



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

November 12, 2021

Mr. Rod Penfield
Site Vice President
Energy Harbor Nuclear Corp.
Perry Nuclear Power Plant
10 Center Road,
Perry, OH 44081

SUBJECT: PERRY NUCLEAR POWER PLANT – INTEGRATED INSPECTION REPORT
05000440/2021003

Dear Mr. Penfield:

On September 30, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Perry Nuclear Power Plant. On October 28, 2021, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

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 "Billy C. Dickson, Jr.".

Signed by Dickson, Billy
on 11/12/21

Billy C. Dickson, Jr., Chief
Branch 2
Division of Reactor Projects

Docket No. 05000440
License No. NPF-58

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

Letter to Rod Penfield from Billy Dickson dated November 12, 2021.

SUBJECT: PERRY NUCLEAR POWER PLANT – INTEGRATED INSPECTION REPORT
05000440/2021003

DISTRIBUTION:

Jessie Quichocho
Robert Williams
RidsNrrPMPerry Resource
RidsNrrDorILpl3
RidsNrrDrolrib Resource
John Giessner
Mohammed Shuaibi
Jamnes Cameron
Shelbie Lewman
Allan Barker
DRPIII
DRSIII

ADAMS ACCESSION NUMBER: ML21316A046

<input checked="" type="checkbox"/> SUNSI Review		<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive		<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	
OFFICE	RIII	RIII			
NAME	RRuiz:ve	BDickson			
DATE	11/12/2021	11/12/2021			

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number: 05000440

License Number: NPF-58

Report Number: 05000440/2021003

Enterprise Identifier: I-2021-003-0100

Licensee: Energy Harbor Nuclear Corp.

Facility: Perry Nuclear Power Plant

Location: Perry, OH

Inspection Dates: July 01, 2021 to September 30, 2021

Inspectors: T. Ospino, Resident Inspector
J. Steffes, Senior Resident Inspector

Approved By: Billy C. Dickson, Jr., Chief
Branch 2
Division of Reactor Projects

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

No findings or violations of more than minor significance were identified.

Additional Tracking Items

None.

PLANT STATUS

The plant began the inspection period at full power. On August 28, 2021, reactor power was lowered to 65 percent to perform a rod sequence exchange. The Unit was returned to full power on August 31, 2021. The Unit remained at or near full power for the remainder of the inspection period with several exceptions. Specifically, on several occasions, power was reduced between 1 and 16 percent ranging from a few hours to several days due to environmental conditions.

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 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.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), resident and regional inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week, increasing the amount of time on site as local COVID-19 conditions permitted. As part of their onsite activities, resident inspectors conducted plant status activities as described in IMC 2515, Appendix D; observed risk significant activities; and completed on site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

External Flooding Sample (IP Section 03.03) (1 Sample)

- (1) Ground erosion impacting flood mitigation barrier on August 5, 2021

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (3 Samples)

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

- (1) Division 1 direct current system while the division 3 diesel was unavailable on August 31, 2021
- (2) Low pressure core spray system on September 11, 2021
- (3) "B" residual heat removal system (RHR) while the "A" RHR system was unavailable for maintenance on September 21, 2021

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

- (1) Standby liquid control system on September 16, 2021

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (6 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) Division 2 emergency diesel generator (EDG) room on July 27, 2021
- (2) Auxiliary building 599-foot elevation on August 2, 2021
- (3) Diesel generator building on the 620-foot elevation on August 9, 2021
- (4) 125 volt DC distribution and battery rooms on August 9, 2021
- (5) Intermediate building 620-foot elevation on September 9, 2021
- (6) Containment on September 16, 2021

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 downpower for control rod sequence exchange and surveillance testing on August 28, 2021.

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (2 Samples)

- (1) The inspectors observed and evaluated an operations crew-evaluation scenario in the plant training simulator on July 26, 2021.
- (2) The inspectors observed and evaluated an operations crew-evaluation during the Emergency Response Organization (ERO) integrated drill on September 16, 2021.

