

April 16, 2018

TSTF-18-04
PROJ0753

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

SUBJECT: TSTF Comments on Draft Safety Evaluation for Traveler TSTF-567, Revision 1, "Add Containment Sump TS to Address GSI-191 Issues"

REFERENCE: Letter Victor Cusumano (NRC) to the TSTF, "Draft Safety Evaluation of Technical Specifications Task Force Traveler TSTF-567, Revision 1, 'Add Containment Sump TS to Address GSI-191 Issues'," dated March 26, 2018 (ADAMS Accession No. ML17341A333).

On August 2, 2017, the TSTF submitted traveler TSTF-567, Revision 1, "Add Containment Sump TS to Address GSI-191 Issues," to the Nuclear Regulatory Commission (NRC) for review (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17214A813). In the referenced letter, the NRC provided the draft Safety Evaluations for TSTF-567 for comment.

Attachment 1 contains a summary table 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.



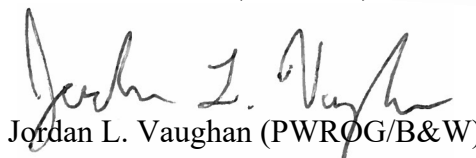
James P. Miksa (PWROG/CE)



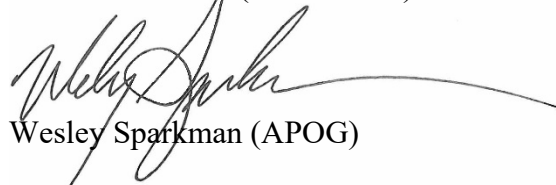
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Attachment 1 TSTF Comments on the TSTF-567 Draft Safety Evaluations
Attachment 2 TSTF Markup of Draft Safety Evaluations

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

Attachment 1
TSTF Comments on the TSTF-567 Draft Safety Evaluations

General Comments

1. The two Safety Evaluations (SEs) contain in multiple locations, the term "Limiting Condition for Operation" or "LCO" instead of the correct term "Technical Specifications" or "TS." The TS for a system consist of the LCO, Applicability, Actions, and Surveillance Requirements (SRs). The LCO section of the TS provides a detailed statement describing the LCO. For example, an SR is part of a TS, not part of an LCO. The only exception to the use of this terminology is the discussion of the Required Action B.1 Note. The Standard Technical Specifications (STS) convention is to state, "Enter applicable Conditions and Required Actions of LCO 3.X.X." While technically incorrect, this convention is well established in the STS and is not altered in the traveler. Discussion in the SEs of this note should use terminology consistent with the TS. The recommended changes are shown in the documents.
2. The TSTF-567, Revision 1, change to the Safety Function Determination Program, TS 5.5.15, is plant-specific based on applicability (i.e. LCO 3.0.6 and the SFDP have been incorporated into the plant specific TS) and previous adoption of TSTF-273, and therefore it is denoted as optional in TSTF-567. The language was previously approved by the NRC as TSTF-273, Revision 2, "SFDP Clarifications," on August 16, 1999, and has been included in the STS. Therefore, this change does not need to be discussed in staff's SE of the incorporation of the traveler into the STS, but should be included as an optional change in the model plant-specific SE. Recommended changes are shown in the documents.
3. The SE discussions of the optional inclusion of a Risk Informed Completion Time (RICT) for Required Action B.1 present the RICT as a replacement for the Completion Time. However, the RICT is an additional, optional Completion Time. The recommended changes are shown in the documents.
4. TSTF-567, Revision 1, states that the Completion Time for Required Action B.1 is plant-specific. The Completion Time should be the less restrictive (i.e., longer) of the Completion Times for a single inoperable ECCS train or CSS train. This allows the ECCS and CSS Required Actions to control the licensee's actions if the sump is inoperable for reasons other than containment accident generated and transported debris exceeding the analyzed limits. For some licensees, the Completion Time for a single inoperable CSS train is 7 days, not 72 hours (consistent with NUREG-1431, TS 3.6.6B, Condition A). For those licensees, the containment sump Required Action B.1 Completion Time would be 7 days instead of 72 hours. This aspect of the traveler is not discussed in the SEs and has been added.

Comments on the Traveler Draft Safety Evaluation

Page(s)	Line(s) ¹	Comment
1	17	Changed "STSS" to "STS." This term "Standard Technical Specifications" is already plural.
1	19, 20, footnote	The traveler SE evaluates changing the STS, which includes the Bases. Added discussions of the Bases changes and added STS Volume 2 references.
1	22,23,25	See General Comment 1.
1	24	See General Comment 2.
1	23	Add spaces to be consistent with the STS title.
1	29,30	The discussion of the applicability of TSTF-567 is not relevant to the traveler SE. Moved the discussion to the model SE.
2	6	Editorial recommendations.
2	10, 25, 28, 44, 47, 49	See General Comment 1.
3	1-8	See General Comment 2.
3	12, 14, 17, 19, 30, 31, 35, 37, 38, 42, 43	See General Comment 1
3	10	Changed "STSS" to "STS." This term "Standard Technical Specifications" is already plural.
3	38	The Section 2.2.2 discussion of SR TS 3.5.3.1 implies it only references one TS 3.5.2 SR. A clarification is made.
3	31, 44, 45	The traveler SE evaluates changing the STS, which includes the Bases. Added discussions of the Bases changes.
3	42	Editorial recommendations.
4	1-12	See General Comment 2.
4	14, 16, 17, 42, 46, 47	See General Comment 1.
4	17-25	Editorial recommendations.
4	34	Editorial correction. The term CSS had not been previously defined.
4	48-49	The traveler SE evaluates changing the STS, which includes the Bases. Added discussions of the Bases.
5	1	Changed "STSS" to "STS." This term "Standard Technical Specifications" is already plural.

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

Page(s)	Line(s)¹	Comment
5	2	The traveler SE evaluates changing the STS, which includes the Bases. Added discussions of the Bases changes and added STS Volume 2 references.
5	2	See General Comment 1.
5	36	Changed "STSs" to "STS." This term "Standard Technical Specifications" is already plural.
6	17, 18, 19	The traveler SE evaluates changing the STS, which includes the Bases. Added discussions of the Bases.
6	27-28	Changed "STSs" to "STS." This term "Standard Technical Specifications" is already plural.
6	38, 41	See General Comment 1.
7	5, 12	See General Comment 1.
7	7-8	Editorial correction. The phrase "as well as" appears to be incorrect.
7	24-50	See General Comment 2.
8	1-14	See General Comment 2.
8	16, 18, 20, 21, 22, 30, 40, 46, 47, 50	See General Comment 1.
8	26-27	The traveler SE evaluates changing the STS, which includes the Bases. Added discussions of the Bases changes.
9	12	Editorial recommendation.
9	20	Deleted the term "degraded or nonconforming" to describe conditions. That term is used in IMC-0326 related to operability determinations, and in this situation the sump has already been determined to be inoperable. Using that term will be confusing and is unnecessary.
9	24	The traveler SE evaluates changing the STS, which includes the Bases. Added discussions of the Bases changes.
10	50	Editorial recommendation.
11	1, 3, 4, 5, 6, 25, 26, 27	See General Comment 4.
11	12, 13, 16, 31	See General Comment 3.
11	31, 32, 33	Editorial correction. As originally worded, the SE implies that two LARs would be required: one to adopt TSTF-567 and one to add the RICT. The intent is that a single plant-specific LAR is required.
11	50, 51	See General Comment 1.
12	14	Changed "STSs" to "STS." This term "Standard Technical Specifications" is already plural.
12	21, 22, 30, 32	See General Comment 1.

Page(s)	Line(s)¹	Comment
12	24-28, 38, 46, 51	The traveler SE evaluates changing the STS, which includes the Bases. Added discussions of the Bases changes.

Comments on the Draft Model Safety Evaluation

Page(s)	Line(s) ²	Comment
1	23, 24, 26	See General Comment 1.
1	24, 25, 26	See General Comment 2.
1	25	Per the STS Writer's Guide Section 2.1.1, 5.5.15 is a specification, not a section.
1	34,35	Relocated the discussion of the applicability of the change from the traveler SE to the model SE.
2	6,7	Editorial recommendation.
2	11, 26, 30, 46	See General Comment 1.
3	1, 3, 22, 24, 27, 29, 38, 39, 43, 45, 48, 49	See General Comment 1.
3	7, 8, 10, 12-18, 22, 23	See General Comment 2.
3	10, 12, 23	Per the STS Writer's Guide Section 2.1.1, 5.5.15 is a specification, not a section.
4	3-4, 6-16	See General Comment 2.
4	6, 9	Per the STS Writer's Guide Section 2.1.1, 5.5.15 is a specification, not a section.
4	18, 20, 43	See General Comment 1.
4	24-27	Recommended editorial improvement.
4	31	See General Comment 3.
4	36	The acronym CSS had not been previously defined.
4 5	50-51 1-2	Instead of requiring the reviewer to develop a justification for applying the containment sump to plants with more than one sump, recommend using the existing justification for this design in the traveler SE.
5	3, 9	See General Comment 1.
5	5, 6, 8, 9	Whether the Table of Contents is part of the license is plant-specific. Recommend making the discussion of the Table of Contents optional and added a Reviewer's Note.

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

Page(s)	Line(s)²	Comment
5 6	33-51 1-14	Recommended that the model SE include optional discussions of all the optional variations included in the TSTF-567, Revision 1, model application.
6	17	See General Comment 3.
7	8-10, 23-25, 28-30, 33-35	The licensee submittal included Bases changes for information, conforming with the regulation. Recommend that the requirement for Bases and the STS Bases be included in the model SE discussion.
7	39, 41, 42	See General Comment 1.
8	8, 13	See General Comment 1.
8	28	Per the STS Writer's Guide Section 2.1.1, 5.5.15 is a specification, not a section.
8 9	25, 26, 28-50 1-18	See General Comment 2.
9	8, 13	Corrected TS number.
9	20, 22, 24, 25, 28, 37, 48, 49	See General Comment 1.
9	45-46	Added a reviewer's note pointing to the acceptance applicability variation.
10	2	See General Comment 1.
10	14	Editorial recommendation.
10	22	Deleted the term "degraded or nonconforming" to describe conditions. That term is used in IMC-0326 related to operability determinations, and in this situation the sump has already been determined to be inoperable. Using that term will be confusing and is unnecessary.
10	26, 27	The following list was in the TS Bases. As the list contains examples, it is not inappropriate to discuss Bases content.
11	33, 34, 35	A key sentence from the traveler and traveler SE is added to the model SE.
11	49	See General Comment 1.
11	50	Editorial recommendation.
12	1-5, 18	See General Comment 4.
12	5, 13	See General Comment 3.
12	24, 25, 29	Added a reviewer's note pointing to an allowable variation for a Mode 4 end state.
12	32	Changed "STSS" to "STS." This term "Standard Technical Specifications" is already plural.
12	39, 40	See General Comment 1.

