



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

July 25, 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: JAMES A. FITZPATRICK NUCLEAR POWER PLANT – POST-APPROVAL SITE  
INSPECTION FOR LICENSE RENEWAL – PHASE 4 INSPECTION REPORT  
05000333/2023011**

Dear David Rhoades:

On June 20, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at James A. FitzPatrick Nuclear Power Plant and discussed the results of this inspection with Jason Arcia, Director Site Operations, 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 James A. FitzPatrick Nuclear Power Plant.

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 James A. FitzPatrick Nuclear Power Plant.

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

Sincerely,

Mel Gray, Chief  
Engineering Branch 1  
Division of Operating Reactor Safety

Docket No. 05000333  
License No. DPR-59

Enclosure:  
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT – POST-APPROVAL SITE INSPECTION FOR LICENSE RENEWAL – PHASE 4 INSPECTION REPORT 05000333/2023011 DATED JULY 25, 2023

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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Number: 05000333

License Number: DPR-59

Report Number: 05000333/2023011

Enterprise Identifier: I-2023-011-0012

Licensee: Constellation Energy Generation, LLC

Facility: James A. FitzPatrick Nuclear Power Plant

Location: Oswego, NY

Inspection Dates: June 5, 2023 to June 20, 2023

Inspectors: J. Brand, Reactor Inspector  
J. Kulp, Senior Reactor Inspector  
K. Mangan, Senior Reactor Inspector  
N. Mentzer, Reactor Inspector

Approved By: Mel Gray, Chief  
Engineering Branch 1  
Division of Operating Reactor Safety

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an NRC inspection at James A. FitzPatrick Nuclear Power Plant, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

### List of Findings and Violations

Deviations in Intake Structure, Tunnel and Riser Age Management Program Not Identified and Corrected			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000333/2023011-01 Open/Closed	[P.1] - Identification	71003
The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," which requires that measures be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. Specifically, the team determined Constellation Energy Group (CEG) did not perform examination of portions of the safety-related intake structure, tunnel and riser credited to monitor for the effects of aging in accordance with the aging monitoring program (AMP) for structures, and did not enter the deviations into the corrective action program to identify and correct the problems.			

### Additional Tracking Items

None.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase" and IMC 2516, "Policy and Guidance for the License Renewal Inspection Program." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

### 71003 - Post-Approval Site Inspection for License Renewal

The team conducted a Phase 4 license renewal inspection. The following aging management programs were evaluated by the team:

### Post-Approval Site Inspection for License Renewal (8 Samples)

- (1) Buried Piping and Tanks Inspection Program
- (2) BWR Vessel Internals Program
- (3) Fire Water System Program
- (4) Periodic Surveillance and Preventive Maintenance Program
- (5) Service Water Integrity Program
- (6) Structures Monitoring Program
- (7) Non-EQ Insulated Cables and Connections Program
- (8) Water Chemistry Control – Closed Cooling Water Program

## INSPECTION RESULTS

Deviations in Intake Structure, Tunnel and Riser Age Management Program Not Identified and Corrected			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000333/2023011-01 Open/Closed	[P.1] - Identification	71003
The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," which requires that measures be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. Specifically, the team determined Constellation Energy Group (CEG) did not perform examination of portions of the safety-related intake structure, tunnel and riser credited to monitor for the effects of aging in accordance with the aging monitoring program (AMP) for structures and did not enter the deviations into the corrective action program to identify and correct the problems.			
<u>Description:</u> The team evaluated CEG's performance in implementing their AMP for structures to determine if the program was implemented to identify age-related degradation			

as described in the updated final safety analysis report and that the implementing procedure was consistent with licensing commitments. Additionally, the team reviewed completed examination results to determine if age-related degradation was evaluated and corrective actions were performed, if required, based on examination results.

The team also reviewed corrective actions implemented to address previously issued NRC non-cited violation (NCV) 05000333/2021003-01 which documented incomplete examinations, performed in 2011 and credited for license renewal commitments, of the intake structure, tunnel, and riser. The examination was determined to be incomplete principally due to mussel coverage (50 to 100 percent of the surface to a depth of 1 to 3 inches) such that adequate visual examination of structure surfaces could not be completed. The inspectors reviewed CEG performance of subsequent intake and discharge structure examinations completed in September 2022 (WO 04762293) performed as a corrective action for the NCV. The inspectors ascertained through record review and discussions with CEG staff that the final third of the intake tunnel, lakeside end, was not examined due to equipment problems (underwater rover cable issue). Also, the 150-foot riser structure was not examined. Furthermore, in review of portions of the video record the inspectors ascertained the vast majority of structural surfaces were completely obscured with mussels.

