

June 8, 2001

MEMORANDUM TO: Those on the Attached List

FROM: Robert L. Dennig, Acting Chief */RA/*  
Technical Specifications Branch  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

SUBJECT: PUBLICATION IN THE FEDERAL REGISTER OF A RISK INFORMED  
TECHNICAL SPECIFICATIONS (RITS) INITIATIVE ON MISSED  
SURVEILLANCES

The purpose of this memorandum is to provide you, the NRC Regional Directors of the Divisions of Reactor Safety (DRS) and Divisions of Reactor Projects (DRP), an early copy of the impending Federal Register Notice (FRN) publication of a technical specifications (TS) initiative (attachment). This is provided in accordance with an action item from the DRP/DRS counterpart meeting that was held from January 16 through 18, 2001. In approximately 3 days the RITS initiative on missed surveillances, TS SR 3.0.3, will be appear in the FRN, requesting public comment.

Attachment: As stated

cc: S. Collins  
J. Johnson  
B. Sheron  
J. Zwolinski  
J. Strosnider  
G. Holahan  
B. Boger

CONTACT:  
Robert T. Tjader, NRR  
301-415-1187

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DATE	06/08/2001	06/08/2001		

**OFFICIAL RECORD COPY**

Addressees - Memorandum Dated: June 8, 2001  
Regional Office Directors

SUBJECT: MULTIPLE ADDRESSEE LIST

A. Randolph Blough, Director, Division of Reactor Projects (RGN-I/DRP)  
Wayne Lanning, Director, Division of Reactor Safety (RGN-I/DRS)  
Loren Plisco, Director, Division of Reactor Projects (RGN-II/DRP)  
John Grobe, Director, Division of Reactor Safety (RGN-II/DRS)  
Geoffrey Grant, Director, Division of Reactor Projects (RGN-III/DRP)  
Charles Castro, Director, Division of Reactor Safety (RGN-III/DRS)  
Arthur Howell, Director, Division of Reactor Safety (RGN-IV/DRS)  
Kenneth Brockman, Director, Division of Reactor Projects (RGN-IV/DRP)

**NUCLEAR REGULATORY COMMISSION**  
**Notice of Opportunity To Comment on Model Safety Evaluation on**  
**Technical Specification Improvement To Modify Requirements Regarding Missed**  
**Surveillances Using the Consolidated Line Item Improvement Process**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Request for comment.

**SUMMARY:** Notice is hereby given that the staff of the Nuclear Regulatory Commission (NRC) has prepared a model safety evaluation (SE) relating to the modification of requirements regarding missed surveillances imposed on licensees through technical specifications. The NRC staff has also prepared a model no significant hazards consideration (NSHC) determination relating to this matter. The purpose of these models is to permit the NRC to efficiently process amendments that propose to modify requirements for missed surveillances. Licensees of nuclear power reactors to which the models apply could request amendments confirming the applicability of the SE and NSHC determination to their reactors. The NRC staff is requesting comments on the model SE and model NSHC determination prior to announcing their availability for referencing in license amendment applications.

**DATES:** The comment period expires [insert date 30 days from date of publication in the *Federal Register*]. Comments received after this date will be considered if it is practical to do so, but the Commission is able to ensure consideration only for comments received on or before this date.

**ADDRESSES:** Comments may be submitted either electronically or via U.S. mail.

Submit written comments to: Chief, Rules and Directives Branch,

Division of Administrative Services, Office of Administration, Mail Stop: T-6 D59, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Hand deliver comments to: 11545 Rockville Pike, Rockville, Maryland, between 7:45 a.m. and 4:15 p.m. on Federal workdays.

Copies of comments received may be examined at the NRC's Public Document Room, 11555 Rockville Pike (Room O-1F21), Rockville, MD.

Comments may be submitted by electronic mail to [CLIIP@nrc.gov](mailto:CLIIP@nrc.gov).

**FOR FURTHER INFORMATION CONTACT:** Robert Dennig, Mail Stop: O-12H4, Division of Regulatory Improvement Programs, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone 301-415-1161.

**SUPPLEMENTARY INFORMATION:**

**Background**

Regulatory Issue Summary 2000-06, "Consolidated Line Item Improvement Process for Adopting Standard Technical Specification Changes for Power Reactors," was issued on March 20, 2000. The consolidated line item improvement process (CLIIP) is intended to improve the efficiency of NRC licensing processes. This is accomplished by processing proposed changes to the standard technical specifications (STS) in a manner that supports subsequent license amendment applications. The CLIIP includes an opportunity for the public to comment on proposed changes to the STS following a preliminary assessment by the NRC staff and finding that the change will likely be offered for adoption by licensees. This notice is soliciting comment on a proposed change to the STS that modifies requirements regarding missed surveillances. The CLIIP directs the NRC staff to evaluate any comments received for a proposed change to the STS and to either reconsider the change or to proceed with

announcing the availability of the change for proposed adoption by licensees. Those licensees opting to apply for the subject change to technical specifications are responsible for reviewing the staff's evaluation, referencing the applicable technical justifications, and providing any necessary plant-specific information. Each amendment application made in response to the notice of availability would be processed and noticed in accordance with applicable rules and NRC procedures.

