



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

November 8, 2021

Mr. David Rhoades
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

**SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT – INTEGRATED
INSPECTION REPORT 05000333/2021003**

Dear Mr. Rhoades:

On September 30, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at James A. FitzPatrick Nuclear Power Plant. On October 28, 2021, the NRC inspectors discussed the results of this inspection with Mr. Tim Peter, Site Vice President, 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* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

Erin E. Carfang, Chief
Projects Branch 1
Division of Operating Reactor Safety

Docket No. 05000333
License No. DPR-59

Enclosure:
As stated

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

Docket Number: 05000333

License Number: DPR-59

Report Number: 05000333/2021003

Enterprise Identifier: I-2021-003-0036

Licensee: Exelon Nuclear

Facility: James A. FitzPatrick Nuclear Power Plant

Location: Oswego, NY

Inspection Dates: July 01, 2021 to September 30, 2021

Inspectors: E. Miller, Senior Resident Inspector
J. England, Resident Inspector
H. Anagnostopoulos, Senior Health Physicist
E. Andrews, Health Physicist
P. Boguszewski, Resident Inspector
J. Brand, Reactor Inspector
P. Cataldo, Senior Reactor Inspector
E. Dipaolo, Senior Reactor Inspector
J. Griffis, Senior Health Physicist
J. Schoppy, Senior Reactor Inspector

Approved By: Erin E. Carfang, Chief
Projects 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 integrated 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

Failure to Adequately Perform Required Structures Monitoring Program Inspections of the Intake Structure			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000333/2021003-01 Open/Closed	[H.8] - Procedure Adherence	71111.07T
The inspectors identified a Green non-cited violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because FitzPatrick staff did not perform inspections of portions of the safety-related intake structure, to monitor for the effects of aging, in accordance with EN-DC-150, "Conditions Monitoring of Maintenance Rule Structures," Revision 1.			

Additional Tracking Items

None.

PLANT STATUS

FitzPatrick operated at or near rated thermal power for the entire 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 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 and regional inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week, increasing the amount of time on site as local COVID-19 conditions permitted. As part of their onsite activities, resident inspectors conducted plant status activities as described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification and Resolution"; observed risk significant activities; and completed on site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

External Flooding Sample (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated that flood protection barriers, mitigation plans, procedures, and equipment are consistent with the licensee's design requirements and risk analysis assumptions for coping with external flooding on August 27, 2021.

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (2 Samples)

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

- (1) Spent fuel pool cooling system on July 21, 2021
- (2) 'B' emergency service water system the week of July 23, 2021

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

- (1) 'A' residual heat removal system on September 7, 2021

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) Motor generator set room, fire area/zone IA/MG-1, on July 15, 2021
- (2) Reactor building west, elevation 272', fire area/fire zone X/RB-1, on July 16, 2021
- (3) East and west cable tunnels elevation 258', fire areas/zones IC/CT-1 and II/CT-2, on August 2, 2021
- (4) Interim waste storage facility, fire area YARD, on August 9, 2021
- (5) Emergency diesel generator spaces, elevation 272', fire areas/zones V/EG-1, -2, -5, and VI/EG-3, -4, -6, on August 31, 2021

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 03.01) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the:

- (1) East and west crescents on September 14, 2021

71111.07A - Heat Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

- (1) 'B' emergency diesel generator jacket water heat exchanger on July 29, 2021

71111.07T - Heat Sink Performance

Heat Exchanger (Service Water Cooled) (IP Section 03.02) (2 Samples)

The inspectors evaluated heat exchanger/sink performance on the following on July 26, 2021:

- (1) 'A' residual heat removal heat exchanger
- (2) 'D' emergency diesel generator jacket water heat exchanger

Ultimate Heat Sink (IP Section 03.04) (1 Sample)

The inspectors evaluated the performance of the following ultimate heat sink structures and components:

- (1) All portions of the intake and discharge structures, including the tunnels, risers (plantside/lakeside), screenwell/pumphouse and lakeside structures on July 26, 2021

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 operations personnel during a high pressure coolant injection system quarterly surveillance test on September 1, 2021.

