UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

August 13, 2020

Mr. Rod Penfield
Site Vice President
Energy Harbor Nuclear Corp.
Beaver Valley Power Station
P.O. Box 4, Route 168
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION, UNITS 1 AND 2 – INTEGRATED INSPECTION REPORT 05000334/2020002 AND 05000412/2020002

Dear Mr. Penfield:

On June 30, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Beaver Valley Power Station, Units 1 and 2. On July 14, 2020, 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.

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 .

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,

X /RA/

Signed by: Matthew R. Young

Matthew R. Young, Chief
Reactor Projects Branch 5
Division of Reactor Projects

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

Enclosure:
As stated

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SUBJECT: BEAVER VALLEY POWER STATION, UNITS 1 AND 2 – INTEGRATED INSPECTION REPORT 05000334/2020002 AND 05000412/2020002 DATED AUGUST 13, 2020

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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:	05000334/2020002 and 05000412/2020002
Enterprise Identifier:	I-2020-002-0018
Licensee:	Energy Harbor Nuclear Corp.
Facility:	Beaver Valley Power Station, Units 1 and 2
Location:	Shippingport, PA
Inspection Dates:	April 1, 2020 to June 30, 2020
Inspectors:	E. Burket, Senior Reactor Inspector S. Elkhiamy, Senior Resident Inspector, Acting S. Horvitz, Resident Inspector R. Rolph, Resident Inspector
Approved By:	Matthew R. Young, Chief Reactor Projects Branch 5 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 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

Failure to Correct Relief Valve Settings Leads to Inoperability of Refueling Water Storage Tank (RWST)			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000334/2020002-01 Open/Closed	None (NPP)	71153
The inspectors identified a self-revealing Green finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," when the licensee did not correct improper guide ring settings that were identified on a Unit 1 'A' low head safety injection (LHSI) discharge relief valve in 2012.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000334/2019-001-00	LER 2019-001-00 for Beaver Valley, Unit 1, Low Head Safety Injection Discharge Relief Valve Did Not Reseat During Surveillance Test	71153	Closed

PLANT STATUS

Unit 1 began the inspection period at operated at or near rated thermal power. On May 15, 2020, Unit 1 reduced power to 28 percent to perform planned maintenance on the 'C' main feedwater regulating valve. Unit 1 returned to rated thermal power on May 16, 2020, and remained at or near full power for the remainder of the inspection period.

Unit 2 began the inspection period in end-of-cycle coastdown operations. On April 12, 2020, Unit 2 was shutdown for a planned refueling outage (2R21). On May 6, 2020, operators commenced a reactor startup. Unit 2 reached rated thermal power on May 9, 2020, and remained at or near full 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 plant status activities described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification and Resolution." 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 inspectors were directed to begin telework and to remotely access licensee information using available technology. As a result, at the beginning of the inspection period, resident inspectors performed periodic site visits each week; conducted plant status activities as described in IMC 2515, Appendix D; observed risk significant activities; and completed other onsite inspection activities as appropriate to the COVID-19 conditions onsite. During the remainder of the inspection period, required resident and regional baseline inspection samples were continually evaluated to determine if all or a portion of the requirements associated with each IP could be met through remote inspection or required onsite inspection activities. Based on this evaluation, and an ongoing assessment of the COVID-19 conditions onsite, inspection activities were completed remotely or onsite as appropriate. Unless otherwise noted, the inspection samples documented below met all the requirements of the applicable IP.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Impending Severe Weather Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated readiness for impending adverse weather conditions for a severe thunderstorm warning condition on June 10, 2020.