71111.12 - Maintenance Effectiveness

Quality Control (IP Section 03.02)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following SSC remains capable of performing its intended function:

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (7 Samples)

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) "B" average power range monitor card failure on July 14, 2021
- (2) Reactor water cleanup system filter inlet temperature on July 26, 2021
- (3) Nuclear closed cooling system high temperature alarm emergent work on July 27, 2021
- (4) Seismic monitor system emergent work on August 5, 2021
- (5) Redundant reactivity control system (RRCS) emergent work on August 10, 2021
- (6) Division 3 EDG power cylinder P6 emergent work on August 18, 2021
- (7) Steam bypass and pressure regulator system emergent work on August 20, 2021

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (4 Samples)

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

- (1) Division 2 EDG operability determination following RPM meter failure during surveillance run on July 2, 2021
- (2) RRCS based on testing card error code on August 10, 2021
- (3) Emergency service water "A" discharge strainer backwash valve guide arm broken during maintenance on August 24 to August 25, 2021
- (4) Steam bypass and pressure regulating system accumulator leak on August 26 to August 27, 2021

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Electric fire pump oil system modification as part of the equivalent change package 20-0090-001 on July 20, 2021

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (9 Samples)

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

- (1) Channel "D" and "H" average power range monitor system power supply replacement on June 30, 2021
- (2) Division 2 EDG RPM meter replacement on July 2, 2021
- (3) Unit 2 2A normal battery charger following capacitor replacement on July 13, 2021
- (4) Average power range monitor channel "B" following flow card replacement NESC07771-001 on July 14, 2021
- (5) "A" RHR system following valve maintenance on July 20, 2021
- (6) Microwave tower seismic monitor system cable replacement on August 5, 2021
- (7) RRCS following optical isolator card replacement on August 16, 2021
- (8) Replacement of master trip unit for ECCS drywell pressure high channel "E" on August 17, 2021
- (9) Containment radiation monitor inboard suction isolation relay replacement on August 31, 2021

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Inservice Testing (IP Section 03.01) (1 Sample)

- (1) "B" RHR system, ISI-E12-T1101-2 on July 27, 2021

RCS Leakage Detection Testing (IP Section 03.01) (1 Sample)

- (1) Reactor coolant system leakage review based on noted trend on August 6, 2021

71114.06 - Drill Evaluation

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

- (1) The inspectors evaluated an ERO drill on September 15, 2021

Drill/Training Evolution Observation (IP Section 03.02) (1 Sample)

The inspectors evaluated:

- (1) ERO tabletop training evaluation on August 5, 2021

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (1 Sample)

- (1) Unit 1 (April 1, 2020 through March 31, 2021)

MS06: Emergency AC Power Systems (IP Section 02.05) (1 Sample)

- (1) Unit 1 (April 1, 2020 through March 31, 2021)

MS07: High Pressure Injection Systems (IP Section 02.06) (1 Sample)

- (1) Unit 1 (April 1, 2020 through March 31, 2021)

71153 - Follow-Up of Events and Notices of Enforcement Discretion

Personnel Performance (IP Section 03.03) (1 Sample)

- (1) Review of personnel performance following a plant scram during the evolution on March 4, 2021

INSPECTION RESULTS

Minor Violation	71152
<p>Minor Violation: On February 2, 2021, during performance of the SVI-E22-T2001, "HPCS pump and valve operability test," Revision 35, the NRC inspectors noted that the licensee had left the high-pressure core spray (HPCS) pump room water-tight door open during the surveillance test for passage. Procedure OAI-0201 "Operations General instructions and Good Operating Practices" Revision 46, Attachment 1, section 6, states in part that, "ECCS/RCIC pump room water-tight doors were designed to minimize suppression pool inventory loss due to an unisolable leak in the suction piping upstream of the containment isolation valve. These water-tight doors should remain closed except during the passage through them. Do not leave the door open or blocked open without permission from the Shift manager." The licensee restored compliance by closing the watertight door following the completion of the surveillance test.</p> <p>After multiple conversations with staff and management, the inspectors concluded permission to maintain the door open for other than passage was neither sought nor given. The inspectors questioned licensee staff to understanding better if their observation was in line with OAI-0201 procedural requirements. The licensee generated an action tracking item, ATL-2021-0270-ATA-59, to answer the inspector's questions but did not address the inspector's concerns associated with the procedural implementation. The inspectors reengaged licensee staff to reemphasize the concern related to not restoring plant configuration following passage through the HPCS pump room water-tight door. The licensee generated CR 2021-05010, "NRC ID: Actions of OAI-201 not strictly adhered to during testing," to document the inspector's concern.</p>	

