DRAFT SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

TECHNICAL SPECIFICATIONS TASK FORCE Traveler

TSTF-563, REVISION 0

"REVISE INSTRUMENT TESTING DEFINITIONS TO INCORPORATE THE SURVEILLANCE FREQUENCY CONTROL PROGRAM"

USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS

(CAC NO. MF9955, EPID L-2017-PMP-0006)

1.0 INTRODUCTION

By letter dated May 10, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17130A819), the Technical Specifications Task Force (TSTF) submitted Traveler TSTF-563, Revision 0, "Revise Instrument Testing Definitions to Incorporate the Surveillance Frequency Control Program." By letter dated April 27, 2018, the TSTF responded to the U.S. Nuclear Regulatory Commission (NRC) staff requests for additional information (RAIs) (ADAMS Accession No. ML18117A326). Traveler TSTF-563 proposes changes to the Standard Technical Specifications (STS) for all plant designs, including Babcock & Wilcox (B&W), Combustion Engineering (CE), Westinghouse, General Electric (GE), and Westinghouse AP1000® plants. However, the NRC staff did not review and has not approved this change for Westinghouse AP1000® plants. These changes will be incorporated into future revisions of NUREG-1430, NUREG-1431, NUREG-1432, NUREG-1433, and NUREG-1434.[1] This traveler will be made available to licensees for adoption through the consolidated line item improvement process (CLIIP).

The proposed changes would revise the current instrumentation testing definitions of Channel Calibration, Channel Functional Test, Channel Operational Test (COT), and Trip Actuation Device Operational Test (TADOT) to permit determination of the appropriate frequency to perform the Surveillance Requirement (SR) based on the devices being tested in each step, for those plants that have an approved Surveillance Frequency Control Program (SFCP) that uses

[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, respectively).

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, respectively).

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, respectively).

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

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

Nuclear Energy Institute (NEI) 04-10, Revision 1, "Risk-Informed Method for Control of Surveillance Frequencies," (ADAMS Accession No. ML071360456). NEI 04-10, Revision 1, was approved by the NRC on September 19, 2007 (ADAMS Accession No. ML072570267). Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF [Risk-Informed TSTF] Initiative 5b," provided a model for incorporating an SFCP into the STS. Traveler TSTF-425, Revision 3, was approved by the NRC staff on June 23, 2009 (ADAMS Accession No. ML090900716).

2.0 REGULATORY EVALUATION

2.1 DESCRIPTION OF SURVEILLANCE FREQUENCY CONTROL PROGRAM AND INSTRUMENT TESTING

The STS state the surveillances for instrumentation channels to be performed within the specified frequency, using any series of sequential, overlapping, or total channel steps. Traveler TSTF-425 revised the TSs to relocate all periodic surveillance frequencies to licensee control. Changes to the relocated surveillance frequencies are made in accordance with the TS program referred to as the SFCP. The SFCP allows a new surveillance frequency to be determined for the channel, but that frequency must consider all components in the channel and applies to the entire channel.

A typical instrument channel consists of many different components, such as sensors, rack modules, and indicators. These components have different short-term and long-term performance (drift) characteristics, resulting in the potential for different calibration frequency requirements. Under the current TSs, the most limiting component calibration frequency for the channel must be chosen when a revised frequency is considered under the SFCP. As a result, all components that make up a channel must be calibrated at a frequency equal to the channel component with the shortest (i.e., most frequent) surveillance frequency.

Some channel components, such as pressure transmitters, are very stable with respect to drift and could support a substantially longer calibration frequency than the other components in the channel. Currently, the SRs in many plants are performed in steps (e.g., a pressure sensor or transmitter is calibrated during a refueling outage and the rack signal conditioning modules are calibrated while operating at power). The proposed change extends this concept to permit the surveillance frequency of each step to be determined under the SFCP based on the component(s) surveilled in the step instead of all components in the channel. This will allow each component to be tested at the appropriate frequency based on the component's long-term performance characteristics.