This notice involves the modification of requirements regarding missed surveillances in technical specifications. This proposed change was proposed for incorporation into the standard technical specifications by all Owners Groups participants in the Technical Specification Task Force (TSTF) and is designated TSTF-358. TSTF-358 can be viewed on the NRC's web page at <http://www.nrc.gov/NRR/sts/sts.htm>.

### **Applicability**

This proposed change to modify technical specification requirements for missed surveillances is applicable to all licensees who currently have or who will adopt, in conjunction with the proposed change, technical specification requirements for a Bases control program consistent with the Technical Specifications (TS) Bases Control Program described in Section 5.5 of the applicable vendor's STS.

To efficiently process the incoming license amendment applications, the staff requests each licensee applying for the changes addressed by TSTF-358 using the CLIIP to include Bases for the proposed technical specification consistent with the Bases proposed in TSTF-358. In addition, for those licensees that have not adopted requirements for a Bases control program by converting to the improved STS or by other means, the staff requests that you include the requirements for a Bases control program consistent with the STS in your request for the proposed change. The need for a Bases control program stems from the need for adequate

regulatory control of some key elements of the proposal that are contained in the proposed Bases for SR 3.0.3. The staff is requesting that the Bases be included with the proposed license amendments because, in this case, the changes to the technical specifications and changes to the associated Bases form an integrated change to a plant's licensing bases. To ensure that the overall change, including the Bases, includes the appropriate regulatory controls, the staff plans to condition the issuance of each license amendment on incorporation of the changes into the Bases document and on requiring the licensee to control the changes in accordance with the Bases Control Program. The CLIP does not prevent licensees from requesting an alternative approach or proposing the changes without the requested Bases and Bases control program. Variations from the approach recommended in this notice may, however, require additional review by the NRC staff and may increase the time and resources needed for the review.

### **Public Notices**

This notice requests comments from interested members of the public within 30 days of the date of publication in the Federal Register. Following the staff's evaluation of comments received as a result of this notice, the staff may reconsider the proposed change or may proceed with announcing the availability of the change in a subsequent notice (perhaps with some changes to the safety evaluation or proposed no significant hazards consideration determination as a result of public comments). If the staff announces the availability of the change, licensees wishing to adopt the change will submit an application in accordance with applicable rules and other regulatory requirements. The staff will in turn issue for each application a notice of consideration of issuance of amendment to facility operating license(s), a proposed no significant hazards consideration determination, and an opportunity for a hearing. A notice of issuance of an amendment to operating license(s) will also be issued to announce

the modification of requirements for missed surveillances for each plant that applies for and receives the requested change.

## **Proposed Safety Evaluation**

U.S. Nuclear Regulatory Commission

Office of Nuclear Reactor Regulation

Consolidated Line Item Improvement

Technical Specification Task Force (TSTF) Change TSTF-358

Change to Surveillance Requirement 3.0.3 Regarding Missed Surveillances

### **1.0 Introduction**

In a letter dated November 17, 1999, the Nuclear Energy Institute (NEI) Technical Specification Task Force (TSTF) proposed several changes to the standard technical specifications (STS) (NUREGs 1430 - 1434) on behalf of the industry. One of the proposed changes, identified as TSTF-358, was a change to STS surveillance requirement (SR) 3.0.3 regarding missed SRs. The proposed change would modify SR 3.0.3 to allow a delay period for a missed SR of 24 hours or up to the surveillance frequency, whichever is longer.

On February 14, 2000, the staff requested that the NEI TSTF modify TSTF-358 to address several questions and comments that the staff had during their initial review of the proposed change. On September 15, 2000, the NEI TSTF submitted Revision 5 to TSTF-358 for review. (Revisions 2 - 4 were only reviewed by the industry and were never submitted for NRC review.)



This proposal is one of the industry's initiatives under the Risk-Informed Technical Specifications program.

The industry proposed changes, in TSTF-358, to the Technical Specifications (TS) SR 3.0.3 and the SR 3.0.3 Bases have been modified slightly by the NRC staff. The modifications are: (1) the TS SR 3.0.3 proposal has been changed, by the addition of a phrase to the proposed new sentence, to make it clear that not only must a risk evaluation be performed but also that the risk impact must be managed; and, (2) the SR 3.0.3 Bases proposal is changed to properly invoke the program to assess and manage risk required by 10 CFR 50.65(a)(4), and to avoid the misperception that 10 CFR 50.65(a)(4) requires monitoring at times other than before maintenance activities.

