



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

WASHINGTON, D.C. 20555-0001

November 28, 2017

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

**SUBJECT: HOPE CREEK GENERATING STATION – REQUEST TO USE LATER EDITION
OF AMERICAN SOCIETY OF MECHANICAL ENGINEERS CODE FOR
OPERATION AND MAINTENANCE OF NUCLEAR POWER PLANTS
(CAC NO. MG0124; EPID L-2017-LLR-0087)**

Dear Mr. Sena:

By letter dated August 17, 2017 (Agencywide Documents Access and Management System Accession No. ML17229B296), PSEG Nuclear LLC (PSEG, the licensee) submitted alternative requests PR-01, PR-02, VR-01, and VR-02 to the U.S. Nuclear Regulatory Commission (NRC). The licensee proposed alternatives to certain inservice testing (IST) requirements of American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code). In addition, the licensee proposed to use a later edition (i.e., 2012 Edition of the ASME OM Code) for the fourth 10-year IST program at Hope Creek Generating Station (Hope Creek).

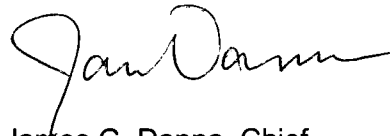
Specifically, pursuant to Title 10 of the Code of Federal Regulations (10 CFR) 50.55a(z)(1), the licensee requested to use the proposed alternatives in PR-01, PR-02, VR-01, and VR-02 on the basis that the alternatives provide an acceptable level of quality and safety.

The NRC staff has reviewed the subject requests and concludes, as set forth in the enclosed safety evaluation, that PSEG has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1). Therefore, the NRC staff approves the use of the 2012 Edition of the ASME OM Code for the fourth 10-year IST program at Hope Creek, and the NRC staff determines that for requests PR-01, PR-02, VR-01, and VR-02, the proposed alternatives continue to provide an acceptable level of quality and safety. Accordingly, the NRC staff authorizes alternative requests PR-01, PR-02, VR-01, and VR-02 for the fourth 10-year IST program at Hope Creek.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

If you have any questions, please contact the Project Manager, Lisa Regner, at Lisa.Regner@nrc.gov or at 301-415-1906.

Sincerely,

A handwritten signature in black ink, appearing to read "James G. Danna". The signature is fluid and cursive, with a long horizontal stroke at the end.

James G. Danna, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-354

Enclosure:
Safety Evaluation

cc w/Enclosure: Distribution via Listserv



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

ALTERNATIVE REQUESTS PR-01, PR-02, VR-01, AND VR-02

RELATED TO THE INSERVICE TESTING PROGRAM FOR

THE FOURTH 10-YEAR INTERVAL

PSEG NUCLEAR LLC

HOPE CREEK GENERATING STATION

DOCKET NO. 50-354

1.0 INTRODUCTION

By letter dated August 17, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17229B296), PSEG Nuclear LLC (PSEG, the licensee) submitted alternative requests PR-01, PR-02, VR-01, and VR-02 to the U.S. Nuclear Regulatory Commission (NRC or the Commission). The licensee proposed alternatives to certain inservice testing (IST) requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code). In addition, the licensee proposed to use a later edition (i.e., 2012 Edition of the ASME OM Code) for the fourth 10-year IST program at Hope Creek Generating Station (Hope Creek).

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), the licensee requested to use the proposed alternatives in PR-01, PR-02, VR-01, and VR-02 on the basis that the alternatives provide an acceptable level of quality and safety.

2.0 REGULATORY EVALUATION

Section 50.55a(f), "Inservice Testing Requirements" of 10 CFR requires, in part, that IST of certain ASME Code Class 1, 2, and 3 components meet the requirements of the ASME OM Code and applicable addenda, except where alternatives have been authorized by the NRC pursuant to paragraphs (z)(1) or (z)(2) of 10 CFR 50.55a. In proposing alternatives, a licensee must demonstrate that the alternative provides an acceptable level of quality and safety per 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 per 10 CFR 50.55a(z)(2).

Section 50.55a allows the NRC to authorize alternatives to ASME OM Code requirements upon making the necessary findings.

