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PSEG Nuclear LLC

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

Gentlemen:

REQUEST FOR LICENSE AMENDMENT
INCREASED SNUBBER SURVEILLANCE TEST INTERVAL
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NO. NPF-57
DOCKET NO. 50-354

In accordance with the requirements of 10 CFR 50.90, PSEG Nuclear LLC (PSEG) hereby transmits a request for revision of the Technical Specifications (TS) for Hope Creek Generating Station. Pursuant to the requirements of 10 CFR 50.91(b)(1), a copy of this request for amendment has been sent to the State of New Jersey.

The proposed change would increase the interval for snubber functional testing in accordance with Surveillance Requirement (SR) 4.7.5.e from 18 months to 54 months for Lisega hydraulic snubbers. The increase is justified due to the high reliability of the Lisega hydraulic snubbers installed in Hope Creek. Replacement of mechanical and hydraulic snubbers with Lisega hydraulic snubbers was completed in 1997. There have been no functional test failures among the 111 tests performed on the Lisega snubbers in accordance with SR 4.7.5.e. The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1), using the criteria in 10 CFR 50.92(c), and it has been determined that this request involves no significant hazards considerations.

A description of the requested amendment, the reason for the changes, the justification for the changes, and the basis for no significant hazards consideration determination are provided in Attachment 1. The marked up Technical Specification page is provided in Attachment 2. As an alternative to the requirements of 10 CFR 50.55a(g)(4), the proposed change provides an acceptable level of quality and safety. Pursuant to 10 CFR 50.55a(3)(i), Attachment 3 contains a request for relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI.

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PSEG Nuclear LLC has determined that this request does not involve a significant hazards consideration pursuant to 10 CFR 50.92. In addition, there is no significant increase in the amounts of any effluents that may be released offsite, and there is no significant increase in individual or cumulative occupational radiation exposure. Consequently, the proposed amendment satisfies the criteria of 10 CFR 51.22(c)(9) for categorical exclusion from the requirement for an environmental assessment.

PSEG requests approval of the proposed change by January 15, 2003 to be implemented before restart following the eleventh refueling outage (RF11).

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 July 3, 2002

D. Garchow
Vice President - Operations

Attachments (3)

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HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
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EVALUATION OF PROPOSED CHANGES TO THE TECHNICAL SPECIFICATIONS TO INCREASE THE SNUBBER TESTING INTERVAL FROM 18 MONTHS TO 54 MONTHS

REQUEST FOR LICENSE AMENDMENT
INCREASED SNUBBER SURVEILLANCE TEST INTERVAL

Table of Contents

1 DESCRIPTION

This letter is a request to amend Facility Operating License NPF-57 for the Hope Creek Generating Station. The proposed changes would revise the Technical Specifications contained in Appendix A to the Operating License to extend the interval for Snubber Functional Tests performed in accordance with Surveillance Requirement 4.7.5.e from 18 months to 54 months for Lisega hydraulic snubbers.

2 PROPOSED CHANGE

The proposed amendment will change the affected section of Surveillance Requirement 4.7.5.e as follows:

Current requirement:

> During the first refueling shutdown and at least once per 18 months thereafter during shutdown, a representative sample of snubbers shall be tested using one of the following sample plans for each type of snubber.

Proposed change:

> At least once per 18 months during shutdown (once per 54 months during shutdown for Lisega hydraulic snubbers), a representative sample of snubbers shall be tested using one of the following sample plans for each type of snubber.

There are no changes being proposed to the visual inspection requirements in SRs 4.7.5.b and 4.7.5.c, the transient event inspection requirements in SR 4.7.5.d, the functional test sample plans included in SR 4.7.5.e, or the functional test acceptance criteria in SR 4.7.5.f. The marked up Technical Specification page is provided in Attachment 2.

The proposed change is justified by the demonstrated high reliability of the currently installed hydraulic snubbers. To date, there have been no functional test failures among the 111 tests performed on these snubbers in accordance with SR 4.7.5.e. The proposed change will eliminate unnecessary testing and the associated costs and radiation exposure to maintenance personnel while continuing to provide the required assurance of snubber functional reliability.

3 BACKGROUND

A snubber is a device that provides restraint to a component or system during the sudden application of forces, but allows essentially free motion during thermal movement. Snubbers function to ensure that the structural integrity of safety related piping systems is maintained during and following a seismic or other event initiating dynamic loads. Snubbers support the piping systems against

dynamic loads while allowing thermal expansion during normal and design loading conditions. The restraining action of the snubbers ensures that the initiating event does not propagate to other parts of the affected system or to other safety systems. Hope Creek snubbers are designed in accordance with American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section III, Subsection NF.

