



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
475 ALLENDALE RD, STE 102
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

May 8, 2024

Barry Blair
Site Vice President
Vistra Operations Company, LLC
Beaver Valley Power Station
P.O. Box 4 - Route 168
Shippingport, PA 15077-0004

**SUBJECT: BEAVER VALLEY POWER STATION, UNITS 1 AND 2 – INTEGRATED
INSPECTION REPORT 05000334/2024001 AND 05000412/2024001**

Dear Barry Blair:

On March 31, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Beaver Valley Power Station, Units 1 and 2. On April 10, 2024, the NRC inspectors discussed the results of this inspection with Michael Brasile, Acting Director, Site Performance Improvement, 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 I; the Director, Office of Enforcement; and the NRC Resident Inspector at Beaver Valley Power Station, Units 1 and 2.

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 I; and the NRC Resident Inspector at Beaver Valley Power Station, Units 1 and 2.

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* (CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

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 – INTEGRATED INSPECTION REPORT 05000334/2024001 AND 05000412/2024001 DATED MAY 8, 2024

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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: 05000334/2024001 and 05000412/2024001

Enterprise Identifier: I-2024-001-0040

Licensee: Vistra Operations Company, LLC

Facility: Beaver Valley Power Station, Units 1 and 2

Location: Shippingport, PA

Inspection Dates: January 01, 2024 to March 31, 2024

Inspectors: N. Day, Senior Resident Inspector
A. Nugent, Resident Inspector
P. Cataldo, Senior Reactor Inspector
J. Demarshall, Senior Operations Engineer
T. Fish, Senior Operations Engineer
C. Henckel, Operations Engineer
R. Rolph, Senior Health Physicist
A. Turilin, Reactor 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 an integrated 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

Unit 2 Emergency Diesel Generator (EDG) 2-2 Fuel Oil In-Leakage into the Rocker Arm Lube Oil System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000412/2024001-01 Open/Closed	[H.12] - Avoid Complacency	71152A
A self-revealed Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” and associated violation of Technical Specification (TS) 3.8.1 “AC Sources - Operating,” were identified. The inspectors found that the licensee’s maintenance procedure, implemented in April 2023, did not sufficiently prescribe activities to be accomplished to ensure EDG 2-2 reliability, capability and availability. Specifically, procedure 2MSP-36.20-M, “#2 Emergency Diesel Generator Inspections,” directed maintenance personnel to remove each injector for bench testing but did not provide sufficient direction to ensure each injector was reinstalled with all connections leak tight.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000412/2023-004-00	LER 2023-004-00 for Beaver Valley Power Station, Unit No. 2, Condition Prohibited by Technical Specification and Loss of Safety Function due to Emergency Diesel Generator Lube Oil Contamination by Fuel Oil	71153	Closed

PLANT STATUS

Unit 1 operated at or near rated thermal power for the entire inspection period.

Unit 2 started the inspection period at rated thermal power. On January 10, 2024, the unit was downpowered to 98 percent power to repair a moisture separator reheater valve. Following repairs, Unit 2 returned to full power on January 12, 2024. On March 18, 2024, the unit was downpowered to approximately 40 percent to repair a feedwater heater tube leak. Following repairs, Unit 2 returned to full power on March 23, 2024. Unit 2 remained at 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

Impending Severe Weather Sample (IP Section 03.02) (2 Samples)

- (1) The inspectors evaluated the adequacy of the overall preparations to protect risk significant systems from impending severe weather due to extreme cold temperatures on January 12, 2024.
- (2) Units 1 and 2, the inspectors evaluated the adequacy of the overall preparations to protect risk significant systems from impending severe weather, high Ohio River elevation, on January 29, 2024.

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (4 Samples)

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

- (1) Unit 1, partial alignment following 1OST-13.7B for 2B outside recirculation spray pump flow test, January 29, 2024
- (2) Unit 1, partial alignment of the 'A' motor-driven auxiliary feedwater pump, February 12, 2024
- (3) Unit 2, partial alignment of the 'A' low head safety injection pump, February 13, 2024

- (4) Unit 1, partial alignment following 1OST-13.01 for 'A' quench spray pump test, February 14, 2024

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (4 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) Unit 2, 2PFP-AXLB-773, 773' auxiliary building, February 5, 2024
- (2) Unit 2, 2PFP-AXLB-718, 718' auxiliary building, February 6, 2024
- (3) Unit 2, 2PFP-AXLB-735, 735' auxiliary building and 2PFP-CPBX-735, 735' condensate polishing building, February 6, 2024
- (4) Unit 1, 1PFP-SFGB-735, 735' auxiliary building, March 14, 2024

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

- (1) The inspectors evaluated the onsite fire brigade performance during an unannounced fire drill for the Unit 1, 768' primary auxiliary building on January 31, 2024.

