April 9, 2020

TSTF-20-01
PROJ0753

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

SUBJECT: Transmittal of TSTF-IG-20-02, "Guidance on Evaluating One-Time Surveillance Frequency Changes Under the Surveillance Frequency Control Program"

The Technical Specifications Task Force has developed supplemental guidance for evaluating one-time, as opposed to permanent, Surveillance Requirement (SR) Frequency changes under the Surveillance Frequency Control Program (SFCP). The SFCP was added to the Standard Technical Specifications (STS) by TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control," which was approved by the NRC on July 6, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML090850642). The SFCP, located in Section 5.5 of the STS, provides controls for revising Surveillance Frequencies, and requires that the changes be made in accordance with NEI 04-10-A, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1 (ADAMS Accession No. ML071360426).

The evaluation of an SR Frequency change under the SFCP is resource-intensive. A licensee would normally evaluate a permanent SR Frequency change whenever possible. However, occasionally a one-time extension to an SR Frequency may be needed. For example, a one-time SR Frequency change may be useful to reschedule testing in response to the current pandemic conditions.

The TSTF determined that the existing SFCP and NEI 04-10-A contain sufficient flexibility to accommodate evaluation of a one-time SR Frequency change. The implementation guide discusses each evaluation step in NEI 04-10-A and how the requirements may be applied to a one-time change. Since the TS and NEI 04-10-A continue to be followed, NRC approval of the implementation guide is not being requested.

The TSTF is providing a copy of the implementation guide for NRC awareness.

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# Enclosure

# TSTF-IG-20-02, "Guidance on Evaluating One-Time Surveillance Frequency Changes Under the Surveillance Frequency Control Program"

# TSTF-IG-20-02, Revision 0

# GUIDANCE ON EVALUATING ONE-TIME SURVEILLANCE FREQUENCY CHANGES UNDER THE SURVEILLANCE FREQUENCY CONTROL PROGRAM

***APRIL 2020***

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## ACKNOWLEDGMENTS

This document, "*Guidance on Evaluating One-Time Surveillance Frequency Changes Under the Surveillance Frequency Control Program*," was developed by the Technical Specifications Task Force (TSTF), the Pressurized Water Reactor Owners Group Licensing Committee and Risk Management Committee, and the Boiling Water Reactors Owners' Group Licensing Committee and Integrated Risk-Informed Regulation Committee.

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## 1.0 Overview

This document provides supplemental guidance for evaluating a one-time Surveillance Requirement (SR) Frequency change under the Surveillance Frequency Control Program (SFCP). The SFCP was added to the Standard Technical Specifications (STS) by TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control," which was approved by the NRC on July 6, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML090850642).

The SFCP, located in Section 5.5 of the STS, provides controls for Surveillance Frequencies, and ensures that SRs specified in the Technical Specifications (TS) are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. The SFCP requires that changes to the Frequencies controlled under the SFCP be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1 (ADAMS Accession No. ML071360426).

The guidance in NEI 04-10 describes the evaluation of changes to SR frequencies and these changes have historically been permanent changes. However, an issue arises where a one-time SR Frequency extension is more appropriate than a permanent change. Prior to implementation of the SFCP, a licensee would submit a license amendment request for a one-time extension of an SR Frequency. However, the SFCP relocates the frequencies to licensee control and does not provide explicit guidance on how to evaluate a one-time change. Due to this lack of guidance, licensees have defaulted to submitting license amendment requests for NRC approval to implement a one-time change to Frequencies that are no longer under NRC control, which is contrary to the intent of TSTF-425.

The TS SFCP does not describe the evaluation of SR Frequency changes beyond requiring that the process in NEI 04-10 be followed. A review of NEI 04-10 determined that there is no specific guidance on one-time SR Frequency changes, but the process described in NEI 04-10 is sufficiently flexible to support the evaluation of one-time changes while maintaining compliance with the SFCP.

