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February 8, 2021
L-21-045

10 CFR 50.55a

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT:

Perry Nuclear Power Plant

Docket No. 50-440, License No. NPF-58

10 CFR 50.55a Request Number VR-4, Revision 0, Exercising Test Frequency, VR-6, Revision 0, Position Verification Testing, and VR-8, Revision 0, Valve Test Frequency Extension

In accordance with 10 CFR 50.55a(z)(2), Energy Harbor Nuclear Corp. hereby requests Nuclear Regulatory Commission (NRC) staff approval of requests VR-4, Revision 0, VR-6, Revision 0, and VR-8, Revision 0, that propose a one-time extension of exercising test frequency, position verification testing, and valve test frequency extension for certain Perry Nuclear Power Plant valves scheduled for the upcoming spring 2021 refueling outage. The enclosed requests identify the affected components, applicable code requirements, and a description and basis for the proposed alternative.

Because of the hardship produced by the recent pandemic and the resulting national state of emergency, Energy Harbor Nuclear Corp. is requesting expedited NRC approval of these requests. To support the critical generation and startup of Perry Nuclear Power Plant from its scheduled spring 2021 refueling outage, Energy Harbor Nuclear Corp. requests approval of the proposed alternative by February 26, 2021.

There are no regulatory commitments contained in this submittal. If there are any questions or if additional information is required, please contact Mr. Phil H. Lashley, Manager, Fleet Licensing, at (330) 696-7208.

Sincerely,

A handwritten signature in black ink, appearing to read "Rod L. Penfield", written over a horizontal line.

Rod L. Penfield

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Enclosures:

- A. Perry Nuclear Power Plant 10 CFR 50.55a Request VR-4, Revision 0
- B. Perry Nuclear Power Plant 10 CFR 50.55a Request VR-6, Revision 0
- C. Perry Nuclear Power Plant 10 CFR 50.55a Request VR-8, Revision 0

cc: NRC Region III Administrator
NRC Resident Inspector
NRR Project Manager

Enclosure A
L-21-045

Perry Nuclear Power Plant
10 CFR 50.55a Request VR-4, Revision 0

(4 pages follow)

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10 CFR 50.55a Request Number: VR-4, Revision 0
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Proposed Alternative
in Accordance with 10 CFR 50.55a(z)(2)
--Hardship without Compensating Increase in Level of Quality or Safety--

1. ASME Code Component(s) Affected

Component ID	Component Description	Code Class	Valve Category
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

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code, 2012 Edition.

3. Applicable Code Requirement

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," (c) which states:

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

4. Reason for Request

The Perry Nuclear Power Plant (PNPP) is scheduled to start its eighteenth refueling outage (1R18) on March 7, 2021. Exercise testing of the valves identified in Section 1 is in accordance with ISTC-3510 and ISTC-3522 and is required every two years.

To prevent the spread of coronavirus disease 2019 (COVID-19), comply with Centers for Disease Control and Prevention (CD) guidance at the Perry Nuclear Power Plant, and to protect the health and safety of plant personnel while maintaining responsibilities to support critical infrastructure, Energy Harbor Nuclear Corp. intends to reduce the number of personnel on-site during the upcoming refueling outage, including qualified valve leak rate testing contractor personnel.

The COVID-19 virus has created a hardship or unusual difficulty in performing the code required testing. Performing the required testing during the upcoming spring 2021 refueling outage would not provide a compensating increase in the level of quality or safety as there is reasonable assurance that the affected valves will be operationally ready as described in Section 5 below.

5. Proposed Alternative and Basis for Use

As an alternative to the ASME OM Code Subsection ISTC-3510, Exercising Test Frequency, and ISTC-3522, Category C Check Valves, Energy Harbor Nuclear Corp. proposes a one-time extension of the test frequency requirements scheduled to be performed during the spring 2021 refueling outage. The exercising test frequency requirements applicable to the affected valves (listed in Section 1) will resume during the next scheduled refueling outage in the spring of 2023.

1E22-F0621 and 1E22-F0622

Valves 1E22-F0621 and 1E22-F0622 are vacuum breakers that allow the HPCS piping, leading to the suppression pool, to drain in a timely manner after the HPCS pump is secured. The vacuum breakers minimize the potential for damaging water hammer to occur if the HPCS system were called upon to restart. Verification that these internal spring check valves are closed is accomplished quarterly during HPCS pump operation by verifying no leakage past the seating surface.

