reactor coolant. This decay heat must be removed to
31 reduce the temperature of the reactor coolant to less than or equal to 200 degrees
32 Fahrenheit (°F). This decay heat is removed by the RHR shutdown cooling system in
33 preparation for performing refueling or maintenance operations, or for keeping the reactor in the
34 hot shutdown condition or cold shutdown condition.

35
36 Typical BWR designs consist of two redundant, manually controlled shutdown cooling
37 subsystems of the RHR system to provide decay heat removal. Each loop consists of one or

¹ U.S. Nuclear Regulatory Commission, “Standard Technical Specifications, General Electric Plants, BWR/4,”
NUREG-1433, Volume 1, “Specifications,” and Volume 2, “Bases,” Revision 4.0, April 2012 (ADAMS Accession
Nos. ML12104A192 and ML12104A193, respectively).

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

1 two motor-driven pumps, a heat exchanger, and associated piping and valves. The RHR heat
2 exchangers transfer heat to the RHR service water system. Some piping and heat exchangers
3 that are passive components may be common to both subsystems.

4
5 STS 3.4.8 for BWR/4 and STS 3.4.9 for BWR/6, “Residual Heat Removal (RHR) Shutdown
6 Cooling System – Hot Shutdown,” are applicable in Mode 3 when the reactor steam dome
7 pressure is lower than the RHR cut-in permissive pressure. This limiting condition for operation
8 (LCO) for both STS requires two operable RHR shutdown cooling subsystems and, if no
9 recirculation pump is in operation, then at least one RHR shutdown cooling subsystem is
10 required to be in operation.

11 2.2 Proposed Changes to the Standard Technical Specifications

12 The changes proposed to STS 3.4.8 for BWR/4 and STS 3.4.9 for BWR/6 are identical. The
13 evaluation below is applicable to both.

14 Condition A currently applies to “One or two RHR shutdown cooling subsystems inoperable”
15 and has a Required Action to “Verify an alternate method of decay heat removal is available for
16 each inoperable RHR shutdown cooling subsystem.” TSTF-580 proposed to limit Condition A to
17 a single inoperable subsystem by modifying it to state: “One [required] RHR shutdown cooling
18 subsystem inoperable” with a Required Action to “Verify an alternate method of decay heat
19 removal is available.”

20
21 Condition B addresses situations when Required Action A.1 and the associated completion
22 time (CT) are not met. TSTF-580 proposed to delete the plural “(s)” in Required Action B.1 as a
23 conforming change to Condition A which now addresses a single inoperable RHR shutdown
24 cooling subsystem.

25
26 TSTF-580 proposed to add a new Condition C which addresses two RHR shutdown cooling
27 subsystems inoperable with a Required Action C.1 to verify an alternate method of decay heat
28 removal is available for each inoperable RHR shutdown cooling subsystem. The Required
29 Action for new Condition C has a CT of 1 hour and once per 24 hours thereafter.

30
31 TSTF-580 also proposed a new Condition D to address situations when new Required
32 Action C.1 and associated CT are not met. New Required Action D.1 requires action be
33 initiated to restore one RHR shutdown cooling subsystem to operable status immediately.
34 Required Action D.1 is modified by a note that states that LCO 3.0.3 and all other LCO Required
35 Actions requiring a mode change to Mode 4 may be suspended until one RHR shutdown
36 cooling subsystem is restored to operable status.

37
38 Existing Condition C and associated Required Actions were renumbered as Condition E and
39 Required Actions E.1, E.2, and E.3, respectively, as a result of new Conditions C and D.

40 2.3 Applicable Regulatory Requirements and Guidance

41
42 As described in the Commission’s “Final Policy Statement on Technical Specifications
43 Improvements for Nuclear Power Reactors” (58 FR 39132, dated July 22, 1993), the NRC and
44 industry task groups for new STSs recommended that improvements include greater emphasis
45 on human factors principles in order to add clarity and understanding to the text of the STSs,
46 and provide improvements to the Bases of the STSs, which provides the purpose for each

1 requirement in the STSs. The improved vendor-specific STSs were developed and issued by
2 the NRC in September 1992.

3
4 Section IV, "The Commission Policy," of the Final Policy Statement on Technical Specifications
5 (TSs) states, in part:

6
7 The purpose of Technical Specifications is to impose those
8 conditions or limitations upon reactor operation necessary to
9 obviate the possibility of an abnormal situation or event giving rise
10 to an immediate threat to the public health and safety by
11 identifying those features that are of controlling importance to
12 safety and establishing on them certain conditions of operation
13 which cannot be changed without prior Commission approval.

