

**NUCLEAR REGULATORY COMMISSION****Notice of Opportunity to Comment on Model Safety Evaluation on  
Technical Specification Improvement Regarding  
Revision to the Control Rod Scram Time Testing Frequency in  
STS 3.1.4, "Control Rod Scram Times" for General Electric Boiling Water Reactors  
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 changing the testing frequency for the surveillance requirement (SR) in Standard Technical Specifications (STS) 3.1.4, "Control Rod Scram Times." The proposed change revises the test frequency of SR 3.1.4.2, control rod scram time testing, from "120 days cumulative operation in MODE 1" to "200 days cumulative operation in MODE 1" via changes to the NUREG-1433 (BWR/4) and NUREG-1434 (BWR/6). The Owners Group participants in the Technical Specification Task Force (TSTF) proposed this change to the STS in the Improved Standard Technical Specifications Change Traveler TSTF-460, Revision 0<sup>1</sup>. This notice also includes 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 to incorporate this change into plant-specific Technical Specifications (TSs) for General Electric (GE) boiling water reactors (BWRs). Licensees of nuclear power reactors to which the models

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<sup>1</sup> In conjunction with the proposed change, technical specifications (TS) requirements for a bases control program, consistent with the TS Bases Control Program described in Section 5.5 of the applicable vendor's standard TS, shall be incorporated into the licensee's TS, if not already in the TS.

apply could request amendments conforming to the models. In such a request, a licensee should confirm the applicability of the SE and NSHC determination to its reactor. The NRC staff is requesting comments on the model SE and model NSHC determination before 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, D.C. 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, One White Flint North, Public File Area O1-F21, 11555 Rockville Pike (first floor), Rockville, Maryland.

Comments may be submitted by electronic mail to *CLIP@nrc.gov*.

**FOR FURTHER INFORMATION CONTACT:** Bhalchandra Vaidya, Mail Stop: O-7D1, Division of Licensing Project Management, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, telephone (301) 415-3308, or William Reckley at (301) 415-1323.

## **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 and transparency of NRC licensing processes. This is accomplished by processing proposed changes to the 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 a finding that the change will likely be offered for adoption by licensees. This notice is soliciting comment on a proposed change to the SR in STS 3.1.4 "Control Rod Scram Times." The proposed change revises the test frequency of SR 3.1.4.2, control rod scram time testing, from "120 days cumulative operation in MODE 1" to "200 days cumulative operation in MODE 1" via changes to the NUREG-1433 and NUREG-1434 for the GE STS. 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 proceed with announcing the availability of the change for proposed adoption by licensees. Those licensees opting to apply for the subject change to TSs 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.

NUREG-1433, SR 3.1.4.2 states, "Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure  $\geq$  [800] psig." NUREG-1434, SR 3.1.4.2 states, "Verify, for a representative sample, each tested

control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure  $\geq$  [950] psig." Both SRs have a frequency of "120 days cumulative operation in MODE 1." The proposed change revises the frequency to "200 days cumulative operation in MODE 1." The Bases are revised to reference the new frequency and to reduce the percentage of the tested rods which can be "slow" from 20 percent to 7.5 percent.

Industry operating experience has shown the control rod scram times to be highly reliable. For example, at the Grand Gulf Nuclear Station, out of 7,660 control rod insertion tests, only 12 control rods have been slower than the insertion time limit (with the exception of test data from an anomalous cycle). The control rod drive system has shown to be highly reliable. This high reliability supports the extension of the surveillance frequency from 120 days of cumulative operation in Mode 1 to 200 days. The current TS Bases states that the acceptance criteria have been met if 20 percent or fewer of the random sample control rods that are tested within the 120-day surveillance period are found to be slow. The Bases are revised to change the control rod insertion time acceptance criterion for percentage of slow rods allowed, reducing the value to 7.5 percent of the random at-power surveillance sample when the surveillance period is extended to 200 cumulative days of operation in Mode 1. The more restrictive 7.5 percent acceptance criterion for testing the random sample is consistent with the TS 3.1.4 objective of ensuring that no more than a small percentage of control rods are slow at any given time.