To perform the HPCS pump and valve operability test, 95 degree Fahrenheit (°F) to 120 °F water is injected into the HPCS twelve-inch discharge line to the suppression pool. Due to the difference in elevation between the valves that isolate the line and

the water level at the suppression pool, a vacuum may be formed after the line is isolated, which creates a vapor bubble. The bubble is collapsed when the flow is re-established. A rapid collapse of the bubble has the potential of creating a water hammer.

The two redundant check valves, 1E22-F0621 and 1E22-F0622, act as vacuum breakers and prevent a potential water hammer. Failure of one check valve will allow thrust loads to stay within the code allowable. Daily operator rounds are conducted that would detect any potential water hammer issues. Additionally, during the conduct of quarterly pump and valve surveillance testing, operators observe valves 1E22-F0621 and 1E22-F0622 exercise close.

Prior to each refueling outage, new valves are pre-service tested to verify that each valve passes acceptance criteria. During the refueling outage, the new valves are installed as replacement check valves into the designated functional location. The in-situ valves, those that were installed in the functional locations and have been removed, are tested, and discarded.

Engineering review of the test results revealed that the valves consistently demonstrated acceptable results. In addition, engineering determined that the postulated failure of a single check valve still allows for code allowable thrust loads, which ensures proper operation of the HPCS system. Therefore, based on fourteen years of historical data, there is reasonable assurance that valves that were pre-service tested and installed during the spring 2019 (1R17) refueling outage will remain operationally ready until testing resumes during the currently scheduled spring 2023 (1R19) refueling outage.

1M51-F0531A/B, 1M51-F0532A/B, 1M51-F0618A/B

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 that allow isolation to perform a localized sample and automatic draining of condensate in sample lines. These sample line drain check valves are located inside the drywell and containment. Access to the drywell is not available during plant operation or normal cold shutdowns. Also, the erection of scaffolding over the suppression pool would result in operating the plant outside of its design basis analysis.

Performance of the open exercise requires passing air through the valves and monitoring the flowrate. This task involves securing the hydrogen analyzer, installing blank flanges, hanging clearance tags, erecting scaffolding inside containment over the suppression pool for test hookups and restoration after testing. Ensuring that the valves have exercised to the closed position requires the hydrogen

analyzer to be operating with access to each valve for installation of test equipment to allow measurement of the bypass flow.

PNPP personnel perform open and close exercise tests during refueling outages when sufficient time exists for the installation of temporary test equipment and scaffolding. The valves are exercised closed by verification of an acceptable flowrate on a rotameter. The valves are exercised open by verifying flowrate greater than acceptance criteria at test pressure using leakage rate monitoring equipment.

A 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 refueling outage, currently scheduled for the spring of 2023 (1R19).

Performance of the tests described in this section require personnel to perform qualified leak rate testing, installation of blank flanges, and erection of scaffolding. Deferral of this test will reduce the number of personnel being brought to site who would be working in close proximity to each other for long periods time.

Energy Harbor Nuclear Corp. is requesting a one-time exemption in accordance with 10 CFR 50.55a(z)(2) from testing the valves listed in Section 1 during 1R18 and recommencement of testing every refueling outage interval beginning in 1R19. This request is intended to reduce the personnel on-site to reduce the likelihood of transmitting COVID-19 to plant workers.

6. Duration of Proposed Alternative

The proposed alternative is requested for use during the PNPP fourth 10-year in-service test interval. The proposed alternative would be a one-time extension of relief valve testing of the valves listed in Section 1 during the spring 2021 refueling outage. Testing of these valves in accordance with ISTC-3510 and ISTC-3522 would resume in the 2023 refueling outage.

Enclosure B
L-21-045

Perry Nuclear Power Plant
10 CFR 50.55a Request VR-6, Revision 0

(10 pages follow)

Perry Nuclear Power Plant
10 CFR 50.55a Request Number: VR-6, Revision 0
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Proposed Alternative
in Accordance with 10 CFR 50.55a(z)(2)
--Hardship without Compensating Increase in Level of Quality or Safety--

1. ASME Code Component(s) Affected

Component ID	Component Description	Code Class	Valve Category
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
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

Component ID	Component Description	Code Class	Valve Category
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

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code, 2012 Edition.