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 2 'A' and 'B' motor driven auxiliary feedwater pumps during turbine driven auxiliary feedwater pump unavailability on May 4, 2020
(2) Unit 1 'B' motor driven auxiliary feedwater pump during 'A' motor driven auxiliary feedwater pump unavailability on May 18, 2020
(3) Unit 1 'B' low head safety injection system following testing on June 5, 2020
(4) Unit 2 'B' low head safety injection system following testing on June 23, 2020

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (5 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 west cable vault, fire compartment 2-CV-1, on April 11, 2020
(2) Unit 2 reactor containment building, fire compartment 2-RC-1, on April 16, 2020
(3) Unit 2 main feedwater regulating valve room, fire compartment 2-SB-5, on April 22, 2020
(4) Unit 2 service water train 'A' valve pit, fire compartment 2-VP-1, on April 22, 2020
(5) Unit 2 east cable vault, fire compartment 2-CV-2, on May 28, 2020

71111.06 - Flood Protection Measures

Cable Degradation (IP Section 03.02) (1 Sample)

The inspectors evaluated cable submergence protection in:

(1) Manholes 1EMH8A and 1EMH8B on May 7, 2020

71111.07A - Heat Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

(1) Unit 2 2-1 emergency diesel generator intercooler heat exchanger, 2EGS-E21A, on April 23, 2020

71111.08P - Inservice Inspection Activities (PWR)

PWR Inservice Inspection Activities Sample (IP Section 03.01) (1 Sample)

(1) The inspectors verified that the reactor coolant system boundary, steam generator tubes, reactor vessel internals, risk-significant piping system boundaries, and containment boundary are appropriately monitored for degradation and that repairs and replacements were appropriately fabricated, examined and accepted by reviewing the following activities from April 20, 2020 to May 1, 2020:

03.01.a - Nondestructive Examination and Welding Activities.

- Ultrasonic testing of 6" safety injection welds, 2SIS-006-12-1 and 2SIS-006-25-1
- Repair activities associated with indications found on Unit 2 reactor vessel head penetrations 27 and 37

03.01.b - Pressurized-Water Reactor Vessel Upper Head Penetration Examination Activities.

- Bare metal visual examination of Unit 2 reactor vessel head penetrations 4, 18, 27, 43, and 55 for ASME Code Case N-729-4
- Penetrant testing of Unit 2 reactor vessel head penetrations to control rod drive nozzle weld overlay 41, 44, and 57
- Penetrant testing of Unit 2 reactor vessel head penetration to control rod drive nozzle weld overlay 27 (as found and post repair)
- Penetrant testing (PT) of Unit 2 reactor vessel head penetration to control rod drive nozzle weld 37 and PT of weld overlay repair
- Ultrasonic testing of Unit 2 reactor vessel head penetrations 9, 15, 18, 36, 37 and 54 for ASME Code Case N-729-4

03.01.c – Pressurized-Water Reactor Boric Acid Corrosion Control Activities.

- Evaluation performed for 2018-09252, Residual Heat Removal Train B Pump Discharge Vent, 2RHS-320
- Evaluation performed for 2018-09885, High Head Safety Injection Hot Leg Isolation, 2SIS-MOV869A
- Evaluation performed for 2018-10059, Reactor Coolant Pump 21A Seal Water Penetration, 2CHS-RV260A

03.01.d – Pressurized-Water Reactor Steam Generator Tube Examination Activities.

- 2A, 2B, and 2C steam generator tube eddy current examinations
- Tube sleeving and plugging activities in 2A, 2B, and 2C steam generators
- In-situ pressure testing of tubes 10-26 and 12-40 in steam generator 2A and 14-47 in 2B steam generator
- 2A, 2B, and 2C steam generator secondary side visual examinations

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 Unit 2 licensed operator performance in the control room during reactor startup and core design verification on May 5, 2020.

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

(1) The inspectors observed and evaluated a crew of licensed operators in the Unit 1 simulator during licensed operator requalification exams on June 2, 2020.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 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) Unit 1 auxiliary feedwater system on June 10, 2020
(2) Unit 1 main steam system on June 30, 2020

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (6 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 planned yellow shutdown risk for decay heat removal while reactor coolant system level was lowered to below vessel flange on April 16, 2020
(2) Unit 1 planned maintenance on the ‘A’ cooling tower pump on April 21, 2020
(3) Unit 2 planned yellow shutdown risk for decay heat removal while reactor coolant system level was lowered to below vessel flange on April 28, 2020
(4) Unit 2 elevated risk due to planned turbine driven auxiliary feedwater pump unavailability on May 4, 2020
(5) Unit 1 elevated risk due to planned ‘A’ auxiliary bay cleaning and 1AE emergency bus degraded voltage relay calibration on May 12, 2020
(6) Unit 1 elevated risk due to planned ‘A’ solid state protection testing and ‘A’ outside recirculation spray pump suction and discharge valve reach rod inspections on May 21, 2020

