



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

February 11, 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 05000333/2020004**

Dear Mr. Rhoades:

On December 31, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at James A. FitzPatrick Nuclear Power Plant. On January 28, 2021, the NRC inspectors discussed the results of this inspection with Mr. Pat Navin, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

Two findings of very low safety significance (Green) are documented in this report. One of these findings 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 or a finding not associated with a regulatory requirement 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,

X /RA/

Signed by: Eric D. Miller

Eric D. Miller, Acting Chief
Projects Branch 1
Division of Reactor Projects

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: 05000333/2020004

Enterprise Identifier: I-2020-004-0019

Licensee: Exelon Nuclear

Facility: James A. FitzPatrick Nuclear Power Plant

Location: Oswego, NY

Inspection Dates: October 1, 2020 to December 31, 2020

Inspectors: J. Dolecki, Acting Senior Resident Inspector
J. England, Resident Inspector
H. Anagnostopoulos, Senior Health Physicist
E. Miller, Acting Branch Chief

Approved By: Eric D. Miller, Acting Chief
Projects Branch 1
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 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

Division 2 EDG Subsystem Frequency Failed to Meet Technical Specification			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000333/2020004-01 Open/Closed	[H.11] - Challenge the Unknown	71111.15
A self-revealed Green finding and associated non-cited violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> (CFR) Part 50, Appendix B, Criterion XVI, Corrective Action, was identified when Exelon failed to correct conditions adverse to quality associated with the safety-related Division 2 emergency diesel generator (EDG) subsystem. Specifically, Exelon staff failed to address a defective tachometer and procedure prior to the performance of a surveillance test on the Division 2 EDG subsystem on October 19, 2020.			

Ineffective Radiation Protection Program Barrier Leading to an Unplanned Intake of Radioactive Material			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Occupational Radiation Safety	Green FIN 05000333/2020004-02 Open/Closed	[H.8] - Procedure Adherence	71124.01
A Green finding was identified by the NRC with Exelon's failure to fully assess the radiological conditions and to provide adequate radiological work limitations (and associated access controls) for an entry into the condenser false-floor area for a foreign material inspection on September 26, 2020. The entry resulted in an unplanned intake of radioactive material into the body of one radiation worker.			

Additional Tracking Items

None.

PLANT STATUS

FitzPatrick began the inspection period shut down for planned refueling outage 24 (J1R24). Upon completion of outage J1R24, operators performed a reactor startup and the generator was placed on the grid on October 5, 2020. The reactor reached 100 percent power on October 7, 2020. Reactor power was reduced to approximately 85 percent for planned maintenance on the 'B' condensate booster pump and waterboxes on December 3, 2020. Upon completion of the waterbox maintenance, reactor power was increased to approximately 95 percent on December 5, 2020. Upon completion of the 'B' condensate booster pump maintenance, reactor power was increased to 100 percent on December 10, 2020, where it remained for the duration 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. During this time the resident inspectors performed periodic site visits each week and during that time conducted plant status activities as described in IMC 2515, Appendix D; 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 portions 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

Seasonal Extreme Weather Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal cold temperatures for the FLEX diesel generators, east and west diesel fire pumps, on December 8, 2020.

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 Exelon's design requirements and risk analysis assumptions for coping with external flooding on November 20, 2020.

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Radwaste building elevation 284', fire area/zone XIX/CR-2, on October 29, 2020
- (2) Radwaste building elevation 250', fire area/zone XIX/RW-1, on October 29, 2020
- (3) Radwaste building elevation 272' and 279', fire area/zone XIX/RW-1, on October 29, 2020
- (4) Radwaste building elevation 298', fire area/zone XIV/RW-1, on October 29, 2020

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 crescent following rainwater intrusion on October 10, 2020

Cable Degradation (IP Section 03.02) (1 Sample)

The inspectors evaluated cable submergence protection in:

- (1)
 - Manhole 1 on October 17, 2020
 - Manhole 7B on December 17, 2020
 - Manhole 7A on December 18, 2020
 - Manhole 8A on December 23, 2020

71111.07A - Heat Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

- (1) East electric bay unit cooler on November 16, 2020

71111.11Q - Licensed Operator Regualification 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 reactor startup following outage J1R24 on October 4, 2020.