Allowing an appropriate surveillance frequency for performing a channel calibration on each component or group of components could reduce radiation dose associated with inplace calibration of sensors, reduce wear on equipment, reduce unnecessary burden on plant staff, and reduce opportunities for calibration errors.

2.2 PROPOSED CHANGES TO THE STANDARD TECHNICAL SPECIFICATIONS

The proposed changes to the STS would revise the definitions of Channel Calibration, Channel Functional Test, COT, and TADOT by adding the words ", and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step" at the end of the last sentence of each definition.

The following paragraph denotes the changes to the Channel Calibration definition for all plant designs (B&W, CE, GE, and Westinghouse plants, NUREG-1430 through NUREG-1434). The Westinghouse plant definition (NUREG-1431) does not include the phrase shown in brackets "and the CHANNEL FUNCTIONAL TEST." Changes are shown in italics:

> A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY[and the CHANNEL FUNCTIONAL TEST]. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps *[, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step]*.

The following paragraph denotes the changes to the Channel Functional Test definition for B&W, CE, and GE plant designs (NUREG-1430 and NUREG-1432 through NUREG-1434). In the Westinghouse plant definition (NUREG-1431), the Channel Functional Test is replaced with two tests: the COT and the TADOT. Changes are shown in italics:

> ...The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total [channel] steps *[, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step]*.

The following paragraphs denote the changes of the COT and TADOT definitions for Westinghouse plants (NUREG-1431). Changes are shown in italics:

> A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. The COT may be performed by means of any series of sequential, overlapping, or total channel steps *[, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step]*.
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> A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of all devices in the channel required for trip actuating device OPERABILITY. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy. The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps *[, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step]*.

The various instrumentation functions in the TSs require surveillances to verify the correct functioning of the instrument channel. The proposed change extends the definition of instrumentation channel components to permit the surveillance frequency of each step to be determined under the SFCP based on the component(s) surveilled in the step instead of all components in the channel. This will allow each component to be tested at the appropriate frequency based on the component's long-term performance characteristics.

The proposed changes in the definition for instrument testing would allow the licensee to control the frequency of associated components being tested in each step. The SR for the overall instrumentation channel remains unchanged. The proposed change has no effect on the design, fabrication, use, or methods of testing the instrumentation channels and will not affect the ability of the instrumentation to perform the functions assumed in the safety analysis.

Traveler TSTF-563 distinguished between instrumentation SRs (Channel Calibration, Channel Functional Test, COT, and TADOT) and other SRs. These instrumentation testing definitions state that, "[t]he [test type] may be performed by means of any series of sequential, overlapping, or total channel steps." Traveler TSTF-563 proposed the surveillance frequency of these subsets to be established based on the characteristics of the components in the step rather than the most limiting component characteristics in the entire channel. Each of these steps are evaluated in accordance with the SFCP.

2.3 APPLICABLE REGULATORY REQUIREMENTS AND GUIDANCE

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

> The purpose of Technical Specifications is to impose those conditions or limitations upon reactor operation necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety by identifying those features that are of controlling importance to safety and establishing on them certain conditions of operation which cannot be changed without prior Commission approval.
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> …[T]he Commission will also entertain requests to adopt portions of the improved STS [(e.g., TSTF-563)], even if the licensee does not adopt all STS improvements. …The Commission encourages all licensees who submit Technical Specification related submittals based on this Policy Statement to emphasize human factors principles.
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> …In accordance with this Policy Statement, improved STS have been developed and will be maintained for each NSSS [nuclear steam supply system] owners group. The Commission encourages licensees to use the improved STS as the basis for plant-specific Technical Specifications. …[I]t is the Commission intent that the wording and Bases of the improved STS be used …to the extent practicable.

As described in the Commission's "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors," the NRC and industry task groups for new STS recommend that improvements include greater emphasis on human factors principles in order to add clarity and understanding to the text of the STS, and provide improvements to the Bases of

STS, which provides the purpose for each requirement in the specification. The improved vendor-specific STS were developed and issued by the NRC in September 1992.