## 2.0 One-Time vs. Permanent Frequency Change Selection

The evaluation of an SR Frequency change under the SFCP is resource-intensive. A multi-disciplinary plant decision-making panel is utilized to evaluate determinations of revised SR Frequencies, based on operating experience, test history, manufacturers' recommendations, codes and standards, and other factors, in conjunction with the risk insights from the probabilistic risk assessment (PRA). A licensee would normally evaluate a permanent SR Frequency change whenever possible to maximize the value of the resource expenditure.

However, occasionally operational conditions may only require a one-time extension to an SR Frequency. Some possible reasons are:

- A mid-cycle outage that extends the operating cycle beyond a scheduled refueling shutdown required to perform a test,
- An equipment failure that prevents performance of the SR until the equipment is repaired,
- A desire to move a test out of a refueling outage due to other work scheduled during the outage,
- A one-time need to extend the SR Frequency but concern that should a failure occur a permanent SR Frequency extension could lead to undesirable results under the Significance Determination Process.

In these and similar cases, a permanent change may not be desired. However, evaluation of the specific circumstance and affected equipment may permit a one-time extension using the process described in NEI 04-10.

## 3.0 Discussion of Each NEI 04-10 Step

NEI 04-10, Section 4.0, "Surveillance Frequency Control Program Change Process," contains steps that describe the evaluation and control of SR Frequency changes. Each step is described below, as well as any specific considerations required when evaluating or implementing a one-time SR Frequency change.

NEI 04-10 uses the phrase "STI" for Surveillance Test Interval. This document uses the term "SR Frequency" for consistency with the STS.

### 3.1 Step 0: Select Proposed STIs for Adjustment

A one-time SR Frequency change would typically be selected due to an operational condition, such as mid-cycle outage or equipment failure that prevents performing an SR.

For a one-time SR Frequency change, the selected SR Frequency is the period of time the new SR Frequency will be in effect before reverting to the current SR Frequency.

The NEI 04-10 requirement regarding the minimum number of surveillance tests required to establish an adequate database for further extending the SR Frequency should be considered when evaluating a one-time SR Frequency extension:

(1) a minimum of three successive satisfactory performances of the surveillance where the SR Frequency is less than or equal to six months, or

(2) a minimum of two successive satisfactory performances of the surveillance where the SR Frequency is greater than six months.

In other words, if the SR Frequency being considered for a one-time extension was previously extended and the minimum number of tests has not been satisfied, the SR Frequency generally should not be extended under the NEI 04-10 process. However, if technically justified, the Independent Decisionmaking Panel (IDP) may reach the reasonable conclusion to approve a one-time SR Frequency extension beyond the above guidelines based on such additional considerations as:

(1) Previous surveillance testing results, or

(2) The degree of deviation between the one-time Frequency extension and the current Frequency

All other qualitative and quantitative considerations described in NEI 04-10 remain applicable.

### 3.2 Step 1: Check for Prohibitive Commitments

This step applies as written to a one-time SR Frequency change.

### 3.3 Step 2: Can Commitments be Changed?

This step applies as written to a one-time SR Frequency change.

### 3.4 Step 3: Change the Commitments

This step applies as written to a one-time SR Frequency change.

### 3.5 Step 4: Document that STI Changes Cannot be Changed

This step applies as written to a one-time SR Frequency change.

### 3.6 Step 5: RG 1.200 PRA Technical Adequacy

This step applies as written to a one-time SR Frequency change.

### 3.7 Step 6: Select Desired Revised STI Values

In Step 6, the licensee identifies the desired revised SR Frequency and any change to the test strategy (i.e., performance on a Staggered Test Basis). NEI 04-10 states, "In general, the next logical STI given in technical specifications is chosen for improvement. For example, an STI of one month would be changed to quarterly, quarterly to semi-annual, semi-annual to annual, etc. If an STI was chosen which goes beyond the next logical interval, a phased implementation would probably be more appropriate and would need to be considered in Step 15." These statements, qualified with "in general," and "probably," are guidance, not requirements.

For a one-time SR Frequency change, an SR Frequency may be chosen that is not a standard STS or is not the next logical SR Frequency, and that is not a phased implementation, if the evaluation justifies the selected SR Frequency.