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (7 Samples)

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

(1) Unit 1 missed surveillance requirement for seismic monitoring instrument on April 8, 2020
(2) Unit 2 main steam safety valve 101C failed as-found test on April 11, 2020
(3) Unit 2 turbine auto-stop oil pressure switch, channel 1, found out of tolerance on April 17, 2020
(4) Unit 2 2-2 emergency diesel generator service water supply valve, 2SWS-MOV113D, disc erosion on April 23, 2020
(5) Unit 2 'B' residual heat removal system pump degraded bearing on May 13, 2020
(6) Unit 2 low emergency diesel generator lube oil inventory discovered on May 17, 2020
(7) Unit 2 'A' quench spray pump check valve trend on May 20, 2020

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

(1) Engineering Change Package 18-0172 - Manual operation of Unit 2 fuel handling crane new fuel hoist on April 22, 2020
(2) Engineering Change Package 16-0305 - Allow acceptance of low sulfur diesel and ultra-low sulfur diesel fuel oil for Unit 2 emergency diesel generators on May 14, 2020

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (8 Samples)

The inspectors evaluated the post maintenance testing conducted to verify system operability and functionality after the following maintenance activities:

(1) Unit 2 new fuel elevator cable repairs on March 31, 2020 and April 3, 2020
(2) Unit 1 containment isolation valve TV-1DA-100B limit switch repair on April 13, 2020
(3) Unit 2 2-1 emergency diesel generator maintenance on April 28, 2020
(4) Unit 1 'A' cooling tower pump repairs and startup on April 30, 2020
(5) Unit 2 north safeguards service water system leak repair on May 1, 2020
(6) Unit 1 'C' main feedwater regulating valve controller replacement on May 16, 2020
(7) Unit 2 relay replacement on 2-1 emergency diesel generator starting air compressor on June 11, 2020
(8) Unit 2 fuse and diode replacement on 2-2 inverter on June 24, 2020

71111.20 - Refueling and Other Outage Activities

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

(1) The inspectors evaluated Unit 2 refueling outage (2R21) activities from April 12, 2020 through May 8, 2020.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (3 Samples)

(1) Unit 2, 2OST-36.3, 2-1 emergency diesel generator autoload test on April 12, 2020
(2) Unit 1, 1MSP-6.38-I, T-RC412 delta-T Tavg protection instrument channel I calibration on April 15, 2020
(3) Unit 2, 2OST-11.14A, low head safety injection full flow test on April 18, 2020

Inservice Testing (IP Section 03.01) (1 Sample)

(1) Unit 2, 2-MSP-M-21-300, trevitest method for main steam safety valve setpoint check on April 11, 2020

Containment Isolation Valve Testing (IP Section 03.01) (1 Sample)

(1) Unit 2, 2OST-47.111, type C leak test of penetration 19 on April 20, 2020

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Instructions to Workers (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated radiological protection-related instructions to plant workers.

Contamination and Radioactive Material Control (IP Section 03.03) (1 Sample)

The inspectors evaluated licensee processes for monitoring and controlling contamination and radioactive material.

(1) Observed personnel and equipment being surveyed at the radiologically controlled area control point during the Unit 2 refuel outage.

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) (2 Samples)

(1) Unit 1 (April 1, 2019 - March 31, 2020)
(2) Unit 2 (April 1, 2019 - March 31, 2020)

MS06: Emergency AC Power Systems (IP Section 02.05) (2 Samples)

(1) Unit 1 (April 1, 2019 - March 31, 2020)
(2) Unit 2 (April 1, 2019 - March 31, 2020)

MS07: High Pressure Injection Systems (IP Section 02.06) (2 Samples)

(1) Unit 1 (April 1, 2019 - March 31, 2020)
(2) Unit 2 (April 1, 2019 - March 31, 2020)

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

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

(1) Condition Report 2019-05088, Unit 1 licensing basis nonconformance identified regarding manual action credited for locked rotor accident

71153 - Followup 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) LER 2019-001-00, Low Head Safety Injection Discharge Relief Valve Did Not Reseat During Surveillance Test (ADAMS Accession No. ML20003D859).

