



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

May 5, 2021

Mr. Rod L. Penfield  
Site Vice President  
Energy Harbor Nuclear Corp.  
Perry Nuclear Power Plant  
P.O. Box 97, Mail Stop A-PY-A290  
Perry, OH 44081-0097

SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT NO. 1 – ISSUANCE OF RELIEF REQUESTS VR-4, REVISION 0, VR-6, REVISION 0, AND VR-8, REVISION 0, ASSOCIATED WITH THE FOURTH 10-YEAR INSERVICE TESTING INTERVAL (EPIDs L-2021-LLR-0010; L-2021-LLR-0011; L-2021-LLR-0012 [COVID-19])

Dear Mr. Penfield:

By letter dated February 8, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML21039A409), as supplemented by a letter dated February 22, 2021 (ADAMS Accession No. ML21053A010), Energy Harbor Nuclear Corp. (the licensee) submitted alternative requests (ARs) Nos. VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, to the U.S. Nuclear Regulatory Commission (NRC) for the use of alternatives to specific requirements in the 2012 Edition of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) at Perry Nuclear Power Plant (PNPP).

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(2), the licensee requested to use the proposed alternatives in requests VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, on the basis that complying with the requirements of the ASME OM Code would result in hardship without a compensating increase in the level of quality and safety.

The NRC staff concludes that requests VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, will provide reasonable assurance that the valves at PNPP, listed in the licensee's requests, are operationally ready to perform their safety functions until the spring 2023 refueling outage. The NRC staff finds that complying with the requirements of the ASME OM Code would result in hardship without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC authorizes the use of requests VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, at PNPP until the next scheduled refueling outage in spring 2023.

The enclosed safety evaluation documents the technical basis for the NRC's verbal authorizations of VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, on March 3, 2021 (ADAMS Accession Nos. ML21063A192, ML21063A195, and ML21063A198, respectfully).

All other requirements in the ASME OM Code for which relief was not specifically requested and approved in this request remains applicable.

R. Penfield

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If you have any questions, please contact the Project Manager, Scott Wall, at 301-415-2855 or e-mail at [Scott.Wall@nrc.gov](mailto:Scott.Wall@nrc.gov).

Sincerely,

Nancy L. Salgado, Chief  
Plant Licensing Branch III  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-440

Enclosure:  
Safety Evaluation

cc: Listserv



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUESTS VR-4, VR-6, AND VR-8

FOURTH 10-YEAR INTERVAL INSERVICE TESTING INTERVAL

ENERGY HARBOR NUCLEAR CORP.

PERRY NUCLEAR POWER PLANT, UNIT NO. 1

DOCKET NO. 50-440

1.0 INTRODUCTION

By letter dated February 8, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML21039A409), as supplemented by a letter dated February 22, 2021 (ADAMS Accession No. ML21053A010), Energy Harbor Nuclear Corp. (EHNC, the licensee) submitted alternative requests (ARs) Nos. VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, to the U.S. Nuclear Regulatory Commission (NRC) for the use of alternatives to specific requirements in the 2012 Edition of the American Society of Mechanical Engineers (ASME) *Operation and Maintenance of Nuclear Power Plants*, Division 1, OM Code: Section IST (OM Code) at Perry Nuclear Power Plant (PNPP) associated with the fourth 10-year interval inservice testing (IST) interval.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(2), the licensee requested to use the proposed alternatives in requests VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, on the basis that complying with the requirements of the ASME OM Code would result in hardship without a compensating increase in the level of quality and safety.

The NRC verbally authorized requests VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, on March 3, 2021 (ADAMS Accession Nos. ML21063A192, ML21063A195, and ML21063A198, respectfully).

2.0 REGULATORY EVALUATION

Adherence to the ASME OM Code is mandated by 10 CFR 50.55a(f)(4), which states, in part, that valves that are within the scope of the ASME OM Code must meet the IST requirements set forth in the ASME OM Code; and that valves that are within the scope of the ASME OM Code, but are not classified as ASME boiler & pressure vessel (B&PV) Code Class 1, 2, or 3, may be satisfied as part of an augmented IST program.

Pursuant to 10 CFR 50.55a(b)(3)(xi), "OM condition: Valve Position Indication," the licensee must comply with the provisions for verifying operation indications in Subsection ISTC-3700 of the ASME OM Code.

