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

August 8, 2023

David P. Rhoades
Senior Vice President
Constellation Energy Generation, LLC
President and Chief Nuclear Officer (CNO)
Constellation Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 – INTEGRATED INSPECTION REPORT 05000277/2023002 AND 05000278/2023002

Dear David Rhoades:

On June 30, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Peach Bottom Atomic Power Station, Units 2 and 3. On July 20, 2023, the NRC inspectors discussed the results of this inspection with David Henry, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

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

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at http://www.nrc.gov/reading-rm/adams.html and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

Sarah H. Elkhiamy

Digitally signed by Sarah H. Elkhiamy
Date: 2023.08.08 09:58:13 -04'00'

Sarah H. Elkhiamy, Acting Chief
Projects Branch 4
Division of Operating Reactor Safety

Docket Nos. 05000277 and 05000278
License Nos. DPR-44 and DPR-56

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 – INTEGRATED INSPECTION REPORT 05000277/2023002 AND 05000278/2023002 DATED AUGUST 8, 2023

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000277 and 05000278
License Numbers:	DPR-44 and DPR-56
Report Numbers:	05000277/2023002 and 05000278/2023002
Enterprise Identifier:	I-2023-002-0041
Licensee:	Constellation Energy Generation, LLC
Facility:	Peach Bottom Atomic Power Station, Units 2 and 3
Location:	Delta, PA 17314
Inspection Dates:	April 1, 2023 to June 30, 2023
Inspectors:	S. Rutenkroger, Senior Resident Inspector C. Dukehart, Resident Inspector B. Edwards, Senior Health Physicist M. Henrion, Senior Health Physicist N. Mentzer, Reactor Inspector
Approved By:	Sarah H. Elkhiamy, Chief Projects Branch 4 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 Peach Bottom Atomic Power Station, Units 2 and 3, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to https://www.nrc.gov/reactors/operating/oversight.html for more information.

List of Findings and Violations

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

Additional Tracking Items

None.

PLANT STATUS

Unit 2 began the inspection period at rated thermal power (RTP). On May 18, 2023, Unit 2 was down powered to 52 percent for planned maintenance and inspections, waterbox cleaning, main turbine valve exercising and testing, scram time testing, and a control rod pattern adjustment. The unit was returned to RTP the following day and remained at or near RTP for the remainder of the inspection period.

Unit 3 began the inspection period at RTP. On May 5, 2023, Unit 3 was down powered to 79 percent for a control rod pattern adjustment and was returned to RTP the following day. On May 29, 2023, Unit 3 was down powered to 79 percent for a control rod pattern adjustment and planned maintenance on hydraulic control units. The unit was returned to RTP the following day. On June 2, 2023, Unit 3 was down powered to 52 percent for planned maintenance and inspections, waterbox cleaning, main turbine valve exercising and testing, scram time testing, and a control rod sequence exchange. The unit was returned to RTP the following day. On June 5, 2023, Unit 3 was down powered to 69 percent for a follow-up control rod pattern adjustment and was returned to RTP the following day. On June 25, 2023, Unit 3 was down powered to 64 percent for a control rod pattern adjustment and restore hydraulic control units following planned maintenance. The unit was returned to RTP the following day and remained at or near RTP 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

71111.04 - Equipment Alignment

Partial Walkdown (IP Section 03.01) (2 Samples)

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

(1) Unit 2, high-pressure coolant injection (HPCI) during reactor core isolation cooling (RCIC) maintenance on May 15, 2023
(2) Unit common, 'E-2' emergency diesel generator (EDG) following full load test on June 7, 2023

71111.05 - Fire Protection

Fire Area Walkdown and Inspection (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 3, reactor building elevation 195', PF-13K, on April 7, 2023
(2) Unit 2, reactor building refuel floor, PF-57, on April 10, 2023
(3) Unit 3, '3B' residual heat removal (RHR) room, PF-10, on May 3, 2023
(4) Unit 3, reactor building elevation 195', PF-13K, on May 17, 2023
(5) Unit 2, 'B' and 'D' core spray rooms, PF-5D, on June 27, 2023

71111.07A - Heat Exchanger/Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

(1) Unit common, 'E-4' EDG air coolant cooler cleaning and inspection on May 22, 2023

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

(1) The inspectors observed and evaluated licensed operator performance in the control room during the operator response to an issue with the Unit 2, #3 turbine control valve, on April 25, 2023