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

- (1) The inspectors observed and evaluated operator performance in the simulator which included a fuel failure, a reactor scram, a leak in the drywell and leak outside the drywell on November 10, 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) 'D' residual heat removal and 'D' residual heat removal service water 4.16-kilovolt breakers on November 30, 2020
- (2) Feedwater on December 21, 2020

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (3 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 re-evaluation of 10600 4-kilovolt bus degraded grid relay testing on October 19, 2020
- (2) Unplanned maintenance associated with the 33P-9B, 'B' condensate booster pump due to pump seal leakage on December 3, 2020
- (3) Unplanned maintenance associated with the reactor core isolation cooling system flow indication fluctuations on December 23, 2020

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (2 Samples)

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

- (1) RS-4 shield plug removed during planned maintenance on December 3, 2020
- (2) 'B' and 'D' emergency diesel generators frequency due to speed switch setting on December 7, 2020

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Permanent Modification: Engineering Change 625089, Feedwater Level Control Upgrade, on October 5, 2020

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (2 Samples)

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

- (1) ST-4N, High Pressure Coolant Injection Quick-Start, Inservice, and Transient Monitoring Test (In-Service Test) following major preventive maintenance window on October 5, 2020
- (2) 'B' and 'D' emergency diesel generator following governor frequency adjustment on October 20, 2020

71111.20 - Refueling and Other Outage Activities

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

- (1) The inspectors evaluated refueling outage J1R24 activities from October 1, 2020 through October 7, 2020.

71114.06 - Drill Evaluation

Drill/Training Evolution Observation (IP Section 03.02) (2 Samples)

The inspectors evaluated:

- (1) A scenario in the simulator and Emergency Operations Facility including a fuel failure, control rod drive pump failure, and main steam isolation valve failure on November 4, 2020
- (2) A scenario in the simulator including a fuel failure, reactor scram, leak in the drywell and leak outside the drywell on November 10, 2020

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated how Exelon identifies the magnitude and extent of radiation levels and the concentrations and quantities of radioactive materials and how Exelon assesses radiological hazards.

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) (2 Samples)

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

- (1) Inspectors observed the routine release of personnel and material from the main access control point.
- (2) Inspectors observed the routine release of personnel and material from the “old access” point on the 272' elevation of the turbine building.

Radiological Hazards Control and Work Coverage (IP Section 03.04) (3 Samples)

The inspectors evaluated in-plant radiological conditions during facility walkdowns and observation of radiological work activities.

- (1) Inspectors performed a review of radiological conditions, postings, and area control for leak from the 12MOV15 valve in January 2020.
- (2) Inspectors performed a review of radiological conditions, postings, area and work control for an entry into the condenser false-floor area during outage J1R24.
- (3) Inspectors conducted a review of radiological conditions, postings, area and work control for pulling of hoses from the main steam line plugs on the refueling floor during outage J1R24.

High Radiation Area and Very High Radiation Area Controls (IP Section 03.05) (2 Samples)

The inspectors evaluated licensee controls of the following High Radiation Areas and Very High Radiation Areas:

- (1) Radwaste 279' elevation valve isle fuel pool filter demineralizers room
- (2) Southeast condenser bay on the 272' elevation of the turbine building

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 03.06) (1 Sample)

- (1) The inspectors evaluated radiation worker and radiation protection technician performance as it pertains to radiation protection requirements.

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) (1 Sample)

- (1) April 1, 2019 through September 30, 2020

MS06: Emergency AC Power Systems (IP Section 02.05) (1 Sample)

- (1) July 1, 2019 through September 30, 2020

MS07: High Pressure Injection Systems (IP Section 02.06) (1 Sample)

- (1) July 1, 2019 through September 30, 2020

MS08: Heat Removal Systems (IP Section 02.07) (1 Sample)

- (1) July 1, 2019 through September 30, 2020

MS09: Residual Heat Removal Systems (IP Section 02.08) (1 Sample)

- (1) July 1, 2019 through September 30, 2020

MS10: Cooling Water Support Systems (IP Section 02.09) (1 Sample)

- (1) July 1, 2019 through September 30, 2020

BI01: Reactor Coolant System (RCS) Specific Activity Sample (IP Section 02.10) (1 Sample)

- (1) January 1, 2019 through December 31, 2019

71152 - Problem Identification and Resolution

Semiannual Trend Review (IP Section 02.02) (1 Sample)

- (1) The inspectors reviewed the licensee's corrective action program for potential adverse trends in that might be indicative of a more significant safety issue.