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

- (1) The inspectors observed simulator and field training for extended loss of alternating current power and FLEX equipment usage on September 10, 2021.

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) 'A' residual heat removal pump motor failure on July 1, 2021
- (2) Control room ventilation on August 27, 2021

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (2 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) Elevated risk during scheduled work on the reactor core isolation cooling system on September 8, 2021
- (2) Elevated risk during routine maintenance on 'B' core spray system on September 14, 2021

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (6 Samples)

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

- (1) 'A' residual heat removal pump 10P-3A failed Baker motor test on July 1, 2021
- (2) Seven circuits identified as vulnerable to hot shorts on July 9, 2021
- (3) 'A' emergency diesel generator starting air system leaks on August 9, 2021

- (4) High pressure coolant injection system steam leakage following surveillance run on September 1, 2021
- (5) Reactor core isolation cooling system inboard injection valve leakage during testing on September 9, 2021
- (6) 'A' residual heat removal pump 10P-3A axial vibration during torus cooling on September 24, 2021

71111.17T - Evaluations of Changes, Tests, and Experiments

Sample Selection (IP Section 02.01) (24 Samples)

The inspectors reviewed the following evaluations, screenings, and/or applicability determinations for 10 CFR 50.59 from September 20 to September 29, 2021:

- (1) JAF-SCN-18-036: Emergency Diesel Generator Pressure Switch Calibration
- (2) JAF-SCN-18-056: EC 620602, Safety Relief Valve Replacement
- (3) JAF-SCN-18-081: EC 622608, Residual Heat Removal Suction Strainer Modification
- (4) JAF-SCN-18-129: RP-AA-460, Controls for High and Locked High Radiation Areas
- (5) JAF-SCN-18-157: 3-Stage Safety Relief Valve Install/Removal & Maintenance
- (6) JAF-SCN-18-174: MP-200.16, Revision 44, Maintenance and Subsequent Replacement of GE 7700 Series DC Motor Control Centers
- (7) JAF-SCN-18-179: EC-625193, Bypass Low Suction Pressure Automatic Trip on 19P-1A and 19P-1B Fuel Pool Cooling Recirculation Pumps
- (8) JAF-SCN-18-195: MP-059.12, Revision 25, Swing Check Valve Without Operators (ISI)
- (9) JAF-SCN-18-256: ISP-89A, Revision 4, Suppression Chamber/Reactor Building Vacuum Breaker Isolation Valve Differential Pressure Switch Instrument Test/Calibration
- (10) JAF-SCN-19-074: OP-22, Revision 65, Diesel Generator Emergency Power
- (11) JAF-SCN-19-147: MP-059.106, Revision 2, Electrical Back-seating 15MOV-100B2
- (12) JAF-SCN-19-224: EC 627886, Tornado Missile Protection
- (13) JAF-SCN-20-008: OSP-16.003, Revision 3, Prevention of APRM Scram Signals in Modes 3, 4 OR 5
- (14) JAF-SCN-20-045: EC-631287, BWROG EPG/SAG Revision 4, Appendix A and Appendix C Calculations, EOPs and TSGs
- (15) JAF-SCN-20-062: EC 633087, Removal of Blank Flange Between RHR and FPC Crosstie
- (16) JAF-SCN-21-004: EC 633233, Change Normal Position of 16-1AOV-101A/B & 102A/B to Closed
- (17) JAF-SCN-21-026: TSTF-573, TS Bases 3.3.1.1, RPS Bases for MSIV and TSV Functions
- (18) JAF-SCN-21-043: EC 634491, PCTCC - Failing Open Condensate Booster Pump Minimum Flow Control Valves (33FCV-132A/B/C) and Condensate Pump Minimum Flow Control Valve (33FCV-133)
- (19) JAF-SE-19-001: EC-627886, Tornado Missile Project
- (20) JAF-SE-20-001: EC-630254/630346, Remove Turbine Intercept Valve Fast-acting Solenoid Valves and Turbine Intercept Valve Test Frequency Extension
- (21) JAF-SE-20-002: EC-625089, Digital Upgrade of Reactor Water Level Controls
- (22) JAF-SE-20-003: EC-626155, Issue Documents Associated with Revised Decay Heat Removal Evaluation