Regulation 10 CFR 50.55a(z) states, in part, that alternatives to the requirements of 10 CFR 50.55a(f) may be used, when authorized by the 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

The information provided by the licensee in support of the requests for alternatives to ASME OM Code requirements has been evaluated and the bases for disposition are documented below. For clarity, the licensee's requests have been evaluated in several parts according to ASME OM Code Testing category.

#### Applicable Code Edition and Addenda

The applicable Code edition and addenda for the fourth 10-year IST interval of the PNPP is the 2012 Edition of ASME Code.

#### Duration of the Alternative

For VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, the licensee requested an alternative to allow a one-time extension of the testing interval for the valves listed in Tables 1, 2 and 3 of this safety evaluation (SE) at PNPP, during the spring of 2021 refueling outage (RFO). The licensee stated that it will resume the normal outage examination frequency at the next opportunity, currently expected to be the next RFO in spring 2023.

#### Common Reason for Requests

On March 13, 2020, the President of the United States declared a national emergency due to the spread and infectious nature of the Coronavirus-2019 (COVID-19) virus and resulting pandemic. To prevent the spread of COVID-19 and to protect the health and safety of plant personnel while maintaining responsibilities to support critical infrastructure, the licensee intends to reduce the amount of personnel on-site, which will pose a hardship for completing the currently planned spring 2021 RFO work scope. With the current work scope and potential loss of personnel, the licensee may not be able to complete the RFO in a timely manner, which could affect critical infrastructure that is needed during this time.

3.1 Proposed Alternative VR-4, Revision 0

ASME Code Components Affected

In its submittal, the licensee requests a one-time extension of the testing interval for the following eight check valves at PNPP:

**Table 1**

<b>Component ID</b>	<b>Component Description</b>	<b>ASME Code Class</b>	<b>Valve Category</b>
1E22-F0621	High-Pressure Core Spray Test Return Line Vacuum Breaker Check Valve	2	C
1E22-F0622	High-Pressure Core Spray Test Return Line Vacuum Breaker Check Valve	2	C
1M51-F0531A	Hydrogen Analyzer A Drywell Sample Check Valve	2	C
1M51-F0531B	Hydrogen Analyzer B Drywell Sample Check Valve	2	C
1M51-F0532A	Hydrogen Analyzer A Drywell Head Sample Check Valve	2	C
1M51-F0532B	Hydrogen Analyzer B Drywell Head Sample Check Valve	2	C
1M51-F0618A	Hydrogen Analyzer A Upper Containment Sample Check Valve	2	C
1M51-F0618B	Hydrogen Analyzer B Upper Containment Sample Check Valve	2	C

Applicable Code Requirement

The IST requirements of the ASME OM Code, as incorporated by reference in 10 CFR 50.55a related to this AR request are as follows:

- ASME OM Code, Subsection ISTC-3510, "Exercising Test Frequency," states, in part, that:

Active Category A, Category B, and Category C check valves shall be exercised nominally every three months, except as provided by paragraphs ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221, and ISTC-5222. Power operated relief valves shall be exercise tested once per fuel cycle.

- ASME OM Code, Subsection ISTC-3522, "Category C Check Valves," states, in part, that:

If exercising is not practicable during operation at power and cold shutdowns, it shall be performed during refueling outages.

### Reason for Request

The licensee reported that the check valves listed in its request are tested every 2 years in accordance with ASME OM Code (2012 Edition), Subsection ISTC-3510, and Subsection ISTC-3522. Therefore, these valves were scheduled to be tested during the RFO in the spring of 2021.

The licensee submitted the AR considering the expected hardship of obtaining and maintaining on-site staff sufficient to prepare, perform, and recover from the examination. The licensee stated that the testing of the check valves listed in its request during the spring 2021 RFO at PNPP, would represent a hardship during the COVID-19 outbreak. For example, the licensee intended to reduce the amount of personnel on-site to prevent the spread of COVID-19 at PNPP. Therefore, the licensee asserted that the testing of the specified check valves at PNPP, during the spring 2021 RFO would result in a hardship without a compensating increase in the level of quality and safety in accordance with 10 CFR 50.55a(z)(2).