71111.07A - Heat Exchanger/Sink Performance

Annual Review (IP Section 03.01) (1 Partial)

The inspectors evaluated readiness and performance of:

- (1) (Partial)
The inspectors observed the 2CCP-E21 heat exchanger inspection, per GL 89-13, on March 19, 2024, and reviewed the associated Heat Exchanger Inspection Report and Condition Reports (CRs).

71111.11B - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Requalification Program (IP Section 03.04) (1 Sample)

- (1) Biennial Requalification Written Examinations

The inspectors evaluated the quality of the licensed operator biennial requalification written examination administered March to April 2024.

Annual Requalification Operating Tests

The inspectors evaluated the adequacy of the facility licensee's annual requalification operating test.

Administration of an Annual Requalification Operating Test

The inspectors evaluated the effectiveness of the facility licensee in administering requalification operating tests required by 10 CFR 55.59(a)(2), and that the facility

licensee is effectively evaluating their licensed operators for mastery of training objectives.

Requalification Examination Security

The inspectors evaluated the ability of the facility licensee to safeguard examination material, such that the examination is not compromised.

Remedial Training and Re-examinations

The inspectors evaluated the effectiveness of remedial training conducted by the licensee, and reviewed the adequacy of re-examinations for licensed operators who did not pass a required requalification examination.

Operator License Conditions

The inspectors evaluated the licensee's program for ensuring that licensed operators meet the conditions of their licenses.

Control Room Simulator

The inspectors evaluated the adequacy of the facility licensee's control room simulator in modeling the actual plant, and for meeting the requirements contained in 10 CFR 55.46.

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 Unit 1 control room during a control rod assembly partial movement test on February 8, 2024.

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

- (1) The inspectors observed and evaluated Unit 1 licensed operators during simulated Mode 5 scenarios on February 16, 2024.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (1 Sample)

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

- (1) Unit 2, chemical and volume control system, March 13, 2024

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (4 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) Unit 2, moisture separators, 2MSS-FCV100C and 2MSS-FCV100F, during unplanned automatic closure troubleshooting, plant maneuvering, and repairs, January 11, 2024
- (2) Unit 2, elevated risk due to cooling tower pump oil sample, clean, inspect, and test motor maintenance, Work Order (WO) 200846035, February 5, 2024
- (3) Unit 2, elevated risk due to realignment and restoration of TRF-2-5K, February 6, 2024
- (4) Unit 1, outage risk plan for 1R29, March 21, 2024

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (5 Samples)

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

- (1) Containment wide range pressure post-accident, CR 2024-01176, February 15, 2024
- (2) Unit 1, unidentified leakage following 1OST-6.2A leakage rate increase, CRs 2024-01458 and 2024-01494, February 25, 2024
- (3) Unit 2, high head safety injection charging pump 'B' for shaft groove and marks described in CR 2024-01617, March 1, 2024
- (4) Unit 1, operability of train 'B' component cooling water during quarterly testing per 1OST-15.2 invoking TS Basis, Section 3.7.7, statement, "Each CCW train is considered OPERABLE if it is operating or if it can be placed in service manually," March 8, 2024
- (5) Unit 2, low head safety injection pump 'A' for degrading pump output pressure trends described in CR 2024-02393, March 21, 2024

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) 'B' intake bay southside cleaning pipe modification install per Equivalent Change Package (ECP) 23-1142-016 and WO 200922775, February 15, 2024

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) (6 Samples)

- (1) Unit 1, 1OST-33.8, "Diesel Driven Fire Pump After Pump Maintenance and Electrical Set Points Established," January 26, 2004
- (2) Unit 2, 2OST-30.1B, "Standby Service Water Pump After Bay Cleaning, Inspect and Clean Seal Water Strainer, Lube and Test Motor, and Calibrate and Test Relays," February 10, 2024
- (3) Unit 2, 2OST-07.05 "Centrifugal Charging Pump Operational Test Quarterly," February 24, 2024
- (4) Unit 2, 'C' condensate pump post-maintenance availability test following replacement of the seal water relief valve 2CNM-RV-121C, per WO 200452902, March 7, 2024
- (5) Unit 2, 'B' 5th point feedwater heater leak check walkdown following closure bolt tightening following repair of heater tube rupture, and associated WO review, March 25, 2024
- (6) Unit 1, BV-1CC-E-1A, leak check, equipment alignment, and work order review following GL 89-13 heat exchanger inspection per WO 200873716, March 25, 2024