Beginning in 1996, the installed Pacific Scientific (PSA) mechanical snubbers and E-Systems hydraulic snubbers were replaced with Lisega hydraulic snubbers. The snubber replacement project was completed at the end of the seventh refueling outage (RFO7) in December 1997. No change to the analytical approach or existing design basis stress calculations was required as a result of the snubber replacement.

Since the first Lisega hydraulic snubbers were installed in Hope Creek, 111 functional tests have been performed in accordance with SR 4.7.5.e with no failures. This represents a significant improvement in reliability. For the previously installed mechanical and hydraulic snubbers, excluding the first refueling outage, the functional test failure rate during each refueling outage ranged from 2.3% to 3.1%. Similar results were obtained at the Salem Generating Station. Beginning in 1989, Lisega hydraulic snubbers have been installed as replacements in locations which had experienced snubber failures. No failures have occurred in 47 functional tests.

Design features in the Lisega hydraulic snubbers significantly reduce degradation that can cause snubbers to fail. These features include a sealed and pressurized design to prevent moisture intrusion; the use of corrosion resistant materials; non-metallic guide rings to isolate metal to metal sliding surfaces; and the use of hydraulic fluids qualified for long service life. In a compilation of functional test data from member utilities of the Lisega Users Group, there were no test failures among 740 snubbers tested.

SR 4.7.5.i requires that the service life of snubbers be monitored to ensure that the service life is not exceeded between surveillance inspections. The service life of a snubber is evaluated via manufacturer input and information through consideration of the snubber service conditions and associated installation and maintenance records. The maximum expected service life of critical snubber components is extended or shortened based on monitored test results and failure history. Critical parts are required to be replaced so that the maximum service life will not be exceeded during a period when the snubber is required to be OPERABLE. Based on guidance from the manufacturer (Reference 1), PSEG has determined the service life of Lisega hydraulic snubbers installed in Hope Creek to be 21 years.

Functional testing verifies that a snubber can operate within specific performance limits. Functional testing requires the snubber to be removed for testing on a

specially designed test stand, or to be disconnected at the rod end for in-situ testing. Since the snubber replacement project was completed, typically 37 Lisega hydraulic snubbers are functionally tested during each refueling outage in accordance with SR 4.7.5.e.

4 TECHNICAL ANALYSIS

With the surveillance interval extended from 18 months to 54 months, the snubber functional test program will continue to provide the required assurance of snubber functional reliability. The current 18 month interval was part of the inservice surveillance requirements for snubbers issued in Reference 2 as part of a multifaceted program to improve overall snubber reliability. These requirements were developed when functional test failure rates were significantly higher than the current rate for Lisega hydraulic snubbers.

The Lisega hydraulic snubbers installed in Hope Creek are designed to reduce degradation that can cause snubbers to fail. Design features that contribute to their demonstrated high reliability include a sealed and pressurized design to prevent moisture intrusion; the use of corrosion resistant materials; non-metallic guide rings to isolate metal to metal sliding surfaces; and the use of hydraulic fluids qualified for long service life. To date, there have been no functional test failures among the 111 tests performed on these snubbers in accordance with SR 4.7.5.e. The Lisega hydraulic snubbers' high reliability is also demonstrated in a compilation of functional test data from member utilities of the Lisega Users Group. There were no test failures among 740 snubbers tested.

Snubber visual inspections will continue to be performed in accordance with SR 4.7.5.b and the requirements of the Hope Creek inservice inspection (ISI) program to provide assurance of snubber operability. The visual inspections are performed on the alternate schedule described in Generic Letter 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions." The interval for visual inspection depends on the number of unacceptable snubbers found in proportion to the size of the population or category for each type of snubber included in the previous inspection. The manufacturer's guidance for service life monitoring (Reference 1) states that the majority of information concerning a Lisega hydraulic snubber's condition and application environment can be obtained by visual inspection.

The Snubber Service Life Replacement Program required by TS SR 4.7.5.i continues to ensure that the snubber service life will not be exceeded between surveillance inspections. Critical snubber parts are required to be replaced so that their maximum service life will not be exceeded during a period when the snubber is required to be OPERABLE.

The extended surveillance test interval for functional testing is consistent with the expected service life for Lisega hydraulic snubbers installed in Hope Creek. A

review of industry operating experience did not identify any failure mechanism that would be made more severe by extending the surveillance test interval. Any increase in the probability of undetected snubber failures would be small in comparison to the improvement in reliability already obtained by installation of the replacement snubbers and would not be expected to be large enough to adversely affect piping system OPERABILITY. A review of the evaluations performed for previous snubber functional test failures at Hope Creek identified no instances in which the snubber failure would have caused the piping system to become inoperable.

Functionally testing a representative sample of these snubbers once per 18 months requires a significant expenditure of resources and subjects plant personnel to radiological exposure while providing a negligible benefit. Extending the interval for functional testing to 54 months will reduce maintenance costs and occupational radiological exposure while maintaining the required assurance of functional reliability for the hydraulic snubbers.