INSPECTION RESULTS

Minor Violation	71152
Minor Violation: The inspectors identified a minor violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," because when the licensee revised the Unit 1 locked rotor analysis to reduce anticipated containment radiation levels to within the limits that support manual operation of the residual heat removal system during a locked rotor event (see Observation below), it used moderator temperature coefficient (MTC) values that were not consistent with core operating limits report (COLR). Screening: The inspectors determined the performance deficiency was minor. The performance deficiency did not adversely affect the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that the MTC limits used in the revised analysis were still within the bounds of the COLR and, although the COLR allowed operation outside the MTC limits assumed in the revised locked rotor analysis, the plant did not operate outside the revised lock rotor analysis limits for the period of the violation. Therefore, the residual heat removal system remained capable of performing its function for the locked rotor event during the period of the violation. Enforcement: 10 CFR Part 50, Appendix B, Criterion 3, requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in § 50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. Contrary to this requirement, from October 2019 to June 2020 adequate measures were not established to assure that the design basis was correctly translated into specifications drawings, procedures, and instructions. The station	

documented the issue in CR 2019-10518 and corrected the condition. This failure to comply with the design requirements constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

Observation: Condition Report 2019-05088, Unit 1 Licensing Basis Nonconformance Identified Regarding Manual Action Credited for Locked Rotor Accident	71152

The licensee identified that the existing Unit 1 locked rotor analysis credits the residual heat removal system being placed in service to terminate the radioactive release following an accident. However, a single active failure of an isolation valve on the common suction line to the residual heat removal pumps would require a local manual operator action to open the valve and place the system in service. Since the analysis shows up to 20% of the fuel rods going into departure from nucleate boiling (DNB) and therefore a fuel cladding failure, the resulting radiation levels would preclude containment entry and fulfillment of the operator action. To address this condition adverse to quality the licensee revised the analysis to more closely reflect expected operating conditions by reducing the conservative assumptions used as inputs in the original analysis. The revised analysis determined no rods would go into DNB, which reduced the anticipated dose field for the locked rotor accident. A reduction in the anticipated dose field allows containment entry to perform actions to place residual heat removal in service and terminate the radioactive release following a locked rotor accident.

The inspectors reviewed the revised Unit 1 locked rotor analysis and determined that the corrective actions did not adequately address the identified condition adverse to quality because the licensee's revised analysis used moderator temperature coefficient values that were not consistent with the COLR. The inspectors determined this was a minor violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," that is dispositioned above.

Failure to Correct Relief Valve Settings Leads to Inoperability of Refueling Water Storage Tank (RWST)

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000334/2020002-01 Open/Closed	None (NPP)	71153

The inspectors identified a self-revealing Green finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," when the licensee did not correct improper guide ring settings that were identified on a Unit 1 'A' low head safety injection (LHSI) discharge relief valve in 2012.

Description:

On November 2, 2019, while performing a Unit 1 quarterly surveillance test on the 'A' LHSI pump during the 1R26 refueling outage, RWST level began to drop and caused a low level alarm. It was later determined that approximately 850 gallons of water from the RWST was transferred to the safeguards building sump, resulting in the RWST being declared inoperable due to low level. The 'A' LHSI pump was secured to prevent further leakage and declared inoperable. Makeup to the RWST was initiated to raise tank level and return it to operable status.

The licensee determined that during the surveillance test on November 2, 2019, the 'A' LHSI discharge relief valve (RV-1S1-845A) lifted due to a pressure pulse on pump start and did not

reseat as expected when system pressure dropped below the valve's design blowdown pressure. The valve remained open during the performance of the surveillance, resulting in the discharge of 850 gallons from the RWST to the safeguards sump. It did not reseat until operators identified it was open and secured the 'A' LHSI pump.

