



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, ILLINOIS 60532-4352

October 11, 2023

Rod Penfield  
Site Vice President  
Energy Harbor Nuclear Corp.  
Perry Nuclear Power Plant  
10 Center Road, P.O. Box 97  
Perry, OH 44081

SUBJECT: PERRY NUCLEAR POWER PLANT – INTEGRATED INSPECTION REPORT  
05000440/2023003

Dear Rod Penfield:

On September 30, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Perry Nuclear Power Plant. On October 5, 2023, the NRC inspectors discussed the results of this inspection with Chris Elliott, Plant General Manager, and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or the significance or severity of the violation documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement; and the NRC Resident Inspector at Perry Nuclear Power Plant.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at Perry Nuclear Power Plant.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

A handwritten signature in cursive script, appearing to read "Karla K. Stoedter".

Signed by Stoedter, Karla  
on 10/11/23

Karla K. Stoedter, Chief  
Engineering Branch 1  
Division of Operating Reactor Safety

Docket No. 05000440  
License No. NPF-58

Enclosure:  
As stated

cc w/ encl: Distribution via LISTSERV®

Letter to Rod Penfield from Karla K. Stoedter dated October 11, 2023.

SUBJECT: PERRY NUCLEAR POWER PLANT – INTEGRATED INSPECTION REPORT  
05000440/2023003

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**U.S. NUCLEAR REGULATORY COMMISSION**  
**Inspection Report**

Docket Number: 05000440

License Number: NPF-58

Report Number: 05000440/2023003

Enterprise Identifier: I-2023-003-0055

Licensee: Energy Harbor Nuclear Corp.

Facility: Perry Nuclear Power Plant

Location: Perry, OH

Inspection Dates: July 01, 2023 to September 30, 2023

Inspectors: J. Beavers, Senior Resident Inspector  
G. Hansen, Senior Emergency Preparedness Inspector  
T. Hooker, Health Physicist  
V. Myers, Senior Health Physicist  
T. Ospino, Resident Inspector

Approved By: Karla K. Stoedter, Chief  
Engineering Branch 1  
Division of Operating Reactor Safety

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Perry Nuclear Power Plant, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

### List of Findings and Violations

Fuel Bundle Contact with Reactor Vessel During Fuel Handling			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000440/2023003-01 Open/Closed	[H.8] - Procedure Adherence	71153
A Green non-cited violation of Technical Specification 5.4.1.a was self-revealed on March 19, 2023, when the licensee failed to implement procedures required by Section 2.L, "Refueling and Core Alterations," of Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Specifically, the licensee failed to follow Step 2.43 of Standard Operating Instruction-F15, "Refueling and 360 Platforms," which directed specific movements of the refueling bridge when loading a fuel bundle into a peripheral core location to prevent catching the bottom of a fuel bundle on the core shroud's steam dam while lowering the bundle into position. As a result, the bottom of fuel bundle (S/N# 18P305) caught the bottom of the shroud's steam dam as the licensee attempted to lower the bundle into position. Once this occurred, the licensee took corrective actions to place the bundle in a safe location in the RP-1 storage pool and selected an alternate fuel bundle for placement in the reactor core.			

### Additional Tracking Items

None.

## PLANT STATUS

Unit 1 began the inspection period at rated thermal power. On August 10, 2023, the unit was automatically shut down due to a reactor protection system trip. The unit was returned to rated thermal power on August 17, 2023, and operated at or near rated thermal power for the remainder of the inspection period.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed activities described in IMC 2515, Appendix D, "Plant Status," observed risk significant activities, and completed on-site portions of IPs. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## REACTOR SAFETY

### 71111.01 - Adverse Weather Protection

#### Seasonal Extreme Weather Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of summer readiness for the following systems on July 25, 2023:
  - switchyard, transformers, main generator, and steam tunnel cooling

### 71111.04 - Equipment Alignment

#### Partial Walkdown Sample (IP Section 03.01) (2 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) reactor protection system on September 7 and 8, 2023
- (2) control room emergency ventilation on September 27, 2023

### 71111.05 - Fire Protection

#### Fire Area Walkdown and Inspection Sample (IP Section 03.01) (8 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) fire zone at the 635' elevation, off-gas area on July 5, 2023