The inspectors reviewed CEG procedure ER-AA-450, "Structures Monitoring," Revision 10, and found that the procedure (and the supporting industrial standard) acceptance criteria involved CEG staff identifying and evaluating concrete surface cracks with widths of 0.4-millimeter (0.015 inch) or larger. The inspectors concluded mussel coverage and not examining significant portions of the intake structure, tunnel and the riser prevented completing exams to this acceptance criteria. The inspectors furthermore determined these were deviations from the procedure and license renewal commitments, and these problems were not entered into the CEG corrective action process to identify and correct the deviations.

In discussions with CEG staff, the inspectors ascertained that CEG staff had planned for corrective actions in response to (NCV) 05000333/2021003-01 involving use of an underwater rover with capability to remove mussels; however, this outcome was not realized when the exams were completed in 2022. Additionally, corrective action to examine the full tunnel was intended by procuring a cable sufficiently long to extend rover travel the full tunnel length. However, equipment problems resulted in a shorter cable being used in 2022.

Corrective Actions: Following identification of the issue CEG staff entered the issue into the corrective action program to address the deviations in implementation of their structures monitoring examinations for the intake structure, discharge tunnel and riser.

Corrective Action References: AR 04683808

Performance Assessment:

Performance Deficiency: CEG staff did not identify and correct deviations associated with their examination in 2022 of the safety-related intake structure tunnel and riser which was a performance deficiency. Specifically, the examinations of the intake tunnel and riser structural surfaces, credited to for the effects of aging, were not fully completed or capable of assessing the conditions to the acceptance criteria in CEG procedure ER-AA-450, Revision 11 and these deviations were not entered into the corrective action program for resolution.

Screening: The inspectors determined the performance deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety

concern. The inspector used Inspection Manual Chapter (IMC) 0612 Appendix E, "Examples of Minor Issues," to inform the screening, and considered that the performance deficiency was similar to Example 13a. Specifically, absent NRC's intervention, the acceptability of the condition of the intake structure tunnel and riser were not demonstrated through effective examination for the effects of aging.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The team determined the finding was a deficiency affecting the design or qualification of a mitigating structure, system or component that did not result in loss of operability or probabilistic risk assessment functionality. This was based on consideration that the video record of the tunnel examination did not show evidence of surface cover concrete spalls on the floor and a rover examination of the riser for other purposes in 2018 did not show evidence of structural problems. Therefore, the team determined the finding to be of very low safety significance (Green).

Cross-Cutting Aspect: P.1 - Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program. Specifically, CEG staff did not identify and place in the corrective action program that examinations of the intake structure, tunnel and riser could not be performed as described in the implementing procedure and required by the associated AMP.

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires measures to be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected.

Contrary to the above, following completion of structure monitoring examinations credited to meet the requirement of the structures monitoring Aging Management Program on September 1, 2022, CEG failed to enter examination deviations into the corrective action program for identification and correction. Specifically, CEG did not identify and correct deviations involving the examination of the intake structure tunnel and riser for conditions credited to manage the effects of aging.

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

Observation: Implementation of the Service Water Integrity Program	71003
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The service water integrity program is an aging management program intended to ensure age-related degradation of service water, emergency service water, and residual heat removal service water piping and components is managed so the systems retain their capability to perform their intended safety functions. The aging management program relies on an existing program to implement the recommendations of Generic Letter 89-13 which includes routine and representative non-destructive examination (NDE) of service water piping. In 2014, during the beginning of the period of extended operation, the licensee staff implemented procedure AP-19.12 "Service Water Inspection Program" to perform these inspections and monitor piping for erosion and corrosion. In 2017, the licensee staff retired AP-19.12 and implemented ER-AA-5400 "Buried Piping and Raw Water Integrity



Management Programs Guide" and ER-AA-5400-1001 "Raw Water Piping Integrity Management Guide".

The inspectors reviewed these program procedures and the routine and representative sample of NDE inspections from 2014 to present, the current period of extended operation. The inspectors noted that five ultrasonic tests (UTs) were performed between 2015 and 2016, but only two UTs were performed between 2017 and 2020. In addition, those two UTs were performed to support potential freeze seals for valve maintenance, not scoped as a representative sample of susceptible locations for erosion or corrosion. Also, between 2017 and 2020, six through-wall pipe leaks occurred in the emergency service water piping. Based on this information, the inspectors determined the licensee was not performing routine and representative inspections of raw water piping between the years 2017 and 2020 in accordance with procedure ER-AA-5400-1001.