In accordance with 10 CFR 50.55a(f)(4)(ii), licensees are required to comply with the latest edition and addenda of the ASME OM Code incorporated by reference in the regulations 12 months prior to the start of each 120-month IST program interval. However, in accordance with 10 CFR 50.55a(f)(4)(iv) and the guidance provided in Regulatory Issue Summary (RIS) 2004-12, "Clarification on the use of later Editions and Addenda to the ASME OM Code

and Section XI,” IST of pumps and valves may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in 10 CFR 50.55a(a), subject to NRC approval. The use of the 2012 Edition of the ASME OM Code was incorporated by reference in 10 CFR 50.55a, which was approved and published in the *Federal Register* (82 FR 32934) on July 18, 2017. In addition, the use of ASME OM Code Case OMN-20, “Inservice Test Frequencies,” was also incorporated into 10 CFR 50.55a and published in the same *Federal Register* notice. Therefore, use of Code Case OMN-20 is allowed by regulation, and NRC approval is no longer required.

Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request, and the Commission to grant, the relief requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 Licensee’s Request to Use 2012 Edition of ASME OM Code

Pursuant to 10 CFR 50.55a(f)(4)(ii), the current code of record for the fourth 10-year IST program at Hope Creek is the 2004 Edition through 2006 Addenda of the ASME OM Code. However, the licensee requests to use a later Code edition (i.e., the 2012 Edition of ASME OM Code) as the code of record for the Hope Creek fourth 10-year IST program. In accordance with 10 CFR 50.55a(f)(4)(iv) and the guidance provided in RIS 2004-12, the NRC staff approves the licensee’s request to use the 2012 Edition of the ASME OM Code for the Hope Creek fourth 10-year IST program.

3.2 Licensee’s Alternative Request PR-01

The alternative request PR-01 was originally submitted from the requirements of the 2004 Edition through 2006 Addenda of the ASME OM Code, and this request is resubmitted as an alternative to the requirements of the 2012 Edition of the ASME OM Code.

3.2.1 Applicable Code Requirements

Paragraph ISTB-3510(a) of the ASME OM Code requires that flow instrument accuracy shall be within plus or minus 2 percent of full-scale as defined in Table ISTB-3510-1. Paragraph ISTB-3510(b)(1) of the ASME OM Code requires that the full-scale range of each analog instrument shall not be greater than three times the reference values. The combination of these two requirements (i.e., accuracy of ± 2 percent of full scale and full scale being up to 3 times the reference value) yields an allowable tolerance of ± 6 percent of the reference value.

3.2.2 Components Affected

10P204	High Pressure Coolant Injection (HPCI) Pump
10P217	HPCI Booster Pump

The HPCI pump is an emergency core cooling system component that is also used to maintain reactor vessel inventory following reactor isolation.

The HPCI booster pump is integral with the HPCI pump in that they are driven off the same turbine. The booster pump ensures that the minimum net positive suction head requirement of the HPCI pump is maintained for the design accident flow rates.

3.2.3 Licensee's Proposed Alternative and Basis for Use

The licensee stated that the NRC approved this alternative request as an alternative to the requirements of the 2004 Edition with 2006 Addenda of the OM Code. The licensee proposed to use this same alternative request as an alternative to the requirements of the 2012 Edition of the OM Code on the basis that there are no differences in the code requirements between the 2004 Code Edition with 2006 Addenda and the 2012 Code Edition.

3.2.4 NRC Staff Evaluation

The NRC staff reviewed the instrument accuracy requirements of paragraphs ISTB 3510(a) and ISTB 3510(b)(1) of the ASME OM Code and verified that they are identical and there are no differences between the 2004 Edition with 2006 Addenda and the 2012 Edition of the ASME OM Code. Therefore, the NRC staff determines that request PR-01 is acceptable for the fourth 10-year Hope Creek IST program on the basis that there are no differences in the code requirements between the 2004 ASME OM Code Edition with 2006 Addenda and the 2012 ASME OM Code Edition, and that the same alternative request has been authorized for the fourth 10-year IST program by NRC letter dated December 20, 2016 (ADAMS Accession No. ML16343A057).

3.3 Licensee's Pump Alternative Request PR-02

The alternative request PR-02 was originally submitted from the requirements of the 2004 Edition through 2006 Addenda of the ASME OM Code. This request was resubmitted by the licensee as an alternative to the requirements of the 2012 Edition of the ASME OM Code.