The following shows the TSTF-358 TS SR 3.0.3 and SR 3.0.3 Bases with the NRC staff additions and deletions incorporated: (1) the revised TS SR 3.0.3 reads, "A risk evaluation shall be performed for any surveillance delayed greater than 24 hours, and the risk shall be managed;" and (2) the revised SR 3.0.3 Bases that provides the link to 10 CFR 50.65(a)(4) reads, "This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, 'Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants.'

## 2.0 Background

The regulations contained in 10 CFR 50.36, "Technical Specifications," require that technical specifications include surveillance requirements. Surveillance requirements are requirements relating to test, calibration, or inspection to ensure 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. Technical specifications (TS) require surveillance tests to be performed periodically (e.g., weekly or monthly). The periodic test interval defined in the technical specifications is called the surveillance frequency or surveillance interval. The majority of surveillance tests included in the technical specifications are designed to ensure that standby safety systems will be operable when they are needed to mitigate an accident. By testing these components, failures that may have occurred since the previous test can be detected and corrected.

STS SR 3.0.1 states that SRs shall be met during the MODES or other specified conditions in the applicability for individual limiting conditions for operation (LCOs) and that failure to perform a surveillance within the specified frequency shall be failure to meet the LCO, except as provided in SR 3.0.3.

The current STS SR 3.0.3 requires that, if it is found that a surveillance test was not performed within its specified frequency, the associated LCO be declared not met (e.g., equipment be declared inoperable) unless the missed surveillance test is completed successfully within 24 hours or within the limit of the specified frequency, whichever is less, from the time it was discovered that the test was not performed. The requirements in STS SR 3.0.3 are based on NRC Generic Letter 87-09, "Sections 3.0 and 4.0 of the Standard Technical Specifications (STS) of the Applicability of Limiting Conditions for Operation and Surveillance Requirements."

Generic Letter 87-09 was published to address three specific issues with the application of technical specifications. One of those issues was missed surveillances. The Generic Letter states, "The second problem involves unnecessary shutdowns caused by Specification 4.0.3 when surveillance intervals are inadvertently exceeded. The solution is to clarify the applicability of the Action Requirements, to specify a specific acceptable time limit for

completing a missed surveillance in certain circumstances, and to clarify when a missed surveillance constitutes a violation of the Operability Requirements of an LCO. It is overly conservative to assume that systems or components are inoperable when a surveillance has not been performed because the vast majority of surveillances do in fact demonstrate that systems or components are OPERABLE. When a surveillance is missed, it is primarily a question of operability that has not been verified by the performance of a Surveillance Requirement. Because the allowable outage time limits of some Action Requirements do not provide an appropriate time for performing a missed surveillance before Shutdown Requirements apply, the technical specifications should include a time limit that allows a delay of required actions to permit the performance of the missed surveillance based on consideration of plant conditions, adequate planning, availability of personnel, the time required to perform the surveillance, and, of course, the safety significance of the delay in completing the surveillance. [emphasis added] The staff has concluded that 24 hours is an acceptable time limit for completing a missed surveillance when the allowable outage times of the Action Requirements are less than this limit, or when time is needed to obtain a temporary waiver<sup>1</sup> of the Surveillance Requirement.”

The proposed change would extend the delay time for declaring the LCO not met and entering the required actions by allowing more time to perform the missed surveillance test. This will be achieved by modifying [SR 3.0.3] to allow a delay period from 24 hours up to the surveillance frequency, *whichever is greater*, to perform a missed surveillance prior to having to declare the LCO not met. The change will add a sentence to [SR 3.0.3] that states, “A risk

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<sup>1</sup>The terminology “temporary waiver” was subsequently revised to refer to the practice as “enforcement discretion.”

evaluation shall be performed for any surveillance delayed greater than 24 hours, and the risk impact shall be managed.”

The objective of the proposed change is to minimize the impact on plant risk resulting from the performance of a missed surveillance test by allowing flexibility in considering the plant conditions and other plant activities without compromising plant safety. In addition, implementation of the proposed change would reduce the need for the licensee to apply for regulatory relief to delay the performance of missed surveillances.

The basis for establishing the changes to requirements for missed surveillances in Generic Letter 87-09 continues to apply to the current proposed change to [SR 3.0.3]. As evidenced by the discussion in Generic Letter 87-09, the intent of the change proposed in the Generic Letter was to reduce the impact on plant risk resulting from the performance of a missed surveillance test by allowing some flexibility in the performance of missed tests. The delay time of 24 hours was selected using engineering judgement in the absence of suitable tools to determine a delay period on a case-by-case basis. In addition, the staff recognized in Generic Letter 87-09 that even a 24-hour delay period would not be sufficient in some cases and licensees would need to seek regulatory relief in those cases.

