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JUN 2 9 2004

LR-N04-0260
LCR H03-02

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

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
REQUEST FOR CHANGE TO TECHNICAL SPECIFICATIONS
REACTOR PROTECTION SYSTEM INSTRUMENTATION, CONTROL ROD BLOCK INSTRUMENTATION, SOURCE RANGE MONITORS AND POWER DISTRIBUTION LIMITS SURVEILLANCE REQUIREMENTS
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354

Reference: LR-N03-0405, "Request for Change to Technical Specifications: Reactor Protection System Instrumentation, Control Rod Block Instrumentation, Source Range Monitors and Power Distribution Limits Surveillance Requirements," dated October 24, 2003.

By the referenced letter, PSEG Nuclear LLC (PSEG) requested a revision to the Technical Specifications (TS) for the Hope Creek Generating Station to revise the Surveillance Requirements (SRs) for certain Reactor Protection System and Control Rod Block Instrumentation, the source range monitors and power distribution limits. In a communication from Mr. D. Collins on May 7, 2004, and a subsequent telephone conference on May 12, 2004, the NRC requested additional information concerning the proposed change. The requested information is provided in the attachment to this letter. In accordance with 10CFR50.91(b)(1), a copy of this submittal has been sent to the State of New Jersey.

PSEG has determined that the information contained in this letter and attachment does not alter the conclusions reached in the 10CFR50.92 no significant hazards analysis previously submitted.

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If you have any questions or require additional information, please contact Mr. Paul Duke at (856) 339-1466.

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

Executed on 6-29-04
(date)

A. C. Bakken III
Sr. Vice President - Nuclear Operations

Attachment

C: Mr. H. Miller, Administrator – Region I
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HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
REACTOR PROTECTION SYSTEM INSTRUMENTATION, CONTROL ROD BLOCK INSTRUMENTATION, SOURCE RANGE MONITORS AND POWER DISTRIBUTION LIMITS SURVEILLANCE REQUIREMENTS

By letter dated October 24, 2003, PSEG Nuclear LLC (PSEG) requested a revision to the Technical Specifications for the Hope Creek Generating Station to revise the Surveillance Requirements (SRs) for certain Reactor Protection System and Control Rod Block Instrumentation, the source range monitors and power distribution limits. In a communication from Mr. D. Collins on May 7, 2004, and a subsequent telephone conference on May 12, 2004, the NRC requested additional information concerning the proposed change. PSEG's responses are provided below.

1.a Section 3.A.1 of the application (page 5), states that the requirement to perform the Average Power Range Monitor (APRM) Flow Biased Simulated Thermal Power-Upscale channel functional test and the APRM Fixed Neutron Flux-Upscale channel functional test within 24 hours prior to startup causes the diversion of plant personnel and resources for unnecessary testing. The application states that the quarterly test frequency provides sufficient assurance of proper functioning. Provide quantitative data from the aforementioned channel functional tests, proving sufficiency over recent cycles.

PSEG Response:
Conditions that could affect the ability of the APRMs to perform their required functions are typically self revealing (e.g., by upscale or downscale alarms) or identified during channel calibrations, channel checks, or routine operator monitoring of control room instrumentation.

Plant operating experience demonstrates the periodic test frequencies provide sufficient assurance the APRMs are functioning properly. In October 2001 a loose connector to the Redundant Reactivity Control System (RRCS) was identified during a channel functional test performed before plant startup. The connector was repaired and the test was completed satisfactorily; however, this condition did not represent a failure to satisfy a channel functional test acceptance criterion and would not inhibit the RRCS function. For the APRM Flow Biased Simulated Thermal Power-Upscale and APRM Fixed Neutron Flux-Upscale trip functions, a review of surveillance test results for the last three years identified no case in which a condition discovered during a periodic channel functional test would have prevented the APRMs from performing their required function.

1.b Similarly, provide quantitative data from the Rod Block Monitor (section 3.B.1, page 6), APRM (section 3.B.2, page 6), and Reactor Coolant System Recirculation Flow (section 3.B.2, page 6) channel functional tests proving sufficiency over recent cycles.

PSEG Response:
For the Rod Block Monitor (RBM), a review of surveillance test results for the last three years identified no case in which a condition discovered during a periodic channel functional test would have prevented the RBM from performing its required function. A channel functional test in February 2000, identified a failing multiplexer card which prevented the LPRM count circuit from functioning properly (RBM inop would not reset). The multiplexer card was replaced and the remainder of the functional test was completed satisfactorily. In December 2003, a failing power supply was identified during a channel calibration that was performed to resolve an unexplained difference in local flux levels between RBM channels observed during normal plant operation.

For the APRM control rod block trip functions, a review of surveillance test results for the last three years identified no case in which a condition discovered during a periodic channel functional test would have prevented the APRMs from performing their required function.

In July 2001, a defective test card pushbutton switch was identified during a Reactor Coolant System Recirculation Flow channel functional test. The test card was replaced and the functional test was completed satisfactorily. A review of surveillance test results for the last three years identified no other case in which a condition discovered during a periodic channel functional test could have prevented a Reactor Coolant System Recirculation Flow Unit from performing its required function.

2. The proposed amendment would revise TS Table 4.3.1.1-1 to allow performance of the APRM Neutron Flux - Upscale, Setdown channel functional test to be deferred for up to 12 hours. Section 3.A.2 of the application (page 6), reviews the limitations concerning APRM Setdown channel functional tests when entering an Operational Condition. The application states: "The current Surveillance Requirement can increase the potential for a plant transient." The staff requires an explanation of this statement, including how the current Surveillance Requirement increases transient potential, and why it must be amended. Discuss, in quantitative terms, how much the proposed amendment would reduce the potential for plant transients and explain why the proposed changes would not compromise plant safety.