### Licensee's Proposed Alternative

The licensee proposed an extension of the IST program testing intervals for the check valves listed in its request to the next RFO for PNPP, currently scheduled for the spring of 2023.

The licensee stated that valves 1E22-F0621 and 1E22-F0622 are vacuum breakers that allow the high-pressure core spray (HPCS) piping leading to the suppression pool to drain in a timely manner after the HPCS pump is secured, and to prevent potential water hammer. The two valves are redundant in that failure of one check valve will allow thrust loads to stay within the ASME Code allowables. The licensee also stated that daily operator rounds are conducted that would detect any potential water hammer issues, and that during the performance of quarterly pump and valve surveillance testing, operators observe that valves 1E22-F0621 and 1E22-F0622 exercise close. The licensee also stated that its engineering review of the test results revealed that the valves consistently demonstrated acceptable results, and that engineering determined that the postulated failure of a single check valve still allows for ASME Code allowable thrust loads, which ensures proper operation of the HPCS system. Therefore, the licensee concludes that based on 14 years of historical data, there is reasonable assurance that valves that were pre-service tested and installed during the spring 2019 RFO will remain operationally ready until testing resumes during the currently scheduled spring 2023 RFO.

The licensee stated that valves 1M51-F0531A, 1M51-F0531B, 1M51-F0532A, 1M51-F0532B, 1M51-F0618A, and 1M51-F0618B are sample line check valves on the combustible gas control system, which allow isolation to perform a localized sample and automatic draining of condensate in sample lines, and that access to these valves is not available during plant operation or normal cold shutdowns. The licensee also stated that the valves are exercised closed by verification of an acceptable flowrate on a rotameter and are exercised open by verifying flowrate greater than the acceptance criteria at test pressure using leakage rate monitoring equipment. The licensee also stated that their review of surveillance testing pertinent to the 1M51 combustible gas control check valves has revealed that there have been no failures of valves unable to meet acceptance criteria. Therefore, based on 14 years of historical data, there is reasonable assurance that the valves would remain operationally ready through the next operating cycle with testing to occur during the next RFO, currently scheduled for the spring of 2023.

## NRC Staff Evaluation

In its submittal dated January 29, 2021, the licensee provided justification that compliance with the provisions in ASME OM Code, Subsection ISTC, "Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants," paragraph ISTC-3510, "Exercising Test Frequency," and paragraph ISTC-3522, "Category C Check Valves," subparagraph (c), as incorporated by reference in 10 CFR 50.55a, to conduct exercising testing of check valves every RFO would result in a hardship without a compensating increase in the level of quality and safety in accordance with 10 CFR 50.55a(z)(2), if performed at this time. The licensee indicated that the performance of exercise testing of check valves at this time would represent a hardship during this COVID-19 outbreak, because the licensee intends to reduce the amount of personnel on-site to prevent the spread of COVID-19 at PNPP. This reduction would include qualified leak rate testing contractors who perform the check valve exercise tests.

Regarding valves 1E22-F0621 and 1E22-F0622, the licensee is requesting an alternative from the exercise open testing. In its letter dated February 22, 2021, the licensee provided a response to a request for additional information (RAI) from the NRC staff regarding alternative request VR-4, Revision 0. The licensee clarified that the exercise close testing will continue to be performed during the quarterly pump and valve testing and is not part of this one-time request. Also, in its February 22, 2021, RAI response, the licensee provided tabulated results of preservice and post-removal testing from 2007 to 2019. The NRC staff reviewed the preservice and post-removal test results and observed that in all of the tests both valves met the minimum flow acceptance criteria.

Regarding valves 1M51-F0531A, 1M51-F0531B, 1M51-F0532A, 1M51-F0532B, 1M51-F0618A, and 1M51-F0618B, the licensee is requesting a one-time extension of the IST frequency requirement for both the exercise open and exercise closed testing. In its February 22, 2021, supplement, the licensee provided tabulated results of testing for both exercised open and exercised closed test results from 2007 to 2019. In all of the tests, the valves met the acceptance criteria flowrate. The licensee also stated that the valves have passed testing criteria without any recurring preventative maintenance and no necessary corrective maintenance.