14
15 ...[T]he Commission will also entertain requests to adopt portions
16 of the improved STS [(e.g., TSTF-580)], even if the licensee does
17 not adopt all STS improvements. ...The Commission encourages
18 all licensees who submit Technical Specification related submittals
19 based on this Policy Statement to emphasize human factors
20 principles.

21
22 ...In accordance with this Policy Statement, improved STS have
23 been developed and will be maintained for each NSSS [nuclear
24 steam supply system] owners group. The Commission
25 encourages licensees to use the improved STS as the basis for
26 plant-specific Technical Specifications. ...[I]t is the Commission
27 intent that the wording and Bases of the improved STS be used ...
28 to the extent practicable.

29
30 The Summary section of the Final Policy Statement on TS states, in part:

31
32 Implementation of the Policy Statement through implementation of
33 the improved STS is expected to produce an improvement in the
34 safety of nuclear power plants through the use of more
35 operator-oriented Technical Specifications, Improved Technical
36 Specification Bases, reduced action statement induced plant
37 transients, and more efficient use of NRC and industry resources.

38
39 The Final Policy Statement on TS provides the following description of the scope and the
40 purpose of the STS Bases:

41
42 Each LCO, Action, and Surveillance Requirement should have
43 supporting Bases. The Bases should at a minimum address the
44 following questions and cite references to appropriate licensing
45 documentation (e.g., Updated Final Safety Analysis Report
46 (FSAR), Topical Report) to support the Bases.

47
48 1. What is the justification for the Technical Specification, i.e.,
49 which Policy Statement criterion requires it to be in the Technical
50 Specifications?
51

1 2. What are the Bases for each LCO, i.e., why was it determined
2 to be the lowest functional capability or performance level for the
3 system or component in question necessary for safe operation of
4 the facility and, what are the reasons for the Applicability of the
5 LCO?
6

7 3. What are the Bases for each Action, i.e., why should this
8 remedial action be taken if the associated LCO cannot be met;
9 how does this Action relate to other Actions associated with the
10 LCO; and what justifies continued operation of the system or
11 component at the reduced state from the state specified in the
12 LCO for the allowed time period?
13

14 4. What are the Bases for each Safety Limit?
15

16 5. What are the Bases for each Surveillance Requirement and
17 Surveillance Frequency; i.e., what specific functional requirement
18 is the surveillance designed to verify? Why is this surveillance
19 necessary at the specified frequency to assure that the system or
20 component function is maintained, that facility operation will be
21 within the Safety Limits, and that the LCO will be met?
22

23 Note: In answering these questions the Bases for each number
24 (e.g., Allowable Value, Response Time, Completion Time,
25 Surveillance Frequency), state, condition, and definition (e.g.,
26 operability) should be clearly specified. As an example, a number
27 might be based on engineering judgment, past experience, or
28 PSA [probabilistic safety assessment] insights; but this should be
29 clearly stated.
30

31 The regulation under paragraph 50.36(a)(1) of Title 10 of the *Code of Federal Regulations*
32 (10 CFR) requires that:
33

34 Each applicant for a license authorizing operation of a ...
35 utilization facility shall include in his application proposed technical
36 specifications in accordance with the requirements of this section.
37 A summary statement of the bases or reasons for such
38 specifications, other than those covering administrative controls,
39 shall also be included in the application, but shall not become part
40 of the technical specifications.
41

42 The regulation under 10 CFR 50.36(b) requires that:
43

44 Each license authorizing operation of a ... utilization facility ... will
45 include technical specifications. The technical specifications will
46 be derived from the analyses and evaluation included in the safety
47 analysis report, and amendments thereto, submitted pursuant to
48 [10 CFR] 50.34 ["Contents of applications; technical information"].
49 The Commission may include such additional technical
50 specifications as the Commission finds appropriate.
51

1 The categories of items required to be in the TSs are listed in 10 CFR 50.36(c). The regulation
2 at 10 CFR 50.36(c)(2) requires that TSs include LCOs. Per 10 CFR 50.36(c)(2)(i), LCOs “are
3 the lowest functional capability or performance levels of equipment required for safe operation
4 of the facility.” The regulation also requires that when an LCO of a nuclear reactor is not met,
5 the licensee shall shut down the reactor or follow any remedial action permitted by the TS until
6 the condition can be met.

7
8 The NRC staff’s guidance for the review of TSs is in Chapter 16.0, “Technical Specifications,” of
9 NUREG-0800, Revision 3, “Standard Review Plan for the Review of Safety Analysis Reports for
10 Nuclear Power Plants: LWR [Light-Water Reactor] Edition” (SRP), March 2010 (ADAMS
11 Accession No. ML100351425). As described therein, as part of the regulatory standardization
12 effort, the NRC staff has prepared STSs for each of the LWR nuclear designs. Accordingly, the
13 NRC staff’s review includes consideration of whether the proposed changes are consistent with
14 the applicable referenced STS, as modified by NRC-approved travelers. In addition, the SRP
15 states that comparing the change to previous STSs can help clarify the STS intent.