- (2) fire zone at the 620' elevation, off-gas area on July 5, 2023
- (3) fire zone at the control complex chiller area on August 1, 2023
- (4) fire zone at the remote shutdown room on August 2, 2023
- (5) fire zone at the 620' elevation, Unit 1 Division 1 electrical switchgear room on August 2, 2023
- (6) fire zone at containment on August 28, 2023
- (7) fire zone at the emergency service water pump house on August 29, 2023
- (8) fire zone at control complex on September 5, 2023

#### Fire Brigade Drill Performance Sample (IP Section 03.02) (1 Sample)

The inspectors evaluated the performance and training of the on-site fire brigade during observation of the following drill activities:

- (1) an unannounced fire protection drill on July 26, 2023

#### 71111.06 - Flood Protection Measures

##### Flooding Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated external flooding mitigation protections in the areas with external outside vulnerability on August 28, 2023.

#### 71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

##### Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during reactor plant automatic shutdown on August 10, 2023.

##### Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) Crew evaluation in the simulator on July 31, 2023.

#### 71111.12 - Maintenance Effectiveness

##### Maintenance Effectiveness (IP Section 03.01) (3 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

- (1) emergency diesel generator planned outage between July 31 and August 5, 2023
- (2) reactor protection system power transfer switch failure on August 10, 2023
- (3) actions characterizing potential trending issues associated with the 16 local power range monitors bypassed on September 7, 2023

#### 71111.13 - Maintenance Risk Assessments and Emergent Work Control

##### Risk Assessment and Management Sample (IP Section 03.01) (1 Sample)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) reactor recirculation circuit breaker 4A continuity bulb challenge on July 24, 2023

#### 71111.15 - Operability Determinations and Functionality Assessments

##### Operability Determination or Functionality Assessment (IP Section 03.01) (2 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) functionality review of the Division 2 emergency diesel generator ventilation system after challenges on August 1, 2023
- (2) operability review after issues related to the hydraulic control unit 14-51 and the associated accumulator level switch failure on September 5, 2023

#### 71111.18 - Plant Modifications

##### Severe Accident Management Guidelines (SAMG) Update (IP Section 03.03) (1 Sample)

- (1) The inspectors verified the site Severe Accident Management Guidelines were updated in accordance with the Boiling Water Reactor generic severe accident technical guidelines and validated in accordance with NEI 14-01, "Emergency Response Procedures and Guidelines for Beyond Design Basis Events and Severe Accidents," Revision 1 on September 20, 2023.

#### 71111.20 - Refueling and Other Outage Activities

##### Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated automatic reactor trip forced outage activities from August 10 to August 13, 2023.

#### 71111.24 - Testing and Maintenance of Equipment Important to Risk

The inspectors evaluated the following testing and maintenance activities to verify system operability and/or functionality:

##### Post-Maintenance Testing (PMT) (IP Section 03.01) (5 Samples)

- (1) replacement of a 5V power supply as part of the rod control and information system monitor system on June 26, 2023
- (2) replacement of mounted auxiliary contact related to the emergency closed cooling water pump July 28, 2023



- (3) replacement of the Division 3 emergency diesel generator engine fuel pump and coupling spider on August 8, 2023
- (4) replacement of the reactor protection system transfer switch after the August 10, 2023, SCRAM on August 31, 2023
- (5) replacement of the level switch associated with the control rod drive hydraulic control unit 14-51 on September 8, 2023

Surveillance Testing (IP Section 03.01) (3 Samples)

- (1) evaluation of the vibrations of the residual heat removal "A" pump on June 21, 2023
- (2) traversing in-core probe system run on July 20, 2023
- (3) Division 3 diesel generator testing on August 4, 2023

Inservice Testing (IST) (IP Section 03.01) (1 Sample)

- (1) reactor core isolation quarterly pump and valve operability on July 25, 2023

71114.02 - Alert and Notification System Testing

Inspection Review (IP Section 02.01-02.04) (1 Sample)

- (1) The inspectors evaluated the following maintenance and testing of the alert and notification system:
  - Annual siren inspection and maintenance records for the period from August 2021 to August 2023
  - Weekly alert notification system (siren) tests for the period from August 2021 to August 2023

71114.03 - Emergency Response Organization Staffing and Augmentation System

Inspection Review (IP Section 02.01-02.02) (1 Sample)

- (1) The inspectors evaluated the readiness of the Emergency Response Organization.

71114.05 - Maintenance of Emergency Preparedness

Inspection Review (IP Section 02.01 - 02.11) (1 Sample)

- (1) The inspectors evaluated the maintenance of the emergency preparedness program.