Surveillance Testing (IP Section 03.01) (2 Samples)

- (1) Unit 1, 1OST-1.12, "Safeguards Protection System Train 'B' Test," February 6, 2024
- (2) Unit 1, 1OST-15.2, "Reactor Plant Component Cooling Water Pump 'B' Test," March 8, 2024

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

- (1) Unit 1, 1OST13.2, "Quench Spray Pump 'B' 1QS-P-1B Test," March 25, 2024

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 02.01) (2 Samples)

- (1) Unit 1, January 1, 2023, through December 31, 2023
- (2) Unit 2, January 1, 2023, through December 31, 2023

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (2 Samples)

- (1) Unit 1, January 1, 2023, through December 31, 2023
- (2) Unit 2, January 1, 2023, through December 31, 2023

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (2 Samples)

- (1) Unit 1, January 1, 2023, through December 31, 2023
- (2) Unit 2, January 1, 2023, through December 31, 2023

71152A - Annual Follow-up Problem Identification and Resolution

Annual Follow-up of Selected Issues (Section 03.03) (2 Samples)

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

- (1) Unit 2, EDG 2-2 fuel oil intrusion into the rocker arm lube oil system
- (2) Units 1 and 2, service water piping pinhole leaks and dissimilar metal cracking

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

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event reports (LERs):

- (1) Licensee Event Report 05000412/2023-004-00, "Condition Prohibited by Technical Specification and Loss of Safety Function Due to Emergency Diesel Generator Lube Oil Contamination by Fuel Oil" (ADAMS Accession No. ML 23251A141). The inspection conclusions associated with this LER are documented in this report under Inspection Results Section 71152A. This LER is closed.

INSPECTION RESULTS

Unit 2 Emergency Diesel Generator (EDG) 2-2 Fuel Oil In-Leakage into the Rocker Arm Lube Oil System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000412/2024001-01 Open/Closed	[H.12] - Avoid Complacency	71152A
A self-revealed Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” and associated violation of Technical Specification (TS) 3.8.1 “AC Sources - Operating,” were identified. The inspectors found that the licensee’s maintenance procedure, implemented in April 2023, did not sufficiently prescribe activities to be accomplished to ensure EDG 2-2 reliability, capability and availability. Specifically, procedure 2MSP-36.20-M, “#2 Emergency Diesel Generator Inspections,” directed maintenance personnel to remove each injector for bench testing but did not provide sufficient direction to ensure each injector was reinstalled with all connections leak tight.			
<u>Description:</u> In April 2023, Beaver Valley Power Station Unit 2 (BVPS-2) performed periodic preventive maintenance on the 2-2 EDG, per procedure 2MSP-36.20-M, “#2 Emergency Diesel Generator Inspections” (WO 200850565). The maintenance included, in part, disassembly of the fuel lines between the high-pressure injection pumps and the fuel injectors on each cylinder to remove the fuel injectors for inspections and testing.			
On July 12, 2023, licensee staff reviewed the results of a quarterly lube oil sample obtained on June 28, 2023, and observed an increase of fuel oil concentration (3.7 percent) in the 2-2 EDG rocker arm lube oil. Licensee staff found this was a step change from the 1.9 percent concentration in the sample obtained on April 19, 2023, following 2-2 EDG maintenance. Licensee staff obtained a confirmatory sample on July 12, 2023, with similar results and			

concluded there was likely fuel oil leakage into the rocker arm lube oil system.

Licensee operators declared the 2-2 EDG inoperable, and licensee troubleshooting found a loose injector packing nut on the 2-2 EDG No. 11 cylinder fuel line. The licensee determined that leakage from the fuel oil line connection was a likely source of fuel oil leakage into the interfacing rocker arm lube oil subsystem. Licensee maintenance staff tightened the packing nut and verified similar packing nuts were tight. Additionally, the licensee drained, flushed, and refilled the rocker arm lube oil, completed post-maintenance testing on July 14, 2023, and obtained new lube oil samples, which showed significantly lower fuel oil contamination levels. The licensee implemented monitoring actions to ensure the rocker arm lube oil viscosity remained within required limits. The 2-2 EDG was declared operable on July 15, 2023.