- (23) JAF-SE-20-004: EC-632017, Main Turbine Thrust Bearing Wear Detector Trip Removal
- (24) JAF-SE-20-005: EC-632655, Lifting Leads to Turbine Intercept Valve Fast-Acting Solenoids and Extension of Steam Turbine Intercept Valve Testing Frequency

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) Permanent Modification: Engineering Change Package (EC) 634448, Residual Heat Removal 'A' Motor Replacement
- (2) Permanent Modification: EC 624790, 'A' and 'B' RHR Heat Exchanger Rooms Permanent Scaffolds

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

- (1) 'A' standby gas treatment train following system maintenance on July 13, 2021
- (2) Traversing incore probe system testing following plant computer upgrade on July 28, 2021
- (3) 'B' standby liquid control pump following pump oil and grease replacement on September 13, 2021
- (4) 'B' core spray testing following off-line motor testing and breaker replacement on September 15, 2021
- (5) Reactor core isolation cooling differential pressure transmitter following failure and replacement on September 30, 2021

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (4 Samples)

- (1) ST-9BA, Emergency Diesel Generator 'A' and 'C' Full Load Test and ESW Pump Operability Test, on July 12, 2021
- (2) ST-2AV, RHR Loop B Keep-Full Check Valve Functional Test (IST), on July 20, 2021
- (3) ST-4N, HPCI Quick Start, on September 1, 2021
- (4) ST-3PA, Core Spray Loop A Quarterly Operability Test (IST), on September 2, 2021

FLEX Testing (IP Section 03.02) (1 Sample)

- (1) FLEX Equipment Review for Emergency License Amendment Review on July 1, 2021

71114.06 - Drill Evaluation

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

- (1) The inspectors evaluated a scenario in the simulator that included a reactor scram with an unisolable steam leak in secondary containment on September 7, 2021.

RADIATION SAFETY

71124.02 - Occupational ALARA Planning and Controls

Radiological Work Planning (IP Section 03.01) (4 Samples)

The inspectors evaluated the licensee's radiological work planning. The inspectors reviewed the following activities:

- (1) JF-1-20-00333, Drywell Forced Outage Activities
- (2) JF-1-20-00506, Drywell
- (3) JF-1-20-00901, Refuel Floor (RFF) Reactor Disassembly/Assembly
- (4) JF-1-20-00902, RFF Outage Activities (No Cavity)

Verification of Dose Estimates and Exposure Tracking Systems (IP Section 03.02) (4 Samples)

The inspectors evaluated dose estimates and exposure tracking. The inspectors reviewed the following as low as reasonably achievable planning documents:

- (1) AP-20-00008, Disassemble, Repair, and Reassemble 12MOV-15
- (2) AP-20-00506, Dry Well Scaffolds
- (3) AP-20-00901, RFF Reactor Disassembly/Assembly
- (4) AP-20-00902, RFF Outage Activities (No Cavity)

Additionally, the inspectors reviewed the following radiological outcome evaluations:

- ALARA Work in Progress Review for JF-1-20-00333, Accumulated Dose Reaches 50% for Category 1 Work
- ALARA Work in Progress Review for JF-1-20-00333, Expected to Exceed Approved Exposure Estimate by > 10%
- ALARA Work in Progress Review for JF-1-20-00333, Significant Change in Work Scope Resulting in an Estimated Dose Impact > 0.500 Rem
- ALARA Post Job Review for JF-1-20-00333

