April 27, 2009

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. ME0230)

The attached draft request for information (RAI) was transmitted on April 27, 2009, 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 December 11, 2008, which submitted relief request HC-I2-RR-A25 for Hope Creek Generating Station.

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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Attachment: Draft RAI

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DRAFT REQUEST FOR ADDITIONAL INFORMATION

RELATED TO RELIEF REQUEST HC-I2-RR-A25

FOR SECOND TEN-YEAR INSERVICE INSPECTION INTERVAL

HOPE CREEK GENERATING STATION

DOCKET NO. 50-354

1.0 BACKGROUND

By letter dated December 11, 2008, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML083590292) PSEG Nuclear LLC (the licensee), submitted Relief Request (RR) HC-I2-RR-A25 for Hope Creek Generating Station (HCGS). The licensee requested relief from specific requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, *Rules for Inservice Inspection of Nuclear Power Plant Components* for HCGS. RR HC-I2-RR-A25 applies to the second 10-year inservice inspection (ISI) interval. The code of record for the start of the HCGS second ten-year ISI Program interval is the ASME Code, 1989 Edition, without Addenda. However, beginning with the third period of the second 10-year ISI interval, PSEG elected to perform a mid-interval update to the 1998 Edition through 2000 Addenda of the ASME Code, Section XI. The use of the later ASME Code Edition was approved in a safety evaluation (SE) issued by the Nuclear Regulatory Commission (NRC) on December 23, 2004 (ADAMS Accession No. ML043580369).

In accordance with Section 50.55a(g)(5)(iii) of Title 10 *Code of Federal Regulation*s (10 CFR) the licensee has submitted RR HC-I2-RR-A25 covering several ASME Code Class 1 and Class 2 component weld examinations. The ASME Code requires that 100 percent of the examination volumes described in ASME Code, Section XI, Tables IWB-2500-1 and IWC-2500-1 be completed. The licensee has claimed that 100 percent of the ASME Code-required volumes are impractical to obtain at HCGS. 10 CFR 50.55a(g)(5)(iii) states that when licensees determine that conformance with ASME Code requirements is impractical at their facility, they shall submit information to support this determination.

The NRC staff, with technical assistance from Pacific Northwest National Laboratory, has reviewed the information the licensee provided that supports the subject RR and would like to discuss the following issues to clarify the submittal.

2.0 REQUEST FOR ADDITIONAL INFORMATION

2.1 HC-I2-RR-25 (Part A), ASME Code, Section XI, Category B-A, Pressure Retaining Welds in Reactor Vessel

2.1.1 Clarify, whether the reactor pressure vessel (RPV) longitudinal welds contained in HC-I2-RR-25 had been examined previously in the second 10-year ISI interval or whether RR-B1 submitted by letter dated May 11, 1998, as supplemented by letters dated June 16 and October 25, 1999, was requested prior to examining the subject RPV longitudinal welds in the second 10-year ISI interval.

Attachment

2.1.2 State whether the examinations that were performed from the inside of the RPV were conducted using procedures that had been successfully qualified through performance demonstration requirements of ASME Code, Section XI, Appendix VIII. Also, state whether any other longitudinal welds were examined to the full requirements of the ASME Code (using performance demonstrated procedures) and whether any indications were detected during any of the examinations.

2.1.3 Relief request HC-I2-RR-25 provided Figure 4 as a supporting sketch to demonstrate that the RPV closure head Weld RPV1-W20 cannot be examined to the full extent required by the ASME Code. However, the dimensions on this figure are not legible. Please re-submit the drawing with legible dimensions.

2.2 **HC-I2-RR-25 (Part B), ASME Code, Section XI, Examination Category B-D, Item B3.90, Full Penetration Welded Nozzles in Vessels**

The coverage sketch included in the licensee's submittal for all Examination Category B-D nozzle-to-vessel welds is labeled as "typical". Please re-submit cross-sectional sketches for each type of nozzle-to-vessel weld listed in Table 1, and/or provide full written descriptions, describing the nozzle geometries, the ASME Code-required volumes, and areas of completed coverage (near surface, inner 15 percent, and full volume) for each of the techniques used on these welds. Summarize the scanning directions and techniques, list the materials for the base metal and weld, and clarify whether the methods used have been qualified in accordance with performance demonstration requirements per ASME Code, Section XI, Appendix VIII.