The inspectors determined that in 2019, CEG staff identified the program weakness and developed a site specific document which detailed the implementation of ER-AA-5400 and ER-AA-5400-1001 for the James A. FitzPatrick raw water piping integrity program. The inspectors review determined that since then, susceptible service water piping locations were scoped into the program plan, three UTs were performed in 2021 and 2022, and twelve UTs were scheduled in 2023 and 2024. Based on the review of the current service water integrity program and UTs, the inspectors determined there was not performance deficiencies of more than minor significance. In addition, CEG staff entered the issue into their corrective action program (AR 04686453) to evaluate the gaps between the site-specific program and fleet level procedure ER-AA-5400-1001.

## **EXIT MEETINGS AND DEBRIEFS**

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

- On June 9, 2023, the inspectors presented the Inspection Status inspection results to Timothy Peter, Site Vice President, and other members of the licensee staff.
- On June 20, 2023, the inspectors presented the NRC inspection results to Jason Arcia, Director Site Operations, and other members of the licensee staff.

**DOCUMENTS REVIEWED**

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71003	Calculations	JAF-Calc-13-00011	Minimum Acceptable Wall Thickness for 76-10"-WF-151-38	Revision 0
71003	Corrective Action Documents	IR 4672847, 4674829, 4672892, 4673187, 4673188, 3848063, 325460, 512708, 4416219, 4680776, 4680774, 4438445, 4439048, 4442095 CR-JAF-2013-02872		
71003	Corrective Action Documents Resulting from Inspection	IR 04683565, 04683531, 04683489, 04683423, 04683742, 04683754, 04683808, 04686453		
71003	Drawings	11825-FC-42A	Intake & Discharge Tunnels Plan and Profile	Revision 4
71003	Drawings	11825-FC-42B	Intake & Discharge Tunnel Details-SH.1	Revision 4
71003	Drawings	11825-FC-43B	Intake Structure General Arrangement	Revision 6
71003	Drawings	11825-FC-43D	Intake Structure Concrete Details, SH-2	Revision 3
71003	Engineering Evaluations	JAF-1-2017-0446	Simple Issue Risk Assessment, ESW Piping Degradation	6/7/2021
71003	Miscellaneous	PMC-23-140294	Justification for Proposed PMMR to PM Database - CST Inspection Frequency	3/29/2023 3/28/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71003	Miscellaneous	SEP-SW-JAF-0001	NRC Generic Letter 89-13 Service Water Program	Revision 0
71003	Procedures	AP-19.12	Service Water Inspection Program	Revision 8
71003	Procedures	B13UT008	UT Erosion/Corrosion Examination	6/7/2013
71003	Procedures	CY-AA-120-400	Closed Cooling Water Chemistry	Revision 21
71003	Procedures	CY-AA-120-4000	Closed Cooling Water Chemistry Strategic Plan	Revision 11
71003	Procedures	CY-AA-120-4000-F-06	Fitzpatrick Closed Loop Cooling Water Treatment and Control	Revision 0
71003	Procedures	EF-JF-331-1001	James A. FitzPatrick Reactor Pressure Vessel & Internals Program Bases Document	Revision 4
71003	Procedures	ER-AA-300-150	Cable Condition Monitoring Program	Revision 8
71003	Procedures	ER-AA-450	Structures Monitoring	Revision 11
71003	Procedures	ER-AA-5400	Buried Piping and Raw Water Integrity Management Programs Guide	Revision 13
71003	Procedures	ER-AA-5400-1001	Raw Water Piping Integrity Management Guide	Revision 12
71003	Procedures	ER-JF-450	James A. Fitzpatrick Structures Monitoring Program	Revision 0
71003	Procedures	JAF-RPT-05-LRD02	Aging Management Program Evaluation Report	Revision 6
71003	Procedures	JAF-RPT-09-LR002	Review of the Periodic Surveillance and Preventative Maintenance Aging Management Program for License Renewal Implementation	Revision 0
71003	Procedures	MA-AA-723-500	Inspection of Non-EQ Cables and Connections for Managing Adverse Localized Environments	Revision 13
71003	Procedures	SEP-UIP-JAF	Underground Components Inspection Plan	Revision 4
71003	Procedures	SP-01.23	Diesel Fire Pump, Emergency Diesel Generator, and Security Propane Generator Coolant Corrosion Inhibitor Sampling and Analysis	Revision 21
71003	Procedures	SP-01.25	Reactor Building Closed Loop Cooling Sampling and Analysis	Revision 24
71003	Work Orders	00199975 01, 04845778 01, 04897862, 04762293		