### **Applicability**

This proposed change to revise the TS testing frequency for the SR 3.1.4.2 in STS 3.1.4 is applicable to GE BWR/4s and BWR/6s<sup>2</sup>.

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<sup>2</sup> Although TSTF-460 includes 200 days in brackets indicating a plant-specific value, proposed changes exceeding 200 days will require additional review and may result in the proposed amendment being processed using routine review procedures instead of using the CLIP.

To efficiently process the incoming license amendment applications, the staff requests each licensee applying for the changes addressed by TSTF-460 using the CLIP to address the plant-specific verifications identified in the model SE. Namely, each licensee submitting amendments to extend the surveillance frequency should demonstrate the reliability of the control rod insertion system based on historical control rod scram time test data, and by the more restrictive acceptance criterion for the number of slow rods allowed during at-power surveillance testing.

The CLIP does not prevent licensees from requesting an alternative approach or proposing the changes without the requested verifications. 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 SE or proposed NSHC 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 NSHC 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 revised requirements for each plant that applies for and receives the requested change.

# PROPOSED SAFETY EVALUATION

Nuclear Regulatory Commission  
Office of Nuclear Reactor Regulation  
Consolidated Line Item Improvement  
Technical Specification Task Force (TSTF) Change TSTF-460,  
“Control Rod Scram Time Testing Frequency”

## 1.0 Introduction

By application dated [Date], [Licensee] (the licensee) requested changes to the Technical Specifications (TSs) for [facility]. The proposed changes would revise TS testing frequency for the surveillance requirement (SR) in TS 3.1.4, "Control Rod Scram Times."

These changes are based on Technical Specifications Task Force (TSTF) change traveler TSTF-460 (Revision 0) that has been approved generically for the boiling water reactor (BWR) Standard TSs, NUREG-1433 (BWR/4) and NUREG-1434 (BWR/6) by revising the frequency of SR 3.1.4.2, control rod scram time testing, from "120 days cumulative operation in MODE 1" to "200 days cumulative operation in MODE 1." A notice announcing the availability of this proposed TS change using the consolidated line item improvement process was published in the Federal Register on [DATE] (XX FR XXXXXX).

## 2.0 Regulatory Evaluation

The TS governing the control rod scram time surveillance is intended to assure proper function of control rod insertion. Following each refueling outage, all control rod scram times are verified. In addition, periodically during power operation, a representative sample of control rods is randomly selected to be partially inserted to verify the insertion speed. A representative sample is defined as a sample containing at least 10 percent of the total number of control rods. The current TS stipulates that no more than 20 percent of the control rods in this representative sample can be “slow” during the post outage testing. With more than 20 percent of the sample declared to be "slow" per the criteria in Table 3.1.4-1, additional control rods are tested until this

20 percent criterion (e.g., 20 percent of the entire sample size) is satisfied, or until the total number of "slow" control rods (throughout the core, from all surveillances) exceeds the Limiting Condition for Operation limit. For planned testing, the control rods selected for the sample should be different for each test. The acceptance criterion for at-power surveillance testing has been redefined from 20 percent to 7.5 percent. This tightened acceptance criterion for at-power surveillance aligns with the TS 3.1.4 requirement for the total control rods allowed to have scram times exceeding the specified limit.

The proposed change does not affect any current operability requirements and the test frequency being revised is not specified in regulations. As a result, no regulatory requirements or criteria are affected.

### **3.0 Technical Evaluation**

#### **3.1 Statement of Proposed Changes**

NUREG-1433, SR 3.1.4.2 states, "Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure  $\geq$  [800] psig." NUREG-1434, SR 3.1.4.2 states, "Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure  $\geq$  [950] psig." Both SRs have a frequency of "120 days cumulative operation in MODE 1." The proposed change revises the frequency to "200 days cumulative operation in MODE 1." The Bases are revised to reference the new frequency and to reduce the percentage of the tested rods which can be "slow" from 20 percent to 7.5 percent.