The inspectors reviewed the licensee's investigation and corrective actions for this event. The licensee identified a number of similar relief valve events at Beaver Valley including a similar condition that occurred in 2010 that caused the 'B' LHSI discharge relief valve (RV-1SI-845B) to lift and fail to reseat. For that event, the licensee determined that the valve's guide ring settings were incorrect because no process or procedural controls were in place to ensure the relief valve had the correct settings. The licensee also determined that the extent of condition for the issue involved a population of approximately 15 commercial valves, which included the valve installed as the 'A' LHSI relief valve (RV-1S1-845A) that failed on November 2, 2019. The licensee determined that corrective actions assigned in 2012 in response to the 2010 'B' LHSI discharge relief valve (RV-1SI-845B) failure were not implemented, which resulted in the 'A' LHSI discharge relief valve (RV-1S1-845A) valve being improperly installed and failing to reseat during the surveillance test on November 2, 2019.

The inspectors determined that the improper guide ring settings on the 'A' LHSI discharge relief valve was a condition adverse to quality that should have been corrected after it was identified in 2012 as part of the extent of condition following the 'B' LHSI discharge relief valve (RV-1SI-845B) failure in 2010.

Corrective Actions: The 'A' LHSI discharge relief valve, RV-1SI-845A, was isolated, and a temporary gag was placed on it through the station's temporary modification process. The gag will be removed, and the valve will be replaced during the next refueling outage. The station's planned corrective actions also include sending out all applicable relief valves with undocumented blowdown ring settings to a qualified vendor for refurbishment, testing, and reset of the ring settings. Additionally, the station plans to validate and document the final blowdown ring settings from the vendor report.

Corrective Action References: CR 2019-09261

Performance Assessment:

Performance Deficiency: 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires that conditions adverse to quality be promptly identified and corrected. The inspectors determined that the licensee failed to correct improper guide ring settings on the Unit 1 'A' LHSI discharge relief valve that were identified in 2012 during the extent of condition for a 2010 failure of the Unit 1 'B' LHSI discharge relief valve.

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. The failure to correct the guide ring settings on the Unit 1 'A' LHSI discharge relief valve affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the 'A' LHSI discharge relief valve lifted and did not reseat as expected when system pressure dropped below the design blowdown pressure. The valve remained open during the performance of the surveillance, resulting in the discharge of 850

gallons of the RWST to the safeguards sump and subsequent RWST inoperability due to low level.

Significance: The inspectors assessed the significance of the finding using Appendix G, "Shutdown Safety SDP." The inspectors determined that the finding was of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating system that did not maintain its operability, but, (1) did not represent a loss of system and/or function, (2) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (3) did not represent an actual loss of function of one or more nontechnical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours.

Cross-Cutting Aspect: Not Present Performance. No cross-cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." Contrary to the above, in 2012 the licensee's corrective action program did not assure that a condition adverse to quality, improper guide ring settings on the 'A' LHSI discharge relief valve, was corrected.