Implementation of ALARA and Radiological Work Controls (IP Section 03.03) (2 Samples)

The inspectors reviewed as low as reasonably achievable practices and radiological work controls during the following activities:

- (1) Testing and maintenance of 'A' residual heat removal motor-operated valves
- (2) Replacement of 'A' feedwater pump cooling coils

Radiation Worker Performance (IP Section 03.04) (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance during:

- (1) Testing and maintenance of 'A' residual heat removal motor-operated valves

71124.08 - Radioactive Solid Waste Processing & Radioactive Material Handling, Storage, & Transportation

Radioactive Material Storage (IP Section 03.01) (2 Samples)

- (1) The inspectors evaluated the licensee's performance in controlling, labeling, and securing radioactive materials in the radioactive waste building.
- (2) The inspectors evaluated the licensee's performance in controlling, labeling, and securing radioactive materials in the interim waste storage facility.

Radioactive Waste System Walkdown (IP Section 03.02) (2 Samples)

- (1) The inspectors walked down accessible portions of the solid radioactive waste systems and evaluated system configuration and functionality.
- (2) The inspectors walked down accessible portions of the liquid radioactive waste systems and evaluated system configuration and functionality.

Waste Characterization and Classification (IP Section 03.03) (2 Samples)

- (1) The inspectors evaluated the licensee's characterization and classification of radioactive waste associated with waste shipment number JAF-2020-1851.
- (2) The inspectors evaluated the licensee's characterization and classification of radioactive waste associated with waste shipment number JAF-2021-1869.

Shipment Preparation (IP Section 03.04) (1 Sample)

- (1) The sample was not able to be completed due to a radioactive shipment not being available at the time of the inspection.

Shipping Records (IP Section 03.05) (4 Samples)

The inspectors evaluated the following non-excepted radioactive material shipments through a record review:

- (1) Radioactive waste shipment number JAF-2019-1818, UN 2915, Radioactive material 7, Type A
- (2) Radioactive waste shipment number JAF-2020-1851, UN 3321, Radioactive material 7, low specific activity (LSA-II)
- (3) Radioactive waste shipment number JAF-2021-1868, UN 3321, Radioactive material 7, low specific activity (LSA-II)
- (4) Radioactive waste shipment number JAF-2021-1870, UN 3321, Radioactive material 7, low specific activity (LSA-II)

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 02.15) (1 Sample)

(1) July 1, 2020 through June 30, 2021

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual
Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample
(IP Section 02.16) (1 Sample)

(1) July 1, 2020 through June 30, 2021

INSPECTION RESULTS

Failure to Adequately Perform Required Structures Monitoring Program Inspections of the Intake Structure			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000333/2021003-01 Open/Closed	[H.8] - Procedure Adherence	71111.07T
The inspectors identified a Green non-cited violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” because FitzPatrick staff did not perform inspections of portions of the safety-related intake structure, to monitor for the effects of aging, in accordance with EN-DC-150, “Conditions Monitoring of Maintenance Rule Structures,” Revision 1.			
<u>Description:</u> FitzPatrick utilizes an emergency service water system and residual heat removal service water system to provide cooling to safety systems such as emergency diesel generator heat exchangers, residual heat removal heat exchangers and other safety systems, structures, or components during normal and emergency conditions. The intake structure is a seismic category I structure that houses these pumps and provides a flowpath for these systems. The intake structure consists of the following safety-related (SR) and nonsafety-related (NSR) portions: screenwell/pumphouse superstructure (NSR), screenwell/pumphouse underwater structure (SR), screenwell/pumphouse underwater intake (SR) and discharge tunnels (NSR), screenwell/pumphouse intake (SR) and discharge risers, ~900 to 1,100 foot-long intake (SR) and discharge tunnels (NSR) from plant-side to lakeside, and the lakeside intake riser (SR) and intake cap (SR).			
The inspectors reviewed Work Order (WO) 51690832, “RO19 Intake Cleaning Project,” and associated WO 00192741, “Discharge Canal Cleaning and Inspection,” which were both referenced on the EN-DC-150, Attachment 9.4, “Structures Monitoring Report of Record,” for the intake and discharge tunnels, 11-IT-150-001-01 and 11-DT-150-001-01, dated November 28, 2011. The inspectors also reviewed information regarding the results of the condition monitoring inspections described in the WO scope and completion notes, as well as WO attachments which summarized the areas inspected and identified conditions, spanning Refueling Outage (RO14) in 2000, RO19 in 2010, and RO24 in 2020.			