71114.06 - Drill Evaluation

Select Emergency Preparedness Drills and/or Training for Observation (IP Section 03.01) (1 Sample)

- (1) Emergency Preparedness drill on August 3, 2023

## **RADIATION SAFETY**

### 71124.06 - Radioactive Gaseous and Liquid Effluent Treatment

#### Walkdowns and Observations (IP Section 03.01) (4 Samples)

The inspectors evaluated the following radioactive effluent systems during walkdowns:

- (1) turbine building supply plenum drain
- (2) nuclear closed cooling system
- (3) Unit 1 and 2 ventilation
- (4) off-gas system

#### Sampling and Analysis (IP Section 03.02) (4 Samples)

Inspectors evaluated the following effluent samples, sampling processes and compensatory samples:

- (1) compensatory sampling of off-gas vent while the effluent monitor was inoperable
- (2) compensatory continuous sampling of Unit 2 vent radiation monitor
- (3) liquid composite sampling process
- (4) gaseous effluent sample from Unit 1 vent

#### Dose Calculations (IP Section 03.03) (3 Samples)

The inspectors evaluated the following dose calculations:

- (1) batch liquid release; discharge # 22-012L
- (2) monthly dose assessment for March 2021
- (3) monthly dose assessment for February 2022

#### Abnormal Discharges (IP Section 03.04) (2 Samples)

The inspectors evaluated the following abnormal discharges:

- (1) auxiliary boiler liquid batch release in February 2022
- (2) Nuclear Closed Cooling continuous liquid release in 2022

## **OTHER ACTIVITIES – BASELINE**

### 71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

#### MS08: Heat Removal Systems (IP Section 02.07) (1 Sample)

- (1) Unit 1 (October 1, 2022 through June 30, 2023)

#### MS09: Residual Heat Removal Systems (IP Section 02.08) (1 Sample)

- (1) Unit 1 (October 1, 2022 through June 30, 2023)

MS10: Cooling Water Support Systems (IP Section 02.09) (1 Sample)

- (1) Unit 1 (October 1, 2022 through June 30, 2023)

BI01: Reactor Coolant System (RCS) Specific Activity Sample (IP Section 02.10) (1 Sample)

- (1) Unit 1 (July 1, 2022 through June 30, 2023)

BI02: RCS Leak Rate Sample (IP Section 02.11) (1 Sample)

- (1) Unit 1 (October 1, 2022 through June 30, 2023)

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 02.15) (1 Sample)

- (1) Unit 1 (July 1, 2022 through June 30, 2023)

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual  
Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample  
(IP Section 02.16) (1 Sample)

- (1) Unit 1 (July 1, 2022 through June 30, 2023)

EP01: Drill/Exercise Performance (DEP) Sample (IP Section 02.12) (1 Sample)

- (1) Unit 1 (July 1, 2022 through June 30, 2023)

EP02: Emergency Response Organization (ERO) Drill Participation (IP Section 02.13)  
(1 Sample)

- (1) Unit 1 (July 1, 2022 through June 30, 2023)

EP03: Alert And Notification System (ANS) Reliability Sample (IP Section 02.14) (1 Sample)

- (1) Unit 1 (July 1, 2022 through June 30, 2023)

71152A - Annual Follow-up Problem Identification and Resolution

Annual Follow-up of Selected Issues (Section 03.03) (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) elevated groundwater tritium readings on July 10, 2023

71153 – Follow-up of Events and Notices of Enforcement Discretion

Event Follow-up (IP Section 03.01) (2 Samples)

- (1) The inspectors evaluated a refrigerant leak and licensee's performance and response on July 18, 2023.

- (2) The inspectors evaluated an automatic reactor trip and the licensee's performance and response on August 10, 2023.

Personnel Performance (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated the licensee's performance and response to a fuel bundle to reactor vessel contact event on April 18, 2023.