Page(s)	Line(s)²	Comment
13	7,8, 10-14	Whether the Table of Contents is part of the license is plant-specific. Recommend making the discussion of the Table of Contents optional and added a Reviewer's Note.
13	13, 14, 23, 25	See General Comment 1.
13	16-21, 23	The plant-specific SE should acknowledge the Bases were provided and met the description in 50.36(a). This allows the licensee to reference the TS SE in the Bases change made under the TS Bases Control Program.
13	43, 45	Revised the referenced regulations to be consistent with the traveler SE. Added a missing parenthesis.
13	49	Added braces to be consistent with other italicized directions.
14	7, 8, 12, 23, 24	Added braces to be consistent with other italicized directions.

Attachment 2
TSTF Markup of Draft Safety Evaluations

1
2
3 **DRAFT SAFETY EVALUATION**
4 **BY THE OFFICE OF NUCLEAR REACTOR REGULATION**
5 **TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER**
6 **TSTF-567, REVISION 1**
7 **“ADD CONTAINMENT SUMP TS TO ADDRESS GSI-191 ISSUES”**
8 **USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS**
9 **(CAC NO. MF9568, EPID L-2017-PMP-0005)**

10
11 **1.0 INTRODUCTION**

12
13 By letter dated August 2, 2017 (Agencywide Documents Access and Management System
14 (ADAMS) Accession No. ML17214A813), the Technical Specifications Task Force (TSTF)
15 submitted Traveler TSTF-567, Revision 1, “Add Containment Sump TS [Technical Specification]
16 to Address GSI [Generic Safety Issue]-191 Issues.” Traveler TSTF-567, Revision 1, proposes
17 changes to the Standard Technical Specifications (STSs) for pressurized-water reactor (PWR)
18 designs.¹ These changes would be incorporated into future revisions of NUREG-1430,
19 ~~Volume 1, NUREG-1431, Volume 1, and NUREG-1432, Volume 1.~~ *Associated changes are*
20 *also made to the TS Bases*~~There were no bases changes proposed.~~

21
22 The proposed changes would revise STS ~~Limiting Condition for Operation (LCO)~~ 3.5.2, “ECCS
23 [Emergency Core Cooling System] - Operating,” *and TSLCO* 3.5.3, “ECCS - Shutdown,” ~~and~~
24 ~~TS Section 5.5.15, “Safety Function Determination Program (SFDP).”~~ The proposed changes
25 would also add a *new TS-TSLCO*, “Containment Sump,” to Section 3.6, “Containment Systems.”
26 This STS change will be made available to licensees through the consolidated line item
27 improvement process (CLIP).

28
29 ~~Revision 1 of TSTF-567 is not applicable to non-STS plants due to its dependence on~~
30 ~~LCO 3.0.6 and the SFDP.~~
31

¹ U.S. Nuclear Regulatory Commission, “Standard Technical Specifications, Babcock and Wilcox Plants,”
NUREG-1430, Volume 1, “Specifications,” *and Volume 2, “Bases,”* Revision 4.0, April 2012 (ADAMS Accession
Nos. ML12100A177 *and ML12100A178*).

U.S. Nuclear Regulatory Commission, “Standard Technical Specifications, Westinghouse Plants,” NUREG-1431,
Volume 1, “Specifications,” *and Volume 2, “Bases,”* Revision 4.0, April 2012 (ADAMS Accession
Nos. ML12100A222 *and ML12100A228*).

U.S. Nuclear Regulatory Commission, “Standard Technical Specifications, Combustion Engineering Plants,”
NUREG-1432, Volume 1, “Specifications,” *and Volume 2, “Bases,”* Revision 4.0, April 2012 (ADAMS Accession
Nos. ML12102A165 *and ML12102A169*).

1 **2.0 REGULATORY EVALUATION**

2
3 2.1 DESCRIPTION OF STS SECTIONS

4
5 LCOs specify minimum requirements for ensuring safe operation of the plant. The actions
6 *applicable when an LCO is not met associated with an LCO state conditions that* typically
7 describe the ways in which the requirements of the LCO can fail to be met. Specified with each
8 stated condition are required action(s) and completion time(s).

9
10 2.1.1 ~~LCO-TS~~ 3.5.2, "ECCS-Operating"

11
12 The function of the ECCS is to provide core cooling and negative reactivity to ensure the reactor
13 core is protected after any of the following accidents:

- 14
15 a. Loss-of-coolant accident (LOCA), coolant leakage greater than the capability of the
16 normal charging system,
17
18 b. Rod ejection accident,
19
20 c. Loss of secondary coolant accident, including uncontrolled steam release or loss of
21 feedwater, and
22
23 d. Steam generator tube rupture.

24
25 ~~LCO-TS~~ 3.5.2 is applicable in Modes 1, 2, and 3 and requires that two ECCS trains be operable
26 to ensure that sufficient ECCS flow is available, assuming a single failure affecting either train.

27
28 ~~LCO-TS~~ 3.5.2 helps ensure the following acceptance criteria for ECCS, established by Title 10
29 of the *Code of Federal Regulations* (10 CFR) 50.46, will be met following a LOCA:

- 30
31 a. Maximum fuel element cladding temperature is ≤ 2200 degrees Fahrenheit ($^{\circ}\text{F}$),
32
33 b. Maximum cladding oxidation is ≤ 0.17 times the total cladding thickness before
34 oxidation,
35
36 c. Maximum hydrogen generation from a zirconium water reaction is ≤ 0.01 times the
37 hypothetical amount generated if all of the metal in the cladding cylinders surrounding
38 the fuel, excluding the cladding surrounding the plenum volume, were to react,
39
40 d. Core is maintained in a coolable geometry, and
41
42 e. Adequate long-term core cooling capability is maintained.

43
44 ~~LCO-TS~~ 3.5.2 also limits the potential for a post-trip return to power following a main steam line
45 break event and ensures that containment temperature limits are met.

46
47 2.1.2 ~~LCO-TS~~ 3.5.3, "ECCS-Shutdown"

48
49 ~~LCO-TS~~ 3.5.3 is applicable in Mode 4 and requires one of the two ECCS trains to be operable to
50 ensure that sufficient ECCS flow is available to the core following a design-basis accident.

1 ~~2.1.3 TS Section 5.5.15, "Safety Function Determination Program (SFDP)"~~

2
3 ~~Section 5.5.15 establishes the SFDP which implements the requirements of LCO 3.0.6. The~~
4 ~~SFDP ensures loss of safety function is detected and appropriate actions are taken. Upon entry~~
5 ~~into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists.~~
6 ~~Additionally, other appropriate actions may be taken as a result of the support system~~
7 ~~inoperability and corresponding exception to entering supported system(s) condition(s) and~~
8 ~~required action(s).~~

9
10 2.2 PROPOSED CHANGES TO THE STSs

11
12 The proposed changes would revise ~~LCO-TS~~ 3.5.2, "ECCS - Operating," *and* ~~LCO-TS~~ 3.5.3,
13 "ECCS-Shutdown," ~~and Section 5.5.15, "Safety Function Determination Program (SFDP)."~~ The
14 proposed changes would also add a new STS-LCO, "Containment Sump," to Section 3.6,
15 "Containment Systems." The proposed changes are described below.

16
17 2.2.1 Proposed Changes to ~~LCO-TS~~ 3.5.2, "ECCS-Operating"

18
19 ~~STS-LCO-TS~~ 3.5.2 for Babcock and Wilcox (B&W) plants currently contains Surveillance
20 Requirement (SR) 3.5.2.9 (SR 3.5.2.8 for Westinghouse (W) plants and SR 3.5.2.10 for
21 Combustion Engineering (CE) plants). This SR requires the following at a frequency of
22 18 months or in accordance with the Surveillance Frequency Control Program (SFCP):

23
24 Verify, by visual inspection, each ECCS train containment sump
25 suction inlet is not restricted by debris and suction inlet trash racks
26 and screens show no evidence of structural distress or abnormal
27 corrosion.

28
29 Traveler TSTF-567, Revision 1, proposed to modify and move this SR (B&W SR 3.5.2.9, W
30 SR 3.5.2.8, and CE SR 3.5.2.10) from ~~LCO-TS~~ 3.5.2 and include it in the new containment
31 sump ~~LCO-TS~~. *Conforming changes are made to the STS Bases.*

32
33 This change is evaluated in Section 3.1 of this safety evaluation (SE).

34
35 2.2.2 Proposed Changes to ~~LCO-TS~~ 3.5.3, "ECCS-Shutdown"

36
37 STS-~~LCO~~ 3.5.3 currently contains SR 3.5.3.1 which refers to applicable SRs under
38 ~~LCO-TS~~ 3.5.2. The applicable SRs *include are* B&W SR 3.5.2.9, W SR 3.5.2.8, and CE
39 SR 3.5.2.10, as described in Section 2.2.1 of this SE.

40
41 Because TSTF-567, Revision 1, proposed to modify and move the referenced SRs (B&W
42 SR 3.5.2.9, W SR 3.5.2.8, and CE SR 3.5.2.10) from ~~LCO-TS~~ 3.5.2 and include ~~it-them~~ in the
43 new containment sump ~~LCO-TS~~, the references to these SRs (B&W SR 3.5.2.9, W SR 3.5.2.8,
44 and CE SR 3.5.2.10), in SR 3.5.3.1 would be deleted. *Conforming changes are made to the*
45 *STS Bases.*

46
47 This change is evaluated in Section 3.2 of this SE.
48

1 ~~2.2.3 Proposed Changes to Section 5.5.15, "Safety Function Determination~~
2 ~~Program (SFDP)"~~

3
4 ~~Traveler TSTF-567, Revision 1, proposed to add the following sentence at the end of TS~~
5 ~~Section 5.5.15:~~

6
7 ~~When a loss of safety function is caused by the inoperability of a~~
8 ~~single Technical Specification support system, the appropriate~~
9 ~~Conditions and Required Actions to enter are those of the support~~
10 ~~system.~~

11
12 ~~This change is evaluated in Section 3.3 of this SE.~~

13
14 2.2.4 Proposed Addition of a New Containment Sump ~~LCOTS~~

15
16 Traveler TSTF-567, Revision 1, proposed to add a *new TS n-LCO* (~~LCO-TS~~ 3.6.8 for B&W
17 plants, ~~LCO-TS~~ 3.6.19 for W plants, and ~~LCO-TS~~ 3.6.13 for CE plants). *The TS LCO requires -*
18 ~~requiring~~ the containment sump to be operable. *The LCO is applicable in during* Modes 1, 2, 3,
19 and 4. Condition A specifies that if the containment sump is inoperable due to containment
20 accident generated and transported debris exceeding the analyzed limits, Required Actions A.1,
21 A.2, and A.3 require initiation of action to mitigate containment accident generated and
22 transported debris immediately, performance of SR 3.4.13.1 once per 24 hours, and restoration
23 *of* the containment sump to operable status in 90 days, respectively. SR 3.4.13.1 requires
24 verification of reactor coolant system (RCS) operational leakage within limits by performance of
25 *an* RCS water inventory balance.

