October 23, 2008

MEMORANDUM TO: Harold K. Chernoff, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Richard B. Ennis, Senior Project Manager ***/ra/***
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: HOPE CREEK GENERATING STATION, DRAFT REQUEST FOR ADDITIONAL INFORMATION (TAC NO. MD9336)

The attached draft request for information (RAI) was transmitted on October 23, 2008, to Mr. Jeff Keenan of PSEG Nuclear LLC (the licensee). This information was transmitted to facilitate an upcoming conference call in order to clarify the licensee's letter dated July 30, 2008, which submitted relief request HC-I3R-04 and an associated license amendment request for Hope Creek Generating Station related to examinations and tests for snubbers.

This memorandum and the attachment do not convey or represent an NRC staff position regarding the licensee's request.

Docket No. 50-354

Attachment: Draft RAI

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ACCESSION NO.: ML

OFFICE	PDI-2/PM
NAME	REnnis
DATE	10/23/08

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DRAFT REQUEST FOR ADDITIONAL INFORMATION

RELATED TO RELIEF REQUEST HC-I3R-04

FOR THIRD TEN-YEAR INSERVICE INSPECTION INTERVAL

HOPE CREEK GENERATING STATION

DOCKET NO. 50-354

By letter dated July 30, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082200316), PSEG Nuclear LLC (PSEG or the licensee) submitted relief request HC-I3R-04 and an associated license amendment request for Hope Creek Generating Station (HCGS) related to examinations and tests for snubbers. With respect to relief request HC-I3R, PSEG requested relief from certain requirements specified in the American Society of Mechanical Engineers Boiler (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM) for the third inservice inspection (ISI) interval at HCGS.

The Nuclear Regulatory Commission (NRC) staff has reviewed the information the licensee provided that supports the proposed relief request and would like to discuss the following issues to clarify the submittal.

1) The licensee requested relief to use Code Case OMN-15, which is not yet authorized for use under Regulatory Guide 1.192. In relief request Section 9.0, "Precedents", the licensee states that extended surveillance intervals have been granted for snubbers based upon reliable performance as described in NRC Generic Letter (GL) 90-09, “Alternative Requirements for Snubbers visual examination interval,” and Code Case OMN-13, “Requirements for extending snubber inservice visual examination interval.” The NRC staff finds that the performance-based approach used in GL 90-09 and OMN-13 is completely different than that used in Code Case OMN-15. The initial starting point visual examination for GL 90-09 and OMN-13 is based on the entire population (100%) of snubbers, whereas in the case of OMN-15, the initial starting point testing is performed on 10% or 37 selected snubbers depending on the design test plan group (DTPG) selected. Initial visual examination of 100% snubbers, provides a much higher confidence level to extend the interval than that of functional testing of small percentage of the snubber population (10% plan or 37 snubber plan). Please explain whether and how the approach used in GL 90-09 and OMN-13 is similar to the approach used in the proposed Code Case OMN-15.

2) The visual examination and functional testing of snubbers are complementary programs that ensure operational readiness. The OM Code, Table ISTD-4252-1, allows extending the visual examination interval for good performance. By implementing Code Case OMN-15, there might be an interval when both visual examination and functional testing will not be performed. Please justify the interval extension or deferment of testing as proposed in OMN-15, when no visual examination is performed.

Attachment

3) The ASME OM Code, Section ISTD, functional testing plans are based on statistical samples and mathematical equations, which already incorporate risk. The test sample plans do not require any additional testing, if the selected snubbers (sample) meet the specified functional criteria. The existing test plans are already based on risk-based and performance-based procedures and methods (see question 4 below). Therefore, please explain and justify the basis for a further extension of the testing intervals based on performance.

4) The licensee has determined the service life of snubbers installed in HCGS to be 21 years. The licensee states that there are 630 snubbers, and that the 37 snubber sample test plan is being used at HCGS. Currently, only 37 snubbers out of 630 are being functionally tested during a fuel cycle. The probability of performing a functional test on a particular snubber is one in seventeen (630/37 = 17) per fuel cycle. Therefore, the functional test frequency of a particular snubber will be once in 26 years (17 fuel cycles x 18 months). Furthermore, some of the snubbers may not be tested during their service life of 21 years. Please justify further extending the functional test interval by use of Code Case OMN-15.

5) ISTD test sample plans use sequential statistical methods. The sequential method involves evaluation of each piece of data (testing) obtained in a sequence of observations and has an "accept line" and a "reject line." In ISTD, the sequential plan was modified to remove the "reject line," relaxing the statistically required testing. Therefore, please justify a further extension of the testing interval.

6) HCGS is using only one DTPG for the entire population of 630 snubbers. The installed snubbers might have different designs, sizes and application. Please provide details and the basis for selecting only one DTPG for the entire population of 630 snubbers at HCGS.

7) The OMN-15 "test campaign" is a series of actions required to complete the test plan requirements as defined in ISTD-5200. The ISTD-5200 test plans are 10% sample testing, and 37 sample testing plans. Please explain with example(s) how the "test campaign" in OMN-15 using various test plans (10% sample, or 37 sample) during a number of fuel cycles provides an adequate performance basis of the entire population of snubbers to extend the test interval.

   The use of "successful test campaigns," as defined in the Code Case does not provide an adequate performance basis for extending the test interval based on statistical methods. Please provide all the details and show how combining a few refueling cycle results constitutes "successful test campaigns."

8) Please provide all the details and methods including all calculations showing that Code Case OMN-15 meets the 95/90 confidence level for functional testing of snubbers.

9) Please provide the basis for the mathematical equations used for the Code Case OMN-15, Table 1, Column B acceptance limits.

10) Why does the Code Case linear functionality model start with 100% operability (see White Paper, Reference 2 of relief request) as opposed to 90%, if the previous test campaigns provide a 95/90 confidence level?

11) While using Code Case OMN-15, the licensee does not appear to include the cumulative effect of various performance-based and risk-informed inspection programs being used at HCGS on the safety of the plant. These risk-informed programs may include risk-informed piping inspection, and performance-based, and/or risk-informed inservice testing of pumps and valves. Please explain if other performance and risk based programs are being used at HCGS and provide details of the evaluation of their cumulative effects.

12) On relief request page 4 of 5, the licensee states that extending the interval for functional testing allowed in Code Case OMN-15 will reduce maintenance costs. Please elaborate and explain how maintenance costs will be reduced by use of OMN-15.

13) Reference 2 of the relief request (White Paper) is based on a linear model of snubber functionality (i.e., assumes degradation to be linear in order to make predicted projection for operability). HCGS is using only one DTPG for the entire population of 630 snubbers. Therefore, while selecting the DTPG, the licensee did not use any criteria of snubber selection based on physical environment such as temperature, radiation, and humidity. The licensee also does not appear to take in to account degradation due to age of the snubber. Please provide the basis for why the linear model of snubber functionality is representative of the entire population of 630 snubbers at HCGS.

14) On relief request page 4 of 5, the licensee states that “Based on guidance from the manufacturer (Reference 5), PSEG has determined the service life of Lisega hydraulic snubbers installed in HCGS to be 21 years.” Also, on page 2 of 5, the licensee states that all snubbers were replaced with new design snubbers by Lisega and that the snubber replacements were completed in 1997. The new Lisega snubbers have been in service for about 11 years, and some of these snubbers might have been installed into harsh environment such as high-temperature, high-humidity, and radiation. Please provide details and methods used to determine the basis for 21 years of service life of snubbers, when only 11 years of service life monitoring data are available for these new snubbers.