PSEG Response:
The APRM Upscale Setdown trip is enabled when the Reactor Mode Switch is not in the "run" position. In Operational Condition 1, the APRM channel

functional tests require lifting leads and installing test switches in the Power Range Monitor cabinets to permit testing the Upscale Setdown function because Reactor Mode Switch is in the "run" position. In Operational Conditions 2, 3, 4 and 5, the channel functional test can be performed without lifting leads because the Reactor Mode Switch is not in the "run" position.

While procedural controls are maintained for the installation and removal of test switches, and while PSEG employs a variety of techniques aimed at reducing the frequency of human performance related events, each instance of lifting and relanding leads in the Power Range Monitor cabinets still carries some small potential to cause plant transients due to human error.

The proposed 12 hour allowance provides a reasonable time in which to complete the functional test under conditions in which the potential for a plant transient is reduced without compromising plant safety, since the most probable result of performing the functional test is the verification of conformance with the TS requirements. A review of surveillance test results for the last three years identified no failures for the weekly channel functional test.

3. Section 3.D of the application (page 7), states that SR 4.2.1.b, 4.2.3.b, and 4.2.4.b create confusion as to how often surveillance is required. The proposed solution involves removing the offending requirement. The NRC staff is not reassured that the suggested revision addresses potential thermal power increases of at least 15% of Rated Thermal Power. Justify why requirements 4.2.1b, 4.2.3.b, and 4.2.4.b should be removed rather than reworded to clarify how often surveillance is required.

PSEG Response:
The proposed change to verify power distribution limits within 12 hours of reaching or exceeding 25% of rated thermal power (RTP) will require the surveillances to be performed sooner during plant startup than under the current Surveillance Requirements.

During plant startup, the planned power increase most often is ascent to RTP. Since plant startup and ascension to RTP typically take more than 24 hours, deleting the requirements to verify power distribution limits within 12 hours after completion of a thermal power increase of at least 15% of RTP will have a negligible effect on the frequency of performing the surveillances during plant startup.

During normal plant operation, return to RTP following a downpower maneuver of at least 15% of RTP is typically accomplished over several hours, so the effect of the proposed change on the frequency of performing the surveillances would again be expected to be negligible.

4. The proposed amendment would revise TS Table 4.3.6-1, to allow performance of the Reactor Mode Switch Shutdown Position channel functional test to be deferred until 1 hour after the Reactor Mode Switch is in the shutdown position. The application states that it is necessary to use jumpers or lifted leads to perform the functional test prior to a planned shutdown. Provide justification in terms of the reactor safety to defer this functional test until 1 hour after the Reactor Mode Switch is in the shutdown position.

   PSEG Response:
   Under the current TS requirements, a planned entry into Operational Condition 3 from Operational Condition 1 or 2 would be prohibited if the functional test had not been performed within the required interval. Performance of the Reactor Mode Switch Shutdown Position control rod withdrawal block functional test in Operational Condition 1 or 2 would require extensive use of temporary jumpers or lifted leads with the attendant small potential for plant transients due to human error.

   The proposed 1 hour allowance provides a reasonable time in which to complete the functional test under conditions in which the potential for a plant transient is reduced without compromising plant safety, since the most probable result of performing the functional test is the verification of conformance with the TS requirements. A review of surveillance test results for the last three years identified no failures for the Reactor Mode Switch Shutdown Position channel functional test.

5. The proposed amendment would revise SR 4.3.7.6.b by deleting the requirement to perform the source range monitor channel functional test prior to moving the Reactor Mode Switch from the Shutdown position. SR 4.9.2.b would be revised by deleting the requirement to perform the source range monitor channel functional test prior to the start of core alterations. The application states that these tests are unnecessary. Provide justification these tests to be unnecessary.

   PSEG Response:
   The surveillance requirements proposed to be deleted are unnecessary because they are conditioned on events that do not affect the ability of the SRMs to perform their required function and because the remaining SRs continue to provide adequate assurance of operability.

   Neither starting core alterations nor moving the Reactor Mode Switch from the "Shutdown" position affects the ability of the SRMs to provide the operator with information on the status of the neutron level in the core. The SRM indication function is unaffected by the position of the Reactor Mode Switch. SRM alarms and interlocks are bypassed when the Reactor Mode Switch is in the "Run" position. In Operational Conditions 3 and 4, the Reactor Mode Switch would typically be moved from the "Shutdown" position to the "Startup" position (to

enter Operational Condition 2) or to the "Refuel" position (to withdraw or recouple a single control rod as allowed in TS Table 1.2).

The proposed change does not affect the periodic test frequency for SR 4.3.7.6 or SR 4.9.2.b. SR 4.0.4 continues to require the Surveillance Requirement(s) associated with each Limiting Condition for Operation to be performed within the applicable surveillance interval before entry into an Operational Condition or other specified applicable condition.

Plant operating experience demonstrates the periodic test frequencies provide sufficient assurance the SRMs are functioning properly. Conditions that could affect the ability of the SRMs to perform their required functions are typically self revealing (e.g., by upscale, downscale or period alarms) or identified during channel checks, or routine operator monitoring of control room instrumentation. In March 2003, a failing period alarm relay was identified when a period status lamp would not reset during a channel calibration performed before plant shutdown. The relay was replaced and the test was completed satisfactorily; however, this condition did not represent a failure to satisfy a channel functional test acceptance criterion. One SRM channel was observed to be downscale during a monthly channel functional test in March 2003. The SRM discriminator was recalibrated to restore the channel to operable status; however, this condition did not represent a failure to satisfy a channel functional test acceptance criterion.

A review of surveillance test results for the last three years identified no case in which a condition discovered during a periodic channel functional test would have prevented the SRMs from performing their required function.