**INSPECTION RESULTS**

Observation: Elevated Groundwater Tritium Readings	71152A
<p>In May of 2023, the licensee developed a sampling strategy to understand the underdrain system activity following a refueling outage. Sampling discovered elevated tritium in plant piezometers 6, 14, and 21. A cross functional team was formed, and an action plan developed to determine source of tritium.</p> <p>In June 2023, tritium activity in piezometer 21 exceeded 20,000 pCi/L (40,200 pCi/L), and state, local, and Federal notifications were made as required. The cross functional team expanded and incorporated problem-solving processes. During this time, the tritium sampling plan expanded to include piezometers 5, 6, 9, 14, 15, 16 and 21 as well as underdrain manholes 20, 23, 10, and 11. Third party subject matter expert vendor assistance was established.</p> <p>Three failure modes were investigated that included: degraded plant building and piping integrity, degraded underground piping with reactor interface, and existing source from past leakage. Proximate buildings, building interfaces with pipe penetrations, rattle spaces, and floor drains were inspected. No active leaks were identified. Condensate storage tank lines and radwaste discharge piping are buried pipes of interest. Eight soft drill wells were performed in the vicinity of these lines, which did not identify any licensee radioactive material.</p> <p>In July 2023, Environmental Resource Management recommended to begin low volume continuous pump out of plant piezometer 21 at 4 gallons per day. This was developed as a strategy to determine active leak versus cyclic leak from the previous refueling outage. In September 2023, the licensee was still investigating the potential leak with piezometer 21 pump downs. Activity steadily decreased over the pump down period, which the site and vendor determined that the leak was not active. Once activity reaches &lt; 5,000 pCi/L, the licensee plans to shut off the pump but continue daily sampling of piezometer 21 to trend activity. Normal non-investigative sampling will continue with in-plant piezometer tubes 2, 6, 7, 9 and 11 sampled semi-annually for gamma isotopic and tritium baseline monitoring. All other locations will be as required to support plume characterization assessment when radioactive contamination is identified. Manholes 20 and 23 will continue to be sampled on a quarterly basis for tritium and isotopic.</p> <p>The inspectors evaluated the tritium identification and problem-solving efforts following the plant refueling outage. Data indicated no active leak in the underdrain system nor migration of the tritium outside of the underdrain system. No more than minor findings were identified with the licensee's identification and response efforts.</p>	

Fuel Bundle Contact with Reactor Vessel During Fuel Handling			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000440/2023003-01 Open/Closed	[H.8] - Procedure Adherence	71153
<p>A Green non-cited violation of Technical Specification 5.4.1.a was self-revealed on March 19, 2023, when the licensee failed to implement procedures required by Section 2.L, "Refueling and Core Alterations," of Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Specifically, the licensee failed to follow Step 2.43 of Standard Operating Instruction-F15, "Refueling and 360 Platforms," which directed specific movements of the refueling bridge when loading a fuel bundle into a peripheral core location to prevent catching the bottom of a fuel bundle on the core shroud's steam dam while lowering the bundle into position. As a result, the bottom of fuel bundle (S/N# 18P305) caught the bottom of the shroud's steam dam as the licensee attempted to lower the bundle into position. Once this occurred, the licensee took corrective actions to place the bundle in a safe location in the RP-1 storage pool and selected an alternate fuel bundle for placement in the reactor core.</p>			
<p><u>Description:</u></p> <p>Step 2.43 of Standard Operating Instruction (SOI)-F15, "Refueling and 360 Platforms," states, "When loading fuel into peripheral locations, the Refuel Bridge will index the location and lower the bundle to the ELEVATION LOADED position (~300") which is slightly above the top of the core shroud. The Bridge/Trolley should be moved toward the center of the core approximately 1 cell width to prevent catching the bottom of the bundle on the shroud's steam dam while lowering. With the bundled lowered to 320" – 350", the Bridge/Trolley should be realigned to the indexed location."</p> <p>On March 19, 2023, the station was in Mode 5 with core alterations in progress. While performing Step 290 of the 1R19 Refuel Fuel Move Checklist, the fuel bundle (S/N#18P305) contacted the steam dam inside the reactor vessel. The fuel bundle was in the process of being lowered into location 19-60 at the peripheral of the core when contact occurred. The unit supervisor and outage control central were contacted immediately. Criteria to enter ONI-J11, "Fuel Handling Accidents," was not met as no immediately identifiable damage nor rising rad levels or fission product bubbles were identified. The refueling bridge operators were removed from duties and the human error checklist performed. The affected fuel bundle was placed in a safe location in the RP-1 fuel storage pools in the containment building. No damage to the steam dam was identified. Reactor engineering permitted core loading to continue without inserting this bundle. Calculation and selection of another twice burned bundle for that location was completed using updated fuel movement sheets, and the decision was made that the affected bundle would not go back into the reactor core. The licensee's investigation determined that the bridge was not moved toward the center of the core prior to lowering the fuel bundle below the steam dam per Step 2.43 of SOI-F15 for this peripherally located fuel bundle.</p> <p>Corrective Actions: Immediate corrective actions included suspension of core alterations and completion of required management notifications. No indication of clad failure through visual or gaseous release was immediately identified. The licensee performed a stand down with the refueling bridge operators and operations management. Emphasis was placed on</p>			