26
27 Condition B specifies that if the containment sump is inoperable for reasons other than
28 Condition A, Required Action B.1 requires restoration of the containment sump to operable
29 status within 72 hours or in accordance with the Risk Informed Completion Time (RICT)
30 Program. Required Action B.1 is modified by two notes which direct entering applicable
31 conditions and required actions of LCO 3.5.2, "ECCS-Operating," and LCO 3.5.3,
32 "ECCS-Shutdown," for ECCS trains made inoperable by the containment sump and entering
33 applicable conditions and required actions of LCO 3.6.6, "Containment Spray and Cooling
34 Systems," for *Containment Spray and Cooling System (CSS)* trains made inoperable by the
35 containment sump.

36
37 Condition C specifies that if required actions and associated completion times (CTs) under
38 Condition A and B are not met, Required Actions C.1 and C.2 require licensees to be in Mode 3
39 in 6 hours and Mode 5 in 36 hours, respectively.

40
41 Traveler TSTF-567, Revision 1, proposed to expand and relocate an SR currently located in
42 ~~LCO-TS~~ 3.5.2. The new SR would require licensees to verify, by visual inspection, that the
43 containment sump does not show structural damage, abnormal corrosion, or debris blockage
44 every 18 months or in accordance with the SFCP.

45
46 Some plant designs have more than one containment sump. The new containment sump ~~LCO-~~
47 ~~TS~~ proposed in TSTF-567, Revision 1, is also applicable to plants that have more than one
48 containment sump. *Application of the TS to plants with more than one sump is described in a*
49 *Reviewer's Note in the TS Bases.*

50

1 Traveler TSTF-567, Revision 1, also proposed a conforming change to the STSs Table of
2 Contents (*Volumes 1 and 2*) to reflect the addition of the new containment sump ~~LCOTS~~.

3
4 This change is evaluated in Section 3.4 of this SE.

5
6 **2.3 APPLICABLE REGULATORY REQUIREMENTS AND GUIDANCE**

7
8 Section IV, "The Commission Policy," of the "Final Policy Statement on Technical Specifications
9 Improvements for Nuclear Power Reactors," published in the *Federal Register* on July 22, 1993
10 (58 FR 39132), states, in part:

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

19
20 ...[T]he Commission will also entertain requests to adopt portions
21 of the improved STS [(e.g., TSTF-567)], even if the licensee does
22 not adopt all STS improvements. ...The Commission encourages
23 all licensees who submit Technical Specification related submittals
24 based on this Policy Statement to emphasize human factors
25 principles.

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

34
35 As described in the Commission's "Final Policy Statement on Technical Specifications
36 Improvements for Nuclear Power Reactors," NRC and industry task groups for new STSs
37 recommended that improvements include greater emphasis on human factors principles in order
38 to add clarity and understanding to the text of the STS, and provide improvements to the Bases
39 of STS, which provides the purpose for each requirement in the specification. The improved
40 vendor-specific STS were developed and issued by the NRC in September 1992.

41
42 The regulation at 10 CFR 50.36(b) requires:

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 provided in 10 CFR 50.36(c). As required
2 by 10 CFR 50.36(c)(2)(i), the TSs will include LCOs, which are the lowest functional capability
3 or performance levels of equipment required for safe operation of the facility. Per
4 10 CFR 50.36(c)(2)(i), when an LCO of a nuclear reactor is not met, the licensee shall shut
5 down the reactor or follow any remedial action permitted by the TSs until the condition can be
6 met.

7
8 The regulation at 10 CFR 50.36(c)(3) requires TSs to include SRs, which are requirements
9 relating to test, calibration, or inspection to assure that the necessary quality of systems and
10 components is maintained, that facility operation will be within safety limits, and that the LCOs
11 will be met.

12
13 The regulation at 10 CFR 50.36(c)(5) requires TSs to include administrative controls, which “are
14 the provisions relating to organization and management, procedures, recordkeeping, review and
15 audit, and reporting necessary to assure operation of the facility in a safe manner.”

16
17 *The regulation at 10 CFR 50.36(a)(1) requires each applicant for a license provide a summary
18 statement of the bases or reasons for specifications, other than those covering administrative
19 controls, in the application, but these statements are not part of the technical specifications.*

20
21 The NRC staff’s guidance for the review of TSs is in Chapter 16.0, “Technical Specifications,” of
22 NUREG-0800, Revision 3, “Standard Review Plan for the Review of Safety Analysis Reports for
23 Nuclear Power Plants” (SRP), March 2010 (ADAMS Accession No. ML100351425). As
24 described therein, as part of the regulatory standardization effort, the NRC staff has prepared
25 STSs for each of the light-water reactor nuclear designs. Accordingly, the NRC staff’s review
26 includes consideration of whether the proposed changes are consistent with the applicable
27 reference STSs (i.e., the current STSs), as modified by NRC-approved Travelers. In addition,
28 the guidance states that comparing the change to previous STSs can help clarify the TS intent.

30 **3.0 TECHNICAL EVALUATION**

31
32 During the review of TSTF-567, Revision 1, the NRC staff considered generally the guidance on
33 acceptance criteria of the SRP sections described in Section 2.3 of this SE and, in particular,
34 the acceptance criteria in Chapter 16.0, “Technical Specifications,” of NUREG-0800, Revision 3.
35 Additionally, the NRC staff evaluated the proposed changes to the STS against what is required
36 to be in the TS under 10 CFR 50.36(c).

37 38 3.1 PROPOSED CHANGES TO ~~LCO-TS~~ 3.5.2, “ECCS-OPERATING”

39
40 In TSTF-567, Revision 1, the TSTF proposed to modify and move SR 3.5.2.9 (B&W); SR 3.5.2.8
41 (W), and SR 3.5.2.10 (CE) from ~~LCO-TS~~ 3.5.2 to the new containment sump ~~LCO-TS~~. The new
42 SR does not limit the visual inspection to the suction inlet, trash racks, and screens as currently
43 required by the STSs, but instead requires inspection of the entire containment sump system.
44 Traveler TSTF-567, Revision 1, describes the containment sump as consisting of the
45 containment drainage flow paths, any design features upstream of the containment sump that
46 are credited in the containment debris analysis, the containment sump strainers (or screens),
47 the pump suction trash racks, and the inlet to the ECCS and CSS piping.

48
49 The NRC staff concludes the proposed change is acceptable since the existing requirements
50 are either unchanged or expanded and continue to ensure the containment sump is unrestricted
51 (i.e., unobstructed) and stays in proper operating condition. The proposed change meets the

1 requirements of 10 CFR 50.36(c)(3) because it provides SRs to assure the necessary quality of
2 systems and components are maintained, that facility operation will be within safety limits, and
3 that the LCOs will be met.

4
5 3.2 PROPOSED CHANGES TO ~~LCO-TS~~ 3.5.3, "ECCS-SHUTDOWN"

6
7 In TSTF-567, Revision 1, the TSTF proposed to delete the reference to relocated SRs (~~as well~~
8 ~~as~~ SR 3.5.2.9 (B&W), SR 3.5.2.8 (W), and SR 3.5.2.10 (CE)) in SR 3.5.3.1.

9
10 The NRC staff concludes the proposed change is acceptable since the SRs (B&W SR 3.5.2.9,
11 W SR 3.5.2, and CE SR 3.5.2.10) were modified and relocated to the new containment sump
12 ~~LCO-TS~~. The existing SR on the containment sump is augmented (by requiring inspection of
13 additional sump components) and moved to the new specification, and a duplicative
14 requirement to perform the SR in TS 3.5.3 is removed. The new specification retains or
15 expands existing requirements on the containment sump and the actions to be taken when the
16 containment sump is inoperable with the exception of adding new actions to be taken when the
17 containment sump is inoperable due to containment accident generated and transported debris
18 exceeding the analyzed limits. The new action provides time to evaluate and correct the
19 condition instead of requiring an immediate plant shutdown. The proposed change meets the
20 requirements of 10 CFR 50.36(c)(3) because it provides SRs to assure the necessary quality of
21 systems and components are maintained, that facility operation will be within safety limits, and
22 that the LCOs will be met.

23
24 ~~3.3 PROPOSED CHANGES TO SECTION 5.5.15, "SAFETY FUNCTION-~~
25 ~~DETERMINATION PROGRAM (SFDP)"~~

26
27 ~~STS LCO 3.0.6 states:~~

28
29 ~~When a supported system LCO is not met solely due to a support~~
30 ~~system LCO not being met, the Conditions and Required Actions~~
31 ~~associated with this supported system are not required to be~~
32 ~~entered. Only the support system LCO ACTIONS are required to~~
33 ~~be entered. This is an exception to LCO 3.0.2 for the supported~~
34 ~~system. In this event, an evaluation shall be performed in~~
35 ~~accordance with Specification 5.5.15, "Safety Function-~~
36 ~~Determination Program (SFDP)." If a loss of safety function is~~
37 ~~determined to exist by this program, the appropriate Conditions~~
38 ~~and Required Actions of the LCO in which the loss of safety~~
39 ~~function exists are required to be entered.~~

40
41 ~~When a support system's Required Action directs a supported~~
42 ~~system to be declared inoperable or directs entry into Conditions~~
43 ~~and Required Actions for a supported system, the applicable~~
44 ~~Conditions and Required Actions shall be entered in accordance~~
45 ~~with LCO 3.0.2.~~

46
47 ~~When a loss of safety function is determined to exist, the SFDP requires entry into the~~
48 ~~appropriate conditions and required actions of the LCO in which the loss of safety function~~
49 ~~exists. Where a loss of function is solely due to a single TS support system (e.g., a single~~
50 ~~containment sump train), the appropriate LCO is the LCO for that support system. When the~~

1 ~~loss of function is the result of multiple support systems, the appropriate LCO is the LCO for the~~
2 ~~supported systems.~~

3
4 ~~Traveler TSTF-567, Revision 1, proposed to add the following statement to STS 5.5.12, “[W]hen~~
5 ~~a loss of safety function is caused by the inoperability of a single Technical Specification support~~
6 ~~system, the appropriate Conditions and Required Actions to enter are those of the support~~
7 ~~system.”~~

8
9 ~~The NRC staff finds that the proposed addition to STS 5.5.12 clarifies the intent of the allowance~~
10 ~~(not to enter Conditions and Required Actions) provided by LCO 3.0.6 and the SFDP for~~
11 ~~single train support systems. The NRC staff concludes the proposed change is acceptable~~
12 ~~because the actions for the support system LCO adequately address the inoperability of that~~
13 ~~system. Therefore, as required by 10 CFR 50.36(c)(5), it continues to provide adequate~~
14 ~~administrative controls to assure safe operation.~~