Screening: The inspectors determined the performance deficiency was minor because they answered “no” to all of the questions contained in Section 05.01 of IMC 0612, “Issue Screening.” The performance deficiency is minor consistent with Example 4.a. of IMC 0612, Appendix E. Specifically, based on several factors such as personnel in the vicinity and the existence of control room alarms to alert operators of a leak in the room, leaving the doors open for a short duration had no safety impact and is, therefore, minor.

Enforcement: This failure to comply with 10 CFR 50 Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” constitutes a minor violation that is not subject to enforcement action in accordance with the NRC’s Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

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

- On October 28, 2021, the inspectors presented the integrated inspection results to Mr. R. 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	Calibration Records	2021-04069	Ground Erosion on East side of Owner Controlled Area Fencing Continues to Degrade	5/19/2021
71111.04	Drawings	206-0051-00000	Class 1E DC System	DDD
		256-0051-00000	Class 1E DC System	DDD
		302-0705-00000	Low Pressure Core Spray System	HH
	Procedures	ELI-R42	Direct Current Systems: Batteries Chargers Switchboards	8
		VLI-12	Residual Heat Removal System	9/21/2021
		VLI-C41	Standby Liquid Control System	9/16/2021
		VLI-E21	Low Pressure Core Spray System	11
71111.05	Corrective Action Documents Resulting from Inspection	ATA-2021-12850	Pre-Fire Plan FPI-OIB Page 6 Needs Corrected as it Appears That Ventilation Panel 1H51-P038 is being Depicted Instead of Gaitronics Station R51-H071(IBH-01).	9/9/2021
	Fire Plans	1AB-2	Unit 1 599" Elevation	8/2/2021
		1CC-3a	Unit 1- Division-2 Diesel Generator Switchgear and Reactor Protection System Room	7/28/2021
		1CC-4C and 1CC-4D	125 Volt D-C Distribution and Battery RMS 638'-6" Elev	8/9/2021
		1DG-1A	Unit 1- Division 2 Diesel Generator Building 620'6" and 646'6"	7/27/2021
		1RB-1B	Unit 1 Containment to Drywell Space	9/16/2021
		DG-1D	Diesel Generator Building 620' 6" and 646' 6"	8/9/2021
		OIB-3	Intermediate Building 620" 6" Elevation	9/9/2021
71111.11Q	Corrective Action Documents	2021-06658	ICS Rod Scram Timing Recorder Software Recorded 11 Control Rods with Valid Scram Times and 7 Rods with Invalid Scram Time Data.	9/2/2021
	Miscellaneous	Drill	Perry ERO Integrated Drill Scenario Guide	9/15/2021
		Evolution Specific Reactivity Plan	Perry Nuclear Power Plant August 2021 Sequence Exchange	0
		OTL	OTL 3058 2021-03_Perry SGC-1 Simulator Out of the Box	7/26/2021
71111.12	Procedures	SVI-C85-T0422	Turbine Bypass System Response Time and System Functional Check	4

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.13	Corrective Action Documents	2021-05710	NCC HX Outlet Temp High Alarm	7/27/2021
		2021-06189	Emergency Diesel Generator Signature Analysis Results	8/16/2021
		2021-06319	Leak on C85 system	8/20/2021
		CR 2021-05668	RWCU Filer Demin Inlet Temperature May Not be Valid	7/26/2021
	Miscellaneous	Perry logs	Logs 13-15 July 2021	7/15/2021
	Procedures	SOI-N34	Main Lube Oil System	23
	Work Orders	200858816	Communication Error on N240/CR	7/12/2021
		200860379	DIV 2 RRCS Tripped Offline Due to Optical Isolater Failure Error Code 2C2509 HPII/OI System TST03 Card Input Path Failed System Test CR# 2021-06057	8/16/2021
71111.15	Calculations	GEN-022	Mission Times	0
	Corrective Action Documents	2021-05079	No Response from DIV 2 DG RPM Meter	7/1/2021
		2021-05317	Communication Error on Accelerometer Free Field by Microwave Tower Building	7/12/2021
		2021-05386	APRM B Flow Test Potentiometer #1 Broken	7/14/2021
		2021-06057	RRCS Tripped Offline	8/10/2021
		CR 2021-06174	Aux Switch Guide Arm Broken on ESW A Discharge Strainer Blowdown Valve	08/15/2021
		CR 2021-06319	Leak on Steam Bypass and Pressure Regulator System	8/20/2021
	Corrective Action Documents Resulting from Inspection	2021-06049	Seismic Monitor Indication Card Jumper Requirement	8/10/2021
	Drawings	302-0021-00000	Steam Bypass and Pressure Regulation System	U
71111.18	Work Orders	200321593	Bypass Valve Timing Test with Accumulators Isolated	4/15/2009
	Engineering Changes	ECP 20-0090-001	Replace the Motor Fire Pump Motor's Upper and Lower Oil Drain Plugs with Drain Valves for Ease of Sampling	0
71111.19	Miscellaneous	NOP-WM-4300-05	Post Maintenance Checklist	7/20/2021
	Procedures	ICI-C-C22-2	Redundant Reactivity Control System (RRCS) Analog Trip Module	3
	Work Orders	200585453	Replace 7300MFD Caps* BTRY CHGR FD-2-A	7/13/2021
		200773676	Replace Power Supply PS22 in 1H13P0672	6/30/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		200773858	Replace MTU 1B21N0694E	8/17/2021
		200794131	Perform MCC Bucket EF1D107-B Checks to (1D17F0081B)	8/30/2021
		200855016	Replace APRM "B" Flow Card	7/14/2021
		200858139	No Response from Div 2 DG RPM Meter	7/2/2021
		200858816	Communication Error on N240/CR	7/12/2021
71111.22	Procedures	ISI-E12-T1101-2	Residual Heat Removal System "B Loop" (RHR) Functional Pressure Test Class 2	7/27/2021
		PYBP-SITE-0029	Reactor Coolant System (RCS) Leakage Monitoring	8/6/2021
		SVI-B21-T0137E	ECCS Drywall Pressure High Channel E Functional For 1B21-N694E	8/17/2021
		SVI-C51-T0027-B	APRM B Channel Functional for 1C51-K605B	7/14/2021
		SVI-D51-T0324	Free Field Seismic Motion Recorder Channel Functional for OD51-R240	1
	Work Orders	200778088	SVI-E22T1319 HPCS D/G Start and Load	7/7/2021
		200793722	SRV Pressure Actuation Channel E Functional for 1B21-N668E	8/16/2021
		200793780	(92d) ECCS Drywell Pressure High Channel "A" Functional for 1B21-N694A	7/20/2021
		200798467	SVI-E12T2002 RGR "B" Pmp & Vlv OPER (PI)	7/27/2021
		200807944	(SR) PTI-M15-P3015 "B" Grain Thief	7/21/2021
71114.06	Procedures	ERO	2021 3rd Quarter ERO Table-Top Drill TSC-EOF 7/15/2021 through 8/12/2021	8/5/2021
71153	Miscellaneous	Event Notification	EN # 55712 Manual Reactor Protection System (RPS) Actuation At Zero Percent Power	4/5/2021