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Draft Industry Position Regarding Surveillance Requirements that Reference the Inservice Testing Program and 10 CFR 50.69 Categorization

Problem Statement

There are many Technical Specifications (TS) Surveillance Requirements (SRs) which reference the Inservice Testing Program (IST). There are eleven SRs in the PWR standard TS (STS) and seven SRs in the BWR STS that reference the IST. For example:

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify each pressurizer safety valve is OPERABLE in accordance with the INSERVICE TESTING PROGRAM. Following testing, lift settings shall be within $\pm 1\%$.	In accordance with the INSERVICE TESTING PROGRAM

Plants approved to implement 10 CFR 50.69, "Risk-informed categorization and treatment of structures, systems and components for nuclear power reactors," can evaluate systems and remove those systems from the scope of the IST if they are determined to be Risk-Informed Safety Class (RISC)-3. As of March 2021, 10 CFR 50.69 has been approved for 19 sites.

An Owners Group team developed the following list of systems that could potentially be removed from the IST and that have SRs that reference the IST:

PWR Systems

ECCS pump developed head

CIV Isolation Time

Containment Spray pump developed head

MSIV isolation time

MFSV, MFCV, SFCV, MFIV, and MFRV isolation time

EFW/AFW pump developed head

BWR Systems

Standby Liquid Control pump developed head

PCIV and SCIV Isolation Time

It is unclear what actions are required by a licensee if a system tested by an SR that references the IST is evaluated under 10 CFR 50.69 as RISC-3 is no longer required to meet requirements of 10 CFR 50.55a(f).

DRAFT

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Industry Position

For the 78% of the operating plants that have adopted TSTF-545, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing," a change to the TS is not required to apply 10 CFR 50.69 special treatment provisions to frequencies that reference the Inservice Testing Program if the licensee's program that fulfills the requirements of 10 CFR 50.55a(f) contains a provision for testing components that are subject to alternate treatment under 10 CFR 50.69.

For the operating plants with TS based on the STS that have not adopted TSTF-545, the TS Section 5.5, "Inservice Testing Program," does not contain any specific requirement regarding performance of testing in accordance with 10 CFR 50.55a(f) and no change to the TS is required.

However, if the plant TS is not based on the STS and Surveillance Requirement 4.0.5 contains a reference to "specific written relief has been granted by the Commission," a change to the TS to permit exceptions from 10 CFR 50.55a(f) under 10 CFR 50.69 would be required to change the frequency of IST testing under 10 CFR 50.69.

A licensee may choose to revise the applicable TS to explicitly address alternative testing requirements under 10 CFR 50.69 for clarity even if it is not required.

Justification

Treatment of TS Under 10 CFR 50.69

The provisions of 10 CFR 50.69 exempt components categorized as RISC-3 from many regulatory requirements, such as 50.54a(f), "Preservice and inservice testing requirements," 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," and 10 CFR 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." However, 10 CFR 50.69 does not exempt RISC-3 components from 10 CFR 50.36, "Technical Specifications," as discussed in the November 24, 2004 Statements of Consideration (69FR68028):

III.4.10.2 Section 50.36 Technical Specifications

Section 50.36 establishes operability, surveillance, limiting conditions for operation and other requirements on certain SSCs. Because this rule specifies testing and related requirements, it was considered as a candidate special treatment rule. However, the Commission concluded that it was not appropriate to revise § 50.36 for several reasons.

Currently, the NRC staff and the industry are developing risk-informed improvements to technical specifications. These improvements, or initiatives, are intended to maintain or improve safety while reducing unnecessary burden, and to bring technical specifications into congruence with the Commission's other risk-informed regulatory requirements, in particular risk management requirements of the Maintenance Rule in 10 CFR 50.65(a)(4). Eight initiatives for fundamental improvements to the Standard Technical Specifications (TS) have been proposed. Two of the initiatives have been approved and offered to

DRAFT

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licensees for adoption, and six are being developed by the industry and NRC staff. All of the initiatives involve, to some prescribed degree, assessing and managing plant risk using a configuration risk management program consistent with and in some cases exceeding the requirements of the Maintenance Rule in 10 CFR 50.65. The two approved initiatives involve: permitting the extension of up to one surveillance interval of an inadvertently missed surveillance; and, permitting plant mode transitions with inoperable equipment, anticipating the imminent return of the equipment to operability. The six initiatives under development involve: shutting down to hot shutdown rather than cold shutdown to repair equipment; permitting the temporary extension of allowed outage times; permitting the determination of surveillance frequencies through the use of an approved methodology; permitting time to restore equipment operability rather than immediately shutting down; providing extended time to restore support systems to operability; and, revising the scope of technical specifications to include only on risk significant systems, which would require rulemaking.