15 16 3.4 PROPOSED ADDITION OF CONTAINMENT SUMP ~~LCOs~~

17 18 3.4.1 Considerations of the ~~LCOs~~

19
20 Traveler TSTF-567, Revision 1, proposed to add a new ~~LCO-TS~~ to address operability
21 requirements of the containment sump. The numbering for this new ~~LCO-TS~~ is as follows:
22 ~~LCO-TS~~ 3.6.8 for B&W, ~~LCO-TS~~ 3.6.19 for W, and ~~LCO-TS~~ 3.6.13 for CE. The new ~~LCO-TS~~ is
23 also applicable to plants that have more than one containment sump, because the multiple
24 sumps are considered to be part of a single support system. If containment accident generated
25 and transported debris would render one sump inoperable, then it would render all of the sumps
26 inoperable. *A Reviewer's Note in the Bases explains how to apply the TS to plants with more*
27 *than one containment sump.*

28
29 The containment sump supports the post-accident operation of the ECCS and CSS. However,
30 only the current ECCS ~~LCOs-TS~~ contain SRs related to the containment sump and the STSs do
31 not specify required actions that specifically address an inoperable containment sump. If the
32 containment sump were found to be inoperable, as an ECCS and CSS support system, those
33 respective LCOs would not be met. In order to address concerns related to containment sump
34 operability due to debris accumulation described in GSI-191, “Assessment of Debris
35 Accumulation on Pressurized-Water Reactor Sump Performance,” TSTF-567, Revision 1,
36 proposed to add a new specification to address containment sump inoperability and create a
37 condition for when the sump is inoperable due to analyzed containment accident generated and
38 transported debris.

39
40 Based on the above evaluation, the NRC staff determined that proposed ~~LCO-TS~~ satisfies the
41 requirements of 10 CFR 50.36(c)(2)(i) because the LCO specifies the lowest functional
42 capability or performance levels of equipment required for safe operation of the facility.

43 44 3.4.2 Considerations of the Applicability

45
46 The new ~~LCO-TS~~ requires the containment sump to be operable during Modes 1, 2, 3, and 4.
47 The ECCS and CSS ~~LCOs-TS~~ currently in the STSs are applicable during Modes 1, 2, 3, and 4.

48
49 The NRC staff finds the proposed applicability is acceptable because the applicability is
50 consistent with the applicability of the ECCS and CSS ~~LCOs-TS~~, the containment sump
51 supported systems.

1
2 3.4.3 Considerations of Condition A
3

4 Licensees have analyzed the susceptibility of the ECCS and CSS to the adverse effects of
5 post-accident debris blockage and operation with debris-laden fluids. Most licensees have
6 established Final Safety Analysis Report (FSAR) limits on the allowable quantities of
7 containment accident generated debris that could be transported to the containment sump
8 based on their current plant configuration. In the current STS, if unanalyzed debris sources are
9 discovered inside containment, if errors are discovered in debris-related analyses, or if a
10 previously unevaluated phenomenon that can affect containment sump performance is
11 discovered, the containment sump, and the supported ECCS and CSS, may be inoperable and
12 *the STS would* require an immediate plant shutdown with no time provided to evaluate the
13 condition.
14

15 In order to address this situation and to provide sufficient time to evaluate the condition,
16 TSTF-567, Revision 1, proposed Condition A, which is applicable when the containment sump
17 is inoperable due to containment accident generated and transported debris exceeding the
18 analyzed limits. Under Condition A, the operability of the containment sump with respect to
19 debris is based on a quantity of debris identified and evaluated by the licensee to be acceptable.
20 Emergent ~~nonconforming or degraded~~ conditions affecting the quantity of analyzed debris shall
21 be evaluated using a deterministic process.
22

23 Under Condition A, Required Action A.1 mandates immediate action to be initiated to mitigate
24 the condition. *The TS Bases for Required Action A.1 provide Revision 1 of TSTF-567 provided*
25 the following examples of mitigating actions:
26

- 27 • Removing the debris source from containment or
28 preventing the debris from being transported to the
29 containment sump;
- 30
- 31 • Evaluating the debris source against the assumptions in
32 the analysis;
- 33
- 34 • Deferring maintenance that would affect availability of the
35 affected systems and other LOCA-mitigating equipment;
- 36
- 37 • Deferring maintenance that would affect availability of
38 primary defense-in-depth systems, such as containment
39 coolers;
- 40
- 41 • Briefing operators on LOCA debris management actions;
42 or
- 43
- 44 • Applying an alternative method to establish new limits.
45

46 The NRC staff finds the proposed Required Action A.1 and its CT are acceptable because they
47 place urgency on the appropriate actions that could mitigate or reduce the impact of the
48 identified conditions.
49

1 Concurrently, Required Action A.2 mandates SR 3.4.13.1, the RCS water inventory balance, to
2 be performed at an increased frequency of once per 24 hours. An unexpected increase in RCS
3 leakage could be indicative of an increased potential for an RCS pipe break, which could result
4 in debris being generated and transported to the containment sump.

5
6 The NRC staff finds the proposed Required Action A.2 and its CT are acceptable because the
7 more frequent monitoring allows operators to act in a timely fashion to minimize the potential for
8 an RCS pipe break while the containment sump is inoperable.

9
10 In addition, Required Action A.3 requires the inoperable containment sump to be restored to
11 operable status in 90 days.

12
13 The NRC staff finds the proposed Required Action A.3 and its CT are acceptable because they
14 provide a reasonable amount of time to diagnose, plan, and possibly reduce the severity of, or
15 mitigate the unanalyzed debris condition and prevent a loss of ECCS and CSS safety function.
16 In addition, 90 days is adequate given the conservatism in the analysis and the proposed
17 compensatory actions required to be implemented immediately by Required Action A.1. Also,
18 as discussed later in this SE section, the new SR will require visual inspection of the
19 containment sump system (including the containment drainage flow paths, any design features
20 upstream of the containment sump that are credited in the containment debris analysis, the
21 containment sump strainers, the pump suction trash racks, and the inlet to the ECCS and CSS
22 piping) for evidence of structural degradation, potential for debris bypass, and presence of
23 corrosion or debris blockage, to ensure no loose debris is present and there is no evidence of
24 structural distress or abnormal corrosion.

25
26 For plants that have more than one containment sump, the sumps are considered part of a
27 single support system because containment accident generated and transported debris issues
28 that would render one sump inoperable would render all of the sumps inoperable. The NRC
29 staff finds this proposed change is acceptable since it is a conservative assumption. Plants with
30 separate sumps are generally designed so that one sump will remain operable with the
31 design-basis debris load. The second sump is assumed to be out of service due to a single
32 failure in the ECCS or CSS. The single sump in a plant with multiple sumps is equivalent to the
33 sump in a plant with only one sump because the multiple sumps are considered to be part of a
34 single support system. If containment accident generated and transported debris were to
35 render one sump inoperable, then it would render all of the sumps inoperable. In any case
36 where the single failure did not occur, the second sump would be in service and provide
37 significant additional surface area for debris to collect, thus reducing the severity of the effects
38 of the debris. The second sump provides redundancy in these cases.

39 40 3.4.4 Considerations of Condition B

41
42 Condition B specifies the required actions for when the containment sump is inoperable for
43 reasons other than containment accident generated and transported debris exceeding the
44 analyzed limits.

45
46 Required Action B.1 requires restoring the containment sump to operable status and is modified
47 by two notes. These two notes direct entry into the conditions and required actions for the
48 supported systems (ECCS and CSS). Since Required Action B.1 directs entry to the
49 corresponding ECCS and CSS LCOs, these notes retain the existing TS actions for ECCS or
50 CSS trains made inoperable by an *inoperable* containment sump ~~inoperable~~ for reasons other
51 than containment accident generated and transported debris exceeding the analyzed limits.

1 The proposed CT for Required Action B.1 is *a plant-specific time of 72 hours* or in accordance
2 with the RICT Program. Traveler TSTF-567, Revision 1, shows these CTs in brackets to show
3 the licensee has the option to insert its plant-specific licensing bases requirement. *A Reviewer's*
4 *Note in the Bases for Required Action B.1 states that the Completion Time should be the same*
5 *as the TS 3.6.6 Completion Time for a single inoperable CSS train (typically 72 hours or 7*
6 *days).*

7
8 If a licensee has received an amendment that authorizes the adoption of TSTF-505, "Provide
9 Risk-Informed Extended Completion Times – RITSTF Initiative 4B," or plant-specific RICT
10 Program and the licensee has a Risk-Informed Completion Time (RICT) Program in TS
11 Section 5.0, "Administrative Controls," the licensee can propose via a license amendment
12 application the option to calculate a RICT for Required Action B.1 *in addition to the fixed*
13 *completion time*. However, a plant-specific justification, consistent with the justification provided
14 when adopting TSTF-505 or a plant-specific RICT Program, needs to be provided in the license
15 amendment request (LAR) to adopt TSTF-567, Revision 1. This SE does not approve the use
16 of the RICT Program for Required Action B.1. For the purposes of this SE, the bracketed "*OR*
17 *In accordance with the Risk Informed Completion Time (RICT) Program,*" only indicates that the
18 licensees have an additional option. If a licensee chooses to use the RICT Program for
19 Required Action B.1, its LAR would not be processed as a CLIP for adoption of TSTF-567,
20 Revision 1, and additional technical information would need to be provided to justify the use of
21 the RICT Program for this required action.

22
23 The NRC staff finds the proposed change is acceptable since it continues to provide remedial
24 actions for when the containment sump is inoperable for reasons other than Condition A and
25 ensures safe operation of the plant. In addition, the proposed *plant-specific* CT of 72 hours is
26 acceptable because *it is no more limiting than the ECCS or CSS Completion Times for a single*
27 *inoperable train*, it provides a reasonable time for repairs, and there is a low probability of an
28 accident occurring during this period necessitating the containment sump. Licensees who have
29 received an amendment authorizing the adoption of TSTF-505, "Provide Risk-Informed
30 Extended Completion Times – RITSTF Initiative 4B," or plant-specific RICT Program, have the
31 option to ~~select-add an additional the RICT Program~~ as a CT by submitting *additional*
32 *justification in -separate-the* license amendment request ~~supported by a plant-specific-~~
33 *justification*. The use of this traveler in combination with a RICT Program is outside the scope of
34 this SE and would be reviewed on a plant-specific basis.

36 3.4.5 Considerations of Condition C

37
38 If operators are unable to restore the affected containment sump to operable status under
39 Conditions A or B, Required Action C.1 requires the unit to be in Mode 3 in 6 hours followed by
40 Mode 5 in 36 hours, as required by Required Action C.2.