16 17 3.0 TECHNICAL EVALUATION

18 19 3.1 Evaluation of Changes to Condition A

20
21 TSTF-580 proposed to split existing Condition A between revised Condition A, which now
22 addresses a single inoperable RHR shutdown cooling subsystem, and new Condition C,
23 evaluated in Section 3.3 below.

24
25 This change is acceptable because it does not alter the way the TS are implemented for a
26 single inoperable RHR shutdown cooling subsystem.

27 28 3.2 Evaluation of Changes to Required Action B.1

29
30 TSTF-580 revised existing Required Action B.1 to initiate action to restore a single inoperable
31 RHR shutdown cooling subsystem.

32
33 This change is acceptable because it is a conforming change resulting from the revision to
34 existing Condition A and does not alter the way the TS are implemented for a single inoperable
35 RHR shutdown cooling subsystem.

36 37 3.3 Evaluation of New Condition C

38
39 New Condition C addresses two RHR shutdown cooling subsystems inoperable with a Required
40 Action C.1 to verify an alternate method of decay heat removal is available for each inoperable
41 RHR shutdown cooling subsystem and a CT of 1 hour and once per 24 hours thereafter.

42
43 This change is acceptable because, together with revised Condition A, it preserves the existing
44 Condition A and does not alter the way the TS are implemented for two inoperable RHR
45 shutdown cooling subsystems.

46 47 3.4 Evaluation of New Condition D

48
49 New Condition D addresses situations when new Required Action C.1 and associated CT are
50 not met and requires immediate action be initiated to restore one RHR shutdown cooling
51 subsystem to operable status. Required Action D.1 is modified by a note stating that LCO 3.0.3

1 and all other LCO Required Actions requiring a mode change to Mode 4 may be suspended
2 until one RHR shutdown cooling subsystem is restored to operable status. The CT
3 “immediately” is defined in Section 1.3 of the STSs as, “the Required Action should be pursued
4 without delay and in a controlled manner.” New Required Action D.1 continues to apply until an
5 inoperable RHR shutdown cooling subsystem is restored to operable status, an alternate decay
6 heat removal method is established, or the specification is exited.
7

8 The NRC staff finds this change is acceptable because, without an operable RHR shutdown
9 cooling subsystem and in a period of high decay heat load, it may not be possible to reduce the
10 reactor coolant system temperature to the Mode 4 entry condition (typically less than 200 °F)
11 within the CT. Under this condition, remaining in Mode 3 allows fission product decay heat and
12 other residual heat from the reactor core to be transferred at a rate such that specified
13 acceptable fuel design limits and the design conditions of the reactor coolant pressure boundary
14 will not be exceeded. The CT reflects the importance of restoring a normal path for heat
15 removal. Therefore, the NRC staff finds that proposed new Condition D, including its associated
16 Required Action A.1 and CT, is acceptable because it continues to meet the requirements of
17 10 CFR 50.36(c)(2)(i), by providing remedial actions and shutting down the reactor if the
18 remedial actions cannot be met.
19

20 3.5 Evaluation of Changes to Renumbered Condition E

21
22 Current Condition C and its Required Actions were renamed as Condition E, and Required
23 Actions E.1, E.2, and E.3, respectively, since new Conditions C and D were added.
24

25 The NRC staff finds this change is acceptable since it is editorial and provides the correct
26 number sequence.
27

28 3.6 Consideration of Changes to the STS Bases

29
30 The NRC staff reviewed the proposed changes to the STS Bases of STS 3.4.8 for
31 NUREG-1433 (BWR/4) and STS 3.4.9 for NUREG-1434 (BWR/6) in TSTF-580, Revision 1. As
32 discussed in Section 2.3 of this SE, the Final Policy Statement on TS describes the scope and
33 purpose of the STS Bases. It does so by listing five questions the STS Bases must address.
34 While the STS Bases as a whole must address these questions, not every question will be
35 relevant to every change to the STS Bases. The second, fourth, and fifth questions are not
36 relevant to this evaluation because the STS changes proposed in TSTF-580, Revision 1, as
37 evaluated above, do not affect the LCO or its Applicability Bases, safety limits, or surveillance
38 requirements. Since the proposed change only affects Actions, the Policy Statement criterion
39 that applies to the LCO is not affected and the first question is not relevant to this evaluation.
40 The proposed STS Bases support new action statements as well as revised action statements;
41 therefore, the third question is relevant to the changes.
42

