

SEP 09 2009



LR-N09-0193
LAR H09-03

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

Hope Creek Generating Station
Facility Operating License No. NPF-57
NRC Docket No. 50-354

Subject: **LICENSE AMENDMENT REQUEST TO ADOPT TSTF-475, REVISION 1,
"CONTROL ROD NOTCH TESTING FREQUENCY AND SRM INSERT
CONTROL ROD ACTION"**

In accordance with the provisions of 10 CFR 50.90 of Title 10 of the Code of Federal Regulations, PSEG Nuclear, LLC (PSEG) requests an amendment to the facility operating license listed for Hope Creek Generating Station (HCGS).

The proposed amendment would (1) revise the TS surveillance requirement (SR 4.1.3.1.2.a) frequency in TS 3/4.1.3.1 "Control Rod OPERABILITY", and (2) clarify the requirement to fully insert all insertable control rods in the Action for the limiting condition for operation (LCO) in TS 3/4.9.2, "Instrumentation."

The changes are consistent with NRC-approved Industry Technical Specification Task Force Standard Technical Specification Change Traveler, TSTF-475, Revision 1 "Control Rod Notch Testing Frequency and SRM Insert Control Rod Action." The availability of this TSTF was announced in the *Federal Register* on November 13, 2007 (72FR63935) as part of the consolidated line item improvement process (CLIP). Because Hope Creek has not adopted the improved Standard Technical Specifications (NUREG 1433), PSEG is proposing minor variations from the TS changes described in TSTF-475.

Attachment 1 provides a description of the proposed change, consistent with the NRC model application published for TSTF-475. Attachment 2 provides the existing TS pages marked up to show the proposed changes. Attachment 3 provides the existing TS Bases pages marked up to reflect the proposed changes (for information only). Attachment 4 provides a summary of the regulatory commitments made in this submittal.

PSEG requests approval of the proposed license amendment by September 30, 2010 with implementation within 60 days of receipt of the approved amendment. The proposed changes have been reviewed by the Plant Operations Review Committee. In accordance with the

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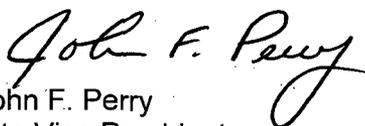
requirements of 10 CFR 50.91(b)(1), a copy of this request for amendment has been sent to the State of New Jersey.

If you have any questions or require additional information, please contact Mr. Jeffrie Keenan at (856) 339-5429.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 9/3/09
(Date)

Sincerely,



John F. Perry
Site Vice President
Hope Creek Generating Station

Attachments (4)

S. Collins, Regional Administrator - NRC Region I
R. Ennis, Project Manager - USNRC
NRC Senior Resident Inspector - Hope Creek
P. Mulligan, Manager IV, NJBNE
Commitment Coordinator - Hope Creek
PSEG Commitment Coordinator - Corporate

ATTACHMENT 1

**LICENSE AMENDMENT REQUEST TO ADOPT TSTF-475, REVISION 1, "CONTROL
ROD NOTCH TESTING FREQUENCY AND SRM INSERT CONTROL ROD ACTION"**

EVALUATION OF PROPOSED AMENDMENT

1.0 INTRODUCTION

In accordance with the provisions of 10 CFR 50.90, PSEG Nuclear, LLC (PSEG) is submitting a request for an amendment to the technical specifications (TS) for Hope Creek Generating Station (HCGS). The proposed amendment would (1) revise the TS surveillance requirement (SR 4.1.3.1.2.a) frequency in TS 3/4.1.3.1 "Control Rod OPERABILITY", and (2) clarify the requirement to fully insert all insertable control rods in the Action for the limiting condition for operation (LCO) in TS 3/4.9.2, "Instrumentation."

The changes are consistent with Nuclear Regulatory Commission (NRC) approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification (STS) change TSTF-475, Revision 1. The *Federal Register* published on November 13, 2007 (72FR63935) announced the availability of this TS improvement through the consolidated line item improvement process (CLIP).

2.0 ASSESSMENT

2.1 Applicability of the Published Safety Evaluation

PSEG has reviewed the safety evaluation dated November 13, 2007 as part of the CLIP. This review included a review of the NRC staff's evaluation, as well as supporting information provided to support TSTF-475, Revision 1. PSEG has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to Hope Creek Generating Station (HCGS) and justify this amendment for the incorporation of the changes to HCGS TS.

2.2 Optional Changes and Variations

Because HCGS has not adopted the improved STS (NUREG 1433), PSEG is proposing minor variations from the TS changes described in TSTF-475. These changes are grammatical and administrative in nature and do not alter or change the technical intent of the changes proposed for the control rod operability surveillance requirements for SR 4.1.3.1.2.a.