41
42 The NRC staff finds the proposed condition and its required actions are acceptable because
43 they are consistent with the STS and require the operators to place the unit in a condition in
44 which the LCO no longer applies. In addition, the proposed CTs allow a reasonable amount of
45 time to reach the required plant conditions from full-power conditions in an orderly manner and
46 without challenging plant systems.

48 3.4.6 Considerations of the New SR

49
50 A new SR is provided in the new containment sump ~~LCOTS~~. This SR was originally located in
51 STS-~~LCO~~ 3.5.2 and ~~STSLCO~~ 3.5.3. The numbering for this new SR is as follows: SR 3.6.8.1

1 for B&W, SR 3.6.19.1 for W, and SR 3.6.13.1 for CE. The frequency of the new SR is
2 18 months or as specified in the SFCP.

3
4 The proposed SR requires verification, by visual inspection, that the containment sump does not
5 show structural damage, abnormal corrosion, or debris blockage.

6
7 The new SR is stated in generic terms and expands the scope of the required visual inspection
8 to include the entire containment sump system. A containment sump system consists of the
9 containment drainage flow paths, the containment sump strainers (or screens), the pump
10 suction trash racks, and the inlet to the ECCS and CSS piping.

11
12 The NRC staff finds the proposed new SR is acceptable since it expands the scope of
13 inspection of the original SR. In addition, the proposed frequency is acceptable since it is the
14 same as that currently required by the STSs. Therefore, the NRC staff finds that, as required by
15 10 CFR 50.36(c)(3), the necessary quality of systems will be maintained in accordance with the
16 associated LCOs.

17 18 3.4.7 Considerations of Changes to Table of Contents

19
20 Traveler TSTF-567, Revision 1, also proposed a conforming change to the Table of Contents to
21 include the new containment sump ~~LCOTS~~. This conforming change is acceptable since it is an
22 editorial change to support the inclusion of the new containment sump ~~STS-LCO~~.

23 24 3.4.8 Considerations of Changes to the STS Bases

25
26 *Traveler TSTF-567, Revision 1, proposed conforming changes to the STS Bases. These*
27 *conforming changes are acceptable as they are consistent with the proposed TS and satisfy the*
28 *10 CFR 50.36(a) requirement for bases or reasons for such specifications.*

29 30 3.4.98 Conclusion Regarding Proposed Containment Sump ~~LCOTS~~

31
32 The new containment sump ~~LCOTS~~ retains and expands the existing STS requirements with
33 the exception of the addition of Condition A. Condition A provides a condition for an inoperable
34 containment sump due to containment accident generated and transported debris exceeding the
35 analyzed limits.

36
37 The NRC staff reviewed the proposed STS changes against the regulations and concludes that
38 the changes continue to meet the requirements of 10 CFR 50.36(a), 50.36(c)(2), 50.36(c)(3),
39 and 50.36(c)(5), for the reasons discussed above, and thus provide reasonable assurance that
40 plants that adopt these TSs will have the requisite requirements and controls to operate safely.
41 Therefore, the staff concludes that the proposed STS changes are acceptable.

42 43 4.0 CONCLUSION

44
45 The NRC staff reviewed Traveler TSTF-567, Revision 1, which proposed changes to
46 NUREG-1430, ~~Volume 1~~, NUREG-1431, ~~Volume 1~~, and NUREG-1432, ~~Volume 1~~. The NRC
47 staff determined that the proposed changes to the STS meet the standards for TS in
48 10 CFR 50.36(b). Additionally, the changes to the STS were reviewed and found to be
49 technical clear and consistent with customary terminology and format in accordance with
50 SRP Chapter 16.0. The NRC staff reviewed the proposed changes against the regulations and
51 concludes that the changes continue to meet the requirements of 10 CFR 50.36(a), 50.36(c)(2),

1 50.36(c)(3) and 50.36(c)(5), for the reasons discussed above, and thus provide reasonable
2 assurance that adoption of these TSs will have the requisite requirements and controls to
3 operate safely. Therefore, the NRC staff concludes that the proposed TS changes are
4 acceptable.

5

6

7 Principal Contributors: C. Tilton, NRR/DSS
8 S. Smith, NRR/DSS
9 P. Klein, NRR/DMLR

10

11 Date:

1 *General Directions: This Model SE provides the format and content to be used when preparing*
2 *the plant-specific SE of an LAR to adopt TSTF-567, Revision 1. The **bolded** bracketed*
3 *information shows text that should be filled in for the specific amendment; individual licensees*
4 *would furnish site-specific nomenclature or values for these bracketed items. The italicized*
5 *wording provides guidance on what should be included in each section and should not be*
6 *included in the SE.*

7 **DRAFT MODEL SAFETY EVALUATION**

8 **BY THE OFFICE OF NUCLEAR REACTOR REGULATION**

9 **TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER**

10 **TSTF-567, REVISION 1**

11 **“ADD CONTAINMENT SUMP TS TO ADDRESS GSI-191 ISSUES”**

12 **USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS**

13 **(CAC NO. MF9568, EPID L-2017-PMP-0005)**

14
15
16 **1.0 INTRODUCTION**

17
18 By application dated **[enter date]**, (Agencywide Documents Access and Management System
19 (ADAMS) Accession No. **[MLXXXXXXXXXX]**), **[as supplemented by letters dated, [enter**
20 **date(s)]] [name of licensee]** (the licensee) submitted a license amendment request (LAR) for
21 **[name of facility (abbreviated name). applicable units]**.

22
23 The amendment would revise *Technical Specification (TS) Limiting Condition for Operation-*
24 ~~(LCO)~~ 3.5.2, “ECCS [Emergency Core Cooling System]-Operating,” **[and] LCO-TS** 3.5.3,
25 “ECCS-Shutdown,” **[and TS Section 5.5.15, “Safety Function Determination Program**
26 **(SFDP).”]** The proposed changes would also add a new ~~TS~~LCO, “Containment Sump,” to ~~TS-~~
27 Section 3.6, “Containment Systems.” The proposed changes are based on Technical
28 Specifications Task Force (TSTF) Traveler TSTF-567, Revision 1, “Add Containment Sump TS
29 to Address GSI [Generic Safety Issue]-191 Issues,” dated August 2, 2017 (ADAMS Accession
30 No. ML17214A813). The U.S. Nuclear Regulatory Commission (NRC or the Commission)
31 issued a final safety evaluation (SE) approving TSTF-567, Revision 1, on **[Month, Day, Year]**
32 (ADAMS Accession No. **[MLXXXXXXXXXX]**).

33
34 *{Note: TSTF-567 is not applicable to plants with TS not based on the current STS (i.e., NUREG-*
35 *1430, NUREG-1431, or NUREG-1542) due to its dependence on LCO 3.0.6 and the SFDP.}*

36
37 **[The licensee has proposed several variations from the TS changes described in**
38 **TSTF-567. The variations are described in Section [2.2.5] of this SE and evaluated in**
39 **Section [X.X].]**

40
41 **[The supplemental letters dated [enter date(s)], provided additional information that**
42 **clarified the application, did not expand the scope of the application as originally**
43 **noticed, and did not change the NRC staff’s original proposed no significant hazards**
44 **consideration determination as published in the *Federal Register* on [enter date] (cite FR**
45 **reference).]**

1 **2.0 REGULATORY EVALUATION**

2
3 **2.1 SYSTEM DESCRIPTION AND CHANGES TO THE TS**

4
5 LCOs are the lowest functional capability or performance levels of equipment required for safe
6 operation of the facility. The actions *applicable when an LCO is not met associated with an*
7 ~~LCO state conditions that~~ typically describe the ways in which the requirements of the LCO can
8 fail to be met. Specified with each stated condition are required action(s) and completion
9 time(s).

10
11 **2.1.1 ~~LCO-TS~~ 3.5.2, "ECCS-Operating"**

12
13 The function of the ECCS is to provide core cooling and negative reactivity to ensure the reactor
14 core is protected after any of the following accidents:

- 15
16 a. Loss-of-coolant accident (LOCA), coolant leakage greater than the capability of the
17 normal charging system,
18
19 b. Rod ejection accident,
20
21 c. Loss of secondary coolant accident, including uncontrolled steam release or loss of
22 feedwater, and
23
24 d. Steam generator tube rupture.

25
26 ~~LCO-TS~~ 3.5.2 is applicable in Modes 1, 2, and 3 and requires that two independent ECCS trains
27 be operable to ensure that sufficient ECCS flow is available, assuming a single failure affecting
28 either train.

29
30 ~~LCO-TS~~ 3.5.2 helps ensure the following acceptance criteria for ECCS, established by Title 10
31 of the *Code of Federal Regulations* (10 CFR) 50.46, will be met following a LOCA:

- 32
33 a. Maximum fuel element cladding temperature is ≤ 2200 degrees Fahrenheit ($^{\circ}\text{F}$),
34
35 b. Maximum cladding oxidation is ≤ 0.17 times the total cladding thickness before
36 oxidation,
37
38 c. Maximum hydrogen generation from a zirconium water reaction is ≤ 0.01 times the
39 hypothetical amount generated if all of the metal in the cladding cylinders surrounding
40 the fuel, excluding the cladding surrounding the plenum volume, were to react,
41
42 d. Core is maintained in a coolable geometry, and
43
44 e. Adequate long-term core cooling capability is maintained.

45
46 ~~LCO-TS~~ 3.5.2 also limits the potential for a post-trip return to power following a main steam line
47 break event and ensures that containment temperature limits are met.
48

1 2.1.2 ~~LCO-TS~~ 3.5.3, "ECCS-Shutdown"

2
3 ~~LCO-TS~~ 3.5.3 is applicable in Mode 4 and requires one of the two independent (and redundant)
4 ECCS trains to be operable to ensure that sufficient ECCS flow is available to the core following
5 a design-basis accident.

6
7 *{NOTE: The change to TS 5.5.15 is optional. Some plants may have already adopted this*
8 *change into their TS.}*

9
10 ~~2.1.3 TS Section~~ 5.5.15, "Safety Function Determination Program (SFDP)"

11
12 ~~Section-TS~~ 5.5.15 establishes the Safety Function Determination Program (SFDP) which
13 implements the requirements of LCO 3.0.6. The SFDP ensures loss of safety function is
14 detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation
15 shall be made to determine if loss of safety function exists. Additionally, other
16 appropriate actions may be taken as a result of the support system inoperability and
17 corresponding exception to entering supported system(s) condition(s) and required
18 action(s).-]

19
20 2.2 PROPOSED CHANGES TO THE TECHNICAL SPECIFICATIONS

21
22 The proposed changes would revise ~~LCO-TS~~ 3.5.2, "ECCS-Operating", [and] ~~LCO-TS~~ 3.5.3,
23 "ECCS-Shutdown," [and ~~TS Section~~ 5.5.15, "Safety Function Determination Program."}] The
24 proposed changes would also add a new TS ~~LCO~~, "Containment Sump" to Section 3.6,
25 "Containment Systems." The proposed changes are described below.