SOI-F15, Step 2.43 that provides direction on how to avoid fuel bundle contact with the steam dam. Engineering evaluated potential damage to the affected bundle and identified an alternate bundle to install into the core, which included updating the fuel movement sheets. The affected bundle was moved to the spent fuel pool and replaced with an equivalent bundle. Document change request #ATA-2023-5737 was also written to revise Step 2.43 to, "When loading fuel into peripheral core locations, the Refuel Bridge should be taken out of automatic operation prior to indexing on peripheral core locations. This should be done when approximately 2 cells out and toward the center of the core. The fuel bundle should then be lowered to "Z" position 320" – 350" followed by indexing onto the peripheral location. This prevents inadvertent contact with the steam dam (located ~ 300") by not allowing the fuel bundle to be positioned above the steam dam. Approach the peripheral location in a slow controlled manner to prevent the fuel bundle from swinging into the steam dam." This action is due December 27, 2024, which is prior to the next refueling outage.

Corrective Action References: CR-2023-02103, "Fuel Bundle Made Contact with Steam Dam"

Performance Assessment:

Performance Deficiency: The licensee failed to position the bridge/trolley toward the center of the reactor core to prevent catching the bottom of the bundle on the shroud's steam dam when lowering the bundle as required by Step 2.43 of SOI-F15. As a result, fuel bundle S/N#18P305 contacted the steam dam when being lowered into the core. This potential was specifically addressed in standard operation instruction for the refueling platform.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Cladding Performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Per IMC 0609, Attachment 4, Table 3, Question A, the finding related to fuel handling issues, which then directs the inspector to evaluate the issue using IMC 0609, Appendix A. Per IMC 0609, Appendix A, Exhibit 3, "Barrier Integrity Screening Questions," Question 4, the finding resulted from a fuel handling errors, but was determined to be a Green finding since the fuel handling error did not challenge fuel cladding integrity or result in a release of radionuclides.

Cross-Cutting Aspect: H.8 - Procedure Adherence: Individuals follow processes, procedures, and work instructions. The individuals failed to follow the standard operating instruction specifically written to prevent this event.

Enforcement:

Violation: Technical Specification Section 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978.

Regulatory Guide 1.33, Revision 2, Appendix A, Section 2 addresses "General Plant Operating Procedures," and Section 2.L requires procedures for refueling and core alterations.

The licensee established Standard Operating Instruction SOI-F15, "Refueling and 360 Platforms," Revision 28, to address refueling and core alteration activities. Procedure SOI-F15, Step 2.43, states, "When loading fuel into peripheral locations, the Refuel Bridge will index the location and lower the bundle to the ELEVATION LOADED position (~300") which is slightly above the top of the core shroud. The Bridge/Trolley should be moved toward the center of the core approximately 1 cell width to prevent catching the bottom of the bundle on the shroud's steam dam while lowering. With the bundle lowered to 320" – 350", the Bridge/Trolley should be realigned to the indexed location.

Contrary to the above, on March 19, 2023, the licensee failed to implement procedures recommended in Section 2.L of Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Specifically, the licensee did not properly implement Step 2.43 of SOI-F15 while moving fuel bundle S/N#18P305 to a peripheral location to prevent catching the bottom of the fuel bundle from catching on the shroud's steam dam while lowering the bundle.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

