



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

September 6, 2019

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

SUBJECT: HOPE CREEK NUCLEAR GENERATING STATION – ALTERNATIVE  
REQUEST VR-03 TO USE ASME CODE CASE OMN-17, ALTERNATIVE  
RULES FOR TESTING AMERICAN SOCIETY OF MECHANICAL ENGINEERS  
CLASS 1 PRESSURE RELIEF/SAFETY VALVES FOR THE FOURTH 10-YEAR  
INSERVICE TEST INTERVAL (EPID L-2019-LLR-0010)

Dear Mr. Carr:

By letter dated January 31, 2019 (Agencywide Documents and Access Management System (ADAMS) Accession Number ML19031B845), PSEG Nuclear, LLC, (PSEG, the licensee), submitted an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), associated with valve inservice testing (IST) at the 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 alternative in request VR-03 on the basis that the alternative provides an acceptable level of quality and safety.

The U.S Nuclear Regulatory Commission (NRC) staff has reviewed the subject request and concluded that for alternative request VR-03 for Hope Creek, the proposed alternative provides an acceptable level of quality and safety for the Main Steam and Automatic Depressurization System Valves. Accordingly, the NRC staff concludes that the licensee has adequately addressed all the regulatory requirements set forth in 10 CFR 50.55a(z)(1) for request VR-03. Therefore, the NRC staff authorizes the use of the alternative request VR-03 for Hope Creek for the duration of the fourth 10-year IST program interval, which began on December 21, 2017, and is scheduled to end on December 20, 2026 (Hope Creek extended the third 10-year IST program interval by one year, therefore the fourth 10-year IST program interval began on December 21, 2017).

E. Carr

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If you have any questions, please contact the Hope Creek Project Manager, James Kim, at 301-415-4125 or via e-mail to [James.Kim@nrc.gov](mailto:James.Kim@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "James G. Danna". The signature is fluid and cursive, with a large initial "J" and "D".

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: Listserv



UNITED STATES  
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

ALTERNATIVE REQUEST VR-03 FOR

FOURTH 10-YEAR INTERVAL INSERVICE TESTING PROGRAM

HOPE CREEK GENERATING STATION

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-354

1.0 INTRODUCTION

By letter dated January 31, 2019 (Agencywide Documents and Access Management System (ADAMS) Accession Number ML19031B845), PSEG Nuclear, LLC, (the licensee), submitted an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), associated with valve inservice testing (IST) at the 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 alternative in request VR-03 on the basis that the alternative provides an acceptable level of quality and safety.

2.0 REGULATORY EVALUATION

As stated under 10 CFR 50.55a(f), in part, that IST of certain ASME Code Class 1, 2, and 3 pumps and valves are to be performed in accordance with the specified ASME OM Code and applicable addenda incorporated by reference in the regulations.

As stated under 10 CFR 50.55a(z), alternatives to the requirements of paragraph (f) of 10 CFR 50.55a may be used, when authorized by the U.S. Nuclear Regulatory Commission (NRC), if the licensee demonstrates: (1) the proposed alternatives would provide an acceptable level of quality and safety or (2) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

3.0 TECHNICAL EVALUATION

3.1 Licensee's Alternative Request VR-03

The licensee requested to implement Code Case OMN-17 as an alternative to the valve testing requirements of the ASME OM Code.

ISTA-3130, "Application of Code Cases," (b), states, "Code Cases shall be applicable to the edition and addenda specified in the test plan."

I-1320, "Test Frequencies, Class 1 Pressure Relief Valves," (a) "5-Yr Test Interval," states, "Class 1 pressure relief valves shall be tested at least once every 5 year, starting with initial electric power generation. No maximum limit is specified for the number of valves to be tested within each interval; however, a minimum of 20% of the valves from each valve group shall be tested within any 24-mo interval. This 20% shall consist of valves that have not been tested during the current 5-yr interval, if they exist. The test interval for any installed valve shall not exceed 5 yr. The 5-yr test interval shall begin from the date of the as-left set pressure test for each valve."

I-3310, "Class 1 Main Steam Pressure Relief Valves With Auxiliary Actuating Devices," states, "Tests before maintenance or set-pressure adjustment, or both, shall be performed for subparagraphs. I-3310(a) through (c) in sequence. The remaining shall be performed after maintenance or set-pressure adjustments.

