



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 5, 2016

Mr. Peter P. Sena, III  
President  
PSEG Nuclear LLC - N09  
P.O. Box 236  
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION – REQUEST FOR ADDITIONAL INFORMATION REGARDING RELIEF REQUESTS GR-01, PR-01, PR-02, VR-01, AND VR-02, ASSOCIATED WITH THE FOURTH 10-YEAR INSERVICE TEST INTERVAL (CAC NOS. MF7200, MF7201, MF7202, MF7203, AND MF7204)

Dear Mr. Sena:

By letter dated December 18, 2015 (Agencywide Documents Access and Management System Accession No. ML15352A127), PSEG Nuclear LLC (PSEG or the licensee) submitted Relief Requests GR-01, PR-01, PR-02, VR-01, and VR-02, for the fourth 10-year inservice testing interval for the Hope Creek Generating Station. These proposed alternatives apply to certain requirements of the American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants and were submitted pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Sections 50.55a(a)(z)(1) and 50.55a(a)(z)(2).


The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's application and, based upon this review, determined that additional information is needed, as set forth in the enclosures. On March 17, 2016, a draft of these questions were sent to Mr. Paul Duke of your staff to ensure that the questions were understandable, the regulatory basis for the questions was clear, there is no proprietary or sensitive information contained in the request for additional information (RAI), and to determine if the information was previously docketed. On March 23, 2016, a teleconference was held to clarify the question. Following the conference call, the licensee indicated by an e-mail dated March 24, 2016, that PSEG plans to submit a response within 60 days of the date of this letter.

P. Sena

- 2 -

If you have any questions, please contact me at 301-415-4037 or [Thomas.Wengert@nrc.gov](mailto:Thomas.Wengert@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'TJW for', is written over the word 'Sincerely,'.

Thomas J. Wengert, Senior Project Manager  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-354

Enclosures:

1. Request for Additional Information for Request VR-01
2. Request for Additional Information for Request VR-02

cc w/enclosures: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

REGARDING RELIEF REQUEST VR-01

FOR THE INSERVICE TESTING PROGRAM INTERVAL – FOURTH 10-YEAR INTERVAL

PSEG NUCLEAR LLC

HOPE CREEK GENERATING STATION

DOCKET NO. 50-354

CAC NO. MF7202

By letter dated December 18, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15352A127), PSEG Nuclear LLC (PSEG or the licensee) requested approval of alternative testing associated with the inservice testing (IST) program for the fourth 10-year interval for the Hope Creek Generating Station (HCGS). The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing the submittal and has the following request for additional information (RAI) questions:

**VR-01 RAI-1:**

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(f), "Inservice testing requirements," requires, in part, that IST of certain American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) Class 1, 2, and 3 components must meet the requirements of the ASME OM Code and applicable addenda, except where alternatives have been authorized pursuant to paragraphs 10 CFR 50.55a(z)(1) or 10 CFR 50.55a(z)(2).

In proposing alternatives, a licensee must demonstrate that the proposed alternatives provide an acceptable level of quality and safety (10 CFR 50.55a(z)(1)) or that compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety (10 CFR 50.55a(z)(2)).

VR-01 requests an alternative for testing excess flow check valves (EFCVs). The alternative is to test EFCVs at a frequency specified in Technical Specifications Surveillance Requirement (SR) 4.6.3.4. SR 4.6.3.4 allows a "representative sample" of EFCVs to be tested every refueling outage such that each EFCV will be individually tested approximately every 10 years. Justification for the relief request is based on General Electric (GE) Topical Report (TR) NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation," dated June 2000. The TR provided: (1) an estimate of steam release frequency (into the reactor building) due to a break in an instrument line concurrent with an EFCV failure to close, and (2) assessment of the radiological consequences of such a release. The NRC staff reviewed the GE TR and issued its safety evaluation on March 14, 2000 (ADAMS Accession No. ML003691722). In its evaluation, the staff found that the test interval could be extended up to a maximum of 10 years. In conjunction with this finding, the NRC staff noted that each licensee that adopts the relaxed test

interval program for EFCVs must have a failure feedback mechanism and corrective action program (CAP) to ensure EFCV performance continues to be bounded by the TR results. Also, each licensee is required to perform a plant-specific radiological dose assessment, EFCV failure analysis, and release frequency analysis to confirm that they are bounded by the generic analyses of the TR.