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

(1) The inspectors observed and evaluated licensed operator requalification training in the simulator on May 8, 2023

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (4 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 common, emergency service water system through April 5, 2023
(2) Unit 2, suppression pool temperature monitoring system 'TE-2-02-071A2' through April 14, 2023
(3) Unit 2, alternating current (AC) and direct current (DC) distribution system through May 30, 2023
(4) Unit 3, AC and DC distribution system through May 30, 2023

Quality Control (IP Section 03.02) (1 Sample)

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

(1) Unit common, station blackout (SBO) cable replacement on May 2, 2023

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management (IP Section 03.01) (5 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 3, 'C' standby gas treatment fan planned maintenance on April 10, 2023
(2) Unit 3, '3A' RHR system outage window on April 17, 2023
(3) Unit 2, risk-informed completion time implementation for defeating reactor protection system channel associated with turbine control valve #3 closure for more than 12 hours on April 25, 2023
(4) Unit common, ‘E-4’ EDG air coolant cooler cleaning and inspection on May 22, 2023
(5) Unit common, 'E-3' EDG planned maintenance outage on June 14, 2023

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (10 Samples)

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

(1) Unit 2, torus water temperature element '071A2' failed upscale on April 7, 2023
(2) Unit 3, ‘H’ wide-range neutron monitor reading erratic on April 20, 2023
(3) Unit common, 'E-1' EDG slight lube oil leak from the threaded pipe connection to temperature switch 'TS-0587A' on May 3, 2023
(4) Unit 2 and Unit 3, digital electrohydraulic control (DEHC) system human machine interface (HMI) module lost connection to host server on April 16, 2023
(5) Unit 2, closure of main turbine control valve #3 and installation of jumpers to defeat the associated reactor protection system half scram condition on April 25, 2023
(6) Unit 2, loss of DEHC HMI following Drop 213 malfunction on May 11, 2023
(7) Unit 3, HPCI oil filter inlet pressure was low during the pre-start check on May 27, 2023
(8) Unit common, fire door inspection failures on June 12, 2023
(9) Unit common, 'E-3' EDG lubricating oil temperature control valve not regulating oil temperature properly on June 20, 2023
(10) Unit common, circuit breaker '65' trip due to lightning strike on June 27, 2023

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 (IP Section 03.01) (6 Samples)

(1) Unit 3, '3A' high-pressure service water discharge check valve testing following packing replacement on April 17, 2023
(2) Unit 2, #2 turbine control valve testing following remaking wired connection on May 19, 2023
(3) Unit 2, main condenser waterboxes 'A1' and 'B1' leak testing following cleaning on May 19, 2023
(4) Unit 2, main condenser waterboxes 'B2' and 'C2' leak testing following cleaning on May 19, 2023
(5) Unit 3, HPCI instrument power supply following capacitor replacements on May 30, 2023
(6) Unit common, 'E-3' EDG lube oil temperature control valve testing following replacement on June 27, 2023

Surveillance Testing (IP Section 03.01) (2 Samples)

(1) Unit 3, RCIC alternative control panel test and remote shutdown panel test on June 1, 2023
(2) Unit 2, HPCI inverter calibration on June 5, 2023

In-service Testing (IP Section 03.01) (2 Samples)

(1) Unit common, 'E-1' EDG slow start full load in-service test on May 3, 2023
(2) Unit common, ‘E-3’ EDG fast start and full load test on May 16, 2023

71114.06 - Drill Evaluation

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

(1) The inspectors observed a full scope emergency preparedness drill conducted on May 9, 2023

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

The inspectors evaluated:

(1) The inspectors observed an emergency preparedness drill conducted on April 18, 2023

RADIATION SAFETY

71124.05 - Radiation Monitoring Instrumentation

Walkdowns and Observations (IP Section 03.01) (8 Samples)

The inspectors evaluated the following radiation detection instrumentation during plant walkdowns:

(1) Hospital kit Ion chamber (Inventory #070621) located at radiation protection desk

(2) Hospital kit hand frisker (Inventory #0017874) located at radiation protection desk
(3) Continuous air monitor (CAM) (Inventory #334638) located at drywell entry level
(4) CAM (inventory # 334570) located on the Unit 2 refuel floor
(5) Area radiation monitors (ARM) 3-8 Unit 2 refuel floor
(6) ARM 3-9 Unit 2 refuel floor
(7) ARM 2-5 Unit 2 drywell entry level
(8) Portable friskers (inventory #026305) emergency preparedness cabinet - Pearl building