The inspectors noted the following:

- Portions of the intake and discharge structures were not examined due to weather conditions or not in-scope for specific refueling outage cycles. The inspectors determined these portions were not identified for re-inspection in subsequent refueling outage cycles in accordance with the Structures Monitoring Program (SMP), as detailed in EN-DC-150, "Condition Monitoring of Maintenance Rule Structures," Revision 1.
- The inspectors determined that inspections of reinforced concrete that did occur, were limited to video of the structures with documented concrete surfaces covered in live mussels between 50 -100 percent of the surfaces to a depth of 1 to 3 inches. This did not allow for visual observation of surfaces to accomplish the examination.
- Portions of the safety-related underwater screenwell/pumphouse concrete surfaces were cleaned of silt and mussels and subsequently videotaped, which allowed for assessment of the concrete surfaces.
- Since RO14 (in 2000), those portions of the intake and discharge tunnel riser structures, both lakeside and plantside that extend down to the base 150-foot elevation of the tunnels, as well as the approximately 1,100-foot intake tunnel, were noted to be covered in live mussels to a depth of 1 to 2 inches, but not cleaned to facilitate inspection of concrete surfaces.
- The lakeside intake cap had visual inspections performed for cleaning of the intake heated trash rakes/bars, with noted algae covering 80 percent of the surface.
- While qualitative operability assessments of the lakeside intake cap have been performed (RO18 in 2008 and RO19 in 2010), due to noted concrete erosion at the base of the intake cap, these adverse conditions and assessments were documented in the specific WOs, but not included for trending and documentation in SMP checklists in accordance with EN-DC-150.

The inspectors determined that Procedure EN-DC-150, Revision 1, identifies the entire structure, both internal and external, of the intake and discharge structures, including the plantside screenwell/pumphouse, as relevant water control structures being in-scope for inspections covered under the SMP. This procedure states, in part, that:

- Reinforced concrete surfaces shall be inspected (Section 5.7) for visible cracks (size and location mapped-out), evidence of spalling and erosion, using Attachment 9.4.
- Each site is to inspect the structures identified in its plant-specific attachment, i.e., Attachment 9.13, "FitzPatrick Maintenance Rule Structures," using the applicable steps in the inspection checklist (Attachment 9.4, "Reinforced Concrete Inspection Checklist") and these inspections documented with identified degraded areas for future inspection trending and critical measurements (e.g., crack width and spalling depth) available for future inspections.
- Monitoring inspections shall be conducted in a broad sense looking for gross defects, however limitations such as portions of structures that are underwater, need not be inspected. However, the reason for not inspecting such areas shall be recorded, and if these inaccessible or submerged structures become accessible due to required plant activities, an inspection of these areas shall be conducted.
- Follow-up inspections will be performed at 5- and 10-year intervals, depending on the structure, but normally inaccessible areas for High Risk Significant structures may have an extended interval, such as 10 years, due to the potential risk and extensive work involved to complete the inspection, but if the required walkdown is not conducted prior to the end of prescribed interval plus any grace period, the structure,

system and component (SSC) is assumed to be classified as Maintenance Rule (a)(1) until such time that the inspection is completed.