## **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained or documented in this report.

- On October 5, 2023, the inspectors presented the integrated inspection results to Chris Elliott, Plant General Manager, and other members of the licensee staff.
- On August 17, 2023, the inspectors presented the radiation protection inspection results to Rod Penfield, Site Vice President, and other members of the licensee staff.
- On September 21, 2023, the inspectors presented the emergency preparedness inspection results to Rod Penfield, Site Vice President, and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Miscellaneous	none	Certification of Summer Readiness	06/23/2023
71111.04	Procedures	SOI-C71	RPS Power Supply Distribution	09/08/2023
		SOI-M25/26	Control Room HVAC and Emergency Recirculating System	08/31/2023
71111.05	Fire Plans	0EW-1A and 1B	Emergency Service Water Pumphouse	09/14/2018
		1CC-3C	Unit 1 - Div. 1 4160V and 480V Switchgear Room 620' - 6" Elev.	08/02/2023
		1CC-3d	Unit 1 - Remote Shutdown Panel Room 620' - 6" Elev.	08/02/2023
		1RB-1C-1A, 1B, 1C, and 1D	Containment 599', 620', 642', 652', 664', and 689'	09/14/2018
		FZ 1CC-1c	Unit 1 – DIV 1 4160V and 480V Switchgear Room 620' – 6"	09/05/2023
		OCC-1C	Control Complex Chiller Water System 574"-10' Elevation	01/08/2023
		OG – 620" 01"	Off Gas Bldg Elev. 620' 01"	07/05/2023
		OG – 635" 02"	Off Gas Bldg Elev. 635' 02"	07/05/2023
71111.06	Corrective Action Documents	CR-2023-06575	ONI-ZZZ-1 Flood Barrier Storage is Not Organized to Support Efficient Implementation if Needed	08/23/2023
		CR-2023-06672	Potential Flood Barrier Installation Issues Per ONI-ZZZ-1 Required Doors	08/26/2023
71111.11Q	Miscellaneous	Simulation Guide, Cycle 202303	Evaluation Scenario Guide OTLC-305820303-PY-SGCG Copy 4/6	0
71111.12	Procedures	FTI-A-0001	TIP Operation	13
		SVI-C51-T5351	LPRM Calibration	18
	Work Orders	200807714	SVI-E22T1319 HPCS D/G Start and Load	08/05/2023
		200913922	SVI-C51T5351 TIP Run LPRM Calibration	07/27/2023
71111.13	Corrective Action Documents	CR 2023-05744	Reactor Recirc Circuit Breaker 4A Trip Coil Continuity Light Not Lit	07/23/2023
71111.15	Corrective Action Documents	CR 2022-01390	Div 2 DG Exhaust Dampers Indicate Dual Position with Supply Fan Running	02/22/2022
		CR 2023-03551	Div. 2 DG Exhaust Louvers Show Dual Indication during Start	04/27/2023
		CR 2023-05795	Div 2 DG Supply Fan Dampers Failed to Open	07/25/2023
		CR 2023-05909	Division 2 DG Room Exhaust Louver Indication Issues	07/28/2023