43 In TSTF-580, Revision 1, existing Condition A was split between revised Condition A and new
44 Condition C, and therefore, information pertaining to new Required Action C.1 currently in the
45 Bases for existing Required Action A.1 was deleted and moved to the Bases of new Required
46 Action C.1. This change does not alter the clarification of the actions and is therefore
47 acceptable. Under the Bases of Required Action A.1, the Spent Fuel Pool Cooling System was
48 deleted as one of the alternate methods that can be used to meet the Required Action. This
49 change is acceptable since the Spent Fuel Pool Cooling System cannot be credited as an
50 alternate method to RHR shutdown cooling when the reactor vessel head is on.
51

1 Under the Bases of Required Action B.1, the ending “s,” denoting more than one subsystem,
2 was removed since revised B.1 now only applies to a single subsystem inoperable. This
3 change is acceptable since it conforms with the changes to Required Action B.1.
4

5 A new paragraph was added under the Bases of new C.1 which is duplicative of a paragraph
6 contained in existing A.1. This change is adequate since new C.1 was part of existing A.1 and
7 the information contained in this paragraph continues to apply to new C.1.
8

9 Two new paragraphs were added to support the addition of new Required Action D.1. The first
10 paragraph explains that if Required Action C.1 is not met, immediate action must be taken to
11 restore the operability to at least one RHR shutdown cooling subsystem. It further justifies the
12 immediate CT as it shows the importance of restoring a method of heat removal. The second
13 paragraph explains the reason for the note which suspends all required mode changes to
14 Mode 4 until at least the operability of one RHR shutdown cooling subsystem is restored. This
15 justification is adequate since entry into Mode 4 without an operable RHR shutdown cooling
16 subsystem is a less safe condition if there are no adequate means to remove decay heat. It is
17 also made clear that when at least one RHR subsystem is restored to operable status, the CTs
18 of LCO 3.0.3 or other Required Actions resume at the point at which they were suspended. The
19 two paragraphs added to the Bases of new Required Action D.1 are acceptable since they
20 clarify the reason for the remedial action and accompanying note. The explanation for the note
21 adequately justifies continued operation at the reduced state.
22

23 The heading for the Bases of Required Actions C.1, C.2, and C.3 was renumbered as E.1, E.2,
24 and E.3, respectively, since new Required Actions C.1 and D.1 were added. This change is
25 acceptable since it is editorial and appropriately follows the structure of the document.
26

27 The NRC staff finds the proposed STS Bases changes acceptable as they adequately address
28 Question 3 with regard to the new action statements and are consistent with the Final Policy
29 Statement on TS and 10 CFR 50.36. Furthermore, the NRC staff review determined that the
30 proposed STS Bases changes enhance and/or clarify the current STS Bases.
31

32 4.0 CONCLUSION

33
34 The NRC staff finds that the changes to STS 3.4.8 for BWR/4 and STS 3.4.9 for BWR/6 satisfy
35 10 CFR 50.36(c)(2)(i) because the remedial actions to be taken until each LCO can be met
36 provide protection to the health and safety of the public. Additionally, the NRC staff determined
37 that the changes are technically clear and consistent with customary terminology and format in
38 accordance with SRP Chapter 16.0.
39

40 Therefore, the NRC staff concludes that all the proposed changes in TSTF-580, Revision 1, are
41 acceptable and thus, approved.
42

43 Principal Contributors: C. Tilton, NRR/DSS/STSB
44 M. Razzaque, NRR/DSS/SNSB
45

46 Date:



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 CLIP. This model SE can also be used as a template for LARs adopting TSTF-580 that have significant variations and are not using the CLIP. 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 (CLIP). 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

17
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 (STs).
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 STs 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 STs 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)]**.
40

¹ **U.S. Nuclear Regulatory Commission, “Standard Technical Specifications, General Electric Plants, BWR/4,” NUREG-1433, Volume 1, “Specifications,” and Volume 2, “Bases,” Revision 4.0, April 2012 (ADAMS Accession Nos. ML12104A192 and ML12104A193, respectively).**

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

2
3 3.1 Proposed TS Changes to Adopt TSTF-580

4
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, T~~
29 the NRC 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 **and** provide protection to the health and safety
31 of the public. Thus, the proposed changes continue to meet the requirements of
32 10 CFR 50.36(c)(2)(i) 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.
50

1 3.2.2 Other Variations

2

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

4

5 3.3 TS Change Consistency

6

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

12

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> • [Date], [ADAMS Accession No.]	<u>Safety Evaluation Date</u> [Date]
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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.