Based on document reviews and discussions with Exelon staff at the FitzPatrick plant, the inspectors determined that since the FitzPatrick operating license was renewed in 2008, there were no documented results of condition monitoring inspections for the discharge tunnel internal surfaces, as required by both the SMP and commitments for inspections during the period of extended operation consistent with their renewed license. However, during the inspection, Exelon staff generated corrective actions to perform inspections of the intake and discharge structures during the next refueling outage in Fall 2022, and to generate the site-specific condition monitoring inspection procedure in accordance with the current Exelon fleet procedure, ER-AA-450, "Structures Monitoring," Revision 10.

In addition, the inspectors also noted that post-tensioned rock bolts, described in the License Renewal Application (LRA) under bulk commodities by name, in Section 2.4.4 (ML062160494) were identified to be in-scope for monitoring for license renewal for the effects of aging under the SMP. The NRC staff at the time determined the submitted SMP was acceptable, with enhancements, following the licensee's response to RFI 2.4.2-2 in December 2007. However, during the current inspection, the inspectors identified that the rock bolts have not been specifically identified in the FitzPatrick SMP to support the licensee's conclusion these bolts are not accessible for visual examination due to being embedded in the intake cap concrete and covered with grout. The inspectors observed that, while guidance for concrete inspection such as ACI-349.3R, have qualitative acceptance criteria for conditions that can be utilized for monitoring degradation of inaccessible components such as the rock bolts, these conditions and attributes were not identified in the SMP or FitzPatrick procedures for condition monitoring of these post-tensioned rock bolts.

Corrective Actions: The licensee generated condition reports to address the deficiencies in implementation of their structures monitoring inspections and associated documentation for the intake structure, and the lack of inspections for the discharge tunnel. The condition reports also address the documentation missing in their SMP to ensure compliance with LR Commitments through the generation of a preventive maintenance activity with the necessary detailed instruction regarding the scope of the inspection, as well as the creation of the site-specific conditioning monitoring inspections to meet the requirements of the SMP.

Corrective Action References: IRs 04438445, 04439048, and 04442097

Performance Assessment:

Performance Deficiency: Inspections were not performed on portions of the safety-related intake structure contrary to ER-AA-450, "Structures Monitoring," Revision 10. Specifically, conditions of concrete that are required to be evaluated for the effects of aging, were not adequately assessed during structures monitoring inspections conducted between 2010 and present day.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Procedure Quality 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 inspector used IMC 0612 Appendix E, "Examples of Minor Issues," to inform the screening, and noted that the performance deficiency was similar to Example 8.c. Specifically, the condition of the intake structure's concrete was not effectively

demonstrated through effective inspection of the surfaces of concrete for the effects of aging for structures scoped into the SMP.

Significance: The inspectors assessed the significance of the finding using Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors determined that the logic questions for both Section A (Mitigating SSCs, in support of RHRSW and ESW) and Section B (External Event Mitigating Systems, tornado protection) did not apply. Therefore, the inspectors determined the finding to be of very low safety significance (Green).

Cross-Cutting Aspect: H.8 - Procedure Adherence: Individuals follow processes, procedures, and work instructions. Specifically, FitzPatrick personnel did not adequately perform structures monitoring inspections in accordance with required procedures. Moreover, the implementation of a dated SMP inspection checklist to perform inspections in 2018 and 2020 was considered a missed opportunity to recognize the need for a new site-specific procedure, with appropriate condition monitoring attributes, consistent with the current Exelon fleet procedure, and therefore, reflective of current performance.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states that 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.

Procedure EN-DC-150, "Condition Monitoring of Maintenance Rule Structures," Revision 1, identifies the entire intake structure, both internal and external, of the intake and discharge structures, and the screenwell/pumphouse, as relevant water control structures being in-scope for inspections. Moreover, this procedure states, in part, that reinforced concrete surfaces shall be inspected for visible cracks, evidence of spalling, and erosion, using Attachment 9.4.