3. Applicable Code Requirement

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 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.

The supplemental indication portion of ISTC-3700 is made mandatory by 10 CFR 50.55a(b)(3)(xi).

4. Reason for Request

The Perry Nuclear Power Plant (PNPP) is scheduled to start its eighteenth refueling outage (1R18) on March 7, 2021. Position indication (PI) verification testing of valves identified in Section 1 is required every two years.

To prevent the spread of coronavirus disease 2019 (COVID-19), to comply with Centers for Disease Control and Prevention (CD) guidance at the Perry Nuclear Power Plant, and to protect the health and safety of plant personnel while maintaining responsibilities to support critical infrastructure, Energy Harbor Nuclear Corp. intends to reduce the number of personnel on-site during the upcoming refueling outage, including qualified valve leak rate testing contractor personnel.

The COVID-19 virus has created a hardship or unusual difficulty in performing the applicable code required testing. Performing the required testing during the upcoming spring 2021 refueling outage would not provide a compensating increase in the level of quality or safety as there is reasonable assurance that the affected valves will be operationally ready as described in Section 5 below.

5. Proposed Alternative and Basis for Use

As an alternate to the ASME OM Code Subsection ISTC-3700 position indication verification requirements, Energy Harbor Nuclear Corp. proposes a one-time extension of the test frequency and position verification requirements currently scheduled to be performed during the spring 2021 refueling outage. The PI verification requirements applicable to the affected valves (listed in Section 1) will resume during the next scheduled refueling outage in the spring of 2023.

0P42-F0260A/B, 0P42-F0265A/B

Valves 0P42-F0260A/B and 0P42-F0265A/B are normally closed inlet and outlet valves that are used to line up emergency service water to the fuel pool cooling heat exchangers. These motor-operated valves are passive valves in the inservice testing program. The position indication requirement is satisfied by performing a valve stroke. Performance of supplemental position verification testing of these valves requires the installation of strain gauges or other diagnostic technology for open and closed verification based on system configuration. Operation of these valves results in raw water introduction to a controlled chemistry system. These valves have been exercised to the open position on a two-year interval with a rise in conductivity noted in the interfacing system, but this measurement cannot be assigned to individual valves. Following the exercise open testing, the valves are closed, and the controlled chemistry portion of the system is flushed to return it to specifications, which provides supplemental indication that the valves have closed. The valve obturator position is confirmed by verifying that the remote position indication accurately reflects actual valve stem travel direction as observed locally.

This test also satisfies the 10 CFR 50.55a(b)(3)(xi) supplemental indication requirements when testing in accordance with ISTC-3700 is performed. These tests are currently scheduled to be performed during the spring 2021 refueling outage.

Based on 11 years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 0P42-F0260A/B and 0P42-F0265A/B, will remain operationally ready until the 2023 refueling outage.

1B21-F0001, 1B21-F0002

Valves 1B21-F0001 and 1B21-F0002 isolate the reactor head vent line from the drywell equipment drain sump in order to maintain reactor pressure vessel inventory. These motor-operated globe valves are passive valves in the inservice testing program. These valves are not susceptible to stem to disc separation because the valve actuator is not attached, and the valve functions like a stop check, that is, opening the valve allows the disc to move when flow commences. Installed leak detection and drywell equipment drain sump levels provide a general indication of the leak tightness of these valves. In the open direction, the ability to depressurize the vent line gives a general indication of the opening capability for these valves. The valve obturator position is confirmed by verifying that remote position indication accurately reflects actual valve stem travel direction as observed locally. This test also satisfies 10 CFR 50.55a(b)(3)(xi) supplemental indication requirements when testing in accordance with ISTC-3700 is performed. These tests are currently scheduled to be performed during the spring 2021 refueling outage.

Based on 11 years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 1B21-F0001 and 1B21-F0002, will remain operationally ready until the 2023 refueling outage.

1C11-F0010, 1C11-F0011, 1C11-F0180, 1C11-F0181

Valves 1C11-F0010, 1C11-F0011, 1C11-F0180 and 1C11-F0181 are normally open control rod drive scram discharge volume (SDV) vent and drain valves. These air-operated globe valves are active valves which are required to change obturator position to accomplish a specific function in the inservice testing program. The position indication requirement is satisfied by performing a valve stroke. Monitoring of the SDV level during normal operations provides indication that these valves are open.