#### **3.2 Evaluation of Proposed Change**

Over the course of the operating life of [Plant Name], the control rod insertion time test results have shown the control rod scram rates to be highly reliable. During [XXX] years of operation, out of [XXX] control rod insertion tests, only [XXX] control rods have been slower

than the insertion time limit. The extensive historical database substantiates the claim of high reliability of the [Plant Name] control rod drive system. The current TS requires that 10 percent of the [XXX] control rods, or [XXX] rods, be tested via random sampling every 120 cumulative days of operation in Mode 1.

The current TS states that the acceptance criteria have been met if 20 percent or fewer of the random sample control rods that are tested are found to be slow. The acceptance criterion has been re-defined for at-power surveillance testing from 20 percent to 7.5 percent when the surveillance period is extended to 200 cumulative days of operation in Mode 1. This tightened acceptance criterion for at-power surveillance aligns with the TS 3.1.4 requirement for the total control rods allowed to have scram times exceeding the specified limit.

The licensee will incorporate the revised acceptance criterion value of 7.5 percent into the TS Bases at the next periodic update in accordance with their Bases Control Program and as a condition of this license amendment<sup>3</sup>.

The NRC staff considers the extended surveillance interval to be justified by the demonstrated reliability of the control rod insertion system, based on historical control rod scram time test data, and by the more restrictive acceptance criterion for the number of slow rods allowed during at-power surveillance testing. The NRC staff finds the proposed TS change acceptable.

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<sup>3</sup> Conditioning of the license amendment is accomplished by including wording similar to the following in the implementation language (typically included as item 3) in the Amendment of Facility Operating License:

This license amendment is effective as of its date of issuance and shall be implemented within [XX] days from the date of issuance. The licensee shall incorporate during the next periodic update into the TS Bases Section the changes described in its application dated [Date].

#### **4.0 State Consultation**

In accordance with the Commission's regulations, the [State] State official was notified of the proposed issuance of the amendments. The State official had [choose one: (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 the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance 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 (XX FR XXXXX). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

#### **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 the operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment 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:* The proposed amendment changes the Technical Specification (TS) testing frequency for the surveillance requirement (SR) in TS 3.1.4, "Control Rod Scram Times". The proposed change revises the test frequency of SR 3.1.4.2, control rod scram time testing, from "120 days cumulative operation in MODE 1" to "200 days cumulative operation in Mode 1."

*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:

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change extends the frequency for testing control rod scram time testing from every 120 days of cumulative Mode 1 operation to 200 days of cumulative Mode 1 operation. The frequency of surveillance testing is not an initiator of any accident previously evaluated. The frequency of surveillance testing does not affect the ability to mitigate any accident previously evaluated, as the tested component is still required to be operable. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change extends the frequency for testing control rod scram time testing from every 120 days of cumulative Mode 1 operation to 200 days of cumulative Mode 1

operation. The proposed change does not result in any new or different modes of plant operation. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed change extends the frequency for testing control rod scram time testing from every 120 days of cumulative Mode 1 operation to 200 days of cumulative Mode 1 operation. The proposed change continues to test the control rod scram time to ensure the assumptions in the safety analysis are protected. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

Dated at Rockville, Maryland, this 20<sup>th</sup> day of May 2004.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Robert A. Gramm, Chief, Section 1  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

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3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed change extends the frequency for testing control rod scram time testing from every 120 days of cumulative Mode 1 operation to 200 days of cumulative Mode 1 operation. The proposed change continues to test the control rod scram time to ensure the assumptions in the safety analysis are protected. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

Dated at Rockville, Maryland, this 20<sup>th</sup> day of May 2004.

FOR THE NUCLEAR REGULATORY COMMISSION  
**/RA/**  
Robert A. Gramm, Chief, Section 1  
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