The NRC staff reviewed the licensee's characterization of the hardship posed by the occupational health and safety concerns associated with the pandemic-related issues pertaining to COVID-19. The licensee reported that to prevent the spread of COVID-19 and protect the health and safety of plant personnel, it intended to reduce the amount of personnel on-site during the spring 2021 outage activities. The check valve exercise testing requires specialized external resources such as qualified leak rate contractors to perform the tests and carpenters to erect scaffolding for access to the valves. These external personnel resources could introduce an additional potential to spread the virus as their medical history could be unknown and exposure to the COVID-19 virus is possible during travel. The NRC staff considers that requiring the check valves listed in Table 1 of this SE to be exercised during the spring 2021 RFO with limited personnel resources represents a hardship or unusual difficulty without a compensating increase in the level of quality and safety

Based on the information described above for the specific check valves at PNPP, listed in Table 1 of this SE, the NRC staff finds that: (1) previous testing of these check valves indicates their acceptable historical performance; (2) no current concerns with the performance of the performance of these check valves have been identified; (3) periodic maintenance activities are not modified by this request; and (4) a hardship exists for the performance of team-oriented

exercise testing of these check valves at this time that would be contrary to the health and safety of plant personnel.

Therefore, the NRC staff finds that the licensee’s proposed alternative, applicable to the extension of the exercise open testing for two specified valves, and the exercise open and exercise closed testing for six specified valves, submitted in accordance with 10 CFR 50.55a(z)(2), will provide reasonable assurance that these eight check valves at PNPP will be operationally ready to perform their safety functions until the spring 2023 RFO.

### 3.2 Proposed Alternative VR-6, Revision 0

#### ASME Code Components Affected

In its submittal, the licensee requests a one-time extension of the testing interval for the following 35 valves at PNPP:

**Table 2**

<b>Component ID</b>	<b>Component Description</b>	<b>Code Class</b>	<b>Valve Category</b>
0P42-F0260A	ECC to FPCC HX A Inlet Valve	3	B
0P42-F0260B	ECC to FPCC HX B Inlet Valve	3	B
0P42-F0265A	ECC to FPCC HX A Outlet Valve	3	B
0P42-F0265B	ECC to FPCC HX B Outlet Valve	3	B
1B21-F0001	RX Head to DW Second Vent Valve	1	B
1B21-F0002	RX Head to DW First Vent Valve	1	B
1C11-F0010	Scram Discharge Volume First Vent	2	B
1C11-F0011	Scram Discharge Volume First Drain	2	B
1C11-F0180	Scram Discharge Volume Second Vent	2	B
1C11-F0181	Scram Discharge Volume Second Drain	2	B
1E12-F0037A	RHR A Upper Pool Cooling Isolation Valve	2	B
1E12-F0037B	RHR B Upper Pool Cooling Isolation Valve	2	B
1E12-F0039A	LPCI A Manual Shutoff	1	B
1E12-F0039B	LPCI B Manual Shutoff	1	B
1E12-F0039C	LPCI C Manual Shutoff	1	B
1E12-F0047A	RHR A HXs Inlet Valve	2	B
1E12-F0047B	RHR B HXs Inlet Valve	2	B
1E12-F0073A	RHR A HX Second Vent to Suppression Pool	2	A
1E12-F0073B	RHR B HX Second Vent to Suppression Pool	2	A
1E12-F0074A	RHR A HXs First Vent to Suppression Pool	2	B

<b>Component ID</b>	<b>Component Description</b>	<b>Code Class</b>	<b>Valve Category</b>
1E12-F0074B	RHR B HXs First Vent to Suppression Pool	2	B
1E21-F0001	LPCS Suppression Pool Suction Valve	2	B
1E21-F0007	LPCS Manual Shutoff Valve	1	B
1E22-F0036	HPCS Manual Shutoff Valve	1	B
1E51-F0004	RCIC Turbine CNDS to CRW First Shutoff	2	B
1E51-F0005	RCIC Turbine CNDS to CRW Second Shutoff	2	B
1E51-F0025	RCIC ST Supp First Drain Shutoff	2	B
1E51-F0026	RCIC ST Supp Second Drain Shutoff	2	B
1G42-F0080	SPCU Demin Outlet Isolation	3	B
1M14-F0065	DW Purge Exhaust First Isolation Damper	2	B
1M14-F0070	DW Purge Exhaust Second Isolation Damper	2	B
1N22-F0420A	MSL A Shutoff Before Seat Drain	2	B
1N22-F0420B	MSL B Shutoff Before Seat Drain	2	B
1N22-F0420C	MSL C Shutoff Before Seat Drain	2	B
1N22-F0420D	MSL D Shutoff Before Seat Drain	2	B