26
27 2.2.1 Proposed Changes to ~~LCO-TS~~ 3.5.2, "ECCS-Operating"

28
29 ~~LCO-TS~~ 3.5.2 currently contains Surveillance Requirement (SR) 3.5.2.[9], which requires the
30 following at a frequency [of 18 months][in accordance with the Surveillance Frequency
31 Control Program (SFCP)]:

32
33 Verify, by visual inspection, each ECCS train containment sump
34 suction inlet is not restricted by debris and suction inlet trash racks
35 and screens show no evidence of structural distress or abnormal
36 corrosion.

37
38 The licensee proposed to modify and move SR 3.5.2.[9] from ~~LCO-TS~~ 3.5.2 and include it in the
39 new containment sump ~~LCO-TS~~.

40
41 This change is evaluated in Section 3.1 of this SE.

42
43 2.2.2 Proposed Changes to ~~LCO-TS~~ 3.5.3, "ECCS-Shutdown"

44
45 ~~LCO-TS~~ 3.5.3 currently contains SR 3.5.3.1 which refers to applicable SRs under ~~LCO-TS~~ 3.5.2.
46 One of those referenced SRs is SR 3.5.2.[9], as described in Section 2.2.1 of this SE.

47
48 Because the licensee proposed to move SR 3.5.2.[9] from ~~LCO-TS~~ 3.5.2 and include it in the
49 new containment sump ~~LCO-TS~~, the licensee also proposed to delete the reference to
50 SR 3.5.2.[9] in SR 3.5.3.1.

51

1 This change is evaluated in Section 3.2 of this SE.

2
3 *{NOTE: The change to TS 5.5.15 is optional. Some plants may have already adopted this*
4 *change into their TS.}*

5
6 **2.2.3 Proposed Changes to TS ~~Section 5.5.15~~, “Safety Function**
7 **Determination Program (SFDP)”**

8
9 The licensee proposed to add the following sentence at the end of TS ~~Section 5.5.15~~:

10
11 **When a loss of safety function is caused by the inoperability**
12 **of a single Technical Specification support system, the**
13 **appropriate Conditions and Required Actions to enter are**
14 **those of the support system.**

15
16 **This change is evaluated in Section 3.3 of this SE.]**

17
18 **2.2.4 Proposed Addition of a New Containment Sump ~~LCO~~TS**

19
20 The licensee proposed to add ~~LCO-TS~~ 3.6.[8] requiring the containment sump to be operable
21 during Modes 1, 2, 3, and 4. Condition A specifies that if the containment sump is inoperable
22 due to containment accident generated and transported debris exceeding the analyzed limits,
23 Required Actions A.1, A.2, and A.3 require immediate initiation of action to mitigate containment
24 accident generated and transported debris, performance of ~~ing~~ SR 3.4.13.1 once per 24 hours,
25 and restoration of ~~ing~~ the containment sump to operable status in 90 days, respectively. ~~The~~
26 SR 3.4.13.1 requires verification that the reactor coolant system (RCS) operational leakage is
27 within limits by performance of ~~an~~ RCS water inventory balance.

28
29 Condition B specifies that if the containment sump is inoperable for reasons other than
30 Condition A, Required Action B.1 requires restoration of the containment sump to operable
31 status **[within 72 hours][or in accordance with the Risk Informed Completion Time (RICT)**
32 **Program]**. Required Action B.1 is modified by two notes which directs entering the applicable
33 conditions and required actions of LCO 3.5.2, “ECCS-Operating,” and LCO 3.5.3,
34 “ECCS-Shutdown,” for ECCS trains made inoperable by the containment sump and entering the
35 applicable conditions and required actions of LCO 3.6.6, “Containment Spray and Cooling
36 Systems,” for *Containment Spray and Cooling System (CSS)* trains made inoperable by the
37 containment sump.

38
39 Condition C specifies that if required action and associated completion time (CT) under
40 Condition A and B are not met, Required Actions C.1 and C.2 require licensees to be in Mode 3
41 in 6 hours and Mode 5 in 36 hours, respectively.

42
43 The licensee proposed to expand and relocate an SR currently located in ~~LCO-TS~~ 3.5.2. The
44 new SR requires the licensee to verify, by visual inspection, the containment sump does not
45 show structural damage, abnormal corrosion, or debris blockage **[every 18 months][in**
46 **accordance with the SFCP]**.

47
48 *{NOTE: If the plant has more than one containment sump, include the following paragraph :}*
49 **[Plant name]’s containment sump design includes more than one containment sump. [Enter**
50 **additional details of the plant’s containment sump design-and justification detailing why-**
51 **the new proposed LCO is applicable.]** *The sumps are considered part of a single support*

1 *system because containment accident generated and transported debris issues that would*
2 *render one sump inoperable would render all of the sumps inoperable.* The new containment
3 sump ~~LCO-TS~~ proposed is applicable to plants that have more than one containment sump.

4
5 *{NOTE: The Table of Contents is not part of the license for all licensees. If the licensee*
6 *included revised Table of Contents pages in the request, include the following paragraph.}*

7
8 **[The licensee also proposed a conforming change to the TS Table of Contents to reflect**
9 **the addition of the new containment sump ~~TSLCO~~.]**

10
11 This change is evaluated in Section 3.4 of this SE.

12
13 2.2.5 Variations from TSTF-567, Revision 1

14
15 *{NOTE: Technical reviewers and/or project manager to discuss variations from the approved*
16 *traveler and whether they are acceptable. Choose the applicable paragraphs based on*
17 *information provided in the LAR.}*

18
19 **[The licensee is not proposing any variations from the TS changes described in**
20 **TSTF-567 or the applicable parts of the NRC staff's safety evaluation (SE) of TSTF-567.]**

21
22 **[The licensee is proposing the following variations from the TS changes described in**
23 **TSTF-567 or the applicable parts of the NRC staff's safety evaluation (SE) of TSTF-567.**
24 **These variations do not affect the applicability of TSTF-567 or the NRC staff's SE to the**
25 **proposed license amendment.]**

26
27 **[The [PLANT] TS utilize different [numbering][and][titles] than the Standard Technical**
28 **Specifications on which TSTF-567 was based. Specifically, [describe differences**
29 **between the plant-specific TS numbering and/or titles and the TSTF-567 numbering**
30 **and/or titles.] These differences are editorial and do not affect the applicability of**
31 **TSTF-567 to the [PLANT] TS.]**

32
33 ***[The [PLANT] design is different than the model plant assumed in the Standard Technical***
34 ***Specifications, but the TSTF-567 justification and the NRC staff's SE are still applicable.***
35 ***[Describe differences and why TSTF-567 is still applicable.]]***

36
37 ***[The [PLANT] TS for the Emergency Core Cooling System (ECCS) and Containment***
38 ***Spray System (CSS) have a different Applicability than the Standard Technical***
39 ***Specifications on which TSTF-567 was based. Because the Containment Sump is a***
40 ***support system to the ECCS and CSS systems, the Containment Sump Applicability is***
41 ***revised to be consistent with these specifications. This does not affect the applicability***
42 ***of the TSTF-567 justification or the NRC staff's SE.]***

43
44 ***[The [PLANT] TS for the Emergency Core Cooling System (ECCS) and Containment***
45 ***Spray System (CSS) were revised by adoption of TSTF-432-A, Rev. 1, "Change in***
46 ***Technical Specifications End States (WCAP-16294)." The terminal action in the ECCS***
47 ***and CSS TS is to be in Mode 4, not Mode 5. Because the only function of the***
48 ***Containment Sump is to support the ECCS and CSS systems, Required Action C.2 is***
49 ***revised from being in Mode 5 in 36 hours to being in Mode 4 in 12 hours, consistent with***
50 ***the ECCS and CSS specifications. To be consistent with the ECCS and CSS TS and the***
51 ***justification of TSTF-432, Required Action C.2 is modified by a Note that states that LCO***

1 **3.0.4.a is not applicable when entering Mode 4. This difference does not affect the**
2 **applicability of the TSTF-567 justification or the NRC staff's SE.]**
3

4 **[TSTF-567 discusses applicable regulatory requirements and guidance, including the**
5 **10 CFR 50, Appendix A, General Design Criteria (GDC). [PLANT] was not licensed to the**
6 **10 CFR 50, Appendix A, GDC. The [PLANT] equivalents of the referenced GDC are**
7 **[reference including UFSAR location, if applicable]. [Discuss the equivalence of the**
8 **referenced plant-specific requirements to the Appendix A GDC as related to the**
9 **proposed change.] This difference does not alter the conclusion that the proposed**
10 **change is applicable to [PLANT].]**
11

12 **[The [PLANT] Technical Specifications contain a Surveillance Frequency Control**
13 **Program. Therefore, the Frequency for Surveillance Requirement 3.6.[8].1 is "In**
14 **accordance with the Surveillance Frequency Control Program."]**
15

16 {NOTE: Use of a RICT for Required Action B.1, is a permissible variation, but requires
17 plant-specific review. Therefore, ~~use-addition~~ of a RICT will remove the LAR from the CLIP.}

18 **[The licensee is proposing the use of a RICT Program for Required Action B.1.**
19 **Additional plant-specific technical information and justification, consistent with the**
20 **justification provided when adopting [TSTF-505 or the plant-specific RICT Program], was**
21 **provided in the submittal. This SE does not approve the use of the RICT Program. The**
22 **NRC staff's evaluation of the proposed RICT for Required Action B.1 is in Section 3.4 of**
23 **this SE.]**
24

25 2.3 APPLICABLE REGULATORY REQUIREMENTS AND GUIDANCE

26 2.3.1 Technical Specifications

27 Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36(a)(1) requires each
28 applicant for a license authorizing operation of a utilization facility to include in the application
29 proposed TSs. A summary statement of the bases or reasons for such specifications
30
31

32 The regulation at 10 CFR 50.36(b) requires:
33

34
35 Each license authorizing operation of a ... utilization facility ... will
36 include technical specifications. The technical specifications will
37 be derived from the analyses and evaluation included in the safety
38 analysis report, and amendments thereto, submitted pursuant to
39 [10 CFR] 50.34 ["Contents of applications; technical information"].
40 The Commission may include such additional technical
41 specifications as the Commission finds appropriate.
42

43 The categories of items required to be in the TSs are provided in 10 CFR 50.36(c). As required
44 by 10 CFR 50.36(c)(2)(i), the TSs will include LCOs, which are the lowest functional capability
45 or performance levels of equipment required for safe operation of the facility. Per
46 10 CFR 50.36(c)(2)(i), when an LCO of a nuclear reactor is not met, the licensee shall shut
47 down the reactor or follow any remedial action permitted by the TSs until the condition can be
48 met.
49

50 The regulation at 10 CFR 50.36(c)(3) requires TSs to include SRs, which are requirements
51 relating to test, calibration, or inspection to assure that the necessary quality of systems and

1 components is maintained, that facility operation will be within safety limits, and that the LCOs
2 will be met.