Improved standard TSs have already resulted in the relocation of requirements for less important SSCs to other documents. Given the ongoing regulatory efforts to risk-inform the TSs, it was not considered necessary to scope § 50.36 into § 50.69 as a special treatment requirement.

Treatment of IST in the TS

References to the IST in the STS have evolved over time. In the previous standard TS (for example NUREG-0452 for Westinghouse plants), the requirements were referenced in Specification 4.0.5. Specification 4.0.5 discussed preservice testing, inservice testing, and application of ASME test frequencies. The requirements regarding inservice testing are shown below from Revision 4, published in 1981, but were consistent from 1976 - 1987:

Inservice inspection of ASME Code Class 1, 2, and 3 components and inservice testing of ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).

References to 4.0.5 were used in SRs instead of referencing the IST. For example:

4.1.2.3.1 The above required charging pump shall be demonstrated OPERABLE by verifying, that on recirculation flow, the pump develops a discharge pressure of greater than or equal to ____ psig when tested pursuant to Specification 4.0.5.

4.4.1.4.1.1 The required RHR loop shall be demonstrated OPERABLE pursuant to Specification 4.0.5.

DRAFT

Draft Industry Position Regarding Surveillance Requirements that Reference the Inservice Testing Program and 10 CFR 50.69 Categorization

4.4.2.1 No additional Surveillance Requirements other than those required by Specification 4.0.5.

In the STS, the 4.0.5 requirements were moved to a TS Chapter 5, "Administrative Controls," program titled, "Inservice Testing Program." Of the 94 operating units, 72 (77%) have TS based on the STS (NUREG-1430 through 1434) and 18 (19%) have TS based on the previous standard TS. Three units have TS that are custom and don't resemble the STS requirements.

In STS Revision 0 (issued in 1992), the Inservice Testing Program stated, "Provisions that inservice testing of ASME Code Class 1, 2, and 3 pumps, valves, and snubbers shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a." This paragraph was deleted in Revision 1 of the STS, issued in 1995, based on an October 25, 1993 letter from the NRC to the TSTF recommending that Administrative Controls requirements that are duplicative of regulations should be removed. Surveillance Requirements stated they should be performed "In accordance with the Inservice Testing Program."

In 2015, the NRC approved TSTF traveler TSTF-545-A, Revision 3, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing." TSTF-545 deleted the TS Chapter 5 "Inservice Testing Program," and added a new defined term to TS Section 1.1, "INSERVICE TESTING PROGRAM," which states, "The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f)." Surveillance Requirements were revised to capitalize "Inservice Testing Program" as a TS defined term, but were otherwise unchanged. As of March 2021, TSTF-545 has been adopted by 72 of the 94 operating units and one amendment is under review (78%).

Precedents

Almost all the operating plants that have adopted 10 CFR 50.69 have not altered their TS. There are two exceptions:

South Texas Project, which requested an equivalent exemption in 2001 prior to the approval of 10 CFR 50.69, has TS based on the previous standard TS. In a 2005 amendment approved on October 4, 2005, they altered 4.0.5 to state:

Inservice testing of ASME Code Class 1, 2, and 3 pumps and valves, and inservice inspection of ASME Code Class 1,2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR Part 50, Section 50.55a(f) and Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR Part 50, Section 50.55a(f)(6)(i) or Section 50.55a(g)(6)(i), or where the component has been found to qualify for exemption from special treatment. (emphasis added)

The South Texas Project amendment request stated, "Surveillance Requirement 4.0.5 includes 'specific written relief consistent with 10 CFR 50.55a(g)(6)(i)' as a criterion for not performing ASME Section XI inservice inspection and inservice testing. The exemption granted in 2001 is not directed at a specific component as would relief from an ASME Code Section XI

DRAFT

Draft Industry Position Regarding Surveillance Requirements that Reference the Inservice Testing Program and 10 CFR 50.69 Categorization

requirement." Therefore, they proposed the clarification. The NRC's Safety Evaluation stated, "The NRC staff concludes that the proposed wording does not expand the scope of the special treatment exemptions, provided needed clarification regarding the effect of the special treatment exemptions on IST and ISI requirements, and is acceptable."