Acoustic monitoring is used during post-maintenance testing to confirm position indication. The last three tests were performed satisfactorily, with one being a partial performance during the spring 2019 refuel outage as a post-maintenance test for a replacement valve. The valve obturator position is confirmed by verifying that remote position indication accurately reflects actual valve stem travel direction as

observed locally. These tests are currently scheduled to be performed during the spring 2021 refueling outage.

Based on seven years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 1C11-F0010, 1C11-F0011, 1C11-F0180 and 1C11-F0181, will remain operationally ready until the 2023 refueling outage.

1E12-F0037A, 1E12-F0037B

Valves 1E12-F0037A and 1E12-F0037B are normally closed RHR A upper pool cooling and RHR B upper pool cooling isolation valves, respectively. These motor-operated containment isolation valves are passive valves in the inservice testing program. The valves are opened as alternate shutdown cooling when vessel water clarity needs to be improved. The valves have auto-closure logic that prohibits opening with the reactor pressurized above 135 psig. Downstream spectacle flanges were rotated to the open position in the previous outage, which required closure of these valves and general indication of their integrity. Performance of supplemental position verification testing would require contract personnel to perform leak rate testing using diagnostic technology. This test also satisfies 10 CFR 50.55a(b)(3)(xi) supplemental indication requirements when testing in accordance with ISTC-3700 is performed. The position indication requirement is satisfied by performing a valve stroke. The valve obturator position is confirmed by verifying that remote position indication accurately reflects actual valve stem travel direction as observed locally. These tests are currently scheduled to be performed during the spring 2021 refueling outage.

Based on nine years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 1E12-F0037A and 1E12-F0037B, will remain operationally ready until the 2023 refueling outage.

1E12-F0039A, 1E12-F0039B, 1E12-F0039C

Valves 1E12-F0039A, 1E12-F0039B, and 1E12-F0039C are normally open LPCI A/B/C manual shutoff valves. These manually operated valves are passive valves in the inservice testing program. The position indication requirement is satisfied by performing valve stroke. Supplemental position verification in the closed direction is proven during high pressure seat leakage testing. Performance of position verification testing in the open direction requires use of diagnostic technology by contract personnel. This test also satisfies 10 CFR 50.55a(b)(3)(xi) supplemental indication requirements when testing in accordance with ISTC-3700 is performed. The valve obturator position is confirmed by verifying that remote position indication accurately reflects actual valve stem travel direction as observed locally. These tests are currently scheduled to be performed during the spring 2021 refueling outage.

Based on 11 years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 1E12-F0039A, 1E12-F0039B, and 1E12-F0039C will remain operationally ready until the 2023 refueling outage.

1E21-F0007, 1E22-F0036

Valves 1E21-F0007 is a normally locked open valve, and 1E22-F0036 is a normally open valve off the LPCS and HPCS injection lines respectively. These manually operated valves are categorized as passive components in the inservice testing program. Supplemental position verification in the closed direction is proven during high pressure seat leakage testing. Performance of position verification testing in the open direction requires use of diagnostic technology by contract personnel. The position indication requirement is satisfied by performing valve stroke. The valve obturator position is confirmed by verifying that remote position indication accurately reflects actual valve stem travel direction as observed locally. These tests are currently scheduled to be performed during the spring 2021 refueling outage.

Based on 11 years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 1E21-F0007 and 1E22-F0036, will remain operationally ready until the 2023 refueling outage.

1E12-F0047A, 1E12-F0047B

Valves 1E12-F0047A and 1E12-F0047B are normally open RHR A/B heat exchanger inlet valves. These motor-operated valves are categorized as passive components in the inservice testing program. The position indication requirement is satisfied by performing a valve stroke. Supplemental indication in the open direction is proven by passing a minimum flow amount during quarterly pump and valve surveillance testing. Closing the valves requires the LPCI mode of RHR A (1E12-F0047A) or RHR B (1E12-F0047B) system to be declared inoperable. Verification of valve closure requires diagnostic technology using contract resources. This test also satisfies 10 CFR 50.55a(b)(3)(xi) supplemental indication requirements when testing in accordance with ISTC-3700 is performed. These tests are currently scheduled to be performed during the spring 2021 refueling outage.

