UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE RD, STE 102
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

March 8, 2023

Barry Blair
Site Vice President
Energy Harbor Nuclear Corporation
Beaver Valley Power Station
P.O. Box 4, Route 168
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION, UNITS 1 AND 2 – BIENNIAL PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000334/2023010 AND 05000412/2023010

Dear Barry Blair:

On February 17, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed a problem identification and resolution inspection at your Beaver Valley Power Station, Units 1 and 2, 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 problem identification and resolution 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 problem identification and resolution programs.

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.

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.

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,

Matthew R. Young

Digitally signed by Matthew R. Young
Date: 2023.03.08 09:12:12 -05'00'

Matt R. Young, Chief
Projects Branch 2
Division of Operating Reactor Safety

Docket Nos. 05000334 and 05000412
License Nos. DPR-66 and NPF-73

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: BEAVER VALLEY POWER STATION, UNITS 1 AND 2 – BIENNIAL PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000334/2023010 AND 05000412/2023010 DATED MARCH 8, 2023

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000334 and 05000412
License Numbers:	DPR-66 and NPF-73
Report Numbers:	05000334/2023010 and 05000412/2023010
Enterprise Identifier:	I-2023-010-0011
Licensee:	Energy Harbor Nuclear Corporation
Facility:	Beaver Valley Power Station, Units 1 and 2
Location:	Shippingport, PA 15077
Inspection Dates:	January 30, 2023 to February 17, 2023
Inspectors:	P. Finney, Senior Project Engineer E. Bousquet, Resident Inspector D. Merzke, Senior Reactor Operations Engineer R. Rolph, Resident Inspector
Approved By:	Matt R. Young, Chief Projects Branch 2 Division of Operating Reactor Safety

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 Beaver Valley Power Station, Units 1 and 2, 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 03.04) (1 Sample)

(1) The inspectors performed a biennial assessment of Energy Harbor's corrective action program (CAP), use of operating experience, self-assessments and audits, and safety conscious work environment.

- Corrective Action Program Effectiveness: The inspectors assessed the CAP's effectiveness in identifying, prioritizing, evaluating, and correcting problems. The inspectors also conducted a five-year review of 4kV breaker maintenance, feedwater heater drain systems, emergency diesel generator systems, auxiliary feedwater systems, and human performance errors.

- 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
The team determined that Energy Harbor's CAP complied with regulatory requirements and self-imposed standards. Based on the samples reviewed, Energy Harbor's performance in the areas of Problem Identification, Problem Prioritization and Evaluation, and Corrective Actions adequately supported nuclear safety. Problem Identification: The team determined that Energy Harbor identified and documented problems completely, accurately, and in a timely manner. Based on the samples reviewed, Energy Harbor identified and documented problems at an appropriately low threshold. Problem Prioritization and Evaluation: The team determined that Energy Harbor appropriately prioritized and evaluated issues with technical adequacy and appropriate depth	

commensurate with the risk and safety significance of the identified problem. Based on the samples reviewed, Energy Harbor appropriately screened condition reports (CRs) for operability and reportability, categorized CRs by significance, and assigned actions to the appropriate department for evaluation and resolution. However, one minor violation was identified during review in this area and is documented in the Inspection Results section of this report.

Corrective Actions: The team determined that Energy Harbor appropriately developed and implemented effective corrective actions. Based on the samples reviewed, Energy Harbor developed effective corrective actions for the problems evaluated in the CAP and generally implemented these corrective actions in a timely manner commensurate with their safety significance. However, one observation was noted in this area and is documented in the Inspection Results section of this report.

Assessment	71152B
The team determined that Energy Harbor appropriately evaluated industry operating experience for applicability, and applicable lessons learned were communicated to appropriate organizations and implemented. Based on the samples reviewed, Energy Harbor appropriately incorporated both internal and external operating experience into plant procedures and processes, as well as lessons learned for training and pre-job briefs.	

Assessment	71152B
The team determined that Energy Harbor had an effective self-assessment and audit process. Based on the samples reviewed, Energy Harbor effectively performed self-assessments and audits to identify issues and performance trends at a low level, properly evaluated those issues, and resolved them commensurate with their safety significance.	

Assessment	71152B
The team interviewed 31 individuals randomly selected from the Operations, Engineering, Maintenance, Security, Radiation Protection, Chemistry, and Emergency Preparedness work groups. The purpose of these interviews was to evaluate the willingness of Energy Harbor staff to raise nuclear safety issues; to evaluate the perceived effectiveness of the problem identification and resolution program at resolving identified problems; and to evaluate Energy Harbor's safety conscious work environment. The team concluded that employees were willing to raise nuclear safety concerns through at least one of the several means available and that site conditions were conducive to a safety conscious working environment.	