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 July 14, 2020, the inspectors presented the integrated inspection results to Rod Penfield and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Corrective Action Documents Resulting from Inspection	CR-2020-04851		
71111.05	Corrective Action Documents Resulting from Inspection	CR-2020-03372		
		CR-2020-03445		
71111.06	Work Orders	200745516		
71111.07A	Miscellaneous		GL 89-13 2EGS-E21A Heat Exchanger Inspection Report	04/23/2020
	Work Orders	200763022		
71111.12	Corrective Action Documents	CR-2016-04310		
		CR-2016-12282		
		CR-2017-03050		
		CR-2017-11310		
		CR-2018-03984		
		CR-2018-07776		
		CR-2019-03817		
		CR-2019-05194		
		CR-2019-08973		
		CR-2019-09324		
	Corrective Action Documents Resulting from Inspection	CR-2020-04996		
	Miscellaneous		(a)(1) Evaluation for CR-2015-07271	Revision 0 (9/21/2015)
			(a)(1) Evaluation for CR-2015-07271	Revision 1 (3/3/2017)
			(a)(2) Evaluation for CR-2015-07271	Revision 0 (12/18/2019)
			(a)(1) Evaluation for CR-2019-09324	Revision 0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
				(2/6/2020)
			(a)(2) Evaluation for CR-2013-16101	Revision 0 (12/15/2016)
71111.13	Corrective Action Documents	CR-2020-03349		
	Miscellaneous		Beaver Valley Key Shutdown Defense-in-Depth Turnover Checklist	04/16/2020
			Defense-in-Depth Protected Equipment	04/16/2020
			Beaver Valley Unit 1 Week 04/20/2020, T-0 ICDP Profile	Revision 0
			Risk Management Plan for WO 200817701 & 200819238	
			Beaver Valley Unit 2 Week 5/4/2020, T-0 ICDP Profile	Revision 2
			Risk Management Plan for WO 200821883	
			Beaver Valley Key Shutdown Defense-in-Depth Turnover Checklist	04/28/2020
			Defense-in-Depth Protected Equipment	04/28/2020
			Beaver Valley Unit 1 Week 5/11/2020, T-0 ICDP Profile	Revision 0
			Beaver Valley Unit 1 Week 5/18/2020, T-0 ICDP Profile	Revision 0
71111.15	Corrective Action Documents	CR-2020-03001		
		CR-2020-03101		
		CR-2020-03321		
		CR-2020-03373		
		CR-2020-03394		
		CR-2020-03575		
		CR-2020-04316		
		CR-2020-04670		
	Corrective Action Documents Resulting from Inspection	CR-2020-03568		
	Miscellaneous	EER 601274486		
	Work Orders	200707844		
		200708153		
		200764245		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.18	Corrective Action Documents	CR-2020-03760		
	Work Orders	200784702		
71111.19	Corrective Action Documents	CR-2020-01108		
		CR-2020-02197		
		CR-2020-02845		
		CR-2020-03186		
		CR-2020-03316		
		CR-2020-03418		
		CR-2020-03619		
		CR-2020-03675		
		CR-2020-03729		
		CR-2020-03732		
		CR-2020-03775		
		CR-2020-04753		
		CR-2020-05226		
		CR-2020-05297		
	Corrective Action Documents Resulting from Inspection	CR-2020-05253		
	Engineering Changes	ECP 20-0031-000	Permanent Code Repair of Piping Line Number 2-SWS-024-77-3	Revision 2
		ECP 20-0031-001	Repair of Through Wall Leak in Piping Line Number 2-SWS 024-077-3	Revision 1
	Engineering Evaluations	EER 601270345		
	Work Orders	200736789		
		200765785		
		200816250		
		200816251		
		200816806		
		200817699		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		200817701		
		200819238		
		200819267		
		200819661		
		200820658		
		200820987		
		200820999		
		200821185		
		200826242		
71111.20	Corrective Action Documents Resulting from Inspection	CR-2020-03568		
		CR-2020-03618		
71111.22	Corrective Action Documents	CR-2020-03101		
		CR-2020-03139		
		CR-2020-03425		
		CR-2020-03426		
	Corrective Action Documents Resulting from Inspection	CR-2020-04176		
	Work Orders	200740190		
		200743249		
71124.01	ALARA Plans	20-2-5015	2R21 Secondary Side Steam Generator Sludge Lancing and FOSAR and TEDE ALARA DAC Evaluation	0
		20-2-5016	Primary Side Steam Generator Set Up and Demob and TEDE ALARA DAC Evaluation	0
		20-2-5017	Steam Generator Primary Side Channel Head / Platform Work and TEDE ALARA DAC Evaluation	0
		20-2-5018	2R21 RBC Reactor Disassembly / Reassembly / Preps / Inspections and TEDE ALARA DAC Evaluation	0
		20-2-5028	Scaffolding RBC and TEDE ALARA DAC Evaluation	0
	Corrective Action	2020-02142	Respirator qualifications unable to be verified in HIS-20	4/10/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents	2020-02681	Insufficient controls for COVID-19	3/27/2020
		2020-02762	Individuals who attended SCBA Practical Training did not meet requirement to be Clean Shaven	3/30/2020
		2020-02977	COVID-19 Personnel Contamination Monitor (PCM-2) Detector Efficiency Response to multiple sprays of VERI-CIDE hospital disinfectant deodorant.	4/7/2020
		220-02310	Upon restoration of RM-1VS-102A the monitor set-points did not match the procedure.	3/16/2020
		220-03344	Error occurred during TLD reader 8800 calibration	4/16/2020
	Radiation Surveys		347110 'B' Steam Generator Hot Leg Insert Removal	04/16/2020 @ 0330
			347110 'B' Steam Generator Cold Leg Insert Removal	04/16/2020 @ 0325
			203207B 'B' Steam Generator Primary Side Platform	04/16/2020 @ 1405
			203401 Shutdown Survey Reactor Containment 767'	04/12/2020 @ 0050
			203415A Shutdown Survey Reactor Containment Pressurizer 767'	04/12/2020 @ 0130
			203301 Shutdown Survey Reactor Containment 738'	04/12/2020 @ 0130
			203315 Shutdown Survey Reactor Containment Pressurizer 738' 10"	04/12/2020 @ 0145
			203310 Shutdown Survey Reactor Containment 'C' Motor Cubicle 738' 10"	04/12/2020 @ 0110
			203320 Shutdown Survey Reactor Containment 'B' Motor Cubicle 738' 10"	04/12/2020 @ 0055
			203330 Shutdown Survey Reactor Containment 'A' Motor Cubicle 738' 10"	04/12/2020 @ 0045
			203305 Shutdown Survey Reactor Containment Incore Instrument Room 738' 10"	04/12/2020 @ 0135
			203201 Shutdown Survey Reactor Containment 718' 6"	04/12/2020 @ 0200
			203205 Shutdown Survey Reactor Containment 'C' Steam	4/12/2020 @