The revised notch testing frequency addressed in TSTF-475, Revision 1, is specific to fully withdrawn control rods since partially withdrawn control rods already have a 31-day test frequency in Standard Technical Specifications. Currently, HCGS TS requires partially and fully withdrawn control rods to be exercised at least once per seven days. The proposed amendment addresses changes to include "withdrawn control rods" to be inclusive of fully and partially withdrawn. The change is based upon STS and TSTF-475, Revision 1.

The purpose of the surveillance to test partially withdrawn rods is the same as for fully withdrawn rods. It is performed in order to confirm control rod insertion capability. As discussed in the safety evaluation for TSTF-475, Revision 1, a stuck control rod is an extremely rare event. The proposed change for the surveillance frequency has been determined to be acceptable based upon the demonstrated historical reliability of the Control Rod Drive System. As discussed in the safety evaluation, monthly surveillances

would still provide a large number of tests in order to provide confidence that any problems with the system would be identified. The industry operating experience is inclusive of notch testing for both partially and fully withdrawn control rods.

Additionally, because HCGS has not adopted STS the Example 1.4-3 Section 1.4, "Frequency" clarifications are not applicable to HCGS.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

PSEG has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the *Federal Register* as part of the CLIIP. PSEG has concluded that the proposed NSHCD presented in the *Federal Register* on November 13, 2007 is applicable to HCGS and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a)

3.2 Verification and Commitments

As discussed in the notice of availability published in the *Federal Register* on November 13, 2007 for this TS improvement, PSEG verified the applicability of TSTF-475, Revision 1, and commits to establishing Technical Specification Bases for TS as proposed in TSTF-475, Revision 1.

These changes are based on TSTF change traveler TSTF-475, Revision 1, that proposes revisions to the STS by (1) revising the frequency of SR 4.1.3.1.2.a, notch testing of partially and fully withdrawn control rods, from "at least once per 7 days" (when above the low power setpoint of the rod worth minimizer (RWM) to "at least once per 31 days" (when above the low power setpoint of the RWM) and (2) adding the word "fully" to the Action for LCO 3.9.2 to clarify the requirement to fully insert all insertable control rods when the associated SRM instrument is inoperable.

4.0 ENVIRONMENTAL EVALUATION

PSEG has reviewed the environmental evaluation included in the model safety evaluation dated November 13, 2007 as part of the CLIIP. PSEG has concluded that the staff's finding presented in that evaluation are applicable to HCGS and the evaluation is hereby incorporated by reference for this application.

5.0 REFERENCES

1. TSTF-475, "Control Rod Notch Testing Frequency and SRM Insert Control Rod Action," Revision 1.
2. Federal Notice of Availability published on November 13, 2007 (72FR63935)

ATTACHMENT 2

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)

REACTIVITY CONTROL SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

2. If the inoperable control rod(s) is inserted, within one hour disarm the associated directional control valves** either:
 - a) Electrically, or
 - b) Hydraulically by closing the drive water and exhaust water isolation valves.Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.
3. The provisions of Specification 3.0.4 are not applicable.
- c. With more than 8 control rods inoperable, be in at least HOT SHUTDOWN within 12 hours.
- d. With one scram discharge volume (SDV) vent or drain lines*** with one valve inoperable, isolate the associated line within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.****
- e. With one or more SDV vent or drain lines*** with both valves inoperable, isolate the associated line within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours.***

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The scram discharge volume drain and vent valves shall be demonstrated OPERABLE by:

- a. At least once per 24 hours verifying each valve to be open,* and
- b. At least once per 31 days cycling each valve through at least one complete cycle of full travel.

4.1.3.1.2 When above the low power setpoint of the RWM, all withdrawn control rods not required to have their directional control valves disarmed

*These valves may be closed intermittently for testing under administrative controls.

**May be rearmed intermittently, under administrative control, to permit testing associated with restoring the control rod to OPERABLE status.

*** Separate Action entry is allowed for each SDV vent and drain line.

**** An isolated line may be unisolated under administrative control to allow draining and venting of the SDV.

REACTIVITY CONTROL SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

electrically or hydraulically shall be demonstrated OPERABLE by moving each control rod at least one notch: 31

- a. At least once per 7 days, and
- b. Within 24 hours when any control rod is immovable as a result of excessive friction or mechanical interference.

4.1.3.1.3 All control rods shall be demonstrated OPERABLE by performance of Surveillance Requirements 4.1.3.2, 4.1.3.4, 4.1.3.5, 4.1.3.6 and 4.1.3.7.

4.1.3.1.4 The scram discharge volume shall be determined OPERABLE by demonstrating:

- a. The scram discharge volume drain and vent valves OPERABLE at least once per 18 months, by verifying that the drain and vent valves:
 - 1. Close within 30 seconds after receipt of a signal for control rods to scram, and
 - 2. Open when the scram signal is reset.