5 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

PSEG Nuclear (PSEG) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment" as discussed below:

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

Response: No.

The probability of a seismic or other dynamic loading event is unaffected by the proposed increase in the surveillance test interval for snubber functional testing. No physical changes are being made to the plant. The ability of hydraulic snubbers to support the piping systems against dynamic loads while allowing thermal expansion during normal and design loading conditions is unaffected by the proposed change. A review of industry operating experience did not identify any failure mechanism that would be made more severe by extending the surveillance test interval. Snubber visual examination, which provides the majority of information concerning a hydraulic snubber's condition and application environment, will continue to be performed in accordance with Technical Specification requirements. Snubber service life monitoring will continue to be performed in accordance with Technical Specifications. Critical snubber parts will be replaced so that their maximum service life will not be exceeded during a period when the snubber is required to be OPERABLE.

Since the proposed change does not affect any accident initiator and since the hydraulic snubbers will remain capable of performing their design function, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The proposed change does not involve a physical change to the plant or changes to plant operating procedures. The hydraulic snubbers remain capable of performing their design function. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Response: No.

A review of industry operating experience did not identify any failure mechanism that would be made more severe by extending the surveillance test interval. Any increase in the probability of undetected snubber failures would be small in comparison to the improvement in reliability already obtained by installation of the replacement snubbers and would not be expected to be large enough to adversely affect piping system OPERABILITY. Therefore, the hydraulic snubbers will remain capable of performing their design function, and the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, PSEG concludes that the proposed changes present 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.

5.2 Applicable Regulatory Requirements/Criteria

10 CFR 50.55a(g)(4) requires that ASME Code Class 1, 2, and 3 components (including supports) must meet the inservice inspection requirements of ASME Code, Section XI. The applicable edition of Section XI for the current 10-year ISI interval for Hope Creek is the 1989 edition. Article IWF-5000 of Section XI, "Inservice Inspection Requirements for Snubbers," provides requirements for the examination and testing of snubbers in nuclear power plants.

10 CFR 50.55a(a)(3)(i) states that alternatives to the requirements of paragraph (g) may be used when authorized by the NRC if the proposed alternatives would provide an acceptable level of quality and safety. By letters dated May 11, 1998 and June 16, 1999 (References 3 and 4), PSEG proposed functional testing in accordance with TS requirements as an alternative to the requirements of ASME Code Section XI. The NRC found the alternative program as provided in the TS provides an acceptable level of quality and safety (Reference 5). The proposed change continues to provide an acceptable level of quality and safety for snubber functional testing. The snubber functional test program will continue to provide the required assurance of snubber functional reliability.

In conclusion, based on the considerations discussed above, (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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

6 ENVIRONMENTAL CONSIDERATION

PSEG has determined the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or a surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed change is not required.

7 REFERENCES

1. Lisega Inc. letter to Lisega Users Group member plants, dated March 29, 2001, "Service Life of Lisega Hydraulic Snubbers"

2. NRC letter to power reactor licensees, dated November 20, 1980, "Technical Specification Revisions for Snubber Surveillance"

3. PSEG letter to NRC, dated May 11, 1998, "ISI Program Submittal - Interval 2, Hope Creek Generating Station"

4. PSEG letter to NRC, dated June 16, 1999, "Relief Request RR-A1, Change 1, Hope Creek Generating Station"

5. Safety Evaluation of Relief Requests for Second 10-Year Interval for Inservice Inspection Program - Hope Creek Generating Station (TAC No. MA2026)

HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354
REVISIONS TO THE TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATION PAGES WITH PROPOSED CHANGES

The following Technical Specifications for Facility Operating License No. NPF-57 are affected by this change request:

Technical Specification	Page
3/4.7.5	3/4 7-15

(once per 54 months during shutdown for Lisega hydraulic snubbers)

SURVEILLANCE REQUIREMENTS (Continued)

e. Functional Tests

At During the first refueling shutdown and at least once per 18 months thereafter during shutdowns, a representative sample of snubbers shall be tested using one of the following sample plans for each type of snubber. The sample plan shall be selected prior to the test period and cannot be changed during the test period. The NRC Regional Administrator shall be notified in writing of the sample plan selected prior to the test period or the sample plan used in the prior test period shall be implemented:

1) At least 10% of the total of each type of snubber shall be functionally tested either in-place or in a bench test. For each snubber of a type that does not meet the functional test acceptance criteria of Specification 4.7.5.f., an additional 10% of that type of snubber shall be functionally tested until no more failures are found or until all snubbers of that type have been functionally tested. Testing equipment failure during functional testing may invalidate that day's testing and allow that day's testing to resume anew at a later time, providing all snubbers tested with the failed equipment during the day of equipment failure are retested; or