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Generator Cubicle 718' 6"	0215
			203210 Shutdown Survey Reactor Containment Pressurizer Relief Tank 718' 6"	04/12/2020 @ 0240
			203215 Shutdown Survey Reactor Containment 'B' Steam Generator Cubicle 718' 6"	04/12/2020 @ 0245
			203220 Shutdown Survey Reactor Containment 'A' Steam Generator Cubicle 718' 6"	04/12/2020 @ 0315
			203103 Shutdown Survey Reactor Containment 692' 11"	04/12/2020 @ 0130
			203104 Shutdown Survey Reactor Containment 692' 11"	04/12/2020 @ 0130
			203102 Shutdown Survey Reactor Containment 692' 11"	04/12/2020 @ 0130
			203110 Shutdown Survey Reactor Containment 707' 6"	04/12/2020 @ 0155
			347148 Shutdown Survey Reactor Containment Transfer Canal 727'	04/12/2020 @ 0215
			203501 Shutdown Survey Reactor Containment Polar Crane	04/12/2020 @ 0200
			347110 'A' Steam Generator Hot Leg Insert Removal	04/15/2020 @ 1640
			347110 'A' Steam Generator Cold Leg Insert Removal	04/15/2020 @ 1655
			203207A 'A' Steam Generator Primary Side Platform	4/17/2020 @ 0430
			203205A 'A' Steam Generator EC Bull Pen	04/17/2020 @ 0430
			203220B 'B' Steam Generator Eddy Current Bull Pen	04/16/2020 @ 1400
			'B' Steam Generator Channel Head Survey	04/16/2020
			'A' Steam Generator Channel Head Survey	04/15/2020
			'C' Steam Generator Channel Head Survey	04/16/2020
			347110 'C' Steam Generator Hot Leg Insert Removal	04/16/2020 @ 0830

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			347110 'C' Steam Generator Cold Leg Insert Removal	04/16/2020 @ 0830
			203207C 'C' Steam Generator Primary Platform	04/16/2020 @ 1435
			203205C 'C' Steam Generator Eddy Current Bull Pen	4/16/2020 @ 1430
			203402 Shutdown Survey Reactor Containment 737'	04/12/2020 @ 0215
		20-0017	Breathing Zone Air Sample ID# 16772	04/16/2020 @ 0500
		20-0018	Breathing Zone Air Sample ID# 21262	04/16/2020 @ 0330
		20-0019	Breathing Zone Air Sample ID# 18849	04/16/2020 @ 0430
		20-0020	Breathing Zone Air Sample ID# 21264	04/16/2020 @ 0330
		20-0021	Breathing Zone Air Sample ID# 21262	04/16/2020 @ 0740
		20-0022	Breathing Zone Air Sample ID# 21264	04/16/2020 @ 0645
		20-0023	Breathing Zone Air Sample ID# 15716	04/16/2020 @ 0830
		20-0024	Breathing Zone Air Sample ID# 21262	04/17/2020 @ 0150
		20-0079	General Area Air Sample 'A' Steam Generator Cold Leg	04/15/2020 @ 2000
		20-0080	General Area Air Sample 'A' Steam Generator Hot Leg	04/15/2020 @ 2045
		20-0086	General Area Air Sample 'B' Steam Generator Hot Leg	04/16/2020 @ 0426
		20-0087	General Area Air Sample 'B' Steam Generator Cold Leg	04/16/2020 @ 0450
		20-0089	General Area Air Sample 'C' Steam Generator Platform	04/16/2020 @ 0757