The regulation at Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36(b) requires:

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

The categories of items required to be in the TSs are provided in 10 CFR 50.36(c). One such category is SRs, which are defined in 10 CFR 50.36(c)(3) as "requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

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

Traveler TSTF-425 revised and relocated most periodic surveillance frequencies to licensee control. Changes to the relocated surveillance frequencies are made in accordance with the SFCP. The SFCP requires that changes to the relocated frequencies be made in accordance with the NRC staff approved topical report NEI 04-10.

Topical report NEI 04-10 describes an evaluation process and a multi-disciplinary plant decisionmaking panel that considers the detailed evaluation of proposed surveillance frequency revisions. The evaluations are based on operating experience, test history, manufacturers' recommendations, codes and standards, and other deterministic factors, in conjunction with risk insights. The evaluation considers all components being tested by the SR. Process elements are included for determining the cumulative risk impact of the changes, updating the licensee's probabilistic risk assessment (PRA) models, and for imposing corrective actions, if necessary, following implementation of a revised frequency.

The NRC staff's guidance for the review of TSs is in Chapter 16.0, "Technical Specifications," of NUREG-0800, Revision 3, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition" (SRP), March 2010 (ADAMS Accession No. ML100351425). As described therein, as part of the regulatory standardization effort, the NRC staff has prepared STS for each of the LWR nuclear designs. Accordingly, the NRC staff's review includes consideration of whether the proposed changes are consistent with the applicable reference STS (i.e., the current STS), as modified by NRC-approved Travelers. In addition, the guidance states that comparing the change to previous STS can help clarify the TS intent.

Regulatory Guide (RG) 1.174, Revision 2, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis" (ADAMS Accession No. ML100910006), describes an acceptable risk-informed approach for assessing the nature and impact of proposed permanent licensing basis changes by

considering engineering issues and applying risk insights. This regulatory guide also provides risk acceptance guidelines for evaluating the results of such evaluations.

RG 1.177, Revision 1, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications" (ADAMS Accession No. ML100910008), describes an acceptable risk-informed approach specifically for assessing proposed TS changes.

RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities" (ADAMS Accession No. ML090410014), describes an acceptable approach for determining the technical adequacy of PRAs.

The NRC staff's guidance for evaluating the technical basis for proposed risk-informed changes is provided in SRP, Chapter 19, Section 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance" (ADAMS Accession No. ML071700658). The NRC staff's guidance on evaluating PRA technical adequacy is provided in SRP, Chapter 19, Section 19.1, Revision 3, "Determining the Technical Adequacy of Probabilistic Risk Assessment for Risk-Informed License Amendment Requests After Initial Fuel Load" (ADAMS Accession No. ML12193A107). More specific guidance related to risk-informed TS changes is provided in SRP, Chapter 16, Section 16.1, Revision 1, "Risk-Informed Decision Making: Technical Specifications" (ADAMS Accession No. ML070380228), which includes changes to surveillance test intervals (STIs) (i.e., surveillance frequencies) as part of risk-informed decisionmaking. Section 19.2 of the SRP references the same criteria as RG 1.177, Revision 1, and RG 1.174, Revision 2, and states that a risk-informed application should be evaluated to ensure that the proposed changes meet the following key principles:

- The proposed change meets the current regulations, unless it explicitly relates to a requested exemption or rule change.
- The proposed change is consistent with the defense-in-depth philosophy.
- The proposed change maintains sufficient safety margins.
- When proposed changes result in an increase in risk associated with core damage frequency or large early release frequency, the increase(s) should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.
- The impact of the proposed change should be monitored using performance measurement strategies.

3.0 TECHNICAL EVALUATION

Revising the frequency of a Channel Calibration, Channel Functional Test, COT, and TADOT instrument channel under the SFCP requires assurance that component performance characteristics, such as drift between each test, will not result in undetected instrument errors that exceed the assumptions of the safety analysis and supporting instrument loop uncertainty calculations. These requirements are consistent with the methodology described in NEI 04-10, which the SFCP requires to be followed. The SFCP does not permit changes to the TS Allowable Values or Nominal Trip Setpoints; but allows only the surveillance frequency to be changed when determined permissible by NEI 04-10. Therefore, prior to extending the test

intervals for an instrument channel component or components associated with a given calibration step, the component performance characteristics must be evaluated to verify the Allowable Value or Nominal Trip Setpoint will still be valid and to establish a firm technical basis supporting the extension. In addition, each change must be reviewed by the licensee to ensure the applicable uncertainty allowances are conservative (bounding) (e.g., sensor drift, rack drift, indicator drift). Documentation to support the changes shall be retained per the guidance in NEI 04-10.