Acronyms used in table:

CNDS Condensate  
 CRW Clean Radwaste  
 DW Drywell  
 ECC Emergency Closed Cooling  
 FPCC Fuel Pool Cooling and Cleanup  
 HPCS High-Pressure Core Spray  
 HX Heat Exchanger  
 LPCI Low Pressure Coolant Injection  
 LPCS Low Pressure Core Spray  
 MSL Main Steam Line  
 RCIC Reactor Core Isolation Cooling  
 RHR Residual Heat Removal  
 RX Reactor  
 SPCU Suppression Pool Cleanup  
 ST Steam

### Applicable Code Requirement

The IST requirements of the ASME OM Code, as incorporated by reference in 10 CFR 50.55a related to this AR, are as follows:

- ASME OM Code, Subsection ISTC-3700, "Position Verification Testing," states, in part, that:

Valves with remote position indicators shall be observed locally at least once every 2 yr [years] to verify that valve operation is accurately indicated. Where practicable, this local observation should be supplemented by other indications such as use of flow meters or other suitable instrumentation to verify obturator position. These observations need not be concurrent. Where local observation is not possible, other indications shall be used for verification of valve operation.

### Reason for Request

The licensee reported that the valves listed in its request are tested every 2 years in accordance with ASME OM Code (2012 Edition) Subsection ISTC-3700. Therefore, these valves were scheduled to be tested during the RFO in the spring of 2021.

The licensee submitted the AR considering the expected hardship of obtaining and maintaining on-site staff sufficient to prepare, perform, and recover from the examination. The licensee stated that the functional testing of the valves listed in its request during the spring 2021 RFO at PNPP would represent a hardship during the COVID-19 outbreak. For example, the licensee intended to reduce the number of personnel on-site to prevent the spread of COVID-19 at PNPP. Therefore, the licensee asserted that the testing of the specified valves at PNPP, during the spring 2021 RFO, would result in a hardship without a compensating increase in the level of quality and safety in accordance with 10 CFR 50.55a(z)(2).

### Licensee's Proposed Alternative

The licensee proposed an extension of the IST program testing intervals for the valves listed in its request to the next RFO for PNPP, currently scheduled for the spring of 2023.

### NRC Staff Evaluation

As incorporated by reference in 10 CFR 50.55a, ASME OM Code (2012 Edition), Subsection ISTC-3700 requires, 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. Where practicable, this local observation should be supplemented by other indications such as use of flow meters or other suitable instrumentation to verify obturator position. Implementation of the ASME OM Code (2012 or later Editions) is required by 10 CFR 50.55a(b)(3)(xi) OM condition: Valve Position Indication which states: "When implementing paragraph ISTC-3700, "Position Verification Testing," in the ASME OM Code, 2012 Edition through the latest edition and addenda of the ASME OM Code incorporated by reference in paragraph (a)(1)(iv) of this section, licensees shall verify that valve operation is accurately indicated by supplementing valve position indicating lights with other indications, such as flow meters or other suitable instrumentation to provide assurance of proper obturator

position for valves with remote position indication within the scope of Subsection ISTC including its mandatory appendices and their verification methods and frequencies.”

In lieu of performing the ASME OM Code testing requirements, the licensee requested a one-time extension to the next refueling outage currently scheduled for the spring of 2023 be allowed for the testing of the 35 valves in Table 2.

In its submittal dated February 8, 2021, the licensee provided justification that compliance with the provisions in ASME OM Code, Subsection ISTC-3700 and compliance with the 10 CFR 50.55a(b)(3)(xi) OM Condition: Valve Position Indication as incorporated by reference in 10 CFR 50.55a, to verify obturator position testing of valves every 2 years would result in a hardship without a compensating increase in the level of quality and safety in accordance with 10 CFR 50.55a(z)(2), if performed during the spring 2021 RFO.