Contrary to the above, since October 2010, activities affecting quality were not accomplished in accordance with procedures for monitoring Maintenance Rule structures. Specifically, FitzPatrick did not perform adequate structures monitoring inspections of the reinforced concrete surfaces of certain underwater portions of the intake structure. As a result, the condition of the structure was not fully observed to be evaluated for the effects of aging.

Enforcement Action: This violation is being treated as an NCV, 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 October 28, 2021, the inspectors presented the integrated inspection results to Mr. Tim Peter, Site Vice President, and other members of the licensee staff.
- On July 29, 2021, the inspectors presented the triennial heat sink inspection results to Mr. Tim Peter, Site Vice President, and other members of the licensee staff.

- On September 2, 2021, the inspectors presented the radioactive solid waste processing and radioactive material handling, storage and transportation inspection results to Mr. Tim Peter, Site Vice President, and other members of the licensee staff.
- On September 7, 2021, the inspectors presented the ultimate heat sink portion of the 2021 triennial heat sink inspection results to Ms. Adriene Smith, Director of Organizational Effectiveness, and other members of the licensee staff.
- On September 29, 2021, the inspectors presented the final 50.59 Team inspection results to Mr. Tim Peter, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Procedures	AOP-13	Severe Weather	37
		JAF-RPT-14-00035	Fukushima Project Walkdown of Plant Features That Are Potentially Subject to BDBEE Flood Water Infiltration	0
	Corrective Action Documents	CR-JAF-2011-06787		
71111.04	Corrective Action Documents Resulting from Inspection	04437525		
		04439955		
	Drawings	FM-19A	Flow Diagram Fuel Pool Cooling and Clean-up System 19	45
		FM-19B	Flow Diagram Fuel Pool Filter Demineralizer System 19-4	23
	Miscellaneous	DBD-010	Design Basis Document for Residual Heat Removal System	14
	Procedures	OP-13	Residual Heat Removal System	99
		OP-21	Emergency Service Water	41
OP-30		Fuel Pool Cooling and Cleanup System	16	
71111.05	Corrective Action Documents Resulting from Inspection	04435445		
		04435448		
		04436249		
	Fire Plans	PFP-OUT-25	Interim Waste Storage Facility/Fire Area/YARD	02
		PFP-PWR-02	West Cable Tunnel/ Elev. 258' Fire Area/Zone IC/CT-1	5
		PFP-PWR01	East Cable Tunnel/Elev. 258' Fire Area/Zone II/CT-2	03
		PFP-PWR21	Reactor Building West, Elevation 272' Fire Area/Zone 10/RB-1B	5
		PFP-PWR23	Motor Generator Set Room/Elev. 300' Fire Area/Zone 1A/MG-1	10/10/2013
		PFP-PWR31	Emergency Diesel Generator Spaces-South/Elev. 272' Fire Area/Zone V/EG-1, EG-2, EG-5	5
		PFP-PWR32	Emergency Diesel Generator Spaces-North/Elev. 272' Fire Area/Zone VI/EG-3, EG-4, EG-6	5
71111.06	Calculations	11825-CALC-24=1	Crescent Area - Flood Protection	0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		12966-PE(N)-002	Mass and Energy Release Data for High Energy Line Breaks in the Reactor Building	0
		12966-PE(N)-005	Time Required for Operator Action to Prevent Flooding of Both Crescent Areas from a Moderate Energy Line Crack if Access Door is Temporarily Left Open	0
		12966-PE(N)-020	Flooding Levels of Reactor Building Floors Resulting from High Energy Line Breaks	0
71111.07A	Calibration Records	04421678		
	Corrective Action Documents Resulting from Inspection	04435452		
	Miscellaneous	DBD-046	Design Basis Document for the Normal Service Water, Emergency Service Water, and RHR Service Water	19