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CR 2023-06855	CRD Accumulator Level Switch Failed to Actuate	09/05/2023
	Drawings	912-0619-00000	Diesel Generator Building Ventilation System	S
71111.18	Procedures	SAMG-1	RPV Control Severe Accident Management Guidelines	1
		SAMG-2	Containment and Radioactivity Release	1
71111.24	Corrective Action Documents	2023-05670	TIP drawer 1C51J0001E Ready Light Stuck on Not Collecting Data	07/20/2023
		2023-05690	Local Power Range Monitors (LPRM) Outside of Acceptance Criteria After Calibration	07/21/2023
		2023-06215	Automatic Reactor SCRAM and MSIV Closure Following RPS Bus Shift from ALT to NORM B	08/10/2023
		2023-06281	Minor Insulation Damage Found on Power Source Selector Switch Wire	08/21/2023
		CR 2020-08144	Freedom Series Auxiliary Contact Found Failed on EF1A08-C	10/21/2020
	Drawings	208-0070-00006	Leak Detection System	DD
	Engineering Changes	23-1145-002	Temporary MOD for Removal of Jumper on Panel 1H13P0710E	08/10/2023
	Procedures	GEI-0029	Testing of Mold Case Circuit Breakers and Overload Heater Relays	24
		GEI-0138	Freedom Bucket Maintenance	9
		PMI-0078	Division 3 HPCS Diesel Generator Fuel System Maintenance	7
		SVI-C11-T0009	Control Rod SCRAM Accumulator Pressure Detection Functional/Calibration for HCU Accumulators	8
		TAI-2000-2	Vibration Monitoring	6
	Work Orders	200789681	Support SVI-C11T0009 Contingency	09/08/2023
		200805508	Take Vibration Data – RHR Pump ‘A’ (EQ) Take Vibration Data – RHR Pump ‘A’ (EQ) Take Vibration Data – RHR pump ‘A’ (EQ) PM Planning Complete*	06/21/2023
		200807397	Replace Div. III Engine Fuel Pump Order Will Also Replace The Coupling Spider and Credit Maintenance Plan #25319	08/08/2023
		200807920	Perform EMI Testing Div 3 HPCS DG *PM Planning Complete	08/04/2023
		200816150	“No work description issued”	07/26/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		200913280	Fix TIP machine Common Channel/CR	07/20/2023
		200921639	Replace RPS Transfer Switch Py-1C71S0701 CR 2023-6215	08/31/2023
		WO 200556515	Replace 5V Power Supplies 1E31N0700B	06/26/2023
71114.02	Corrective Action Documents	CR 2021-07941	Perry Siren Backup Activation Point Failure	10/21/2021
		CR 2022-09852	2022 Siren Pole Top Siren Maintenance	12/29/2022
	Miscellaneous		Federal Signal Models 2001-130, Equinox, and 508-128 Sirens Installation, Operation, and Service Manual	A5 0117
			Federal Signal DCB, DCFCB, and DCFCTB Models Battery Operated Mechanical Siren Control System Installation, Operation, and Service Manual	LO 1015
			Tempest T-112/ T-121 Omni-Directional Siren Installation, Operation, Maintenance and Parts Manual	H
			Perry EPZ Siren System PI Test Schedules	01/01/2021 - 12/31/2023
			Perry EPZ Siren System Test Data	09/01/2021 – 08/31/2023
			Perry EPZ Siren Annual Maintenance Records	09/01/2021 - 08/31/2023
			Perry Nuclear Power Plant Prompt Alert Siren System (PASS) Design Report	0
			FEMA Approval of Perry Nuclear Power Plant Prompt Alert Siren System (PASS) Design Report Update	07/17/2015
	Procedures	NOBP-LP-5018	Siren Testing and Maintenance	4
		NOP-LP-5005	Siren Testing and Maintenance	1
71114.03	Corrective Action Documents	CR-2022-00532	ERO Unannounced Communication Test Results 1/22/22: No Response Recorded for One On-Duty Individual	01/24/2022
		CR-2022-04357	Untimely Response for 5/23/22 ERO Scheduled Communication Test	05/23/2022
		CR-2022-08800	Off Duty Individual Did Not Respond to ERO Unannounced Communication Test	11/16/2022
		CR-2023-03481	On Duty ERO Member Did Not Respond to Weekly Notification Test	04/25/2023
		CR-2023-06141	Emergency Response Organization Notification System	08/07/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Miscellaneous		(ERONS) Weekly Notification Test Issue	
			Emergency Response Organization Roster	08/29/2023
			Quarterly Testing of Emergency Pager System Records	08/01/2021 – 08/31/2023
			PNPP ERO On-Shift Staffing Analysis Report	1
	Procedures	NOP-LP-5006	Emergency Response Organization Training Program	7
		NOP-LP-5503	Emergency Notifications	1
		NOP-LP-5505	Facility Activation, Operation and Deactivation	1
		PTI-GEN-P0003	Quarterly Testing of the Emergency Pager System	15
		PYBP-ERS-0037	Notification of Key Plant Personnel	8
71114.05	Corrective Action Documents	CR-2022-04909	Inconsistencies in NOP-LP-5503, Emergency Notifications procedure	06/16/2022