Minor Violation	71152B
Minor Violation: 10 CFR 50.55a(f)(4), inservice testing (IST) standards requirement for operating plants states, in part, that "pumps and valves that are within the scope of the ASME OM Code must meet the inservice test requirements… set forth in the ASME OM Code." ASME OM code 2004, section ISTC-5153 covers solenoid-operated valve stroke test corrective action. It states that if a valve exceeds the limiting values of full-stroke time, the valve shall be declared inoperable. Valves that do not meet the acceptance criteria shall be immediately retested or declared inoperable. Valves declared inoperable may be repaired, replaced, or the data may be analyzed to determine the cause of the deviation and the valve shown to be operating acceptably. On November 22, 2022, turbine driven auxiliary feedwater (TDAFW) pump steam supply valve 2MSS-SOV105A failed its full-stroke closed time twice, first in excess of a minute, and then 22.55 seconds against a criterion of 2 seconds (CR-2022-08953). A subsequent test during the TDAFW shutdown was 0.86 seconds. Energy	

Harbor declared the valve, which has a containment isolation function to close, inoperable, and the IST coordinator provided justification for the unsatisfactory closure times. The evaluation listed three potential causes to include temperature effects on its reed switches or DC coil forces and concluded that the likely cause was condensation within its valve bonnet chamber. Energy Harbor also generated work order notification 601382481 "to rule out any other potential causes for the slower stroke times." During interviews, the IST coordinator suspected that differential pressure may be the cause of the slower stroke times. Inspectors determined that this was contrary to ASME OM code guidance. Specifically, while the likely cause was determined to be valve bonnet chamber condensation, the IST procedure includes valve stroke timing steps to avoid this condition by keeping the SOV105 valves open for 10 minutes with an associated note throughout that "allows the valve to warm up with steam and removes any condensation forming within the valve bonnet that may cause a slower stroke time." Further, the generated work order and the IST coordinator's perspective suggested that another cause was viable and that certainty about the cause as required by the ASME OM code did not exist.

Screening: The inspectors determined the performance deficiency was minor based on IMC 0612, Appendix E, minor examples 2.a, 2.d, and 2.e in that functionality was not affected as the valve had successfully stroked closed and that no design maximum stroke time was exceeded. Further, the valve has no UFSAR design closure time limit and a second TDAFW isolation valve located immediately downstream of SOV105A demonstrated satisfactory closure times.

Enforcement: Energy Harbor captured this issue in CR 2023-01063* and has taken actions to restore compliance. This failure to comply with 10 CFR 50.55a(f)(4) constituted a minor violation that is not subject to enforcement action in accordance with the NRC’s Enforcement Policy.

Observation: Corrective Action Generation	71152B

On creating corrective actions, procedure NOP-LP-2100, Corrective Action Program, section 4.8 discusses approved process and section 4.10 discusses corrective action types. Procedure NOBP-LP-2011, Cause Analysis, Revision 29, section 4.7 covers development of CAP actions and step 4.7.8 states that corrective actions should be SMART (Specific, Measurable, Accountable, Reasonable, and Timely). Inspectors identified several cases where corrective actions did not meet this recommendation.

- CR-2021-08245 was written in response to a Green NCV (05000334;412/2021004-02, ADAMS Accession No. ML22045A450). Three corrective actions were designated and all three were cancelled by the Management Review Board. No corrective action was clearly designated to address restoration of compliance in accordance with the NRC Enforcement Policy. Inspectors identified other actions taken that qualified as restorative corrective actions.
- Corrective Action CA-2022-03866-001 provided a choice between two actions.
- Corrective Action CA-2022-03865-001 had four corrective actions contained within a single corrective action.
- Corrective Action CA-2021-05449-001 had a nonspecific corrective action to 'work with RP to determine a solution to secure special nuclear material.'

- Corrective Action CA-2021-05383-001 revised refueling outage radiological work permits (RWPs) but did not ensure that future RWPs would carry the previous corrective action into future refueling outage RWPs.
- CR-2022-7044 had a corrective action to establish a monthly meeting to conduct a log review. However, there was no means established to capture the repeatability of this action.
- Corrective action CA-2022-01660-002 tracked the addition of electrical maintenance technicians to a critical group. This action was closed stating, in part, that the identified population would be completed by the end of 2022, without a new corrective action to track that completion. (CR-2023-01080*)

Energy Harbor captured this in CR-2023-01428*. NRC inspectors did not identify any findings or violations of more than minor significance.

EXIT MEETINGS AND DEBRIEFS

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

- On February 17, 2023, the inspectors presented the biennial problem identification and resolution inspection results to Barry Blair and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152B	Corrective Action Documents Resulting from Inspection	ATA-2023-1696* CR-2023-00550* CR-2023-00725* CR-2023-00741* CR-2023-00742* CR-2023-00743* CR-2023-00718* ATA-2023-2393* CR-2023-00892* CR-2023-00914* CR-2023-01002* CR-2023-01050* CR-2023-01080* CR-2023-01430* CR-2023-01526*		
71152B	Miscellaneous	ATL-2023-0164	Biennial PI&R Responses to Inspector Questions	