3
4 The regulation at 10 CFR 50.36(c)(5) requires TSs to include administrative controls, which “are
5 the provisions relating to organization and management, procedures, recordkeeping, review and
6 audit, and reporting necessary to assure operation of the facility in a safe manner.”

7
8 *The regulation at 10 CFR 50.36(a)(1) requires each applicant for a license provide a summary
9 statement of the bases or reasons for specifications, other than those covering administrative
10 controls, in the application, but these statements are not part of the technical specifications.*

11 12 2.3.2 Guidance

13
14 The guidance that the NRC staff considered in its review of this LAR included the following:

- 15
16 • NUREG-0800, Revision 3, “Standard Review Plan for the Review of Safety Analysis Reports
17 for Nuclear Power Plants: LWR [Light-Water Reactor] Edition,” Chapter 16, “Technical
18 Specifications,” dated March 2010 (ADAMS Accession No. ML100351425), provides
19 guidance on review of TSs.

20
21 {NOTE: Choose applicable STS}

- 22 • **[U.S. Nuclear Regulatory Commission, “Standard Technical Specifications,
23 Babcock and Wilcox Plants,” NUREG-1430, Volume 1, “Specifications,” and Volume 2,
24 “Bases,” Revision 4.0, dated April 2012 (ADAMS Accession Nos. ML12100A177 and
25 ML12100A178).**

26
27 **U.S. Nuclear Regulatory Commission, “Standard Technical Specifications,
28 Westinghouse Plants,” NUREG-1431, Volume 1, “Specifications,” and Volume 2, “Bases,”
29 Revision 4.0, dated April 2012 (ADAMS Accession Nos. ML12100A222 and
30 ML12100A228).**

31
32 **U.S. Nuclear Regulatory Commission, “Standard Technical Specifications,
33 Combustion Engineering Plants,” NUREG-1432, Volume 1, “Specifications,” and
34 Volume 2, “Bases,” Revision 4.0, dated April 2012 (ADAMS Accession Nos. ML12102A165
35 and ML12100A228).]**

36 37 **3.0 TECHNICAL EVALUATION**

38 39 **3.1 PROPOSED CHANGES TO ~~LCO-TS~~ 3.5.2, “ECCS-OPERATING”**

40
41 The licensee proposed to modify and move SR 3.5.2.[9] from ~~LCO-TS~~ 3.5.2 to the new
42 containment sump ~~LCO-TS~~. Therefore, the licensee proposed deletion of SR 3.5.2.[9].

43
44 The new SR does not limit the visual inspection to the suction inlet, trash racks and screens as
45 currently required by the TSs, but instead requires inspection of the entire containment sump
46 system. The containment sump system consists of the containment drainage flow paths, any
47 design features upstream of the containment sump that are credited in the containment debris
48 analysis, the containment sump strainers (or screens), the pump suction trash racks, and the
49 inlet to the ECCS and CSS piping.

50

1 The NRC staff concludes the proposed change is acceptable since the existing requirements
2 are either unchanged or expanded and continue to ensure the containment sump is unrestricted
3 (i.e., unobstructed) and stays in proper operating condition. The proposed change meets the
4 requirements of 10 CFR 50.36(c)(3) because it provides SRs to assure the necessary quality of
5 systems and components are maintained, that facility operation will be within safety limits, and
6 that the LCOs will be met.

7
8 **3.2 PROPOSED CHANGES TO ~~LCO-TS~~ 3.5.3, "ECCS-SHUTDOWN"**

9
10 The licensee proposed to delete the reference to SR 3.5.2.[9] in SR 3.5.3.1.

11
12 The NRC staff concludes the proposed change is acceptable since SR 3.5.2.[9] was modified
13 and relocated to the new containment sump ~~LCOTS~~. The existing SR on the containment sump
14 is augmented (by requiring inspection of additional sump components) and moved to the new
15 specification, and a duplicative requirement to perform the SR in TS 3.5.3 is removed. The new
16 specification retains or expands the existing requirements on the containment sump and the
17 actions to be taken when the containment sump is inoperable with the exception of adding new
18 actions to be taken when the containment sump is inoperable due to containment accident
19 generated and transported debris exceeding the analyzed limits. The new action provides time
20 to evaluate and correct the condition instead of requiring an immediate plant shutdown. The
21 proposed change meets the requirements of 10 CFR 50.36(c)(3) because it provides SRs to
22 assure the necessary quality of systems and components are maintained, that facility operation
23 will be within safety limits, and that the LCOs will be met.

24
25 *{NOTE: The change to TS 5.5.15 is optional. Some plants may have already adopted this*
26 *change into their TS.}*

27
28 **3.3 PROPOSED CHANGES TO ~~SECTION-TS~~ 5.5.15, "SAFETY FUNCTION**
29 **DETERMINATION PROGRAM (SFDP)"**

30
31 **LCO 3.0.6 states:**

32
33 **When a supported system LCO is not met solely due to a**
34 **support system LCO not being met, the Conditions and**
35 **Required Actions associated with this supported system are**
36 **not required to be entered. Only the support system LCO**
37 **ACTIONS are required to be entered. This is an exception to**
38 **LCO 3.0.2 for the supported system. In this event, an**
39 **evaluation shall be performed in accordance with**
40 **Specification 5.5.15, "Safety Function Determination Program**
41 **(SFDP)." If a loss of safety function is determined to exist by**
42 **this program, the appropriate Conditions and Required**
43 **Actions of the LCO in which the loss of safety function exists**
44 **are required to be entered.**

45
46 **When a support system's Required Action directs a**
47 **supported system to be declared inoperable or directs entry**
48 **into Conditions and Required Actions for a supported**
49 **system, the applicable Conditions and Required Actions shall**
50 **be entered in accordance with LCO 3.0.2.**
51

1 When a loss of safety function is determined to exist, the SFDP requires entry into the
2 appropriate conditions and required actions of the LCO in which the loss of safety
3 function exists. Where a loss of function is solely due to a single TS support system
4 (e.g., a single containment sump train) the appropriate LCO is the LCO for that support
5 system. When the loss of function is the result of multiple support systems, the
6 appropriate LCO is the LCO for the supported systems.

7
8 The licensee proposed to add the following statement to TS 5.5.1215, “[W]hen a loss of
9 safety function is caused by the inoperability of a single Technical Specification support
10 system, the appropriate Conditions and Required Actions to enter are those of the
11 support system.”

12
13 The NRC staff finds that the proposed addition to TS 5.5.12-15 clarifies the intent of the
14 allowance (not to enter the Conditions and Required Actions) provided by LCO 3.0.6 and
15 the SFDP for single-train support systems. The NRC staff concludes the proposed
16 change is acceptable since the actions for the support system LCO adequately address
17 the inoperability of that system. Therefore, as required by 10 CFR 50.36(c)(5), it
18 continues to provide adequate administrative controls to assure safe operation.]

19 20 3.4 PROPOSED ADDITION OF CONTAINMENT SUMP ~~LCO~~TS

21 22 3.4.1 Considerations of the ~~LCO~~TS

23
24 The licensee proposed to add a new ~~LCO~~-TS to address operability requirements of the
25 containment sump. The numbering for this new ~~LCO~~-TS is ~~LCO~~-TS 3.6.[8].

26
27 The containment sump supports the post-accident operation of the ECCS and CSS. However,
28 only the current ECCS TS ~~LCOs~~ contain SRs related to the containment sump and the TS do
29 not specify required actions that specifically address an inoperable containment sump. If the
30 containment sump were found to be inoperable, as an ECCS and CSS support system, those
31 respective LCOs would not be met. In order to address concerns related with to containment
32 sump operability due to debris accumulation described in GSI-191, “Assessment of Debris
33 Accumulation on Pressurized-Water Reactor Sump Performance,” the licensee proposed to add
34 a new specification to address containment sump inoperability and create a condition for when
35 the sump is inoperable due to analyzed containment accident generated and transported debris.

36
37 Based on the above evaluation, the NRC staff determined that proposed ~~LCO~~-TS satisfies the
38 requirements of 10 CFR 50.36(c)(2)(i) because the LCO specifies the lowest functional
39 capability or performance levels of equipment required for safe operation of the facility. There is
40 reasonable assurance that the required actions to be taken when the LCO is not met can be
41 conducted without endangering the health and safety of the public.

42 43 3.4.2 Considerations of the Applicability

44
45 *{NOTE: There is an allowable variation, discussed in Section 2.2.5 of this SE, for a different*
46 *Applicability using the same justification.}*

47
48 The new ~~LCO~~-TS requires the containment sump to be operable during Modes 1, 2, 3, and 4.
49 The ECCS and CSS ~~LCOs~~-TS currently in TS are applicable during Modes 1, 2, 3, and 4.
50

1 The NRC staff finds the proposed applicability is acceptable because the applicability is
2 consistent with the applicability of the ECCS and CSS ~~LCOs~~TS, the containment sump
3 supported systems.

4 5 3.4.3 Considerations of Condition A 6

7 The licensee has analyzed the susceptibility of the ECCS and CSS to the adverse effects of
8 post-accident debris blockage and operation with debris-laden fluids. The licensee has
9 established **[Final Safety Analysis Report]** limits on the allowable quantities of containment
10 accident generated debris that could be transported to the containment sump based on its
11 current plant configuration. In the current TSs, if unanalyzed debris sources are discovered
12 inside containment, if errors are discovered in debris-related analyses, or if a previously
13 unevaluated phenomenon that can affect containment sump performance is discovered, the
14 containment sump, and the supported ECCS and CSS, may be inoperable and the TSs *would*
15 require an immediate plant shutdown with no time provided to evaluate the condition.
16

17 In order to address this situation and to provide sufficient time to evaluate the condition, the
18 licensee proposed Condition A, which is applicable when the containment sump is inoperable
19 due to containment accident generated and transported debris exceeding the analyzed limits.
20 Under Condition A, the operability of the containment sump with respect to debris is based on a
21 quantity of debris evaluated and determined to be acceptable by the licensee. Emergent
22 ~~nonconforming or degraded~~ conditions affecting the quantity of analyzed debris shall be
23 evaluated using a deterministic process.
24

25 Under Condition A, Required Action A.1 mandates immediate action to be initiated to mitigate
26 the condition. ~~The licensee's proposed TS Bases for Required Action A.1 provided in its-~~
27 ~~submittal, the licensee provided~~ the following examples of mitigating actions:
28

- 29 • Removing the debris source from containment or preventing the
30 debris from being transported to the containment sump;
- 31
- 32 • Evaluating the debris source against the assumptions in the
33 analysis;
- 34
- 35 • Deferring maintenance that would affect availability of the affected
36 systems and other LOCA mitigating equipment;
- 37
- 38 • Deferring maintenance that would affect availability of primary
39 defense-in-depth systems, such as containment coolers;
- 40
- 41 • Briefing operators on LOCA debris management actions; or
- 42
- 43 • Applying an alternative method to establish new limits.
44

45 The NRC staff finds the proposed Required Action A.1 and its completion time (CT) are
46 acceptable because they place urgency on the appropriate actions that could mitigate or reduce
47 the impact of the identified conditions.
48

49 Concurrently, Required Action A.2 mandates SR 3.4.13.1, the RCS water inventory balance, to
50 be performed at an increased frequency of once per 24 hours. An unexpected increase in RCS

1 leakage could be indicative of an increased potential for an RCS pipe break, which could result
2 in debris being generated and transported to the containment sump.