The recent revision to the Maintenance Rule to establish the requirement in 10 CFR 50.65(a)(4) to assess and manage the increase in risk that may result from maintenance activities provides a framework to allow a more risk-informed approach to addressing missed surveillances. This approach is consistent with the Commission’s policy to increase the use of probabilistic risk assessment (PRA) technology in all regulatory matters to the extent supported by the state-of-the-art in PRA methods and data and continues to support the objectives outlined by the staff in Generic Letter 87-09.

## 2.1 Background Determination

The staff believes that the proposed change to [SR 3.0.3] is appropriate because: (1) the number of missed surveillance tests is a very small fraction of the total number of such tests performed at a nuclear plant each year; (2) the change applies to unintentionally missed surveillance tests and is not intended to be used as an operational convenience to extend surveillance frequencies (as stated in the proposed [SR 3.0.3] Bases); and (3) missed surveillances will be placed in the licensee's corrective action program.

The staff has determined that the proposed change is applicable to all licensees. In Generic Letter 87-09, the staff concluded that the proposed modifications would result in improved technical specifications for all plants and no limitations were put on the applicability of the proposed changes. Because the basis for this proposed change is largely the same as for the change proposed in Generic Letter 87-09, the staff believes the same broad applicability is appropriate. In addition, every licensee is required to comply with the Maintenance Rule and, therefore, will have implemented programs to comply with 10 CFR 50.65(a)(4) to assess and manage risk associated with maintenance and other operational activities.

### 3.0 Evaluation

The proposed change modifies [SR 3.0.3] to allow a delay period from 24 hours up to the surveillance frequency, whichever is greater, to perform a missed surveillance prior to having to declare the LCO not met. The change will add a sentence to [SR 3.0.3] that states, "A risk evaluation shall be performed for any surveillance delayed greater than 24 hours, and the risk impact shall be managed."

The proposed change will not allow equipment known to be inoperable to be considered operable until the missed surveillance is performed. If it is known that the missed surveillance could not be met, [SR 3.0.1] would require that the LCO be declared not met and the

appropriate condition(s) entered. In addition, the Bases for [SR 3.0.3] state that the use of the delay period established by [SR 3.0.3] is a flexibility which is not intended to be used as an operational convenience to extend surveillance intervals, but only for the performance of missed surveillances.

The modification will also include changes to the Bases for [SR 3.0.3] that provide details on how to implement the new requirements. The Bases changes provide guidance for surveillance frequencies that are not based on time intervals but are based on specified unit conditions, operating situations, or requirements of regulations. In addition, the Bases changes state that the licensee is expected to perform any missed surveillance test at the first reasonable opportunity, taking into account appropriate considerations, such as the impact on plant risk and accident analysis assumptions, consideration of unit conditions, planning, availability of personnel, and the time required to perform the surveillance. The Bases also state that the risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, "Assessing and Managing Risks Before Maintenance Activities at Nuclear Power Plants," and that the missed surveillance should be treated as an emergent condition as discussed in Regulatory Guide 1.182. In addition, the Bases state that the degree of depth and rigor of the evaluation should be commensurate with the importance of the component and that missed surveillances for important components should be analyzed quantitatively. The Bases also state that, if the results of the risk evaluation determine that the risk increase is significant, the evaluation should be used to determine the safest course of action. Finally, the Bases state that all missed surveillances will be placed in the licensee's Corrective Action Program.

[Optional Section for applications for changes to technical specifications that do not include a Bases Control Program:

The licensee has included in its application the addition of a Bases control program to the administrative section of the technical specifications. Prior the issuance of the STS (NUREGS 1430-1434), the control of technical specification Bases was not clearly defined by either technical specifications or NRC regulations. The administrative requirements for a Bases control program were added to the STS to define a methodology for evaluating changes to and providing updates of the technical specification Bases. The addition of the technical specification Bases Control Program for plants that have not adopted the STS will provide the same benefits in terms of defining a methodology for the maintenance of the technical specification Bases. The licensee has proposed administrative controls that are consistent with the STS requirements and therefore satisfy the condition that was included in the Federal Register Notice for the use of CLIP for this technical specifications change. The staff finds the addition of the technical specifications Bases Control Program acceptable.]

Key elements provided by the licensee to justify the proposed technical specification change are listed below. These elements were built into the process to ensure that every time a surveillance is missed the risk will be properly assessed and managed. In addition, such elements facilitate regulatory oversight.

- A risk evaluation shall be performed for any surveillance test delayed longer than 24 hours and the risk impact shall be managed.
- Although the proposed change to [SR 3.0.3] allows an increase of the delay time, the missed surveillance test should be performed at the “first reasonable opportunity.”
- The “first reasonable opportunity” will be determined by taking into consideration the risk impact from delaying the surveillance test (including risk from changing plant configurations or shutting the plant down to perform the surveillance, whenever applicable) as well as the impact on any analysis assumptions, in addition to unit

conditions, planning, availability of personnel, and the time required to perform the surveillance.