3.3.1 Applicable Code Requirements

Paragraph ISTB-3510(a) of ASME OM Code requires that flow instrument accuracy be within plus or minus 2 percent of full-scale as defined in Table ISTB-3510-1. Paragraph ISTB 3510(b)(1) of the ASME OM Code states that the full-scale range of each analog instrument shall not be greater than three times of the reference values. The combination of these two requirements (i.e., accuracy of ± 2 percent of full scale and full scale being up to 3 times the reference value) yields an allowable tolerance of ± 6 percent of the reference value.

3.3.2 Component Affected

10P203 Reactor Core Isolation Cooling Pump

The reactor core isolation cooling pump is safety-related and provides demineralized makeup water to the reactor vessel in the event that the reactor vessel is isolated.

3.3.3 Licensee's Proposed Alternative and Basis for Use

The licensee stated that the NRC approved this alternative to the requirements of the 2004 Edition with 2006 Addenda of the ASME OM Code. The licensee proposed to use this same alternative to the requirements of the 2012 Edition of the ASME OM Code on the basis that there are no differences in the code requirements between the 2004 ASME OM Code Edition with 2006 Addenda and the 2012 ASME OM Code Edition.

3.3.4 NRC Staff Evaluation

The NRC staff reviewed the instrument accuracy requirements of paragraphs ISTB 3510(a) and ISTB 3510(b)(1), and verified that they are identical with no differences between the 2004 Edition with 2006 Addenda and the 2012 Edition of the ASME OM Code. Therefore, the NRC staff determines that request PR-02 is acceptable for the fourth 10-year Hope Creek IST program on the basis that there are no differences in the code requirements between the 2004 ASME OM Code Edition with 2006 Addenda and the 2012 ASME OM Code Edition, and that the same alternative request has been authorized for the fourth 10n-year IST program by NRC letter dated **December 20, 2016**.

3.4 Licensee's Valve Alternative Request VR-01

The alternative request VR-01 was originally submitted from the requirements of the 2004 Edition through 2006 Addenda of the ASME OM Code, and this request was resubmitted by the licensee as an alternative to the requirements of the 2012 Edition of the ASME OM Code.

3.4.1 Applicable Code Requirements

- Paragraph ISTC-3510, "Exercising Test Frequency," of the ASME OM Code states, in part, that, "Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months, except as provided by paragraph ISTC-3520...."
- Paragraph ISTC-3522(a), "Category C Check Valves," of the ASME OM Code states that, "During operation at power, each check valve shall be exercised or examined in a manner that verifies obturator travel by using the methods in paragraph ISTC-5221."
- Paragraph ISTC-3522(c), "Category C Check Valves," of the ASME OM Code states that, "If exercising is not practicable during operation at power and cold shutdowns, it shall be performed during refueling outages."
- Paragraph ISTC-3700, "Position Verification Testing," of the ASME OM Code states, in part, that, "Valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated."

3.4.2 Components Affected

The components affected are the excessive flow check valves listed in the licensee's submittal dated December 18, 2015, for the same original alternative request VR-01.

3.4.3 Licensee's Proposed Alternative and Basis for Use

The licensee stated that the NRC approved this alternative request to the requirements of the 2004 Edition with 2006 Addenda of the ASME OM Code. The licensee proposed to use this same alternative to the requirements of the 2012 Edition of the ASME OM Code on the basis that there are no differences in the code requirements between the 2004 ASME OM Code Edition with 2006 Addenda and the 2012 ASME OM Code Edition.

3.4.4 NRC Staff Evaluation

The NRC staff reviewed the check valve testing requirements of paragraphs ISTC-3510, ISTC-3522(a), and ISTC-3522(c) of the ASME OM Code, and position verification testing requirements of paragraph ISTC-3700, and verified that they are identical with no differences between the 2004 Edition with 2006 Addenda and the 2012 Edition of the ASME OM Code. Therefore, the NRC staff finds that PR-02 is acceptable for the fourth 10-year Hope Creek IST program on the basis that there are no differences in the code requirements between the 2004 ASME OM Code Edition with 2006 Addenda and the 2012 ASME OM Code Edition, and that the alternative request was previously authorized for the fourth 10-year IST program by letter dated December 20, 2016 (ADAMS Accession No. ML16343A057).

3.5 Licensee's Valve Alternative Request VR-02

The alternative request VR-02 was originally submitted from the requirements of the 2004 Edition through 2006 Addenda of the ASME OM Code, and this request is resubmitted by the licensee as an alternative to the requirements of the 2012 Edition of the ASME OM Code.