2.3 **HC-I2-RR-25 (Part C), ASME Code, Section XI, Examination Category B-G-1, Item B6.40, Reactor Vessel Flange Ligament**

The licensee has included, as Figure 6, a sketch depicting areas of limited scanning. However, insufficient text is provided in order to make use of the drawing. In order to demonstrate impracticality, submit a full written description of how the cladding prevented manual scanning and describe whether smaller diameter search units could be used to scan the ASME Code required area to increase coverage.

2.4 **HC-I2-RR-25 (Part D), ASME Code, Section XI, Examination Category B-J, Item B9.11, Pressure Retaining Welds in Piping NPS 4 inches and Larger**

The coverage sketches included in the licensee's submittal for all ASME Code, Section XI, Examination Category B-J piping welds are not adequate to fully describe impracticality.

a) Provide descriptions of the ultrasonic techniques deployed for each weld examination volume, and the amount of coverage obtained for each of these techniques. Also, provide cross-sectional drawings showing scanning angle coverage obtained. List the materials for the base metal and weld.

b) As applicable, describe nondestructive examination (NDE) equipment, show accessibility limitations, and discuss whether alternative methods or advanced

technologies such as phased array could be employed to maximize ASME Code coverage.

c) Clarify whether the methods used have been qualified in accordance with performance demonstration requirements per ASME Code, Section XI, Appendix VIII.

2.5 HC-I2-RR-25 (Part E), ASME Code, Section XI, Examination Category C-G, C6.10, Pump Casing Welds

2.5.1 The licensee's current submittal includes a request for limited surface examination coverage of Core Spray Pump Casing Weld CP-206-CSP-W2. This weld was previously submitted for the second interval in RR-C1, Part C, and evaluated in an NRC SE dated February 3, 2000. Based on the licensee's statements, it appears that only 23.4 percent of the required surface coverage was actually completed as opposed to the 73 percent originally stated in RR-C1, Part C. Please confirm that the current request is intended to correct the originally stated surface coverage, the basis for limited coverage remains the same as previously stated, and that any commitments made in RR-C1, Part C remain in place.

2.5.2 The drawing of the Core Spray Pump included as Figure 19 in the licensee's submittal, does not adequately demonstrate limited accessibility for surface examination of Weld CP-206-CSP-W2. In this drawing, it appears that access to the weld may be sufficient for performing outside surface examination. Please submit further information to demonstrate the inaccessibility, and show the areas where limited coverage has been obtained.

2.6 Request for Relief HC-I2-RR-25 (Part F), ASME Code, Section XI, Examination Category R-A, Risk Informed Piping Examinations

2.6.1 The licensee has provided three drawings that show the coverage obtained for the subject examinations. However, insufficient text is included to describe the conditions that limit ultrasonic scanning in the circumferential directions. Please submit further written description to demonstrate impracticality. In addition, describe the ultrasonic techniques employed; it is unclear whether the examinations were performed using longitudinal and/or shear wave techniques.

2.6.2 Also, clarify whether any other welds could have been substituted and examined instead of Welds 1-BB-4VCA-011-1-R1, 1-BB-4VCA-011-1-R1, and 1-BG-6DBA-001-29. If no other welds could have been examined; please explain why.

2.6.3 In addition to the bases for impracticality, state whether any outside diameter surface feature, such as weld crown, diametrical weld shrinkage, or surface roughness conditions caused limited volumetric coverage during the subject piping weld examinations. Discuss the efforts that were used to correct these conditions.

2.6.4 Clarify whether the methods used to examine the subject piping weld have been qualified in accordance with performance demonstration requirements per ASME Code, Section XI, Appendix VIII.