### 3.8 Step 7: Identify Qualitative Considerations to be Addressed

This step applies as written to a one-time SR Frequency change.

### 3.9 Step 8: Associated STI SSC Modeled in PRA?

NEI 04-10 states that the SR Frequency change can be adequately characterized by the PRA if the following actions are taken:

- Determine all components that are uniquely impacted by the proposed STI change. That is, develop a list of components that are only exercised by the test such that their test-limited risk contribution would be directly affected by the STI change. Establish that the PRA modeled components sufficiently represent the components uniquely impacted by the proposed STI change.

- Determine an appropriate time-related failure contribution for all of the components to be analyzed as identified in the previous step. The time-related failure contribution can be based on recognized data sources or plant-specific data. If neither is available, then as indicated above, the total failure probability shall be assumed to be time-related.

- Ensure that the model includes appropriate common cause failure terms for the components that are uniquely impacted by the STI change.

For a one-time SR Frequency change, the time-related total failure probability is determined considering the period that the one-time SR Frequency is in effect.

### 3.10 Step 9: Can STI Be Modeled in PRA?

This step applies as written to a one-time SR Frequency change.

### 3.11 Step 10: Perform Qualitative or Bounding Risk Analysis

This step applies as written to a one-time SR Frequency change.

### 3.12 Step 10a: Qualitative Analysis Sufficient for IDP?

This step applies as written to a one-time SR Frequency change.

### 3.13 Step 10b: Bounding Analysis Below 1E-07/yr CDF and 1E-08/yr LERF?

This step applies as written to a one-time SR Frequency change.

### 3.14 Step 10c: Revised STI Values Allow Bounding Analysis Below 1E-07/yr CDF and 1E-08/yr LERF?

This step applies as written to a one-time SR Frequency change.

### 3.15 Step 11: Revise PRA Model as Needed

This step applies as written to a one-time SR Frequency change.

### 3.16 Step 12: Evaluate Total and Cumulative Effect on CDF and LERF

Step 12 evaluates the total and cumulative effect on Core Damage Frequency (CDF) and Large Early Release Frequency (LERF) from each individual SR Frequency change and from all SR Frequency changes.

Consistent with Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," Section 2.4, for a one-time SR Frequency change, the number of times the SR may be performed at the proposed SR Frequency is known, and the configuration of the plant systems may be established. Further, there is no permanent change to the plant CDF or LERF

In evaluating the effect of a one-time SR Frequency change on CDF and LERF, the period that the one-time SR Frequency is in effect should be considered when determining the total change in CDF and LERF for all PRAs.

In evaluating the effect of a one-time SR Frequency change as part of the cumulative change in CDF/LERF resulting from all SR Frequency changes, the period that the one-time SR Frequency is in effect should be considered.

### 3.17 Step 12-A1: Calculate the ΔCDF and ΔLERF values from the Internal Events PRA

For a one-time SR Frequency change, the time-related failure contribution and Common Cause Failure (CCF) terms for all of the components that are uniquely impacted by the SR Frequency change are determined considering the period that the one-time SR Frequency extension is in effect.

### 3.18 Step 12-A1-1: Address the Test Strategy

This step applies as written to a one-time SR Frequency change.

### 3.19 Step 12-B1: ΔCDF and ΔLERF Insignificant Based on Qualitative Analysis?

For a one-time SR Frequency change, the qualitative assessment of the potential impact on CDF and LERF from external events and shutdown PRAs should be limited to the period of time the one-time SR Frequency will be in effect.

### 3.20 Step 12-B2: ΔCDF and ΔLERF Below 1E-07/yr CDF and 1E-08/yr LERF Based on Bounding Analysis?

For a one-time SR Frequency change, the bounding analysis of the potential impact on CDF and LERF from external events and shutdown PRAs should be limited to the period of time the one-time SR Frequency will be in effect.