		CR-2022-08718	Backup Method for ERO Notification Failed Testing	11/14/2022
		CR-2023-00828	ERO Duty Transfer Issue	02/06/2023
		CR-2023-05038	Loss of Power to Plant Emergency and Fire Alarms	06/23/2023
		CR-2023-05362	ERO Training Issue	07/06/2023
	Miscellaneous		Monthly Testing of Emergency Response Telephone Systems in Onsite Emergency Response Facilities (Completed Survey Records)	09/01/2021 - 08/31/2023
			Emergency Operations Facility Equipment Checklists (Completed Survey Records)	09/01/2021 - 08/31/2023
			Operations Support Center Equipment Checklists (Completed Survey Records)	09/01/2021 - 08/31/2023
			Technical Support Center Equipment Checklists (Completed Survey Records)	09/01/2021 - 08/31/2023
			Letters of Agreement / Memorandums of Understanding with Agencies Supporting Emergency Preparedness	09/01/2021 - 08/31/2023
			Emergency Preparedness Drill and Exercise Reports (Sample)	09/01/2021 - 08/31/2023
			Emergency Response Organization Training and Qualification Records (Sample 15 records)	09/21/2023
		EP-0000	Emergency Plan for Perry Nuclear Power Plant	61
		KLD TR-1228	Perry Nuclear Power Plant Development of Evacuation Time Estimates	05/09/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		KLD TR-1319	Perry Nuclear Power Plant 2023 Population Update Analysis	05/08/2023
		MS-C-21-11-24	Quality Assurance Audit Report of Emergency Preparedness	12/07/2021
		MS-C-22-11-24	Quality Assurance Audit Report of Emergency Preparedness	12/20/2022
	Procedures	PSI-0018	Maintenance and Inventory of Emergency Equipment	13
71114.06	Miscellaneous	ERO tabletop	2023 3rd Quarter ERO Table - Top Drill TSC-EOF 8/3/2023 through 8/31/2023	0
71124.06	Corrective Action Documents	CR 2022-07529	MIDAS Software Calculation Deviation	10/07/2022
		CR 20223-03554	Elevated Nuclear Closed Cooling Radiation Monitor	04/27/2023
		CR 2023-03569	Short Lived Gamma Activity Detected at NCC from RWCU B Pump	04/27/2023
	Corrective Action Documents Resulting from Inspection	CR 2023-06377	NRC RP Inspection Identified: The Required ODCM Lower Limit of Detection, LLD, Misapplied in the 2022 Annual Radioactive Effluent Release Report	08/16/2023
		CR-2023-06408	NRC Identified: SVI-D17-T5268 Does Not Include All Required ODCM Documentation	08/17/2023
	Miscellaneous	06-Sep-22-10013	Floor Drain Sample Tank Gamma Spectrum Analysis	09/06/2022
		06-Sep-22-10014	Floor Drain Sample Tank Gamma Spectrum Analysis	09/06/2022
		2103030021	MIDAS Report for February 2021 Monthly Summary of Maximum Individual Doses	February 2021
		2208310953	MIDAS Report for Nuclear Closed Cooling	10/02/2022
		2208310953	MIDAS Report for Release 22-001L	08/31/2022
		2209010057	MIDAS Report for Release 22-002L	09/01/2022
		2209081259	MIDAS Report for Liquid Discharge 22-012L	09/08/2022
		28-Feb-21-10010	OGVP NG, MDS Gamma Spectrum Analysis	02/28/2021
		31-Jan-22-10008	NCC Week 5 Composite Gamma Spectrum Analysis	01/31/2022
		L-22-105	2021 Annual Radiological Effluent Release Report	04/27/2022
		L-23-121	2022 Annual Radiological Effluent Release Report	04/26/2023
	Procedures	CHI-0053A	Counting Gamma Spectroscopy Samples Using Apex	6
		NOP-SS-3300	Records Management Program	19
		SOI-D17	Airborne Radiation Monitoring System (Effluents)	16
	Work Orders	200777498	SVI-D17T5268 Eff Smpl/Analysis & Dose	02/23/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		200777499	SVI-D17T5268 Eff Smpl/Analysis & Dose	03/29/2021
		200814178	SVI-D17T5268 Eff Smpl/Analysis & Dose	03/02/2022
		200892277	Liquid Radwaste Release Permit Package	09/06/2022
71151	Miscellaneous		NRC Performance Indicator Data; Emergency Preparedness – ERO Readiness	07/01/2022-06/30/2023
			NRC Performance Indicator Data; Emergency Preparedness – Alert and Notification System Reliability	07/01/2022-06/30/2023
		NRC Performance Indicator Data	Emergency Preparedness – Drill/Exercise Performance;	07/01/2022-06/30/2023
71152A	Corrective Action Documents	CR-2023-05037	Tritium Groundwater Readings Elevated	06/23/2023
71153	Corrective Action Documents	CR-2023-02103	Fuel Bundle Made Contact with Steam Dam	03/19/2023
		CR-2023-05607	Entered ONI-ZZZ-5 due to Containment Vessel Chiller A Refrigerant Leak	07/18/2023
		CR-2023-06215	Automatic Reactor SCRAM and MSIV Closure Following RPS Bus Shift from ALT to NORM B	08/10/2023
	Miscellaneous	LER 05000440/2022-001-00	Low Pressure Core Spray Inoperable due to Loss of Minimum Flow Valve	06/27/2022