Licensee staff evaluated the “as found” capability of the 2-2 EDG and concluded that a fuel oil concentration above 6.17 percent in the rocker arm lube oil subsystem was limiting for EDG performance, considering the loading on the piston pin bushing. They concluded that the 2-2 EDG was capable of operating for 3.13 days before this limit would be exceeded. Licensee staff determined that the EDG had been inoperable from April 10, 2023, through July 15, 2023, due to its inability to meet its 30-day mission time. Furthermore, the licensee determined that between April 24, 2023, and May 4, 2023, with Beaver Valley Unit 2 in Mode 6, during which at least one EDG is required to be operable per TS 3.8.2, the 2-1 EDG was simultaneously inoperable. As a result, licensee staff submitted LER 05000412/2023-004-00, dated September 8, 2023.

The inspectors reviewed the completed procedure 2MSP-36.20-M, utilized to perform the 2-2 EDG fuel injection maintenance between April 10 and 13, 2023. The inspectors found that the fuel line high-pressure tubing was to be removed to facilitate the removal of the injectors for bench testing. The inspectors noted step C.1 directed maintenance personnel to loosen the fuel line packing nut at the injector and remove the fuel line from the injector. A note prior to step C.1 referred to Attachment 1, “Fuel Injector Cross Sectional Diagram.” The inspectors review of Attachment 1 determined the illustration did not label the packing nut and lacked detail to discriminate between the packing nut and the compression fitting. Through interviews and review of documents, the inspectors found that maintenance personnel loosened the high-pressure tubing compression fitting to remove the fuel line, but they were unclear as to whether the packing nut was to be disturbed. The inspectors reviewed the procedure as it relates to reassembly and found there were not steps to ensure sufficient packing nut tightness.

The inspectors reviewed the subsequent lube oil samples results and noted that fuel oil concentrations have significantly lowered and remained low following the tightening of the No. 11 cylinder packing nut. The inspectors concluded the loose packing nut on the No. 11 cylinder fuel line was a likely source of the fuel oil leakage into the rocker arm lube oil system.

Corrective Actions: The licensee took actions to determine the likely cause of fuel oil in-leakage, identified a loose fuel packing nut and completed maintenance to tighten the component, checked for other leaks, performed a drain, flush, and refill of the lube oil to within specification, and returned the 2-2 EDG to service. The licensee entered the problem into their corrective action program with actions to address procedural adequacy and instituted compensatory monitoring until the next planned maintenance outage.

Corrective Action References: 2023-05455, 2023-05534, 2023-05492, 2024-01058, and 2024-01059

Performance Assessment:

Performance Deficiency: The inspectors determined that the licensee not establishing and implementing adequate EDG maintenance instructions was a performance deficiency and reasonably within their ability to foresee and prevent. Specifically, the maintenance procedure for EDG injection pump removal and reinstallation did not provide direction to ensure all connections were sufficiently leak tight. As a result, the No. 11 loose cylinder packing nut resulted in fuel oil in-leakage into the rocker arm lube oil subsystem which impacted the 2-2 EDG reliability, availability and capability.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to establish adequate maintenance practices and instructions led to a packing nut being loose, which caused fuel oil intrusion into the rocker lube oil subsystem consequently causing the 2-2 EDG to be inoperable from April 10, 2023, to July 15, 2023.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors determined the issue was Green because the performance deficiency did not result in loss of the probabilistic risk assessment (PRA) function of one train of a multi-train TS system greater than the TS allowed outage time. Specifically, the inspectors reviewed the licensee's evaluation and supporting information which showed the 2-2 EDG operated for a cumulative 22 hours with the loose packing nut before being repaired and the leak rate was sufficiently low and stable to project that the 2-2 EDG could perform its PRA functions for its PRA mission time of 24 hours.

Cross-Cutting Aspect: H.12 - Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools. Specifically, in this instance the licensee staff did address a latent issue in their procedure where a step to loosen an injector packing nut was unclear as to the component referenced and staff and supervisors did not take action to clarify the procedure.

Enforcement:

Violation: 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires "activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished."