	Work Orders	04938341-01		
71111.07T	Corrective Action Documents Resulting from Inspection	04437536		
		04437779		
	04437917			
		04438445		
		04439048		
		04442095		
		04442097		
		04442101		
	Miscellaneous	ML080250372	License Renewal Safety Evaluation Report	February 2008
	Work Orders	00167188		
71111.12	Corrective Action Documents	04276858		
		04278005		
		04282113		
		04428511		
		04282697		
		04372174		
		04398228		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		04412368		
	Miscellaneous	IEEE Standard 95-2002	IEEE Recommended Practice for Insulation Testing of AC Electric Machinery (2300 V and Above) with High Direct Voltage	
		JAF-RPT-13-00005	RHR and CS Pump Motor EQ Life	0
	Procedures	MA-AA-723-330	Electrical Testing of AC Motors using Baker Instrument Advanced Winding Analyzer	6
	Work Orders	5052146		
71111.15	Corrective Action Documents	04374440		
		04428511		
		04438031		
		04438034		
		04445155		
	Drawings	FE-1H	4160V One Line Diagram Emergency Bus 10500	14
		FE-1N	600V One Line Diagram Switchgear 71L25 and 71L26	25
		FE-1Z	600V One Line Diagram 71MCC-253, 263, 254 & 264	34
		FM-22A	Reactor Core Isolation Cooling	57
		FM-34A	Flow Diagram Feedwater	74
71111.17T	Corrective Action Documents Resulting from Inspection	04448109 04448227 04448940		
71111.18	Corrective Action Documents	04438511		
		04446321		
	Engineering Changes	624790	Seismic Scaffold Criteria for JAF	
		634448	Residual Heat Removal Pump A Motor 10P-3A(M) Replacement	1
	Procedures	MA-AA-716-025	Scaffold Installation, Modification, and Removal Request Process	14
		MA-AA-716-025-F-3	Permanent Scaffold Request Form	1
MA-AA-716-025-F-5		Station Permanent Scaffold Request Engineering Evaluation Form	0	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		MA-AA-723-330	Electrical Testing of AC Motors Using Baker Instrument Advanced Winding Analyzer	6
		MA-AA-796-024	Scaffold Installation, Inspection, and Removal	11
		MA-AA-796-024-F-01	Scaffold/Vertical Barrier Inspection Check List	0
	Work Orders	04879904		
		82681984		
71111.19	Procedures	RAP-7.3.14	Traversing Incore Probe System	32
		ST-3PB	Core Spray Loop B Quarterly Operability Test (IST)	32
		ST-6KB	B SLC System Class 2 Piping Leakage Test (ISI) and Operability Test (IST)	5
		ST-7BA	Monthly SGT Train A Run	5
	Work Orders	04966082		
		04974575		
		05154285		
		04963112		
71111.22	Drawings	FM-23A	Revision 49 Flow Diagram Core Spray System 14	49
	Procedures	ST-2AV	RHR Loop B Keep-Full Check Valve Functional Test IST	3
		ST-3PA	Core Spray A Quarterly Operability Test (IST)	12
		ST-4N	HPCI Quick Start	79
		ST-9BA	EDG A and C Full Load Test and ESW Pump Operability Test	21
	Work Orders	05056175		
		05057700		
		05105404		
		05125108		
71124.02	Corrective Action Documents	04371298		
		04374187		
	Procedures	NISP-RP-010	Radiological Job Coverage	11/09/2018
		RP-AA-400	ALARA Program	19
		RP-AA-401	Operational ALARA Planning	28
		RP-AA-403	Administration of the Radiation Work Permit Program	12
		RP-AA-441	TEDA ALARA Evaluation	11
	Radiation Surveys	2020-062754	Drywell Elevation 292 General Areas	01/31/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		2020-062805	Drywell Elevation 292 General Areas	02/01/2020
		2020-062929	Drywell Elevation 292 General Areas	02/02/2020
		2020-062952	Drywell Elevation 292 General Areas	02/03/2020
		2020-063056	Drywell Elevation 292 General Areas (12MOV-15)	02/05/2020
71124.08	Corrective Action Documents	04439425		
	Procedures	RP-AA-600	Radioactive Material Waste Shipments	18