- A missed surveillance will be treated as an emergent condition in the same fashion as other unplanned maintenance activities. The risk impact of the condition will be managed through the program in place to implement 10 CFR 50.65 (a)(4) and its implementation guidance, Regulatory Guide 1.182 .
- A missed surveillance will be placed in the licensee's corrective action program, thus providing the staff with a means to verify that the number of missed surveillances continues to be very low.
- The NRC's operating reactor oversight process will provide the framework for inspectors and other staff to review missed surveillances and assess the licensee's actions and performance.

The staff finds that a process containing these key elements is appropriate in this case for the following reasons:

- 10 CFR 50.65 (a)(4) requires licensees to implement programs to assess and manage increases in risk that may result from planned maintenance activities. This program is suitable to assess and manage the risk impact of missed surveillances because missed surveillances can be treated as emergent conditions and their risk impact will be assessed and managed in an integrated fashion with concurrent maintenance activities.
- Inspection procedures are in place which will allow NRC staff to oversee the implementation of Maintenance Rule requirements, including the adequacy of risk assessments performed by licensees for maintenance configurations.



- The number of missed surveillance tests is a very small fraction of the total number of such tests performed at a nuclear plant each year. The proposed change is not intended to be used as an operational convenience to extend surveillance frequencies.
- This process is similar to other improvements that have been made to the technical specifications that allow the use of a controlled decision making process by licensees when the process has some high-level regulatory oversight. Two examples of this are the adoption of the Core Operating Limits Report and the Pressure/Temperature Limits Report. In each of these cases, the staff approved the methodology behind the calculation of certain technical specification parameter limits and then allowed the specific limits to be removed from technical specifications and controlled by the licensee using the approved methodology. Similarly, for this proposed change, the staff has already approved guidance that outlines a process for complying with 10 CFR 50.65(a)(4) and, therefore, can allow the licensee to use that guidance to determine the most prudent course of action in the case of a missed surveillance.

The guidance outlining an acceptable process for licensees to assess and manage increases in risk that may result from planned maintenance activities is found in Regulatory Guide 1.182. Regulatory Guide 1.182 endorses a revised Section 11 to NUMARC 93-01 “Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” Revision 2, updated by the Nuclear Energy Institute.

Section 11 of NUMARC 93-01, dated February 22, 2000, provides guidance for assessing and managing risk impact resulting from performance of maintenance activities, including guidance for establishing action thresholds based on qualitative and quantitative considerations as well as risk management actions. The objective of risk management is to control the temporary and aggregate risk increases from maintenance activities such that the

plant's average baseline risk is maintained within a minimal range. This is accomplished by using the results of the risk assessment to plan and schedule maintenance such that the risk increases are limited, and to take additional actions beyond routine work controls to address situations where the temporary risk increase is above a certain threshold.

In order to gain additional insights into the proposed change, the staff referred to the regulatory guidance provided in Regulatory Guide 1.174 entitled "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis, and in Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," although these Regulatory Guides do not specifically address the type of change in this proposal. Regulatory Guide 1.177 provides the staff's recommendations for utilizing risk information to evaluate changes to nuclear power plant technical specifications by assessing the impact of such proposed changes on the risk associated with plant operation. The approach documented in Regulatory Guide 1.177 was taken into consideration by the staff in evaluating the risk information provided in support of the proposed changes in [SR 3.0.3] to increase the time allowed to perform a missed surveillance.

One portion of the guidance in Regulatory Guide 1.177 includes the assessment of the risk impact of the proposed change for comparison to acceptance guidelines consistent with the Commission's Safety Goal Policy Statement, as documented in Regulatory Guide 1.174. In addition, the approach outlined in the guidance aims at ensuring that the plant risk does not increase unacceptably at any time during the implementation of the proposed change (i.e., during the extended surveillance interval).

Another portion of the guidance addresses the need for identifying risk significant configurations resulting from maintenance or other operational activities and taking appropriate compensatory measures to avoid such configurations. This type of evaluation is directly

addressed by the requirement to perform a risk assessment for missed surveillances delayed longer than 24 hours.

The staff believes that insights from the guidance provided in Regulatory Guides 1.174 and 1.177 can be used to show how the proposed change is expected to result in, at most, an increase in risk which is small and consistent with the Commission's Safety Goal Policy Statement. The staff believes that in the majority of the cases of missed surveillances, implementation of the proposed change will result in a risk benefit due to the proposed requirement for the licensee to evaluate the risk impact for missed surveillances that would require a delay of longer than 24 hours.