Contrary to the above, between April 10 through April 13, 2023, Beaver Valley did not prescribe instructions and drawings of a type appropriate to circumstances involving EDG maintenance. Specifically, the procedure directed maintenance personnel to remove each injector but did not provide sufficient direction in instructions and illustrations to ensure each injector was reinstalled with all connections leak tight.

Beaver Valley, Unit 2, TS 3.8.1, “AC Sources – Operating,” requires two EDGs capable of supplying the onsite Class 1E AC Electrical Power Distribution System, to be operable in Modes 1-4. If one required EDG is inoperable, the required action per the TS Bases is to restore the EDG within 72 hours or shutdown the unit to Mode 3 within 6 hours and Mode 5 within 36 hours.

Contrary to the above, from April 10, 2023, through July 15, 2023, the licensee failed to provide two operable EDGs capable of supplying the onsite Class 1E AC Electrical Power Distribution System. Specifically, the fuel oil in-leakage into the rocker arm lube oil subsystem prevented the EDG from meeting its 30 day mission time and resulted in 2-2 EDG inoperability.

Beaver Valley Unit 2 TS 3.8.2, “AC Sources – Shutdown,” requires one EDG capable of supplying the onsite Class 1E AC Electrical Power Distribution System, to be operable in Modes 5 and 6. If the required EDG is inoperable, the required action is to suspend core alterations and positive reactivity additions, and to restore the EDG immediately.

Contrary to the above, from April 24, 2023, through May 4, 2023, while Beaver Valley Unit 2 was in Mode 6, the licensee failed to provide at least one operable EDG capable of supplying the onsite Class 1E AC Electrical Power Distribution System. Specifically, while the 2-2 EDG was inoperable for fuel oil in-leakage, the 2-1 EDG was simultaneously inoperable during these dates due to maintenance activities.

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

Observation: Unit 2 EDG 2-2 Fuel Oil In-Leakage into the Rocker Arm Lube Oil System	71152A
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The inspectors assessed the effectiveness of the licensee’s evaluations and corrective actions to address a problem with the Unit 2, EDG 2-2, involving fuel oil in-leakage into the rocker arm lube oil subsystem. The inspectors reviewed CRs 2023-05455, 2023-05534 and 2023-05492 to determine whether evaluations were sufficiently thorough to identify the likely causes and provide for effective corrective actions commensurate with the safety significance of the problem. The inspectors considered the standards in the licensee’s corrective action program procedures.

The inspectors found the licensee’s monitoring of lube oil quality identified the problem, and their subsequent troubleshooting located the likely source of fuel oil in-leakage to be a loose packing nut on the #11 cylinder. Furthermore, the licensee’s actions to tighten the nut, check for similar problems, retest the 2-2 EDG, and provide for augmented oil monitoring and conditioning were sufficient to support 2-2 EDG operability.

The inspectors further found that the licensee generated CR 2023-5492 to conduct an aggregate review of 2-2 EDG issues in the past two years. The licensee conducted an Organization Effectiveness investigation and a Performance Gap analysis and concluded that the primary causes for the 2-2 EDG issues were due, in part, to the station relying on skill of the craft rather than providing adequate procedural guidance.

The inspectors found that for the packing nut problem, the station credited actions taken

under CR 2023-5455. The inspectors reviewed the in-progress procedure revisions under CR 2023-5455 and found the proposed changes were limited to verifying injector packing nut tightness and clarifying the illustration. The inspectors noted there were no proposed changes to address whether the packing nut needed to be loosened during disassembly, despite the licensee's interviews identifying that their maintenance personnel were unclear as to whether the packing nut needed to be disturbed to complete the work. Licensee staff-initiated CR 2024-01058 to capture this issue.

The inspectors did not identify a finding of more than minor significance considering corrective action were in progress.

EXIT MEETINGS AND DEBRIEFS

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

- On April 10, 2024, the inspectors presented the integrated inspection results to Michael Brasile, Acting Director, Site Performance Improvement, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152A	Corrective Action Documents	2021-04284		
		2023-05455		
		2023-05492		
		2023-05534		
		2023-06117		
		2023-06344		
		2023-06382		
		2023-06795		
	Corrective Action Documents Resulting from Inspection	2024-01020		
		CR-2024-01058		
		CR-2024-01059		
	Miscellaneous	BPV-XI-1-20-11	ASME Code Interpretation	
	Procedures	2MSP-36.20-M	#2 Emergency Diesel Generator Inspections	24
	Work Orders	200850565		
		200919226		
		200919254		
200919506				
200919507				
601413234				