REFUELING OPERATIONS

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 At least 2 source range monitor* (SRM) channels shall be OPERABLE and inserted to the normal operating level with:"

- a. Annunciation and continuous visual indication in the control room,
- b. One of the required SRM detectors located in the quadrant where CORE ALTERATIONS are being performed and the other required SRM detector located in an adjacent quadrant, and
- c. Unless adequate shutdown margin has been demonstrated per Specification 3.1.1, the "shorting links" removed from the RPS circuitry prior to and during the time any control rod is withdrawn.
- d. During a SPIRAL UNLOAD, the count rate may drop below 3 cps when the number of assemblies remaining in the core drops to sixteen or less.
- e. During a SPIRAL RELOAD, up to four fuel assemblies may be loaded in the four bundle locations immediately surrounding each of the four SRMs prior to obtaining 3 cps. Until these assemblies have been loaded, the 3 cps count rate is not required.

APPLICABILITY: OPERATIONAL CONDITION 5.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS and insert all insertable control rods.

SURVEILLANCE REQUIREMENTS

fully

4.9.2 Each of the above required SRM channels shall be demonstrated OPERABLE by:

- a. At least once per 12 hours:
 1. Performance of a CHANNEL CHECK,

*The use of special movable detectors during CORE ALTERATIONS in place of the normal SRM nuclear detectors is permissible as long as these special detectors are connected to the normal SRM circuits.

"Not required for control rods removed per Specification 3.9.10.1 and 3.9.10.2.

"Three SRM channels shall be OPERABLE for critical shutdown margin demonstrations. An SRM detector may be retracted provided a channel indication of at least 100 cps is maintained.

ATTACHMENT 3

PROPOSED TECHNICAL SPECIFICATION BASES PAGES (MARKED UP)

(CHANGES TO THE BASES ARE UNDERLINED)

FOR INFORMATION ONLY

REACTIVITY CONTROL SYSTEMS
BASES

3/4.1.3 CONTROL RODS

The specifications of this section ensure that (1) the minimum SHUTDOWN MARGIN is maintained, (2) the control rod insertion times are consistent with those used in the accident analysis, and (3) limit the potential effects of the rod drop accident. The ACTION statements permit variations from the basic requirements but at the same time impose more restrictive criteria for continued operation. A limitation on inoperable rods is set such that the resultant effect on total rod worth and scram shape will be kept to a minimum. The requirements for the various scram time measurements ensure that any indication of systematic problems with rod drives will be investigated on a timely basis.

The operability of an individual control rod is based on a combination of factors, primarily, the scram insertion times, the control rod coupling integrity, and the ability to determine the control rod position. Accumulator operability is addressed by LCO 3.1.3.5. The associated scram accumulator status for a control rod only affects the scram insertion times; therefore, an inoperable accumulator does not immediately require declaring a control rod inoperable. Although not all control rods are required to be operable to satisfy the intended reactivity control requirements, control over the number of inoperable control rods is required.

Control rod insertion capability is demonstrated by surveillance 4.1.3.1.2 inserting each partially or fully withdrawn control rod at least one notch and observing that the control rod moves. The control rod may then be returned to its original position. This 31 day exercise test ensures the control rod is not stuck and is free to insert on a scram signal. Experience with this control system, and analysis performed for an industry-wide BWR initiative that was approved by the NRC⁽¹⁾ have indicated that testing on a 31 day period is adequate, and rods which move by drive pressure will scram when required as the pressure applied is much higher. At any time, a control rod is immovable for reasons not associated with the control rod drive mechanism, a determination of that control rod's trippability (Operability) must be made and appropriate actions taken. As an example, if the control rod can be scrambled, but can not be moved due to a RMCS failure, the rod(s) may continue to be considered OPERABLE provided all other related surveillances are current.

Damage within the control rod drive mechanism could be a generic problem, therefore with a withdrawn control rod immovable because of excessive friction or mechanical interference, operation of the reactor is limited to a time period which is reasonable to determine the cause of the inoperability and at the same time prevent operation with a large number of inoperable control rods.

Control rods that are inoperable for other reasons are permitted to be taken out of service provided that those in the nonfully-inserted position are consistent with the SHUTDOWN MARGIN requirements.

The number of control rods permitted to be inoperable could be more than the eight allowed by the specification, but the occurrence of eight inoperable rods could be indicative of a generic problem and the reactor must be shutdown for investigation and resolution of the problem.

(1) TSTF/CLIP-475, Rev.1, Federal Register Note 72FR63935, dated November 13, 2007.

ATTACHMENT 4

SUMMARY OF REGULATORY COMMITMENTS CONTAINED IN THIS SUBMITTAL

LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to in this document by PSEG for Hope Creek Generating Station (HCGS). Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments. Please direct questions regarding these commitments to Jeffrie Keenan, Licensing Manager, at (856) 339-5429.

REGULATORY COMMITMENT	DUE DATE/EVENT
HCGS will establish Technical Specification Bases for TS 3/4.1.3.1 consistent with those shown in TSTF-475, Rev 1 "Control Rod Notch Testing Frequency and SRM Insert Control Rod Action" as described in the license amendment request.	This commitment will be implemented within 60 days from the date of the approval of the proposed amendment.