On February 22, 2021, the licensee provided a response to an RAI from the NRC staff. In its response, the licensee provided the results of the recent tests conducted to satisfy the obturator position verification requirement for the 35 valves in Table 2. The licensee clarified the test methods used to verify the obturator position and emphasized that the tests will be conducted to the requirement in ASME OM Code paragraph ISTC-3700. The obturator position verification testing included monitoring flow or change in chemistry in the system, detecting level in downstream tank or drain sump, diagnostic testing, and leak rate testing for motor operated valves; acoustic monitoring for air operated valves; and leak rate testing and diagnostic testing for manually operated valves. The NRC staff notes that the valve position verification testing is also required to be supplemented by the condition in 10 CFR 50.55a(b)(3)(xi). The NRC staff finds that the obturator position verification methods meet the requirements in ASME OM Code paragraph ISTC-3700 and 10 CFR 50.55a(b)(3)(xi), and the test results demonstrated good performance history of the valves listed in Table 2.

The licensee also explained the basis for the classification of four specific valves within the scope of its request (1E12-F0037A, 1E12-F0037B, 1E12-F0073A, and 1E21-F0001) as passive. The NRC staff determined that the licensee’s classification of those four valves as passive does not impact the NRC staff review of the licensee’s alternative request with respect to the requirements of ASME OM Code, Subsection ISTC, paragraph ISTC-3700.

Based on the information described above for the 35 valves identified in Table 2, the NRC staff finds that: (1) previous position verification testing of these valves indicates their acceptable historical performance; (2) no current concerns with the performance of these relief valves have been identified; (3) periodic maintenance activities are not modified by this request; and (4) a hardship exists for the performance of obturator position verification testing of these relief valves at this time that would be contrary to the health and safety of plant personnel.

### 3.3 Proposed Alternative VR-8, Revision 0

#### ASME Code Components Affected

In its submittal, the licensee requests a one-time extension of the testing interval for the following two relief valves at PNPP:

**Table 3**

<b>Component ID</b>	<b>Component Description</b>	<b>Code Class</b>	<b>Valve Category</b>
1E12-F025B	Residual Heat Removal B to Feedwater Shutdown Cooling Return Relief Valve	2	AC
1P45-F571A	Residual Heat Removal A and C Heat Exchangers Emergency Service Water Relief Valve	3	C

#### Applicable Code Requirement

The IST requirements of the ASME OM Code, as incorporated by reference in 10 CFR 50.55a related to this alternative request are as follows:

- ASME OM Code, Subsection ISTC, paragraph ISTC-5240, "Safety and Relief Valves," requires that safety and relief valves shall meet the inservice test requirements of the Mandatory Appendix I of the ASME OM Code."
- ASME OM Code, Mandatory Appendix I, Subsection I-1390, "Test Frequency, Classes 2 and 3 Pressure Relief Devices That Are Used for Thermal Relief Application," states that:

Tests shall be performed on all Classes 2 and 3 relief devices used in thermal relief application every 10 yr [year], unless performance data indicate more frequent testing is necessary. In lieu of tests the Owner may replace the relief devices at a frequency of every 10 yr [year] unless performance data indicate more frequent replacements are necessary.

#### Reason for Request

The licensee reported that the relief valves listed in its request are at the end of their required 10-year required test interval as specified by ASME OM Code (2012 Edition), Mandatory Appendix I, Paragraph I-1390. Therefore, these valves were scheduled to be tested during the RFO in the spring of 2021.

The licensee submitted the relief request considering the expected hardship of obtaining and maintaining on-site staff sufficient to prepare, perform, and recover from the examination. The licensee stated that the functional testing of the valves listed in its request during the spring 2021 RFO at PNPP would represent a hardship during the COVID-19 outbreak. For example, the licensee intended to reduce the amount of personnel on-site to prevent the spread of COVID-19 at PNPP. Therefore, the licensee asserted that the testing of the specified valves at PNPP, during

the spring 2021 RFO, would result in a hardship without a compensating increase in the level of quality and safety in accordance with 10 CFR 50.55a(z)(2).

#### Licensee's Proposed Alternative

The licensee proposed an extension of the IST program testing intervals for the relief valves listed in its request to the next RFO for PNPP, currently scheduled for the spring of 2023.