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) Failure to Adequately Monitor the Drywell Atmosphere When Both Continuous Air Monitors Were Inoperable (IRs 0429516 and 04295136)

71153 - Followup of Events and Notices of Enforcement Discretion

Personnel Performance (IP Section 03.03) (1 Sample)

- (1) 'B' and 'D' emergency diesel generator frequencies outside of acceptance criteria on October 19, 2020

INSPECTION RESULTS

Division 2 EDG Subsystem Frequency Failed to Meet Technical Specification			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000333/2020004-01 Open/Closed	[H.11] - Challenge the Unknown	71111.15
<p>A self-revealed Green finding and associated non-cited violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> (CFR) Part 50, Appendix B, Criterion XVI, Corrective Action, was identified when Exelon failed to correct conditions adverse to quality associated with the safety-related Division 2 emergency diesel generator (EDG) subsystem. Specifically, Exelon staff failed to address a defective tachometer and procedure prior to the performance of a surveillance test on the Division 2 EDG subsystem on October 19, 2020.</p> <p><u>Description:</u> On October 19, 2020, Exelon operators were performing surveillance test procedure TST-187, "EDG B and D Full Load Test (8 Hour Run)", Revision 0, when it was identified that the Division 2 EDG subsystem (i.e., both the 'B' and 'D' EDGs) output frequencies were out of tolerance and did not meet Technical Specification requirements. Technical Specification Surveillance Requirement 3.8.1.2 requires frequency to be greater than or equal to 58.8 Hertz (Hz) and less than or equal to 61.2 Hz. Operators found the 'B' EDG frequency at 62.2 Hz and the 'D' EDG frequency at 61.7 Hz. Following identification of the discrepancy, operators shutdown both the 'B' EDG and 'D' EDG and entered an unplanned Limiting Condition for Operation (LCO) 14-day action statement (restore EDG subsystem to operable status) associated with "One EDG Subsystem Inoperable" (i.e., LCO 3.8.1 Condition B). Operators responded by troubleshooting to resolve the condition and later performed an evaluation to identify the cause.</p> <p>Exelon troubleshooting identified errors that occurred on September 25-26, 2020 during the refueling outage after maintenance staff replaced the digital reference unit (DRU) on both the 'B' and 'D' EDGs (the DRU establishes controls for the EDG speed and frequency output). Following the replacement of the DRU, maintenance staff performed IMP-93.9, "EDG Governor Tuning Procedure" on both 'B' and 'D' EDG. However, portions of IMP-93.9 Section 9.11 were performed on the 'D' EDG that were not performed on the 'B' EDG. Procedure IMP-93.9 Section 9.11 contained steps to adjust the digital reference unit setpoints after bench setup that should not have been included for the maintenance activity on September 25-26, 2020. Specifically, IMP-93.9, Step 9.11.5 through 9.11.7, and 9.11.10 through 9.11.12 direct adjustment of the "high" and "low" limit setpoints if they are not within 0.1 volts direct current of the bench setup. The incorrect steps were identified during the performance of IMP-93.9 on the 'B' EDG, and Exelon staff completed an in-field procedure change by removing the steps. However, operators failed to perform an extent of condition and include the 'D' EDG in the procedure change. Further, during the DRU bench testing on January 17, 2020, a note was made in the procedure to not adjust or move the DRU setpoints. The inspectors determined Exelon staff failed to enter each issue into the corrective action program to be addressed in accordance with PI-AA-120, "Identification and Screening Process", Revision 8. As a result, the performance of IMP-93.9 Section 9.11 steps on the 'D' EDG resulted in an unnecessary adjustment to the 'D' EDG DRU setpoint. The resulting frequency of the 'D' EDG was 61.7 Hz, outside of the Surveillance Requirement 3.8.1.2 acceptance criteria, during the October 19, 2020 surveillance test. Exelon troubleshooting also identified that a degraded 'B' EDG speed tachometer,</p>			

93TACH-2B, was used to set up the 'B' EDG DRU on January 17, 2020. The defective tachometer was previously identified on June 7, 2019 (IR 04255339). The inspectors also determined that a deficiency tag should have been hung on 93TACH-2B following IR 04255339 being generated in June 2019 in accordance with Step 3.1 of WC-AA-106, "Work Screening and Processing". As a result, during the September 25, 2020 planned maintenance, the frequency was incorrectly adjusted because the tachometer was displaying lower than actual. The resulting frequency of the 'B' EDG was 62.2 Hz, outside of the Surveillance Requirement 3.8.1.2 acceptance criteria, during the October 19, 2020 surveillance test.