- (a) visual examination
- (b) seat tightness determination, if practicable
- (c) set-pressure determination
- (d) determination of electrical characteristics and pressure integrity of solenoid valve(s)
- (e) determination of pressure integrity and stroke capability of air actuator
- (f) determination of operation and electrical characteristics of position indicators
- (g) determination of operation and electrical characteristics of bellows alarm switch
- (h) determination of actuating pressure of auxiliary actuating device sensing element, where applicable, and electrical continuity
- (i) determination of compliance with the Owner's seat tightness criteria"

I-1320(a), "5-Yr Test Interval," states, "Class 1 pressure relief valves shall be tested at least once every 5 year, starting with initial electric power generation. No maximum limit is specified for the number of valves to be tested within each interval; however, a minimum of 20% of the valves from each valve group shall be tested within any 24-mo interval. This 20% shall consist of valves that have not been tested during the current 5-yr interval, if they exist. The test interval for any installed valve shall not exceed 5 yr. The 5-yr test interval shall begin from the date of the as-left set pressure test for each valve.

The licensee has requested to use the proposed alternative described below the following valves:

Main Steam and Automatic Depressurization System (ADS) Valves:

- 1SNPSV-F013A, B, C, D, E (Class 1, Category C)
- 1ABPSV-F013F, G, H, J, K, L, M, P, R (Class 1, Category C)

The Hope Creek fourth 10-year IST program interval began on December 21, 2017, and is scheduled to end on December 20, 2026. The applicable ASME OM Code edition for the Hope Creek fourth 10-year IST program interval is the 2012 Edition.

### Reason for Request

The licensee stated:

These valves [listed above] have a safety function in the open position to provide overpressure protection for the main steam header and the reactor vessel. Additionally, valves 1SNPSV-F013A-E also serve an emergency core cooling system (ECCS) function in the ADS to depressurize the reactor vessel in the event of a small break loss-of-coolant accident (LOCA) coincident with a failure of the high pressure coolant injection (HPCI) system.

The ASME OM Committee developed Code Case OMN-17, Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves, which is published in the 2012 Edition of the OM Code. Regulatory Guide (RG) 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," Revision 2, Table 1 identifies Code Case OMN-17 as an acceptable Code Case for implementation in the in-service testing program. However, the inquiry and reply within Code Case OMN-17 indicate that its applicability to the OM Code is to the 2001 Edition through the 2006 Addenda of Appendix I, Section I-1320. ISTA-3130(b) requires Code Cases to be applicable to the Edition and addenda specified in the test plan, which would be the 2012 Edition. Therefore, NRC authorization is needed to use Code Case OMN-17 for testing of the subject relief valves.

### Proposed Alternative

The licensee stated:

As an alternative to the Code required five-year test interval per Appendix I, paragraph I-1320(a), PSEG proposes that the subject Class 1 pressure relief valves be tested at least once every 72 months with a minimum of 20% of the valves tested within any 24-month interval. This 20% would consist of valves that have not been tested during the current three-cycle interval, if they exist. The test interval for any individual valve would not exceed 72 months, except that a 6-month grace period is allowed to coincide with refueling outages to accommodate extended shutdown periods. Prior to placing these valves in service, the valves shall be disassembled and inspected after as-found set-pressure testing to verify that parts are free of defects resulting from time-related degradation or service-induced wear. As-left set-pressure testing shall be performed following maintenance and prior to returning the valve to service. Each valve shall have been disassembled and inspected at least once during the 72-month test interval. Disassembly and inspections performed prior to the implementation of this alternative may be used.

Relief from ISTA-3130(b) is requested to implement Code Case OMN-17, since inquiry and reply within the Code Case indicates that its applicability is to the 2001 Edition through the 2006 Addenda of Appendix I. ISTA-3130(b) requires Code Cases to be applicable to the Edition and addenda specified in the test plan. The ASME OM Code that applies to the Hope Creek test plan is the 2012 Edition with no Addenda. A review of the 2012 Edition of the OM Code and Code Case OMN-17 confirmed that there are no changes that would affect use of

this Code Case relative to the applicable Code section referenced within the Code Case when comparing Appendix I of the 2001 Edition through the 2006 Addenda to Appendix I of the 2012 Edition.