#### NRC Staff Evaluation

As incorporated by reference in 10 CFR 50.55a, ASME OM Code (2012 Edition), Subsection ISTC-5240 requires, in part, that relief valves shall meet the IST requirements of ASME OM Code, Mandatory Appendix I. ASME OM Mandatory Appendix I, paragraph I-1390, requires that tests shall be performed on all Classes 2 and 3 relief devices used in thermal relief application every 10 years, unless performance data indicate more frequent testing is necessary. In lieu of tests, the Owner may replace the relief devices at a frequency of every 10 years unless performance data indicate more frequent replacements are necessary.

In lieu of performing the ASME OM Code, Mandatory Appendix I testing requirements, the licensee requested a one-time extension to the next RFO currently scheduled for the spring of 2023 be allowed for the testing of the two relief valves 1E12-F025B and 1P45-F571A listed in the Table 3.

In its submittal dated February 8, 2021, the licensee provided justification that compliance with the provisions in ASME OM Code, Mandatory Appendix I, paragraph I-1390, to perform testing or replacement of two relief valves 1E12-F025B and 1P45-F571A during the spring 2021 RFO would result in a hardship without a compensating increase in the level of quality and safety in accordance with 10 CFR 50.55a(z)(2).

With regard to relief valve 1E12-F025B, the licensee reported that this relief valve and identical valves in similar service conditions, in all but one test over the last 20 years, the valves opened within 110 percent of the 485 pounds per square inch gauge (psig) pressure setpoint. Further, the licensee stated that the as-found inspection reports provided by the refurbishment vendor over the last 20 years and prepared prior to performing valve maintenance do not show corrosion or bonding to be an issue in the valve internals. Additionally, the system is constructed to a pressure and temperature higher than the design condition of the system, so there is design margin available.

With respect to relief valve 1P45-F571A, the licensee stated that this relief valve is not expected to be called upon for thermal relief or overpressure protection functions due to normal system operating conditions. In the last 20 years, valve 1P45-F571A was tested three times and had acceptable performance with each test.

The licensee also stated that the two relief valves 1E12-F025B and 1P45-F571A were last replaced by installing pretested valves in accordance with the ASME OM Code, Mandatory Appendix I, paragraph I-1390, requirements.

Based on the information described above for the two specific relief valves 1E12-F025B and 1P45-F571A at PNPP, identified in the licensee's submittal, the NRC staff finds that:

(1) previous testing of these relief valves indicate their acceptable historical performance; (2) no current concerns with the performance of these relief valves have been identified; (3) periodic maintenance activities are not modified by this request; and (4) a hardship exists for the performance of team-oriented testing of these relief valves at this time that would be contrary to the health and safety of plant personnel.

#### 4.0 CONCLUSION

As set forth above, the NRC staff finds that the proposed alternatives described in ARs VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, will provide reasonable assurance that the valves at PNPP, listed in the licensee's request are operationally ready to perform their safety functions until the spring 2023 RFO. The NRC staff finds that complying with certain requirements of the ASME OM Code would result in hardship without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC authorizes the use of proposed alternatives VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, at PNPP, until the next scheduled RFO in the spring of 2023.

All other ASME Code requirements for which relief was not specifically requested and approved in the subject requests for relief remain applicable. If the licensee identifies a performance issue with any of these valves, the licensee will be expected to take action to implement the requirements of its technical specifications. This authorization will remain in effect until restart from the next RFO for PNPP, scheduled for the spring of 2023. The licensee's testing plans for these check valves may be adjusted as appropriate by any subsequent NRC-authorized alternative requests.

Principal Contributor: I. Tseng  
R. Wolfgang  
M. Farnan  
Y. Wong  
G. Bedi  
J. Huang

Date: May 5, 2021

SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT NO. 1 – ISSUANCE OF RELIEF REQUESTS VR-4, REVISION 0, VR-6, REVISION 0, AND VR-8, REVISION 0, ASSOCIATED WITH THE FOURTH 10-YEAR INSERVICE TESTING INTERVAL (EPIDs L-2021-LLR-0010; L-2021-LLR-0011; L-2021-LLR-0012 [COVID-19]) DATED MAY 5, 2021

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