3.5.1 Applicable Code Requirements

Paragraph 1-3310 of Mandatory Appendix I specifies the periodic testing requirements of ASME Class 1 main steam pressure relief valves with auxiliary actuating devices. The ASME OM Code-required periodic testing for these valves includes, in part, seat tightness determination, set pressure determination, determination of electrical characteristics and pressure integrity of solenoid valve(s), determination of pressure integrity and stroke capability of air actuator, and determination of operation and electrical characteristics of position indicators. The frequency of the required testing is specified in paragraph I-1320(a), which requires that these main steam relief valves be periodically tested at least once every 5 years, with a minimum of 20 percent of the valves tested within any 24 months where the 20 percent shall be previously untested valves, if they exist.

3.5.2 Components Affected

The licensee requested an alternative to the ASME OM Code requirements of Mandatory Appendix I for testing the following main steam safety relief valves and automatic depressurization system valves:

- 1SNPSV-F013A, B, C, D, E, and
- 1ABPSV-F013F, G, H, J, K, L, M, P, and R

These valves have a safety function in the open position to provide overpressure protection for the main steam header and reactor vessel. Additionally, valves 1SNPSV-F013A through E also serve an emergency core cooling system function in the automatic depressurization system to depressurize the reactor vessel in the event of a small-break loss-of-coolant accident coincident with a failure of the HPCI system.

3.5.3 Licensee's Proposed Alternative and Basis for Use

The licensee stated that the NRC approved this alternative to the requirements of the 2004 Edition with 2006 Addenda of the ASME OM Code. The licensee proposed to use this same alternative to the requirements of the 2012 Edition of the ASME OM Code on the basis

that there are no differences in the code requirements between the 2004 ASME OM Code Edition with 2006 Addenda and the 2012 ASME OM Code Edition.

3.5.4 NRC Staff Evaluation

The NRC staff reviewed the testing and frequency requirements of paragraphs 1-3310 and I-1320(a) of Mandatory Appendix I and verified that they are identical with no differences between the 2004 Edition with 2006 Addenda and the 2012 Code Edition of the ASME OM Code. Therefore, the NRC staff finds that VR-02 is acceptable for the fourth 10-year Hope Creek IST program on the basis that there are no differences in the code requirements between the 2004 ASME OM Code Edition with 2006 Addenda and the 2012 ASME OM Code Edition. The alternative request was previously authorized for the fourth 10-year IST program by NRC letter dated December 20, 2016.

4.0 CONCLUSION

As set forth above, the NRC staff approves the use of the 2012 Edition of the ASME OM Code for the fourth 10-year IST program at Hope Creek. Furthermore, the NRC staff determines that for requests PR-01, PR-02, VR-01, and VR-02, the proposed alternatives continue to provide an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1). Therefore, the NRC staff authorizes alternative requests PR-01, PR-02, VR-01, and VR-02 for the fourth 10-year IST program at Hope Creek.

All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject requests remain applicable.

Principle Contributor: John Huang

Date: November 28, 2017

SUBJECT: HOPE CREEK GENERATING STATION – REQUEST TO USE LATER EDITION OF AMERICAN SOCIETY OF MECHANICAL ENGINEERS CODE FOR OPERATION AND MAINTENANCE OF NUCLEAR POWER PLANTS (CAC NO. MG0124; EPID L-2017-LLR-0087) DATED NOVEMBER 28, 2017

DISTRIBUTION:

Public
 RidsNrrDorlLpl1 Resource
 RidsNrrPMHopeCreek Resource
 JBowen, OEDO
 RidsRgn1MailCenter Resource
 RidsNrrLALRonewicz Resource
 RidsACRS_MailCTR Resource
 RidsNrrDeEmib Resource
 JHuang, NRR

ADAMS Accession No.: ML17321B106

*by memorandum

OFFICE	NRR/DORL/LPL1/PM	NRR/DORL/LPL1/LA	NRR/DE/EMIB/BC*
NAME	LRegner	LRonewicz	SBailey (RWolfgang for)
DATE	11/16/2017	11/17/2017	11/16/2017
OFFICE	NRR/DORL/LPL1/BC	NRR/DORL/LPL1/PM	
NAME	JDanna	LRegner	
DATE	11/22/2017	11/28/2017	

OFFICIAL RECORD COPY