Exelon determined that the pre-start up checks performed in accordance with OP-22, "Emergency Diesel Generator Power," on October 19, 2020 caused the Division 2 EDG subsystem frequency to be outside of technical specification limits. The pre-start checks required the operators to press a speed reset push button. This reset button activated the incorrect, out-of-tolerance DRU settings established during the maintenance performed on September 25-26, 2020.

The inspectors determined that Exelon's failure to correct the deficiencies associated with the IMP-93.9 procedure and an inaccurate tachometer were conditions adverse to quality that impacted the reliability and availability of the Division 2 EDG subsystem.

Corrective Actions: On October 19, 2020, operators manually adjusted the EDG speed during troubleshooting to restore frequency within the Technical Specification limit. The station subsequently generated IR 04377749. Within IR 04377749, Exelon developed compensatory measures to revise their pre-start checks to not include pressing the speed reset push button; place an information tag on the speed reset switch push button to ensure operators do not press the push button without supervisor approval; update ARP-09-8-4-20 to remove the step to press the reset speed push button; and to have operators make a manual adjustment of the speed. The station created work orders to also correct the DRU setpoints.

Corrective Action References: IRs 04255339 and 04377749

Performance Assessment:

Performance Deficiency: The inspectors determined Exelon's failure to correct conditions adverse to quality associated with the Division 2 EDG subsystem was contrary to 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, and was reasonably within the licensee's ability to foresee and correct.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Human 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 inspectors reviewed IMC 0612, Appendix B, dated December 12, 2019, to disposition the issue of concern and associated performance deficiency. Specifically, the failure to perform corrective actions associated with Division 2 EDG subsystem output frequency prior to the performance of a routine surveillance activity on the safety-related 'B' EDG subsystem, which resulted in output frequency exceeding the Surveillance Requirement 3.8.1.2 acceptance criteria and an unplanned LCO action statement entry, adversely affected the reliability and availability of the Division 2 EDG subsystem. The inspectors also reviewed IMC 0612 Appendix E, dated January 21, 2021, to inform the more-than-minor determination. The inspectors determined that this issue was similar to example 4.c because a mistake

made during testing of a safety-related component impacted the operability and required additional maintenance on the component (actual equipment problem).

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power". The inspectors determined this finding was of very low safety significance (Green) because the finding was not a deficiency affecting the design or qualification of a mitigating structure, system or component, did not represent a loss of probabilistic risk assessment (PRA) function of a single train Technical Specification system for greater than its Technical Specification allowed outage time, did not represent a loss of PRA function of one train of a multi-train Technical Specification system for greater than its Technical Specification allowed outage time, did not represent a loss of PRA function of two separate Technical Specification systems for greater than 24 hours, did not represent a loss of a PRA system and/or function as defined in the Probabilistic Risk Information Book or the licensee's PRA for greater than 24 hours, and did not represent a loss of the PRA function of one or more non-Technical Specification trains of equipment designated as risk-significant in accordance with the licensee's maintenance rule program for greater than 3 days.