Please respond to the following:

- A) Explain the HCGS failure feedback mechanism and the CAP.
- B) Explain how the CAP evaluates component failures and what appropriate corrective actions would likely be taken.
- C) Explain the radiological dose assessment and release frequency analysis, confirming that they bound the generic analyses of GE TR NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation," dated June 2000.

REQUEST FOR ADDITIONAL INFORMATION  
REGARDING RELIEF REQUEST VR-02  
FOR THE INSERVICE TESTING PROGRAM - FOURTH 10-YEAR INTERVAL  
PSEG NUCLEAR LLC  
HOPE CREEK GENERATING STATION  
DOCKET NO. 50-354  
CAC NO. MF7201

By letter dated December 18, 2015 (Agencywide Documents Access and Management System Accession No. ML15352A127), PSEG Nuclear LLC (the licensee) requested approval of alternative testing associated with the inservice testing (IST) program for the fourth 10-year interval for the Hope Creek Generating Station (HCGS). The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing the submittal and has the following request for additional information (RAI) questions:

**VR-02 RAI-1:**

Title 10 of the *Code of Federal Regulations* Section 50.55a(f), "Inservice testing requirements," requires, in part, that IST of certain American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) Class 1, 2, and 3 components must meet the requirements of the ASME OM Code and applicable addenda, except where alternatives have been authorized, pursuant to paragraphs 10 CFR 50.55a(z)(1) or 10 CFR 50.55a(z)(2).

In proposing alternatives, a licensee must demonstrate that the proposed alternatives provide an acceptable level of quality and safety (10 CFR 50.55a(z)(1)) or that compliance would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety (10 CFR 50.55a(z)(2)).

Please provide information to demonstrate that testing the Target Rock main bodies at a five year interval as required by OM Code, but not staggering the testing of the main bodies through the five year interval (which is also required by OM Code) will provide an acceptable level of quality and safety.

- A) In Section 5 of the relief request, "Proposed Alternative and Basis for Use," the following statement is made:

Testing of the main body (mechanical portion), which contains only the main disc, piston rings and a preload spring that is non-adjustable, at the Mandatory Appendix I specified frequency will not result in a significant increase in the level of safety.

In Section 4 of the relief request, "Reason for Request," the following statement is made:

The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

Provide further justification for these statements, especially in regard to the three stage Target Rock Model 0867F valves, which have sustained main body damage and degradation over the course of just a single fuel cycle at some plants.

- B) Provide further information on how and when the various discrete tests listed in OM Code, Mandatory Appendix I, paragraph I-3310, will be accomplished for the subject valves.

P. Sena

- 2 -

If you have any questions, please contact me at 301-415-4037 or [Thomas.Wengert@nrc.gov](mailto:Thomas.Wengert@nrc.gov).

Sincerely,

*/RA/ JPoole for*

Thomas J. Wengert, Senior Project Manager  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-354

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**ADAMS Accession No.: ML16089A079**

OFFICE	NRR/DORL/LPL1-2/PM	NRR/DORL/LPL1-2/LA	NRR/DE/ENPB
NAME	RGladney	LRonewicz	DAlley
DATE	4/28/2016	5/5/2016	3/30/2016
OFFICE	NRR/DORL/LPL1-2/BC	NRR/DORL/LPL1-2/PM	
NAME	DBroaddus	TWengert (JPoole for)	
DATE	5/5/2016	5/5/2016	

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