Based on 11 years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 1E12-F0047A and 1E12-F0047B, will remain operationally ready until the 2023 refueling outage.

1E12-F0073A and 1E12-F0073B

Valve 1E12-F0073A is a normally closed RHR heat exchanger second vent to the suppression pool valve. Valve 1E12-F0073B is a normally open RHR heat exchanger second vent to the suppression pool valve. These motor-operated valves are containment isolation valves that receive an Appendix J test at the Option B

frequency. Both valves have been tested every refueling outage and have never exceeded administrative limits. Verification of valve closure requires diagnostic technology using contract resources. This test also satisfies 10 CFR 50.55a(b)(3)(xi) supplemental indication requirements when testing in accordance with ISTC-3700 is performed. These tests are currently scheduled to be performed during the spring 2021 refueling outage.

Based on 11 years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 1E12-F0073A and 1E12-F0073B, will remain operationally ready until the 2023 refueling outage.

1E12-F0074A and 1E12-F0074B

Valves 1E12-F0074A and 1E12-F0074B are normally closed RHR heat exchanger first vent to the suppression pool valves and are categorized as passive valves in the inservice testing program. These valves are not susceptible to stem to disc separation because the valve actuator is not attached, and the valve functions like a stop check, such that opening the valve allows the disc to move when flow commences. The valves are opened to fill and vent the RHR heat exchangers, which is not a safety function. Maintaining the valve in its normally closed position prevents diversion of low pressure coolant injection. Supplemental position verification is satisfied by monitoring downstream tank level changes or diagnostic technology. These valves serve as boundary valves for local leak rate testing of the 1E12-F0073A and 1E12-F0073B containment isolation valves.

No leakage has been noted coming from the drain line test connections that are used to perform pneumatic local leak rate testing, thus giving assurance of valve closure. This testing is performed each refueling outage. Based on 11 years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 1E12-F0074A and 1E12-F0074B will remain operationally ready until the 2023 refueling outage.

1E21-F0001

Valve 1E21-F0001 is the normally open suppression pool suction valve for the LPCS system. The motor-operated valve is categorized as passive in the inservice testing program. Supplemental position indication in the open direction is proven by passing a minimum flow amount during quarterly pump and valve surveillance testing. When testing in the closed direction, the LPCS system will be inoperable. Although it is a containment isolation valve, the valve is below the suppression pool minimum required drawdown line in a closed loop and is not a leakage pathway. Performance of position verification testing in the closed direction requires use of diagnostic technology by contract personnel. This test also satisfies 10 CFR 50.55a(b)(3)(xi) supplemental indication requirements when testing in accordance with ISTC-3700 is performed. The valve obturator position is confirmed by verifying

that remote position indication accurately reflects actual valve stem travel direction as observed locally. This test is currently scheduled to be performed during the spring 2021 refueling outage.

Based on nine years of valve test history and other information provided above, there is reasonable assurance that the affected valve, 1E21-F0001 will remain operationally ready until the 2023 refueling outage.

1E51-F0004, 1E51-F0005, 1E51-F0025, 1E51-F0026

Valves 1E51-F0004, 1E51-F0005, 1E51-F0025 and 1E51-F0026 are air-operated steam line and turbine exhaust drain pot drain valves for the RCIC system. Valves 1E51-F0004, 1E51-F0025 and 1E51-F0026 are normally open but automatically close when the RCIC steam shutoff valve opens. Valve 1E51-F0005 is normally closed but automatically opens when the associated drain pot level is high and automatically closes when the RCIC steam shutoff valve opens. Supplemental position indication in the open direction can be proven by no alarm in the drain pot with the valves open. Supplemental position indication in the closed direction requires contract resources to perform leakage testing at a test connection between the valves. This test also satisfies 10 CFR 50.55a(b)(3)(xi) supplemental indication requirements when testing in accordance with ISTC-3700 is performed. The valve obturator position is confirmed by verifying that remote position indication accurately reflects actual valve stem travel direction as observed locally. These tests are currently scheduled to be performed during the spring 2021 refueling outage.

Based on 10 years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 1E51-F0004, 1E51-F0005, 1E51-F0025 and 1E51-F0026 will remain operationally ready until the 2023 refueling outage.