Cross-Cutting Aspect: H.11 - Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding. Exelon staff failed to stop and gain a thorough understanding of the applicable equipment and procedures prior to performing maintenance activities on EDGs' governor system. Specifically, Exelon staff failed to use an appropriate, calibrated tachometer during the testing of the 'B' EDG. Further, Exelon staff failed to fully understand and question the purpose of procedural steps in IMP-93.9 during the maintenance activities on September 25-26, 2020. Exelon technicians were not proficient on the procedure and were not challenged by supervision. As a result, the Division 2 EDG subsystem DRU setpoints were programmed outside of the technical specification setpoints, which impacted operability and availability of the EDG.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, states 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, Exelon failed to promptly identify and correct conditions adverse to quality corresponding to the safety-related Division 2 EDG output frequency. Specifically, Exelon failed to correct the 'B' EDG degraded tachometer, 93TACH-2B, or hang a deficiency tag to provide awareness to operators after it was determined to be out of tolerance on June 7, 2019 as documented in IR 04255339. Furthermore, Exelon failed to correct procedure IMP-93.9 for the 'D' EDG when it was determined to be inadequate (1) after the DRUs were bench calibrated on January 17, 2020 and a note was provided to not adjust the DRU again; and (2) when Exelon staff failed to perform an extent of condition review to include the 'D' EDG in a procedure change.

Enforcement Action: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Ineffective Radiation Protection Program Barrier Leading to an Unplanned Intake of Radioactive Material			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Occupational Radiation Safety	Green FIN 05000333/2020004-02 Open/Closed	[H.8] - Procedure Adherence	71124.01
<p>A Green finding was identified by the NRC with Exelon's failure to fully assess the radiological conditions and to provide adequate radiological work limitations (and associated access controls) for an entry into the condenser false-floor area for a foreign material inspection on September 26, 2020. The entry resulted in an unplanned intake of radioactive material into the body of one radiation worker.</p> <p><u>Description:</u> On September 19, 2020, a radiological survey, 2020-080174, was conducted of the condenser false-floor to assess the radiological conditions. The survey identified high to very high levels of loose surface radioactive contamination on the floors, including one measurement of 36 millirad per hour (mrad/hr) per smeared area (about 1,800,000 disintegrations per minute per 100 centimeters squared).</p> <p>On September 26, 2020 a radiation worker entered into the condenser false-floor area, alone, to perform a closeout inspection for foreign material. When attempting to exit the radiologically controlled area, the worker alarmed both the personnel contamination monitor and the gamma-sensitive portal monitor.</p> <p>The worker was directed by radiation protection personnel to shower to remove external radioactive contamination. After several attempts, the worker was able to successfully pass through the personnel contamination monitor, indicating that external contamination was removed. A series of successive whole-body counts indicated an ingestion of licensed radioactive material. The site evaluated the condition and determined the final committed effective dose equivalent to be 0.71 millirem.</p> <p>The NRC became aware of the unplanned intake during a routine onsite baseline inspection on November 6, 2020. The inspectors reviewed Exelon's radiation dose calculation package, the associated radiological survey of the condenser, and developed concerns with the radiological control aspects of the event.</p> <p>The inspectors determined that, contrary to NISP-RP-010, "Radiological Job Coverage", Revision 1, the radiation protection technician and/or the radiation protection supervisor who authorized entry into the condenser-false floor area did not verify that radiological conditions were consistent with the radiation work permit's basis, did not verify that radiological postings were correct for the work, and did not obtain air samples prior to and/or during the entry.</p> <p>Corrective Actions: Exelon did not require any corrective actions for the initial unplanned intake of radioactive material because the magnitude of the internal radiation exposure was below a program threshold of 10 millirem.</p> <p>Corrective Action References: IRs 04391691, 04391081, 04391085, and 04391086</p>			
<u>Performance Assessment:</u>			

Performance Deficiency: Procedure NISP-RP-010, "Radiological Job Coverage," Revision 1, describes the processes and instructions to be used by radiation protection staff for monitoring radiological work, based on the radiological risk and types of radiological hazards that may be present. Exelon failed to implement several requirements of this procedure, rendering it ineffective in its intended radiation safety function. Specifically: Step 6.2.1.a. states, "Survey immediately prior to beginning work if radiological conditions are unknown or potentially unstable". Contrary to this requirement, no radiological survey was performed in the condenser-false floor area immediately prior to allowing entry for work on September 26, 2020 (foreign material inspection). A single radiological survey was conducted seven days prior to the entry (on September 19, 2020) and high levels of loose surface contamination were identified at that time. Significant work was performed in the condenser in the intervening period, which presented a reasonable potential for the existing loose surface contamination to spread and/or to dry out.