3
4 The NRC staff finds the proposed Required Action A.2 and its CT are acceptable because the
5 more frequent monitoring allows operators to act in a timely fashion to minimize the potential for
6 an RCS pipe break while the containment sump is inoperable.

7
8 In addition, Required Action A.3 requires the inoperable containment sump to be restored to
9 operable status in 90 days.

10
11 The NRC staff finds the proposed Required Action A.3 and its CT are acceptable because they
12 provide a reasonable amount of time to diagnose, plan and possibly reduce the severity of, or
13 mitigate the unanalyzed debris condition and prevent a loss of ECCS and CSS safety function.
14 In addition, 90 days is adequate given the conservatism in the analysis and the proposed
15 compensatory actions required to be implemented immediately by Required Action A.1. Also,
16 as discussed later in this SE section, the new SR will require visual inspection of the
17 containment sump system (including the containment drainage flow paths, any design features
18 upstream of the containment sump that are credited in the containment debris analysis, the
19 containment sump strainers, the pump suction trash racks, and the inlet to the ECCS and CSS
20 piping for evidence of structural degradation, potential for debris bypass, and presence of
21 corrosion or debris blockage) to ensure no loose debris is present and there is no evidence of
22 structural distress or abnormal corrosion.

23
24 *{NOTE: If the plant has more than one containment sump, include the following paragraph,*
25 *ensuring the plant-specific containment sump design aligns with this justification and modifying*
26 *accordingly :}*

27 **[Specifically for Condition A, multiple containment sumps are considered part of a single**
28 **support system. The NRC staff finds this proposed change is acceptable since it is a**
29 **conservative assumption. The plant is designed so that one sump will remain operable**
30 **with the design-basis debris load. The second sump is assumed to be out of service due**
31 **to a single failure in the ECCS or CSS. The single sump in a plant with multiple sumps is**
32 **equivalent to the sump in a plant with only one sump because the multiple sumps are**
33 **considered to be part of a single support system. *If containment accident generated and***
34 ***transported debris were to render one sump inoperable, then it would render all of the***
35 ***sumps inoperable.* In any case where the single failure did not occur, the second sump**
36 **would be in service and provide significant additional surface area for debris to collect,**
37 **thus reducing the severity of the effects of the debris. The second sump provides**
38 **redundancy in these cases.]**

39 40 3.4.4 Considerations of Condition B

41
42 Condition B specifies the required actions for when the containment sump is inoperable for
43 reasons other than containment accident generated and transported debris exceeding the
44 analyzed limits.

45
46 Required Action B.1 requires restoring the containment sump to operable status and is modified
47 by two notes. These two notes direct entry into the conditions and required actions for the
48 supported systems (ECCS and CSS). Since Required Action B.1 directs entry to the
49 corresponding ECCS and CSS ~~LCOs~~TS, these notes retain the existing TS actions for ECCS or
50 CSS trains made inoperable by an *inoperable* containment sump ~~inoperable~~ for reasons other
51 than containment accident generated and transported debris exceeding the analyzed limits.

1 *{NOTE: If the proposed CT is 7 days instead of 72 hours, include the bracketed phrases.}*
2

3 The proposed CT for Required Action B.1 is **[72 hours][7 days]**. *This CT is consistent with the*
4 ***[less limiting] CT for a single inoperable ECCS train or CSS train [so that the ECCS and CSS***
5 ***TS Actions control the licensee's response]***~~or in accordance with the RICT Program].~~
6

7 *{NOTE: If the licensee has a previously approved Risk-Informed Completion Time (RICT)*
8 *Program in TS Section 5.0, Administrative Controls, use this paragraph and revise the last*
9 *sentence of the following paragraph.}*

10 **[The licensee has an NRC-approved [adoption of TSTF-505, "Provide Risk-Informed**
11 **Extended Completion Times – RITSTF Initiative 4B,"] [plant-specific RICT Program] and**
12 **has a Risk-Informed Completion Time (RICT) Program in TS Section 5.0, "Administrative**
13 **Controls." Therefore, the licensee has proposed *the option* to calculate a RICT for**
14 **Required Action B.1. [Insert NRC staff technical evaluation of proposed use of a RICT.]**
15

16 The NRC staff finds the proposed change is acceptable since it continues to provide remedial
17 actions for when the containment sump is inoperable for reasons other than Condition A and
18 ensures safe operation of the plant. In addition, the proposed CT ~~of 72 hours~~ is acceptable
19 since it provides a reasonable time for repairs, and there is a low probability of an accident
20 occurring during this period necessitating the containment sump.
21

22 3.4.5 Considerations of Condition C

23
24 *{NOTE: There is an allowable variation, discussed in Section 2.2.5 of this SE, for a different end*
25 *state using the same justification.}*
26

27 If operators are unable to restore the affected containment sump to operable status under
28 Condition A or B, Required Action C.1 requires the unit to be in Mode 3 in 6 hours followed by
29 **[Mode 5 in 36 hours][Mode 4 in 12 hours]**, as required by Required Action C.2.
30

31 The NRC staff finds this proposed condition and its required actions are acceptable because the
32 condition is consistent with the STSs and requires the operators to place the unit in a condition
33 in which the LCO no longer applies. In addition, the proposed CTs allow a reasonable amount
34 of time to decrease from full power conditions to the required plant conditions in an orderly
35 manner and without challenging plant systems.
36

37 3.4.6 Considerations of the New SR

38
39 The licensee proposed a new SR in the new containment sump ~~LCOTS~~. This SR was originally
40 located in ~~LCO-TS~~ 3.5.2 and referred to in ~~LCO-TS~~ 3.5.3. The numbering for this new SR is
41 SR 3.6.8.**[1]**. The frequency of the new SR is **[18 months][as specified in the SFCP]**.
42

43 The proposed SR requires verification, by visual inspection, that the containment sump does not
44 show structural damage, abnormal corrosion, or debris blockage.
45

46 The new SR is stated in generic terms and expands the scope of the required visual inspection
47 to include the entire containment sump system. The entire containment sump system consists
48 of the containment drainage flow paths, the containment sump strainers (or screens), the pump
49 suction trash racks, and the inlet to the ECCS and CSS piping.
50

1 The NRC staff finds the proposed new SR is acceptable since it expands the scope of
2 inspection of the original SR. In addition, the proposed frequency is acceptable since it is the
3 same as that currently required by the TSs. Therefore, the NRC staff finds that, as required by
4 10 CFR 50.36(c)(3), the necessary quality of systems will be maintained in accordance with the
5 associated LCOs.

6
7 *{NOTE: The Table of Contents is not part of the license for all licensees. If the licensee
8 included revised Table of Contents pages in the request, include the following paragraph.}*
9

10 **3.4.7 Considerations of Changes to Table of Contents**

11
12 The licensee also proposed a conforming change to the Table of Contents to include the
13 new containment sump **LCOTS**. This conforming change is acceptable since it is an
14 editorial change to support the inclusion of the new containment sump **TS-LCO.**
15

16 **3.4.8 Considerations of Changes to the TS Bases**

17
18 *The licensee provided proposed conforming changes to the TS Bases for information. The
19 NRC staff does not approve Bases as they are not part of the TS, but the NRC staff did confirm
20 that the changes are consistent with the proposed TS and satisfy the 10 CFR 50.36(a)
21 requirement for bases or reasons for such specifications.*
22

23 **3.4.98 Conclusion Regarding Proposed Containment Sump LCOTS**

24
25 The new containment sump **LCO-TS** retains and expands the existing TS requirements with the
26 exception of the addition of Condition A. Condition A provides a condition for an inoperable
27 containment sump due to containment accident generated and transported debris exceeding the
28 analyzed limits.

29
30 The NRC staff reviewed the proposed changes against the regulations and concludes that the
31 changes continue to meet the requirements of 10 CFR 50.36(c)(2), 50.36(c)(3) and 50.36(c)(5),
32 for the reasons discussed above, and thus provide reasonable assurance that adoption of these
33 TSs will have the requisite requirements and controls to operate safely. Therefore, the NRC
34 staff concludes that the proposed TS changes are acceptable.
35

36 **3.5 VARIATIONS**

37
38 **[Insert evaluation of any variations discussed in Section 2.2.5]**
39

40 **3.6 TECHNICAL EVALUATION CONCLUSION**

41
42 The NRC staff determined that the proposed changes meet the standards for TS in
43 10 CFR 50.36(a), 50.36(b), and 50.36(c). The proposed changes to the SR assure that the
44 necessary quality of systems and components is maintained, that facility operation will be within
45 safety limits, and that the LCOs will be met, and satisfy 10 CFR 50.36(c)(3).
46

47 **4.0 STATE CONSULTATION**

48
49 *{This section is to be prepared by the plant project manager.}*
50

1 In accordance with the Commission's regulations, the **[Name of State]** State official was notified
2 of the proposed issuance of the amendment(s) on **[date]**. The State official had **[no]** comments.
3 **[If comments were provided, they should be addressed here.]**
4

5 **5.0 ENVIRONMENTAL CONSIDERATION**
6

7 *{This section is to be prepared by the plant project manager in accordance with current*
8 *procedures.}*
9

10 **6.0 CONCLUSION**
11

12 *{This section is to be prepared by the plant project manager.}*
13

14 The Commission has concluded, based on the considerations discussed above, that: (1) there
15 is reasonable assurance that the health and safety of the public will not be endangered by
16 operation in the proposed manner, (2) there is reasonable assurance that such activities will be
17 conducted in compliance with the Commission's regulations, and (3) the issuance of the
18 amendment(s) will not be inimical to the common defense and security or to the health and
19 safety of the public.
20

21 **7.0 REFERENCES**
22

23 *{Optional section to be prepared by the PM and primary reviewers. If document is publicly*
24 *available, the ADAMS Accession No. should be listed.}*
25

26 *{NOTE: These are the principal contributors for the model SE of the traveler. Replace these*
27 *names with those who prepared the plant-specific SE.}*

28 Principal Contributors: C. Tilton, NRR/DSS
29 S. Smith, NRR/DSS
30 P. Klein, NRR/DMLR
31 M. Honcharik, NRR/DSS
32

33 Date: