



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

January 10, 2022

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 – BIENNIAL PROBLEM IDENTIFICATION
AND RESOLUTION INSPECTION REPORT 05000440/2021013**

Dear Mr. Penfield:

On December 14, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed a problem identification and resolution inspection at your Perry Nuclear Power Plant and 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.

The NRC inspection team reviewed the station's corrective action program and the station's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems, and to confirm that the station was complying with NRC regulations and licensee standards for corrective action programs. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

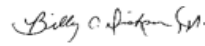
The team also evaluated the station's processes for use of industry and NRC operating experience information and the effectiveness of the station's audits and self-assessments. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

Finally, the team reviewed the station's programs to establish and maintain a safety-conscious work environment, and interviewed station personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews the team found no evidence of challenges to your organization's safety-conscious work environment. Your employees appeared willing to raise nuclear safety concerns through at least one of the several means available.

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,



Signed by Dickson, Billy
on 01/10/22

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 C. Dickson dated January 10, 2022.

SUBJECT: PERRY NUCLEAR POWER PLANT – BIENNIAL PROBLEM IDENTIFICATION
AND RESOLUTION INSPECTION REPORT 05000440/2021013

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number: 05000440

License Number: NPF-58

Report Number: 05000440/2021013

Enterprise Identifier: I-2021-013-0018

Licensee: Energy Harbor Nuclear Corp.

Facility: Perry Nuclear Power Plant

Location: Perry, OH

Inspection Dates: November 15, 2021 to December 14, 2021

Inspectors: V. Meghani, Reactor Inspector
G. O'Dwyer, Reactor Engineer
T. Ospino, Resident Inspector
R. Ruiz, Project Engineer
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 a biennial problem identification and resolution 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.

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.

OTHER ACTIVITIES – BASELINE

71152B - Problem Identification and Resolution

Biennial Team Inspection (IP Section 02.04) (1 Sample)

- (1) The inspectors performed a biennial assessment of the licensee's corrective action program, use of operating experience, self-assessments and audits, and safety conscious work environment.
 - **Corrective Action Program Effectiveness:** The inspectors assessed the corrective action program's effectiveness in identifying, prioritizing, evaluating, and correcting problems. The inspectors also conducted a five-year review of the Division I and II emergency diesel generators.
 - **Operating Experience, Self-Assessments and Audits:** The inspectors assessed the effectiveness of the station's processes for use of operating experience, audits and self-assessments.
 - **Safety Conscious Work Environment:** The inspectors assessed the effectiveness of the station's programs to establish and maintain a safety-conscious work environment.

INSPECTION RESULTS

Assessment	71152B
<u>Corrective Action Program Effectiveness:</u> The inspectors assessed the licensee's corrective action program (CAP) and its effectiveness in identifying, prioritizing, evaluating, and correcting problems. Based on the samples reviewed, the team determined that the licensee's performance in these areas adequately supported nuclear safety. <u>Problem Identification:</u> Overall, the licensee effectively identified issues at a low threshold and correctly entered them into the CAP as required by Fleet procedures. The inspectors determined that the	

station was generally effective at identifying trends that could potentially impact nuclear safety. The inspectors also performed plant walkdowns of various areas/systems important-to-safety, including the division 1 and division 2 emergency diesel generators (EDGs) and the service water pump house. For the samples reviewed, the inspectors did not identify any regulatory issues of concern in the area of problem identification.

Regarding problem identification, the team identified three examples of the inconsistent use of the repair tag process outlined in procedure NOP-WM-1003, "Nuclear Maintenance Notification Initiation and Screening," which could adversely affect the staff's ability to enter issues into the CAP appropriately. These examples included: a known minor leak on a safety-related valve which had a catch-container installed but no repair tag present; a repair tag hanging in the division 2 EDG room for a condition that maintenance staff had already fixed; and a known oil leak on the division 2 EDG starting air compressor that had no repair tag, whereas a nearly identical leak on the division 1 EDG starting air compressor had a repair tag. Although such inconsistencies are not prohibited by procedure under specific circumstances (such as a prevailing desire to preclude the tags from becoming foreign material), if prevalent, such inconsistent use of the repair tag process could result in a situation where staff may fail to enter conditions into the CAP based on assumptions made in the field that an issue may already be known and entered into the CAP when it's not.

Problem Prioritization and Evaluation:

In-depth reviews of a risk-informed sampling of condition reports (CRs), work orders (WOs), and causal evaluations were completed, including a 5-year review of CAP issues and trends associated with the division 1 and division 2 EDGs. The inspectors concluded that the licensee generally prioritized and evaluated issues for resolution appropriately commensurate with their safety significance.

Corrective Actions:

The team concluded that the licensee was generally effective in developing corrective actions (CAs) that were appropriately focused on correcting the identified problem and correcting conditions adverse to quality. The team reviewed a sample of CA assignments developed for selected NRC documented violations, selected licensee event reports, licensee self-assessments, and licensee-identified issues. Based on the samples reviewed, the team determined that the licensee adequately implemented corrective actions.

Operating Experience, Self-Assessments and Audits:

The inspectors assessed the effectiveness of the station's processes for the use of operating experience, audits, and self-assessments. Based on the samples reviewed, the team determined that the licensee's performance in these areas adequately supported nuclear safety.

Safety Conscious Work Environment:

The team reviewed the station's programs to establish and maintain a safety-conscious work environment and interviewed a representative cross-section of station personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews, workers at the Perry plant expressed freedom to raise and enter safety concerns through any of the various avenues available. The team encountered no

indications of chilling or retaliation. Finally, all plant personnel interviewed were aware of the Employee Concerns Program (ECP) and expressed a willingness to use it as an avenue to raise concerns, if desired.

The team communicated two observations based on comments received during interviews. The first observation was regarding a supervisor who expressed a lack of clear understanding concerning the initial categorization of issues as “adverse to quality” versus “Non-adverse to quality.” Although this was only one individual, given their position as a supervisor, this lack of clarity may extend to their workgroup. Additionally, a lack of clarity in this area could lead to instances where the Management Review Board is challenged as the barrier to catch potential categorization errors in condition reports. The team did not identify any such instances through its reviews. During its follow-up, the team also learned that plant leadership already knew of this topic, and actions were underway to address the categorization clarification area.

The second observation is related to a theme of comments that the team received throughout many of the interviews regarding workforce staffing levels. Specifically, the team encountered a high percentage of comments regarding workforce staffing levels being notably lower than in the past with the same amount of work existing, resulting in longer hours, more overtime, and lowering morale. Industry operating experience has shown that sustained low workforce morale and resource pressures can reduce the quality of work, which can lead to future events or challenges to regulatory limits. Additionally, such sustained pressures can exacerbate the effect of driving staff out of an organization. During its follow-up, the team recognized that this topic was already known by plant leadership and is a focus area with actions being taken. Although the inspection team did not identify any such instances of regulatory challenges, the Resident Inspectors will continue to track and monitor station performance for any potential impacts on safety margin or regulatory limits.

EXIT MEETINGS AND DEBRIEFS

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

- On December 14, 2021, the inspectors presented the biennial problem identification and resolution 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
71152B	Corrective Action Documents	ATA-2021-4992	Pre-NRC Inspection on Problem Identification & Resolution	04/01/2021
		ATL-2018-0166-ATA-150	CR 2020-08686 will be Included in the Electrical Training Program for Electrical Safety	02/17/2021
		CA-2020-08383-001	Label the Sewage Pump House Quincy 400 AMP Disconnect Switch with a Warning Sign	12/16/2020
		CA-2020-08383-002	Replace the Quincy Feed Cable from Pole 9525	02/05/2021
		CR-2019-01671	Main Generator/Main Turbine Trip Resulting in a Reactor Scram	02/25/2019
		CR-2019-02529	Request to Use Longer Bolt or Heli Coil to Repair 1B21F0022A Control Air Pack Mounting	03/19/2019
		CR-2019-02533	B21-029B Failed Leak Rate Test	03/19/2019
		CR-2019-02796	Threads Damaged During Air Blow of "C" inboard MSIV	03/25/2019
		CR-2019-02861	Oil Leaking from Outboard MSIV D	03/27/2019
		CR-2019-02939	Inboard MSIV 'D' 1B21F0022D Slow Speed Adjustment Found Damaged	03/29/2019
		CR-2019-03273	High Main Generator Casing Liquid Level Requires Manual Trip of Main Turbine	04/07/2019
		CR-2019-05852	General Causal Evaluation for Proper Categorization of Previous CRs and Associated Maintenance Rule Applicability	07/11/2019
		CR-2020-00032	Error Identified in USAR Section 9A.4.23.5 (Unit 2 Turbine Building Fire Hazards Analysis)	01/03/2020
		CR-2020-00284	PY-PTI-R50-P0001 Portion Failure Due to E-plan 5-way Notification Line Not Connecting to All Parties	01/15/2020
		CR-2020-00611	Cause Evaluation: Issue identified with the RCIC Turbine Mechanical Overspeed Trip While Performing Overspeed Trip Testing	01/26/2020
		CR-2020-00622	RCIC Waterleg Pump Vertical Velocity Vibration Reading is in the Alert Range	01/26/2020
		CR-2020-00623	Alarm Wouldn't Clear Div 2 DG	01/26/2020
		CR-2020-00843	Combustible Gas Mixing Compressor Tripped on Degraded Thermal Overloads.	02/04/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CR-2020-01878	Potential Past Operability Concerns with Combustible Gas Mixing Compressor B	11/01/2019
		CR-2020-02630	Drawing 302-730 has an Incorrect "Fails Open" Annotation for Solenoid Control Valve 0G50F057 (Seal Water to Floor Drain Filtrate Pump)	03/25/2020
		CR-2020-02939	Perry 3 Minute Audible Test Not Performed Per County Request	04/06/2020
		CR-2020-03062	Emergency Notification System Phone (Red Phone) is not Working	04/10/2020
		CR-2020-03770	Div 2 DG Fuel Oil Press Low Alarm	04/28/2020
		CR-2020-04340	MS-C-20-05-07: Record Copy of Work Order Missing Signature for Submitting As-Built Drawings	05/18/2020
		CR-2020-04341	MS-C-20-05-07: Record Copy of Work Order Missing Signature for Document Verification	05/18/2020
		CR-2020-04439	MS-C-20-05-07: Procedure Approval Form Administrative Discrepancies – Maintenance	05/21/2020
		CR-2020-04440	Review of 21 completed Procedure Approval Form Record Packages (Quality Records) Identified Discrepancies	05/18/2020
		CR-2020-04686	Received Aux. Building and Steam Tunnel Cooling HVAC Trouble	05/30/2020
		CR-2020-04955	Concrete Spalling and Leakage in Emergency Service Water Pump House, 586' Elevation	06/09/2020
		CR-2020-06467	ERO Drill - Unplanned Controller Injects Performed During the 8/12/2020 Dry Run Drill	08/12/2020
		CR-2020-06471	ERO-Drill: Timeliness of General Emergency Classification During 8/12/2020 Dry Run Drill	08/12/2020
		CR-2020-07230	NRC EPlan Drill - Objective F.18 Met with Comments due to Shortfalls in Rigor Regarding Communication Standards.	09/15/2020
		CR-2020-07231	Cause Evaluation: NRC EPlan Drill Objective F6 for Dose Assessment, Not Met	09/16/2020
		CR-2020-08383	General Causal Evaluation for Live Electrical Cable Identified During Work being Performed	10/28/2020
		CR-2020-08383-ATA-01	Threat Assessment of Outbuildings for Safety Issues	03/19/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CR-2020-09635	(MPFF) – Combustible Gas Mixing Compressor Suction Valve Would Not Reopen Following Compressor Start	12/22/2020
		CR-2021-01124	Inconsequential Latent Error Identified in Control Blade Lifetime Monitoring Software	02/19/2021
		CR-2021-01197	Weekly E-Plan Pager Test Did Not Call the Control Room Shift Manager Notification Device	02/22/2021
		CR-2021-01650	(MPFF) – RWCU Pump A and B Failed During 1R18	03/09/2021
		CR-2021-01724	Monthly 5 Way Communication Test - Lake County Equipment Deficiency Identified	03/10/2021
		CR-2021-01759	Leakage Rate of 1B21F0028B Outboard MSIV Steam Line B Exceeds Acceptance Criteria in SVI-B21-T9000	03/12/2021
		CR-2021-01759	Leakage Rate Of 1B21F0028B Outboard MSIV Steam Line B Exceeds Acceptance Criteria In SVI-B21-T9000	03/12/2021
		CR-2021-02036	Chain Fall with Incorrect (Short) Pull Chain Rigged to the Reactor Dry Tube Strong Back	03/20/2021
		CR-2021-02292	Second MSIV Accumulator Supply Leaking During ISLT	03/27/2021
		CR-2021-02297	SVI-B21-T9000 Step 5.3.5 Acceptance Criteria Not Met	03/27/2021
		CR-2021-02894	Cause Evaluation: Reactor Water Cleanup System (RWCU) Containment Isolation Valves (Penetration (P132)) Issues	04/14/2021
		CR-2021-04817	REMP Fish Samples Lost During Transit to Offsite Vendor	06/21/2021
		CR-2021-05006	Document ANS Siren L17 Out of Service	06/29/2021
		CR-2021-05033	Service Water Building Intake REMP Location # 34 Water Sampling Pump is Malfunctioning	06/30/2021
		CR-2021-05353	General Cause Evaluation for CR-2021-05353, Cycle 18 Maintenance Rule Periodic Assessment Report Identifies Potential Adverse Trend	07/13/2021
		CR-2021-054082021	DBAI POV Inspection: RCIC Steam Supply Isolation Valves Questionable Calculation Justification	09/17/2021
		CR-2021-05435	Addition - 2021 DBAI POV Inspection: JOG Classification of RCIC Steam Supply Isolation Valves	07/16/2021
		CR-2021-05580	Site Projects Exceeded Annual Dose Budget	07/22/2021
		CR-2021-06362	Rad-Cal Standard for Calibrator Verification is Broken	08/23/2021
		CR-2021-06976	EPLAN Drill, Near Miss with Incorrect Pager Message for Unusual Event	09/15/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CR-2021-07221	Hi Fuel Oil Filter Differential Pressure for Division 2 Diesel Generator	09/26/2021
		CR-2021-07223	Div 2 DG Lube Oil Strainer High DP Alarm Coming in During DG Run	09/26/2021
	Corrective Action Documents Resulting from Inspection	CR-2021-09144	NRC Identified: Div 1 DG High Crankcase Pressure Trip Valve, 1R43N0711A, Leaking from Sensing Line	12/02/2021
	Miscellaneous	Commitment Change notice 21-023	Closed Commitment L02393 and Changed TS Bases to Remove Requirement to Restore Leakage Within 25 SCFH When MSL Leakage Rate Exceeds 100 SCFH	1
		Commitment L02393	If the Leakage Rate on Any Main Steam Line Exceeds 100 SCFH, the Leakage Rate Will Be Restored to Within 25 SCFH When Tested at > = PA	1
		OE-2020-0072-1	OE468879R20200310 Auxiliary Feedwater System Declared Inoperable Due to Check Valve Leakage	0
		OE-2020-0255-1	OE485135R20200918 Error in Basis for Emergency Action Levels for Fission Product Barrier Containment Radiation/Reactor Coolant System Activity Thresholds	0
		OE-2020-0272-1	NRC IN 20-02, Flex Diesel Generator Operational Challenges	0
	Procedures	NOBP-LP-2003	Employee Concerns Program	6
		NOBP-LP-2013	Safety Conscious Work Environment Review Team	5
		NOP-LP-2001	Corrective Action Program	48
		NOP-WM-0001	Work Management Process	13
		NOP-WM-1003	Nuclear Maintenance Notification Initiation and Screening	16
	Self-Assessments	ATA-2020-10929	Attached is the Self-Assessment for the 2020 Drill from 8/12/2020	08/12/2020
		ATL-2021-0467-ATA-01	Assessment of Current Primary Strategic Chemistry Plan	07/29/2021
		ATL-2021-0521-ATA-02	Assessment of Emergent Scope of Last Three Refueling Outages R16, R17 and R18	08/26/2021
		CR-2020-06562-ATA-01	Engineering Change Package (ECP) Product Quality	10/22/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		MS-C-20-01-13	Audit: Design Control/Engineering Programs/ASME	03/05/2020
		MS-C-20-03-01	Fleet Oversight Audit Report: Audit Area: Operations Audit	03/01/2020
		MS-C-20-05-07	Maintenance/Work Management Quality Assurance Audit	6/30/2020
		MS-C-20-11-24	Audit: Emergency Preparedness	12/04/2020
		MS-C-21-08-03	Quality Assurance Audit Report for Radiation Protection/Radwaste	09/23/2021
		MS-C-21-09-22 2021	Quality Assurance Audit Report; Corrective Action Program	10/11/2021
	Work Orders	Work Order 200700044	Repair Oil Leak from Shaft Seal on Engine Driven Jacket Water Coolant Pump	11/22/2016
		Work Order 200784128	In 1R18, 1B21-F028B was Found to be Leaking 52.2 SLM (110.6 SCFH)	04/01/2021
		Work Order 200848877	1B21-F0028B Passed on April 1, 2021	04/01/2021
		Work Order 200858837	Repair Oil Leak on Air Dryer Tower Pressure Gauge	07/09/2021
		Work Order 200868755	Repair Fuel Oil Leak on Diesel Generator Engine Fuel Oil Pump Mechanical Seal	11/21/2021