Calibration and Testing Program (IP Section 03.02) (13 Samples)

The inspectors evaluated the calibration and testing of the following radiation detection instruments:

(1) Ludlum 12-4 with roentgen equivalent man (REM) ball inventory # 0018510
(2) Telepole (inventory # 076731)
(3) Fastscan whole body counter
(4) Argos-5AB (inventory #1107107)
(5) Argos-5 (inventory #1107108)
(6) Argos-5 (inventory #1312329)
(7) PM-12 (inventory #13041272)
(8) Eberline AMS-4 (inventory #334630)
(9) GAST 0522-V103 (inventory #1379)
(10) Ludlum 3030P (inventory #0011639)
(11) Eberline RO-20 (inventory #0016548)
(12) MGP BAK-2283 (inventory #0019518)
(13) Eberline RO-20 (inventory #0019941)

Effluent Monitoring Calibration and Testing Program (IP Section 03.03) (2 Samples)

The inspectors evaluated the calibration and maintenance of the following radioactive effluent monitoring and measurement instrumentation:

(1) Unit 2, stack effluent monitor that was evaluated
(2) Unit 3, stack effluent monitor that was evaluated

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

BI01: Reactor Coolant System (RCS) Specific Activity (IP Section 02.10) (2 Samples)

(1) Unit 2, April 1, 2022 to March 31, 2023
(2) Unit 3, April 1, 2022 to March 31, 2023

BI02: RCS Leak Rate (IP Section 02.11) (2 Samples)

(1) Unit 2, April 1, 2022 to March 31, 2023
(2) Unit 3, April 1, 2022 to March 31, 2023

71152A - Annual Follow-up Problem Identification and Resolution
Annual Follow-up of Selected Issues (Section 03.03) (1 Sample)

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

(1) Unit common, trip of the SBO transformer feeder breaker on April 4, 2023 (the issue was entered into the CAP as IR 04667649)

71152S - Semi-annual Trend Problem Identification and Resolution

Semi-annual Trend Review (Section 03.02) (1 Sample)

(1) The inspectors reviewed the licensee's CAP for potential adverse trends in the first and second quarters of 2023 that might be indicative of a more significant safety issue

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

Personnel Performance (IP Section 03.03) (1 Sample)

(1) The inspectors reviewed personnel performance following oscillations of the Unit 2 turbine control valve #3 and subsequent half-scram actuations of the reactor protection system on April 25, 2023

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

60855 - Operation of An Independent Spent Fuel Storage Installation (ISFSI)

Operation of An ISFSI (1 Sample)

(1) The inspectors evaluated the licensee's independent ISFSI cask loadings June 5 through 8, 2023. Specifically, the inspectors observed the following activities:

- Fuel selection and fuel loading
- Heavy load movement of the loaded multipurpose canister and HI-STORM
- Drying and backfill evolutions
- Closure welding and non-destructive weld evaluations
- Transfer and transport evolutions
- Radiological field surveys

INSPECTION RESULTS

Observation: Unit Common, Trip of the SBO Transformer Feeder Breaker on April 4, 2023	71152A
The inspectors reviewed Constellation's corrective actions following the identification of degraded cables associated with the SBO line. Constellation identified that multiple SBO cables were degraded following the trip of the SBO transformer feeder breaker on	

April 4, 2023, and the results from subsequent tan delta cable testing. The issue was entered into Constellation's CAP (AR 04667649).

Constellation performed diagnostic tan delta cable testing and replaced a number of degraded aluminum conductor cables with new copper conducted cables in May 2023. Following replacement, the new cables were evaluated using tan delta and partial discharge testing methods. Additionally, the degraded cables were shipped to a laboratory for further evaluation to determine the failure mechanism. Constellation determined the cables slowly degraded due to jacket damage that occurred during the installation process.

The inspectors discussed immediate corrective actions with Constellation staff, observed the installation of replacement cables, and verified proper installation procedures were followed to prevent installation damage. The inspectors also reviewed the engineering change document (EC 638897) and work order (WO 01537162). The inspectors did not identify any issues of concern with Constellation's actions to identify the cause of the cable failure and replace the failed cable.