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		20-0090	General Area Air Sample 'C' Steam Generator Inside Bowl	04/16/2020 @ 0825
		20-0096	General Area Air Sample 'A' Reactor Coolant Pump Cubicle	04/16/2020 @ 1415
		20-0108	General Area Air Sample 'B' Reactor Coolant Pump Cubicle	04/17/2020 @ 1325
		20-0114	General Area Air Sample 'A' Steam Generator Platform	04/17/2020 @ 2145
		20-0116	General Area Air Sample 'C' Steam Generator Platform	04/17/2020 @ 2140
		20-0120	General Area Air Sample 'C' Steam Generator Platform	04/18/2020 @ 1311
		BV-M-20200418-10	203205A 'A' Steam Generator EC Bull Pen	04/16/2020 @ 1315
		BV-M-20200418-13	203207C 'C' Steam Generator Primary Platform	04/16/2020 @ 1430
		BV-M-20200418-17	203207A 'A' Steam Generator Primary Platform	04/17/2020 @ 1000
		BV-M-20200418-20	203207C 'C' Steam Generator Primary Platform	04/16/2020 @ 1435
		BV-M-20200418-4	203207A 'A' Steam Generator Primary Platform	04/17/2020 @ 2000
		BV-M-20200420-15	203205A 'A' Steam Generator EC Bull Pen	04/19/2020 @ 0915
		BV-M-20200420-20	203205C 'C' Steam Generator Eddy Current Bull Pen	04/18/2020 @ 1930
		BV-M-20200420-24	203207A 'A' Steam Generator Hot Leg Insert Removal	04/19/2020 @ 2050
		BV-M-20200420-28	203207B 'B' Steam Generator Primary Side Platform	04/19/2020 @ 2010
		BV-M-20200420-30	203207C 'C' Steam Generator Primary Platform	04/19/2020 @ 1300
		BV-M-20200420-59	203207A 'A' Steam Generator Primary Platform	04/14/2020 @ 1430

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		BV-M-20200420-60	203207B 'B' Steam Generator Primary Side Platform	04/14/2020 @ 1000
	Radiation Work Permits (RWPs)	220-5015	Steam Generator Secondary Side Sludge Lancing and Inspection	0
		220-5016	Steam Generator Primary Side Setup and Demob	0
		220-5017	Steam Generator Primary Side Eddy Current	0
		220-5018	Reactor Disassemble / Reassemble	0
		220-5028	Scaffolding	0
71151	Corrective Action Documents Resulting from Inspection	CR-2020-05114		
71152	Calculations	BV 1 US(P)-259	Loss of Flow/Locked Rotor Analysis for Beaver Valley Unit 1	Revision 2 Addendum 3
		BV1 US(P)-259	Loss of Flow/Locked Rotor Analysis for Beaver Valley Unit 1	Revision 2 Addendum 4
	Corrective Action Documents	2019-04762		
		2019-09731		
	Corrective Action Documents Resulting from Inspection	2019-10518		
	Miscellaneous		Immediate Functionality Assessment Input for the Locked Rotor Event at BVPS U-1	06/10/2019
			Beaver Valley Unit 1 Cycle 27 Reload Safety Evaluation, January 2020	Revision 2
71153	Corrective Action Documents	CR-2012-06658		
		CR-2013-04094		
	Work Orders	200804225		
		200808446		