### 3.1 Risk Impact of the Proposed Change

The staff made a qualitative assessment of the risk impact of the proposed change for comparison with the intent of the acceptance guidelines documented in Regulatory Guide 1.174, consistent with the Commission's Safety Goal Policy Statement. Such risk impact is measured by the average (yearly) risk change. In addition, the staff took into consideration guidance in Regulatory Guide 1.177 aimed at ensuring that the plant risk does not increase unacceptably at any time during the implementation of the proposed change (i.e., during an extended surveillance interval in this case). The staff's qualitative assessment is summarized below.

#### Average Risk Impact

The probability that a standby active component, such as a pump or a circuit breaker, will fail when demanded during an accident is based on the assumption that the component fails due to "standby" stresses (i.e., stresses which are present while the component is in standby, such as corrosion, dirt, lack of lubrication). This probability, also called the

component's average "unavailability," is used in probabilistic risk assessments (PRAs) and is most frequently calculated by the following equation.

$$q = \frac{1}{2} * \lambda * T \quad (1)$$

where:

q = the component's average unavailability,

$\lambda$  = the component's failure rate (assumed constant) while in standby, and

T = the interval at which the component is tested for operability.

The average unavailability of a structure, system, or component (SSC), calculated by using the above equation, reflects the potential vulnerability of the component to "standby" stresses. Such vulnerability increases with time between operability checks (tests) assuming corrective action is taken to restore failed components identified by the test. Thus, the risk impact of a missed surveillance is reflected by the increased unavailability of the related SSCs due to the increase of the interval between surveillance tests. If the missed surveillance affects two or more components, some "standby" stresses may impact multiple components. In such a case, the missed surveillance would also increase the average common cause failure (CCF) unavailability of two or more components and this should be addressed in the risk assessment (CCF unavailabilities are calculated by adjusting the single component failure unavailability using standard PRA techniques, such as the beta factor or the Multiple Greek Letter method).

The thresholds of the aggregate risk impacts are based on the permanent change guidelines discussed in Regulatory Guide 1.174. The licensee will be expected to manage the risk from the proposed technical specification change in conjunction with the risk from other concurrent plant activities to ensure that any risk increase, in terms of CDF and LERF, will be small and consistent with the Commission's Safety Goal Policy Statement.

Risk insights from existing PRAs and the low frequency of missed surveillances indicate that the proposed technical specification change is highly unlikely to lead to a significant increase in the average (yearly) risk, in terms of CDF or LERF. Significant risk increases can occur only under the following conditions:

- The number of missed surveillances is allowed to increase significantly;
- High risk configurations are allowed (e.g., by allowing certain combinations of multiple missed surveillances and/or outages); and
- Poor risk management of plant operational activities is allowed.

Any of these conditions would be in violation of the intent of the proposed [SR 3.0.3] and could trigger a review by NRC of the licensee's actions and performance. The implementation guidance found in the proposed [SR 3.0.3] Bases is intended to ensure that such conditions would not occur. Licensees are already required to manage risk associated with online maintenance activities. Furthermore, the addition of missed surveillances (rather rare plant conditions) to the maintenance activities is not expected to increase risk. On the contrary, insights from existing risk assessments indicate that there are plant conditions during which it is preferable and safer not to have to complete missed surveillance tests for some SSCs. Therefore, the proposed technical specification change will allow the licensee to make informed decisions and take appropriate actions to control risk.

#### Temporary risk impact

In addition to changes in the mean values of CDF and LERF, the incremental conditional core damage probability (ICCDP) and the incremental conditional large early release probability (ICLERP) are proposed by Regulatory Guide 1.177 as appropriate measures of the increase in probability of core damage and large early release, respectively, during the period of implementation of a proposed technical specification change (i.e., during the extended

surveillance period in the case of a missed surveillance). Regulatory Guide 1.182 provides guidance for controlling temporary risk increases resulting from maintenance activities. Such guidance, which is consistent with guidance provided in Regulatory Guide 1.177, establishes action thresholds based on qualitative and quantitative considerations as well as risk management actions. The staff expects that the licensee will implement this guidance for assessing temporary risk increases from missed surveillances concurrently with maintenance and other operational activities.

Instantaneous and temporary risk increases from a missed surveillance are assessed by considering the time-dependent unavailability, most often calculated by the following equation.

$$q(t) = \lambda * t$$

where:

$q(t)$  = the component's unavailability at time  $t$

$\lambda$  = the component's failure rate (assumed constant) while in standby, and

$t$  = time from end of surveillance frequency of a missed surveillance test.

If the missed surveillance affects two or more components, some "standby" stresses may impact multiple components. In such a case, the missed surveillance would increase also the time-dependent CCF unavailability of two or more components and this should be addressed in the risk assessment.

Significant temporary risk increases following a missed surveillance can occur only under the following conditions:

- high risk configurations are allowed (e.g., by allowing certain combinations of multiple missed surveillances and/or outages), and
- poor risk management of plant operation activities is allowed.