Observation: Semi-annual Trend Review by Evaluating Potential Adverse Trends in the First and Second Quarters of 2022	71152S
The inspectors conducted a semi-annual trend review by evaluating sample issues that occurred in the first and second quarters of 2023. During the evaluation, the inspectors verified the issues identified were addressed within the scope of the CAP. The inspectors reviewed health reports and related databases for trends and considered prior issues while performing routine walkdowns and attending the plan of the day meetings. The inspectors did not identify any substantive adverse performance trends or repetitive equipment failures during this time that were not already identified by Constellation. Based on the overall results of the semi-annual trend review, the inspectors determined that Constellation had identified adverse trends at Peach Bottom Atomic Power Station before they could become more significant safety problems. The inspectors continue to monitor the CAP and maintenance effectiveness during routine inspection activities.	

EXIT MEETINGS AND DEBRIEFS

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

- On April 13, 2023, the inspectors presented the IP 71124.05 Radiation Instrumentation Inspection results to Dave Henry, Site Vice President, and other members of the licensee staff.
- On June 29, 2023, the inspectors presented the ISFSI Loading Campaign Inspection results to Jeremy Searer, Maintenance Director and Acting Plant Manager, and other members of the licensee staff.
- On July 20, 2023, the inspectors presented the integrated inspection results to David Henry, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Procedures	SO 52A.8.A	Diesel Generator Daily Shutdown Inspection	Revision 67
71111.05	Procedures	PF-10	Unit 3 Reactor Building, '3B 'RHR Pump and Heat Exchanger Room, Elevation 91'-6"/116'-0"	Revision 3
		PF-13K	Unit 3 Reactor Building, General Area, Elevation 195'	Revision 5
		PF-13K	Unit 3 Reactor Building; General Area, Elevation 195'	Revision 5
		PF-57	Unit 2, Reactor Building, Refuel Floor, Elevation 234'-0"	Revision 7
		PF-5D	Unit 2 Reactor Building, 2B & 2D Core Spray Room, Elevation 91'6"	Revision 3
71111.07A	Work Orders	05271535		
71111.11Q	Corrective Action Documents	Issue Report (IR) 04672846		
71111.13	Corrective Action Documents Resulting from Inspection	*IR 4674847		
	Miscellaneous	RICT Record	LCOTR 2-TS-23-0012	Revision 0
		RICT Record	LCOTR 2-TS-23-0012	Revision 1
71111.15	Corrective Action Documents	04668388		
		04670445 04671151		
		04670445 04671151		
		04671603		
		04672846		
		04675348		
		04677248		
		04680971		
		04681903 04681935 04681982		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		04681985 04682049		
		04685642		
		04687100		
	Procedures	AO 60F.2-2	Defeat of an RPS Half Scram	Revision 7
		AO 60F.2-2	Defeat of an RPS Half Scram	Revision 7
		AO 60F.2-2	Defeat of an RPS Half Scram	Revision 7
		SO 94F.1.A-2	Unit 2 Suppression Pool Temperature Monitoring System Operation	Revision 9
		ST-M-037-350-2	Safety-Related Door Inspection	Revision 10
	Work Orders	05313638		
71111.24	Corrective Action Documents	4678591 4505933 4678586		
		IR 04685642		
	Procedures	ST-O-013-201-3	RCIC Alternative Control Panel Test, and Remote Shutdown Panel Test	Revision 10
		ST-O-052-201-2	'E-1' Diesel Generator Slow Start and Full Load Test	Revision 23
		ST-O-052-413-2	'E-3' Diesel Generator Fast Start and Full Load Test	Revision 26
	Work Orders	04254309		
		05040681 05332157		
		05181680		
		05197537		
		05302882 05312239 05358034		
		05332157 05126807		
		05354651		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		05377212		
71114.06	Corrective Action Documents	04671567 04671568 04671610 04671624 04671629 04673079 04673348 04673352		
		04677035 04677057 04677145 04677148 04677151 04677162 04677314		
71153	Corrective Action Documents	04672846		
	Procedures	AO 1D.8-2	Closing and Restoring a Main Turbine Control Valve	Revision 3
		AO 2A.14-2	EOC-RPT Bypassing	Revision 0
		AO 60F.2-2	Defeat of an RPS Half Scram	Revision 7
		ARC-205 20C208L A-4	Minor Trouble Turbine Control	Revision 3