1G42-F0080

Valve 1G42-F0080 is the normally closed suppression pool clean up demineralizer outlet isolation valve. This motor-operated valve is categorized as a passive component in the inservice testing program. Supplemental position indication in the open direction is verified by passing a minimum flow during SPCU operation. In the closed direction, this valve serves as an additional barrier between the SPCU system and the RHR system. Failure of this valve is of no consequence due to three downstream credited isolation valves. Position verification testing of this valve in the closed direction requires contract personnel to use diagnostic technology. This test also satisfies 10 CFR 50.55a(b)(3)(xi) supplemental indication requirements when testing in accordance with ISTC-3700 is performed. The valve obturator position is confirmed by verifying that remote position indication accurately reflects actual valve stem travel direction as observed locally. This test is currently scheduled to be performed during the spring 2021 refueling outage.

Based on 12 years of valve test history and other information provided above, there is reasonable assurance that the affected valve, 1G42-F0080, will remain operationally ready until the 2023 refueling outage.

1M14-F0065 and 1M14-F0070

Valves 1M14-F0065 and 1M14-F0070 are the normally closed drywell purge exhaust first and second isolation dampers. These air-operated valves are categorized as active components in the inservice testing program. Supplemental position verification in the open direction can be verified by flow meter. Leak rate testing procedures developed for these valves requires contract resources to perform supplemental position indication. This test also satisfies 10 CFR 50.55a(b)(3)(xi) supplemental indication requirements when testing in accordance with ISTC-3700 is performed. The valve obturator position is confirmed by verifying that the remote position indication accurately reflects actual valve stem travel direction as observed locally. These tests are currently scheduled to be performed during the spring 2021 refueling outage.

Based on 11 years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 1M14-F0065 and 1M14-F0070 will remain operationally ready until the 2023 refueling outage.

1N22-F0420A/B/C/D

Valves 1N22-F0420A/B/C/D are the normally closed main steam line shutoff before seat drain valves. These air-operated valves are categorized as active components in the inservice testing program. These valves have a non-safety related function to open to provide a flow path from the main steam shutoff valve to the drain line. These valves have a safety function in the closed direction to provide isolation between safety-related and non-safety system components. Position verification testing using supplemental means for these valves in the open and closed direction requires applying backpressure to each main steam line outboard isolation valve during MSIV local leak rate testing. Applying backpressure is used only when it is necessary to quantify leakage from the inboard and outboard MSIV on a steam line rather than measuring leakage from the main steam line. Performance of this testing requires additional contractors to conduct the backpressure portion of MSIV testing. This test also satisfies 10 CFR 50.55a(b)(3)(xi) supplemental indication requirements when testing in accordance with ISTC-3700 is performed. The position indication requirement is satisfied by performing a valve stroke. The valve obturator position is confirmed by verifying that the remote position indication accurately reflects actual valve stem travel direction as observed locally. These tests are currently scheduled to be performed during the spring 2021 refueling outage.

Based on 11 years of valve test history and other information provided above, there is reasonable assurance that the affected valves, 1N22-F0420A/B/C/D will remain operationally ready until the 2023 refueling outage.

6. Duration of Proposed Alternative

The proposed alternative is requested for use during the PNPP fourth 10-year in-service test interval. The proposed alternative would be a one-time extension of position verification testing of the affected valves (listed in Section 1 above) during the spring 2021 refueling outage. Testing of the subject valves in accordance with ISTC-3700 would be completed prior to the conclusion of the 2023 refueling outage.

Enclosure C
L-21-045

Perry Nuclear Power Plant
10 CFR 50.55a Request VR-8, Revision 0

(3 pages follow)

Proposed Alternative
In Accordance with 10 CFR 50.55a(z)(2)
--Hardship Without a Compensating Increase in Quality and Safety—

1. ASME Code Components Affected

Component ID	Component Description	Code Class	Valve Category
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

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code, 2012 Edition.

3. Applicable Code Requirements

ASME OM Code, Division 1, 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.

4. Reason for Request

Perry Nuclear Power Plant (PNPP) is scheduled to start its 18th refueling outage (1R18) on March 7, 2021. Two relief valves are at the end of their required 10-year test interval as specified by ASME OM Code, Division 1, Mandatory Appendix I, Paragraph I-1390 and are required to be tested or replaced during the 18th refueling outage.