Any of these conditions would be in violation of the intent of the proposed [SR 3.0.3] and could trigger an NRC review of the licensee's actions and performance. The requirements associated with the proposed change are intended to ensure that such conditions would not occur. Thus, the proposed technical specification change is not expected to lead to significant temporary risk increases. Following the discovery of an unintentionally missed surveillance, the licensee will have to assess temporary risk increases, qualitatively or quantitatively depending on the importance of the component affected by the missed surveillance, if the surveillance cannot be performed within 24 hours from the time it has been discovered.

### 3.2 Risk-Informed Configuration Risk Management

Regulatory Guide 1.177 addressed the need for identifying risk significant configurations resulting from maintenance or other operational activities and taking appropriate compensatory measures to avoid such configurations. The objective of such guidance for this review is to ensure that plant safety will be maintained and monitored during the period of an extended surveillance testing interval (associated with an unintentionally missed surveillance). The licensee proposes to use the program in place to implement the Maintenance Rule to identify "high-risk" configurations resulting from missed surveillance tests in conjunction with outages associated with maintenance activities. It is worth noting that the guidance provided in Regulatory Guide 1.177 with regard to the Configuration Risk Management Program was used as the basis for developing the guidance contained in Regulatory Guide 1.182 for the 10 CFR 50.65(a)(4) provisions of the Maintenance Rule. This provides additional assurance that the proposed process for evaluating the risk impact of missed surveillances is consistent with guidance provided in Regulatory Guide 1.177.

### 3.3 Quality of PRA

Once a missed surveillance is discovered and the licensee determines that the surveillance cannot be performed within 24 hours, the licensee will have to use a risk assessment to determine the most prudent course of action. The risk assessment can be done qualitatively or quantitatively depending on the importance of the component affected by the missed surveillance (missed surveillances for risk important components should be analyzed quantitatively). Such a risk assessment will be consistent with the program to implement the Maintenance Rule guidance to assess and account for both aggregate and temporary risk increases associated with “emergent” plant conditions as well as before undertaking online maintenance or other operational activities.

All licensees must have the capability to assess and manage increases in risk from maintenance activities as required by the Maintenance Rule. Risk assessments performed pursuant to 10 CFR 50.65(a)(4) may use qualitative, quantitative or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the complexity of the proposed configuration to be assessed. Section 11 of NUMARC 93-01 provides guidance for using qualitative, quantitative or blended methods to assess risk. Current inspection programs allow the NRC staff to oversee licensee implementation of 10 CFR 50.65 (a)(4) requirements, including the adequacy of pre-maintenance risk assessments performed by licensees.

For the reasons listed below, the staff finds that the same “quality” of PRA or PRA insights used to perform risk assessments pursuant to 10 CFR 50.55 (a)(4) is also appropriate when assessing the impact of missed surveillances.

- The number of “emergent” conditions resulting from missed surveillances is very small (in both absolute terms and in comparison to the frequency of “emergent” conditions



resulting from equipment failures). The licensee is expected to implement the proposed change to [SR 3.0.3] in a manner that ensures that this statement remains valid.

- A missed surveillance is equivalent to a one-time surveillance frequency extension. Therefore, the risk exposure is limited to the duration of the surveillance frequency extension. Risk increases are small compared to similar increases associated with equipment failures. The average (conditional) risk increase, given a missed surveillance, may be comparable to the risk increase from equipment failures. However, due to the rarity of missed surveillances, the average (yearly) risk increase from missed surveillances is expected to be small compared to the risk increase from equipment failures.
- PRA insights indicate that the risk impact from missed surveillances is significant only for a relatively small set of standby equipment. This equipment, such as auxiliary feedwater, high pressure injection pumps, and emergency diesel generators, is located outside containment and generally can be easily tested in a short time, if necessary.
- NRC inspection programs allow NRC staff to oversee the implementation of 10 CFR 50.65 (a)(4) requirements, including the adequacy of pre-maintenance risk assessments performed by licensees.

### 3.4 Summary

The staff review finds that the process proposed by the licensee for addressing missed surveillance requirements meets Commission guidance for allowing technical specification changes. Key elements of the proposed change are listed below.

- A risk evaluation shall be performed for any surveillance delayed longer than 24 hours, and the risk impact shall be managed.
- The missed surveillance test should be performed at “the first reasonable opportunity.”