### 3.21 Step 12-B3: ΔCDF and ΔLERF Below 1E-06/yr CDF and 1E-07/yr LERF Based on Refined Analysis?

For a one-time SR Frequency change, the refined analysis of the potential impact on CDF and LERF from external events and shutdown PRAs should be limited to the period of time the one-time SR Frequency will be in effect.

### 3.22 Step 12-A2: Calculate Total Effect on CDF and LERF for Individual STI Change

This step applies as written to a one-time SR Frequency change.

### 3.23 Step 12-A3: Total Change Below 1E-06/yr CDF and 1E-07/yr LERF?

This step applies as written to a one-time SR Frequency change.

### 3.24 Step 12-A4: Cumulative Change Below 1E-05/yr CDF and 1E-06/yr LERF?

This step applies as written to a one-time SR Frequency change, however, when a one-time SR Frequency change has been implemented and subsequently removed, returning to the permanent SR Frequency, the CDF and LERF associated with the one-time SR Frequency change can be removed from the cumulative CDF and LERF totals.

### 3.25 Step 13: Revise STI Values

This step applies as written to a one-time SR Frequency change.

### 3.26 Step 14: Perform Sensitivity Studies

This step applies as written to a one-time SR Frequency change.

### 3.27 Step 15: Summarize Qualitative and Quantitative Assessments and Establish Recommended Monitoring to be Addressed by IDP

This step applies as written to a one-time SR Frequency change. However, the evaluation form may require modification to document a one-time SR Frequency change.

### 3.28 Step 16: IDP Approval or Adjust STI

This step applies as written to a one-time SR Frequency change.

### 3.29 Step 17: Document New STI and Implement the Changes

This step applies as written to a one-time SR Frequency change. A one-time SR Frequency change may require additional administrative controls to track and replace the one-time SR Frequency with the permanent SR Frequency when a one-time SR Frequency change has been implemented and subsequently removed.

### 3.30 Step 18: Monitoring & Feedback

Performance monitoring of a one-time SR Frequency change would include the results of the Surveillance test following the use of the one-time SR Frequency. By definition, a one-time SR Frequency change would only affect a single test, so trending is not possible. However, the single test could be used to detect any performance degradation and to confirm that no failure mechanisms related to the revised SR Frequency became important enough to alter the failure rates assumed in the justification of one-time SR Frequency or, if applicable, the permanent SR Frequency.

### 3.31 Step 19: Periodic Re-assessment

A one-time SR Frequency change would not be incorporated into updates to the PRA model because the PRA model should reflect the as-built, as-operated, and as-maintained plant. This is consistent with the "Option 1" and "Option 2" descriptions in Step 19 of NEI 04-10.

### 3.32 Step 20: IDP Reviews & Adjusts STI as Needed

This step applies as written to a one-time SR Frequency change.

## 4.0 Frequently Asked Questions

### 4.1 Are SFCP Procedure Changes Needed to Evaluate a One-Time SR Frequency Change

Q: Do I need to revise my SFCP implementing procedures to permit calculation of a one-time SR Frequency change?

A: It is likely that a change to the SFCP implementing procedures may be needed to indicate that a proposed change is a one-time change. Procedural guidance may also be needed to ensure the one-time SR Frequency is replaced when needed by the permanent SR Frequency.

## 4.2 Can a One-Time SR Frequency Change be Used if a Surveillance was Missed?

Q: If it is discovered that a Surveillance was not performed within its specified frequency and SR 3.0.3 is applied, can a one-time SR Frequency change be made to defer performing the missed Surveillance?

A: Yes. SR 3.0.3 may be applied when an SR is not performed within its specified frequency (i.e., per SR 3.0.2, 1.25 times the interval specified in the Frequency column of the SR). SR 3.0.3 is not an exception to meeting Surveillances, only to their performance. Therefore, in order to use SR 3.0.3, the licensee must have reasonable assurance that the SR will be met when performed.

If SR 3.0.3 is applied to delay performance of a missed Surveillance, a one-time or permanent SR Frequency change may be used to extend the delay period, provided the requirements of SR 3.0.3 and the SFCP are met.