In response to the NRC staff RAI, the TSTF identified that Section 4.0 of NEI 04-10, Steps 4, 7, 10a, 10b, 10c, 12, 14, 15, and 16, document the requirements pertaining to changing the SRs. As an example, Step 4 requires documenting when STIs cannot be changed. These guidelines include qualitative and quantitative measures to assess the acceptability of the change. Since Traveler TSTF-425 and NEI 04-10 have been previously approved by the NRC, the explanation provided is satisfactory and acceptable to NRC staff.

Five key safety principles that must be evaluated before changing any surveillance frequency are identified in Section 3.0 of NEI 04-10. Principle 3 requires confirmation of the maintenance of safety margins, which, in this case, includes performance of deterministic evaluations to verify preservation of instrumentation trip setpoint and indication safety margins.

The evaluation methodology specified in NEI 04-10 also requires consideration of common cause failure effects and monitoring of the instrument channel component performance following the frequency change to ensure channel performance is consistent with the analysis to support an extended frequency.

The method of evaluating a proposed surveillance frequency change is not dependent on the number of components in the channel. Each step needs to be evaluated to determine the acceptable surveillance frequency for that step. The proposed change to permit changing the surveillance frequency of channel component(s) does not affect the test method or evaluation method. The requirement to perform a Channel Calibration, Channel Functional Test, COT, or TADOT on the entire channel is not changed.

For example, an evaluation in accordance with NEI 04-10 may determine that a field sensor (e.g., a transmitter) should be calibrated every 48 months, the rack modules should be calibrated every 30 months, and the indicators should be calibrated every 24 months. Under the current TS requirements, all devices in the channel must be calibrated every 24 months. However, under the proposed change, sensors, rack modules, and indicators would be calibrated at the appropriate frequency for the tested devices. As required by the Channel Calibration definition, the test would still encompass all devices in the channel required for channel operability.

To address the issue of a potential extension of up to 48 months for field transmitters, the NRC staff requested clarification regarding adequate data to support such long SR extensions. The TSTF stated in the RAI response that NEI 04-10 methodology is used to evaluate surveillance frequency changes to determine if such SR extensions could be applied. Process elements are used to determine the cumulative risk impact of changes, updating the PRA, and imposition of corrective actions, if needed, following implementation. Further, the applicant pointed to several steps required by NEI 04-10, Step 7, to be evaluated prior to determining the acceptability of changes. These steps include history of surveillance tests, industry and plant specific history, impact on defense-in-depth, vendor recommendations, required test frequencies for the applicable codes and standards, ensuring that the plant licensing basis would not be

invalidated, and other factors. The NRC staff finds these measures acceptable in determining the SR extensions.

The NRC staff requested further information regarding the cumulative effect of various changes on potential setpoint changes. The TSTF responded with the following:

> The SFCP and NEI 04-10, Rev. 1, have no provisions to change licensee-controlled setpoints, or TS values such as Allowable Values or Nominal Trip Setpoints. If the surveillance frequency evaluation determines that the proposed frequency would require a change to a TS limit, the change cannot be made. If the proposed surveillance frequency change affects a licensee-controlled setpoint (i.e., not a TS limit), the licensee would perform the setpoint change following their procedures. TSTF-563 would not alter that process.
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> TSTF-563 allows the NEI 04-10, Rev. 1, methodology to be applied to a subset of instrument channel components instead of the entire channel when considering a frequency change. It does not alter the technical approach required by the SFCP that was approved by the NRC in NEI 04-10, Rev. 1, and TSTF-425. TSTF-563 makes no changes to the method of evaluating a surveillance frequency extension other than the scope of components considered in an evaluation.