The proposed alternative of increasing the test interval for the subject Class 1 pressure relief valves from five years to 72 months would continue to provide an acceptable level of quality and safety. This proposed alternative meets the requirements stated in Code Case OMN-17, which is approved for use in RG 1.192, Revision 2. The proposed alternative will continue to provide assurance of the valves' operational readiness and provides an acceptable level of quality and safety pursuant to 10 CFR 50.55a(z)(1).

#### NRC Staff's Evaluation

The application of ASME OM Code Cases is addressed in 10 CFR 50.55a(b)(6) through references to RG 1.192, Revision 2, which lists acceptable and conditionally acceptable code cases for implementation in the IST program and Snubber program. Table 1 in RG 1.192, Revision 2 shows that Code Case OMN-17 is approved for use. However, its use in conjunction with the 2012 Edition of the ASME OM Code (Hope Creek code of reference) is still precluded by the applicability language in the code case itself, which limits its use to OM Code editions and addenda up to and including the 2006 Addenda. Nonetheless, the NRC has allowed licensees to use OMN-17 with later OM Code editions, provided all requirements in the code case are met. Consistent with the special maintenance requirement in ASME OM Code Case OMN-17, each Main Steam and ADS valve at Hope Creek listed above is disassembled and inspected to verify that internal surfaces and parts are free from defects resulting from time-related degradation or service-induced wear prior to the start of the next test interval. During this process, anomalies or damage are identified for resolution. Damaged or worn parts, springs, gaskets, and seals are replaced as necessary. The purpose of this maintenance requirement is to reduce the potential for pressure relief valve set-point drift. Following reassembly, the valve's set pressure is recertified. This existing process is in accordance with ASME OM Code Case OMN-17, paragraphs (d) and (e).

Furthermore, ASME OM Code Case OMN-17 is performance-based in that it requires that the valves be tested more frequently if test failures occur. For example, ASME OM Code Case OMN-17 requires that two additional valves be tested when a valve in the initial test group exceeds the set pressure acceptance criteria. All remaining valves in the group are required to be tested if one of the additional valves tested exceeds its set pressure acceptance criteria.

The NRC staff reviewed the 2012 Edition of the ASME OM Code and Code Case OMN-17 and confirmed that there are no changes in the applicable Code sections referenced within the Code Case OMN-17. Therefore, there is no technical reason for prohibiting the use of Code Case OMN-17 with the 2012 Edition of the ASME OM Code. Based on the disassembly and inspection of the valves after as-found set-pressure testing and prior to use, the NRC staff finds that implementation of ASME OM Code Case OMN-17 for the testing of the designated valves listed above, in lieu of the requirements of the 2012 Edition of the ASME OM Code, and the requirements of Mandatory Appendix I, Section I-1320, of the ASME OM Code, provides an acceptable level of quality and safety.

#### 4.0 CONCLUSION

As set forth above, the NRC staff determined that for alternative request VR-03 for Hope Creek, the proposed alternative provides an acceptable level of quality and safety for the Main Steam and ADS Valves listed above. Accordingly, the NRC staff concludes that the licensee has adequately addressed all the regulatory requirements set forth in 10 CFR 50.55a(z)(1) for request VR-03. Therefore, the NRC staff authorizes the use of the alternative request VR-03 for Hope Creek for duration of the fourth 10-year IST program interval, which began on December 21, 2017, and is scheduled to end on December 20, 2026 (Hope Creek extended the third 10-year IST program interval by one year, such that the fourth 10-year IST program interval began on December 21, 2017).

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

Principal Contributor: R. Wolfgang

Date: September 6, 2019

**SUBJECT: HOPE CREEK NUCLEAR GENERATING STATION – ALTERNATIVE REQUEST VR-03 TO USE ASME CODE CASE OMN-17, ALTERNATIVE RULES FOR TESTING ASME CLASS 1 PRESSURE RELIEF/SAFETY VALVES FOR THE FOURTH 10-YEAR INSERVICE TEST INTERVAL (EPID L-2019-LLR-0010) DATED SEPTEMBER 6, 2019**

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