- The “first reasonable opportunity” will be determined by taking into consideration the risk impact from delaying the surveillance test as well as the impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the surveillance.
- A missed surveillance will be treated as an “emergent” condition in the same fashion as other unplanned maintenance activities. The risk impact of the condition will be managed through the program in place to implement 10 CFR 50.65 (a)(4) and its implementation guidance (NRC Regulatory Guide 1.182). Rescheduling of missed surveillances pursuant to Regulatory Guide 1.182 will ensure the necessary provisions for managing the risk impact of performing the surveillance in conjunction with other ongoing plant configuration changes.
- The NRC’s operating reactor oversight process will provide the framework for inspectors and other staff to review missed surveillances and assess the licensee’s actions and performance. Inspection procedures are in place which will allow NRC staff to oversee the implementation of Maintenance Rule requirements, including the adequacy of pre-maintenance risk assessments performed by licensees.
- A missed surveillance will be placed in the licensee’s corrective action program, thus providing the staff with a means to verify that the number of missed surveillances continues to be very low.
- The number of missed surveillance tests is a very small fraction of the total number of such tests performed at a nuclear plant each year. The proposed change is not intended to be used as an operational convenience to extend surveillance frequencies.
- This process is similar to other improvements that have been made to the technical specifications that allow the use of a controlled decision making process by licensees

when the process has some high-level regulatory oversight. Two examples of this are the adoption of the Core Operating Limits Report and the Pressure/Temperature Limits Report. In each of these cases, the staff approved the methodology behind the calculation of certain technical specification parameter limits and then allowed the specific limits to be removed from technical specifications and controlled by the licensee using the approved methodology. Similarly, for this proposed change, the staff has already approved guidance that outlines a process for complying with 10 CFR 50.65(a)(4) and, therefore, can allow the licensee to use that guidance to determine the most prudent course of action in the case of a missed surveillance.

For these reasons, the staff finds that the proposed technical specification change, to be implemented in accordance with the above listed key elements, is acceptable.

#### 4.0 State Consultation

In accordance with the Commission's regulations, the [ ] State official was notified of the proposed issuance of the amendment. The State official had [(1) no comments or (2) the following comments - with subsequent disposition by the staff].

#### 5.0 Environmental Consideration

The amendment changes a requirement with respect to a surveillance requirement. [For those adding a Bases Control Program: The amendment also changes recordkeeping, reporting, or administrative procedures or requirements.] The NRC staff has determined that the amendments involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration,

and there has been no public comment on such finding ( FR ). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) [and c(10)]. Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

## 6.0 Conclusion

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

### **Proposed No Significant Hazards Consideration Determination**

*Description of Amendment Request:* A change is proposed to technical specifications to allow a longer period of time to perform a missed surveillance. The time is extended from the current limit of up to 24 hours or up to the limit of the specified frequency, whichever is less; to up to 24 hours or up to the limit of the specified frequency, whichever is greater.

*Basis for proposed no significant hazards consideration determination:* As required by 10 CFR 50.91(a), an analysis of the issue of no significant hazards consideration is presented below:

Criterion 1—The Proposed Change Does Not Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated

The proposed change relaxes the time allowed to perform a missed surveillance. The time between surveillances is not an initiator of any accident previously evaluated. Consequently, the probability of an accident previously evaluated is not significantly increased. The equipment being tested is still required to be operable and capable of performing the accident mitigation functions assumed in the accident analysis. As a result, the consequences of any accident previously evaluated are not significantly affected. Any reduction in confidence that a that a standby system might fail to perform its safety function due to a missed surveillance is small and would not, in the absence of other unrelated failures, lead to an increase in consequences beyond those estimated by existing analyses. The addition of a requirement to assess and manage the risk introduced by the missed surveillance will further minimize possible concerns. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

#### Criterion 2—The Proposed Change Does Not Create the Possibility of a New or Different Kind of Accident from any Previously Evaluated

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. A missed surveillance will not, in and of itself, introduce new failure modes or effects and any increased chance that a that a standby system might fail to perform its safety function due to a missed surveillance would not, in the absence of other unrelated failures, lead to an accident beyond those previously evaluated. The addition of a requirement to assess and manage the risk introduced by the missed surveillance will further minimize possible concerns.

Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

### Criterion 3—The Proposed Change Does Not Involve a Significant Reduction in the Margin of Safety

The extended time allowed to perform a missed surveillance does not result in a significant reduction in the margin of safety. As supported by the historical data, the likely outcome of any surveillance is verification that the LCO is met. Failure to perform a surveillance within the prescribed frequency does not cause equipment to become inoperable. The only effect of the additional time allowed to perform a missed surveillance on the margin of safety is the extension of the time until inoperable equipment is discovered to be inoperable by the missed surveillance. However, given the rare occurrence of inoperable equipment, and the rare occurrence of a missed surveillance, a missed surveillance on inoperable equipment would be very unlikely. This must be balanced against the real risk of manipulating the plant equipment or condition to perform the missed surveillance. In addition, parallel trains and alternate equipment are typically available to perform the safety function of the equipment not tested. Thus, there is confidence that the equipment can perform its assumed safety function.

Therefore, this change does not involve a significant reduction in a margin of safety.

Based upon the reasoning presented above and the previous discussion of the amendment request, the requested change does not involve a significant hazards consideration.

Dated at Rockville, Maryland, this 8<sup>th</sup> day of June 2001.

For the Nuclear Regulatory Commission

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Robert L. Dennig,  
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