To prevent the spread of coronavirus disease 2019 (COVID-19), comply with Centers for Disease Control and Prevention (CDC) guidance, and to protect the health and safety of Perry Nuclear Power Plant personnel while maintaining responsibilities to support critical infrastructure, Energy Harbor Nuclear Corp. intends to reduce the

number of personnel on-site during the spring 2021 refueling outage, including a reduction in contractors for valve work. Additionally, due to the pandemic and personnel working remotely, the production schedule of the vendor providing the valves to be used as pre-tested replacements has been negatively affected. As a result, the acquisition of qualified replacement relief valves has been challenged and these valves may not be available for the 18th refueling outage.

The COVID-19 virus has created a hardship or unusual difficulty in performing the applicable code required testing and performing the required testing during the upcoming spring 2021 refueling outage would not provide a compensating increase in the level of quality or safety as there is reasonable assurance that the affected valves will be operationally ready as described in section 5 below.

5. Proposed Alternative and Basis for Use

As an alternative to the 10-year required test interval of ASME OM Code, Division 1, Mandatory Appendix I, paragraph I-1390, Energy Harbor Nuclear Corp. proposes a one-time extension of the 10-year test or replacement requirement for valves 1E12-F025B and 1P45-F571A scheduled for the spring 2021 refueling outage. Testing or replacement of valves 1E12-F025B and 1P45-F571A to meet paragraph I-1390 will resume during the next scheduled refueling outage in the spring of 2023.

Valve 1E12-F025B is categorized as a Class 2 thermal relief valve. The required 10-year test or replacement is due no later than August 1, 2021 based on a last test date of February 1, 2011 including a 6-month grace period permitted by Code Case OMN-20, Paragraph 1(a)(2). This date falls short of the PNPP 19th refueling outage that would take place in March 2023.

Valve 1E12-F025B is a thermal relief valve in the residual heat removal system. The residual heat removal system is a closed cooling system that contains chemically controlled reactor grade water. Due to the pureness of the water, relief valves in this system do not tend to have build-ups of corrosion or films, or exhibit bonding that would prevent the valve from lifting as may be seen in a raw water system. As such, there is limited time related degradation associated with valve 1E12-F025B as supported by the testing history and refurbishment records.

Based on the test history of valve 1E12-F025B and identical valves in similar service conditions, failure to open is not a likely failure mode. 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. 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. Based on this performance, there is reasonable assurance that valve 1E12-F025B will be operationally ready until the 2023 refueling outage.

Valve 1P45-F571A is categorized as a Class 3 thermal relief valve. The required 10-year test or replacement is due no later than August 17, 2021 based on a last test date of February 17, 2011 including a 6-month grace period permitted by Code Case OMN-20, Paragraph 1(a)(2). This date falls short of the PNPP 19th refueling outage that would take place in March 2023.

Valve 1P45-F571A provides protection to one train of residual heat removal heat exchangers. The emergency service water system is kept in a standby lineup so that it can provide cooling water in the event of an emergency to the residual heat removal system heat exchangers and other safety related systems. While in a standby lineup, emergency service water system valves are typically in an open or throttled condition. The only valve that is normally closed is the service water pump discharge valve, which is normally kept closed until pump start. The closed service water pump discharge valve does not isolate the piping served by valve 1P45-F571A. Closure of the service water system valves that would isolate the leg of piping served by valve 1P45-F571A would only be expected during maintenance or a refueling outage when the system is not required to operate. As such, relief valve 1P45-F571A 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. Based on this performance, there is reasonable assurance that valve 1P45-F571A will be operationally ready until the 2023 refueling outage.

The testing or replacement requirements for the affected valves would normally be satisfied at PNPP by installing a pretested valve to replace the valve that has been in service in accordance with ASME OM Code, paragraph I-1390. Valves 1E12-F025B and 1P45-F571A were last replaced as noted above and the replacement valves were pre-service tested satisfactorily prior to installation.

Based on the information provided above, there is reasonable assurance that valves 1E12-F025B and 1P45-F571A will remain operationally ready until the 2023 refueling outage.

6. Duration of Proposed Alternative

The proposed alternative is requested for use during the PNPP fourth 10-year in-service test interval. The proposed alternative would be a one-time extension of testing of the affected relief valves during the spring 2021 refueling outage. Testing of the affected relief valves in accordance with ASME OM Code Mandatory Appendix I, Subsection I-1390 would resume in the 2023 refueling outage.