2) A representative sample of each type of snubber shall be functionally tested in accordance with Figure 4.7.5-1. "C" is the total number of snubbers of a type found not meeting the acceptance requirements of Specification 4.7.5.f. The cumulative number of snubbers of a type tested is denoted by "N". At the end of testing "N" snubbers, the results shall be plotted on Figure 4.7.5-1. If at any time the point plotted falls on or above the "Reject" line all snubbers of that type shall be functionally tested. If at any time the point plotted falls on or below the "Accept" line, testing of snubbers of that type may be terminated. When the point plotted lies in the "Continue Testing" region, additional snubbers of that type shall be tested until the point falls in the "Accept" region or the "Reject" region, or all the snubbers of that type have been tested. Testing equipment failure during functional testing may invalidate that day's testing and allow that day's testing to resume anew at a later time, providing all snubbers tested with the failed equipment during the day of equipment failure are retested; or

3) An initial representative sample of 55 snubbers of each type shall be functionally tested. For each snubber type which does not meet the functional test acceptance criteria, another sample of at least one-half the size of the initial sample shall be tested until the total number tested is equal to the initial sample size multiplied by the factor, 1 + C/2, where "C" is the number of snubbers found which do not meet the functional test acceptance criteria. The results from this sample plan shall be plotted using an "Accept" line which follows the equation $N = 55(1 + C/2)$. Each snubber point should be plotted when "N" snubbers have been tested. If the

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ISI RELIEF REQUEST

Relief Request HC-RR-F03

Snubber Testing and Inspection

NRC Approved (Yes or No): _____ Date: _____Ref: _____

Component Description

Snubbers

ASME Section XI Class

1, 2, and 3 Component Supports

Applicable Code Edition and Addenda

1989 Edition

Code Requirement

Paragraphs IWF-5200(a) and IWF-5300(a) require preservice and inservice examinations to be performed in accordance with the first Addenda to ASME/ANSI OM-1987, Part 4 (published in 1988), using the VT-3 visual examination method described in IWA-2213. Additionally, Paragraphs IWF-5200(b) and IWF-5300(b) require preservice and inservice tests to be performed in accordance with the first Addenda to ASME/ANSI OM-1987, Part 4 (published in 1988).

10 CFR 50.55a(b)(3)(v) permits licensees to use Subsection ISTD, "Inservice Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Power Plants," ASME OM Code, 1995 Edition up to and including the 1996 Addenda, in lieu of the requirements for snubbers in Section XI, IWF-5200(a) and (b) and IWF-5300(a) and (b), by making appropriate changes to their technical specifications or licensee controlled documents. Preservice and inservice examinations are required to be performed using the VT-3 visual examination method described in IWA-2213.

Basis for Relief

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative provides an acceptable level of quality and safety.

PSEG Nuclear LLC (PSEG) requests authorization to use Hope Creek Generating Station Technical Specification 3/4.7.5, "Snubbers," and the associated bases, amended in accordance with PSEG's request dated July 3, 2002. The Hope Creek Technical Specifications contain specifically developed and approved visual examination and functional testing requirements.

Performance of examinations and testing to the requirements of the Technical Specification meets the intent of the Code requirements. The Technical Specification

differs in the areas of examination scheduling, re-examinations and functional testing requirements. The Technical Specification schedule for visual inspections is based on the alternate schedule described in NRC Generic Letter 90-09. The functional test sample plans in Technical Specification 3/4.7.5 are more conservative than those specified in the first Addenda to ASME/ANSI OM-1987, Part 4 (published in 1988). The relaxation in functional testing frequency for certain snubbers is justified by the demonstrated high reliability of those snubbers as described in PSEG's letter dated July 3, 2002. Visual examination and testing in accordance with the Technical Specification requirements will results in an increase in the overall level of plant quality and safety.

The snubbers and compensating struts were constructed and installed in accordance with the requirements ASME Code, Section III, subsection NF. Documentation of fabrication and installation examinations is stored at the plant site. Subsequent to the plant going into operation, these snubbers have been and continue to be visually inspected and functionally tested in accordance with Plant Technical Specifications, with VT-3 inspections performed in accordance with ASME Code Section XI.

Alternate Requirements

PSEG Nuclear, LLC proposes to continue implementation of the visual examinations and functional testing on Code Class 1, 2 and 3 (and other) snubbers in compliance with the Hope Creek Generating Station Technical Specification 3/4.7.5 and its associated bases and the VT-3 examination in accordance with ASME Section XI. Snubber repairs and replacements shall be performed in accordance with ASME Code, Section XI, Article IWA-4000.

Precedents

Authorization to use the Hope Creek Technical Specifications for snubber examination and functional testing was previously granted (NRC Safety Evaluation Report dated February 3, 2000, TAC MA2026).