Limerick requested use of 10 CFR 50.69 in an amendment dated November 25, 2019 and that was approved on August 7, 2020. The Limerick TS are based on the previous standard TS and contains a Surveillance Requirement 4.0.5. Limerick revised 4.0.5 to state (emphasis added):

4.0.5 Inservice Inspection and Inservice Testing Program

Structures, systems, and components (SSCs) within the INSERVICE TESTING PROGRAM shall be tested in accordance with the requirements of 10 CFR 50.55a(f). SSCs within the Inservice Inspection Program shall be inspected in accordance with the requirements of 10 CFR 50.55a(g). The provisions of SR 4.0.2 and SR 4.0.3 do not apply to the INSERVICE TESTING PROGRAM unless there is a specific SR referencing usage of the program.

SSCs that have been categorized as Risk-Informed Safety Class (RISC) of RISC-3 in accordance with 10 CFR 50.69, and removed from the INSERVICE TESTING PROGRAM or Inservice Inspection Program in accordance with 10 CFR 50.69(b)(1)(v), are subject to the alternative treatment requirements specified in 10 CFR 50.69(d)(2). The SSCs must continue to meet the acceptance criteria specified in the applicable technical specification surveillance requirements; however, the surveillance frequency is determined as part of the alternative treatment.

Note that Limerick had previously adopted TSTF-545 and added the defined term "INSERVICE TESTING PROGRAM."

The amendment request stated:

[T]he LGS, Unit 1 and Unit 2 TS contain surveillance requirements applicable to SSCs that are either currently categorized as RISC-3 or have the possibility of being categorized as RISC-3 in the future. These surveillances require testing pursuant to TS 4.0.5. LGS TS 4.0.5 states that the INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f) and the Inservice Inspection Program is the licensee program that fulfills the requirements of 10 CFR 50.55a(g). ... The proposed addition to TS 4.0.5 provides the clarification that, even though the SSCs are subject to the acceptance criteria in the applicable TS surveillance requirements, if they have been categorized as RISC-3 in accordance with 10 CFR 50.69, then they are subject to testing, including the frequency of testing, and inspection that fulfills the alternative treatment requirements of 10 CFR 50.69(d)(2) rather than the requirements of 10 CFR 50.55a(f) or (g).

DRAFT

Draft Industry Position Regarding Surveillance Requirements that Reference the Inservice Testing Program and 10 CFR 50.69 Categorization

The NRC's Safety Evaluation for the amendment stated:

In Section III.4.10.2, "Section 50.36 Technical Specifications," of a Federal Register notice, dated November 22, 2004 (69 FR 68008, 68028-68029), the Commission stated that the 10 CFR 50.69 rule does not include 10 CFR 50.36 in the list of special treatment requirements that may be replaced by the alternative 10 CFR 50.69 requirements for RISC-3 and RISC-4 SSCs when implementing a 10 CFR 50.69 license amendment. As a result, the NRC staff does not consider the TSs (including the associated Technical Requirements Manual) to be part of the 10 CFR 50.69 rule. Therefore, licensees should continue to follow their TSs (including the Technical Requirements Manual, as applicable) when implementing 10 CFR 50.69.

3.1 Technical Conclusion

The NRC staff finds that the proposed changes to TS 4.0.5 for Limerick, Units 1 and 2, are consistent with the approved implementation of the 10 CFR 50.69 requirements. The proposed changes specify that RISC-3 SSCs must continue to meet the acceptance criteria specified in the applicable TS SR requirements; however, the surveillance frequency will be determined as part of the alternative treatment developed in accordance with 10 CFR 50.69. The proposed changes do not involve a change to any safety limits, limiting safety system settings, limiting control settings, limiting conditions for operation, design features, or administrative controls required by 10 CFR 50.36 and, therefore, the proposed changes do not impact the initiators or assumptions of analyzed events, nor do they impact mitigation of accidents or transient events. Based on these considerations, the NRC staff concludes the proposed changes to TS 4.0.5 are acceptable.

STS Plant Position

Other plants, and in particular plants that have TS based on the STS and that have adopted TSTF-545, have concluded that a change to the TS is not necessary to apply the 10 CFR 50.69 special treatment provisions to the testing frequency of components that have been categorized as RISC-3 and removed from the Inservice Testing Program.

TSTF-545 introduced the "INSERVICE TESTING PROGRAM," definition that states, "The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f)." (emphasis added). If the licensee's program that implements 10 CFR 50.55a(f) contains an exception that recognizes that the frequency for testing RISC-3 components may be subject to alternate treatment under 10 CFR 50.69, then the TS frequency is satisfied and no change to the TS is required.