In addition, Step 16 of Section 4.0 of NEI 04-10 requires an Independent Decisionmaking Panel (IDP) to review the cumulative impact of all STI changes over a period of time. This is also required by RGs 1.174 and 1.177. The IDP is comprised of the site Maintenance Rule Expert Panel, Surveillance Test Coordinator, and Subject Matter Expert who is a cognizant system manager or component engineer. Based on the above information, the NRC staff finds that the setpoint changes will be tracked in an acceptable manner.

The NRC staff reviewed the justification for the proposed revision to the instrumentation channel definitions to ensure the request did not propose a change beyond the scope of NEI 04-10. In response to the RAIs, the TSTF stated:

> As stated in TSTF-563, Section 2.4, Description of the Proposed Change, only plants that have adopted an SFCP (i.e., TSTF-425) may adopt the proposed definition changes.

The NRC staff notes that limiting the proposed changes to licensees who have an approved SFCP, allows for appropriate implementation of the program by incorporating NEI 04-10, Revision 1, by reference into the Administrative Controls section of TSs.

Licensees with an SFCP may currently revise the surveillance frequency of instrumentation channels. The testing of these channels may be performed by means of any series, sequential, overlapping, or total channel steps. However, all required components in the instrumentation channel must be tested in order for the entire channel to be considered Operable.

The NRC staff notes that industry practice is to perform instrument channel surveillances, such as Channel Calibrations and Channel Functional Tests, using separate procedures based on the location of the components. Each of these procedures may be considered a “step.” The results of all these procedures are used to satisfy the SR using the existing allowance to

perform the SR "by means of any series of sequential, overlapping, or total channel steps." Traveler TSTF-563 allows for determining an acceptable surveillance frequency for each step. As stated by the TSTF in the RAI response:

> In response to Question b.I, the proposed approach can be reflected in the current approaches for modelling actuation signals in the PRA. If the current PRA model does not allow explicit consideration of subsets of the channel, a bounding analysis may be performed, or the model may be revised to allow an explicit evaluation.
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> In response to Question b.II, if the PRA currently cannot model subsets of an instrument channel and cannot be modified to model the subsets of the channel, a bounding evaluation may be used, the proposed frequency may be revised and reevaluated, or the frequency change may be abandoned. These steps are consistent with the guidance in NEI 04-10, Rev. 1, and risk informed decision making which will ensure that only acceptable changes to the frequency will be implemented.

The NRC staff notes that the NEI 04-10 methodology includes the determination of whether the structure, system, and components (SSCs) affected by a proposed change to a surveillance frequency are modeled in the PRA. Where the SSC is directly or implicitly modeled, a quantitative evaluation of the risk impact may be carried out. The methodology adjusts the failure probability of the impacted SSCs based on the proposed change to the surveillance frequency. Where the SSC is not modeled in the PRA, bounding analyses are performed to characterize the impact of the proposed change to the surveillance frequency. Potential impacts on the risk analyses due to screening criteria and truncation levels are addressed by the requirements for PRA technical adequacy, consistent with the guidance contained in RG 1.200, and by sensitivity studies identified in NEI 04-10. Traveler TSTF-563 is not proposing to change the methodology or the acceptance criteria for extending STIs, and licensees will need to evaluated changes in the frequency for performing each of the steps in the instrumentation surveillance test per the methodology in NEI 04-10.

Therefore, the NRC staff concludes that the proposed change to determine an acceptable test frequency for individual steps within instrumentation channel surveillance tests is acceptable, because any extended STIs from applying Traveler TSTF-563 will be developed within the established constraints of the SFCP and NEI 04-10.

The regulatory requirements in 10 CFR 50.36 are not specific regarding the frequency of performing surveillance tests. The proposed change only affects the frequency of performance and does not affect the surveillance testing method or acceptance criteria. Therefore, the proposed change is consistent with the surveillance testing requirements of 10 CFR 50.36.

PRA Acceptability

The guidance in RG 1.200 states that the quality of a licensee's PRA should be commensurate with the safety significance of the proposed TS change and the role the PRA plays in justifying the change. That is, the greater the change in risk or the greater the uncertainty in that risk as a result of the requested TS change, or both, the more rigor that should go into ensuring the quality of the PRA.

Use of Traveler TSTF-563 by a licensee requires NRC's prior approval of the licensee's request to an SFCP that uses NEI 04-10. As part of its evaluation of that request, the NRC staff will have performed an assessment of the PRA models used to support the approved SFCP that uses NEI 04-10, using the guidance of RG 1.200 to assure that the PRA models are capable of determining the change in risk due to changes to surveillance frequencies of SSCs, using plant-specific data and models. Capability Category II of the NRC-endorsed PRA standard is the target capability level for supporting requirements for the internal events PRA for this application. Any identified deficiencies to those requirements are assessed further to determine any impacts to proposed decreases to surveillance frequencies, including the use of sensitivity studies where appropriate, in accordance with NEI 04-10.

Traveler TSTF-425 permits revising of the surveillance frequency for instrumentation channels. The NRC staff asked the TSTF how NEI 04-10 can be applied to subsets in an instrument channel when the SFCP currently specifies a surveillance interval that is applied to the entire channel. The TSTF stated in its RAI response that the current channel surveillance "may be performed by means of any series of sequential, overlapping, or total channel steps. In practice, this means that a channel is divided into subsets and each subset is tested separately…." Therefore, the current instrument channel testing is already composed of a sequence of individual tests.

The NRC staff also requested the TSTF to clarify how the NEI 04-10 methodology can be applied to the variety of current approaches for modeling actuation instrument channels in PRAs. In the response to the RAI the TSTF stated that "[a]n instrument function may be modeled in the PRA differently depending on the site and the function" (e.g., channel may be modeled individually, subsets may be modeled, or the channel function may be modeled as a single entity). The TSTF identified different steps through the evaluation methodology in NEI 04-10 that could be used based on the different PRA modeling approaches. The appropriate modeling of these different approaches is included in the NRC staff's review of the PRA modeling during the review of the application to implement an SFCP.

Licensees who adopt Traveler TSTF-563 will use a PRA that was used to support the adoption of Traveler TSTF-425 or an approved SFCP that uses NEI 04-10. Traveler TSTF-563 will give licensees the capability to change the surveillance frequency of individual steps in the Channel Calibration, Channel Functional Test, COT, and TADOT for instrumentation. The NRC staff finds that changes to the surveillance frequency for individual steps can be appropriately evaluated with the current SFCP and the current PRAs. The NRC staff finds that the risk-informed methodology review and the PRA acceptability review that NRC staff performs during approval of an SFCP that uses NEI 04-10 will be adequate to allow the adoption of Traveler TSTF-563, and therefore, the NRC staff finds the proposed traveler acceptable for use by plants that have an approved SFCP.

4.0 CONCLUSION

The NRC staff reviewed Traveler TSTF-563, which proposed changes to NUREG-1430, NUREG-1431, NUREG-1432, NUREG-1433, and NUREG 1434. The NRC staff determined that the proposed changes to the STS meet the standards for TSs in 10 CFR 50.36(b). The regulations at 10 CFR 50.36 require that TSs include items in specified categories, including SRs. The proposed changes modify the definitions applicable to instrumentation channel components but do not alter the technical approach that was approved by the NRC staff in NEI 04-10 and Traveler TSTF-425, and the TS, as revised, continue to specify the appropriate SRs for tests and inspections to ensure the necessary quality of affected SSCs is maintained.

Additionally, the changes to the STS were reviewed and found to be technically clear and consistent with customary terminology and format in accordance with SRP Chapter 16.0. The NRC staff reviewed the proposed changes against the regulations and concludes that the changes continue to meet the requirements of Sections 50.36(b), 50.36(c)(3), and 50.36(c)(5) of 10 CFR, for the reasons discussed above, and thus provide reasonable assurance that adoption of these TSs will have the requisite requirements and controls to operate safely. Therefore, the NRC staff concludes that the proposed TS changes are acceptable.

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