Step 6.2.2 states, "Obtain air samples per NISP-RP-003, Radiological Air Sampling". Contrary to Section 6.1.3.d. in Revision 1 of that procedure, a radiological air sample was not collected in an area with levels of dry removable contamination greater than 100,000 disintegrations per minute per 100 centimeters squared. The radiological survey on September 19, 2020 identified contamination levels in excess of that value and no air sample was collected. The nature of the loose surface contamination (wet or dry) was not documented on the survey. In addition, no air sample was collected approximately seven days later during the entry for foreign material inspection. The potential for high levels of surface contamination to become airborne and for radiation workers to be exposed to airborne radioactivity was never assessed by collecting a sample of the air in the condenser-false floor area.

Step 6.3.9.d. states, "Ensure area postings and labeling are in compliance with NISP-RP-004, Radiological Posting and Labeling". Contrary to Section 6.2 in Revision 1 of that procedure, the condenser false-floor area was not posted as a High Contamination Area when loose surface contamination levels were found to exceed 100,000 disintegrations per minute per 100 centimeters squared during the September 19, 2020 survey. High contamination areas require additional protective clothing requirements, additional exit controls, increased job coverage and oversight, and a more cautious approach to work by the radiation worker. When authorizing entry into the condenser-false floor area on September 26, 2020, this discrepancy was also not identified and corrected.

Step 6.2.1 states, "Perform work area radiation and contamination surveys as needed to ensure the radiological conditions during work activities are consistent with worker briefings and within the ranges specified by the RWP and, if applicable, the ALARA Plan". Contrary to this requirement, the step could not be completed because radiation work permit (RWP) JF-1-20-00802 did not provide allowable ranges for the radiological conditions under which work in the main condenser was authorized.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Program & Process attribute of the Occupational Radiation Safety cornerstone and adversely affected the cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. The inspectors reviewed IMC 0612, Appendix B, dated December 12, 2019, to disposition the issue of concern and associated performance deficiency. Specifically, Exelon's failure to implement several

requirements in a radiation protection procedure adversely impacted the effectiveness of this radiation protection program barrier as described in IMC 0612, Section 6, "Health Physics, General Screening Criteria", leading to an unplanned intake of radioactive material in a radiation worker.

Significance: The inspectors assessed the significance of the finding using Appendix C, "Occupational Radiation Safety SDP." Using IMC 0609.04, "Initial Characterization of Findings," effective December 20, 2019, and IMC 0609 Appendix C, "Occupational Radiation Safety Significance Determination Process," issued August 19, 2008, the inspectors determined that the finding was not related to ALARA practices (Step 1), did not result in an overexposure (Step 5), did not represent a substantial potential for overexposure (Step 11), and did not compromise Exelon's ability to assess dose (Step 14). As a result, this finding was determined to be of very low safety significance (Green).

Cross-Cutting Aspect: H.8 - Procedure Adherence: Individuals follow processes, procedures, and work instructions. The cause of the finding has a cross-cutting aspect in the area of Procedure Adherence, "Individuals Follow Processes, Procedures, and Work Instructions," in that Exelon did not ensure that four requirements in NISP-RP-010, "Radiological Job Coverage," Revision 1 were adequately implemented.

Enforcement: Inspectors did not identify a violation of regulatory requirements associated with this finding.

Observation: Semi-Annual Trend	71152
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The inspectors evaluated a sample of issues and events that occurred over the third and fourth quarters of 2020. The evaluation did not reveal any new trends that could indicate a more significant safety issue. The inspectors determined that, in most cases, the issues were appropriately evaluated by Exelon staff for potential trends at a low threshold, and resolved within the scope of the corrective action program. The inspectors identified a trend associated with repeat maintenance issues associated with the 'C' transverse in-core probe circuit breaker, manhole and yard sump pump failures, drywell containment atmospheric monitor air in-leakage, and the 'B' condensate booster pump seal leakage.

Based on the overall results of the semi-annual trend review, the inspectors determined that Exelon had generally identified adverse trends at FitzPatrick before they could become more significant safety problems. The inspectors independently evaluated the deficiencies noted above for significance in accordance with the guidance in IMC 0612, Appendix B, "Issue Screening", and Appendix E, "Examples of Minor Issues", and determined them to be minor.

Observation: Failure to Adequately Monitor the Drywell Atmosphere When Both Continuous Air Monitors Were Inoperable	71152
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The inspectors performed an in-depth review of Exelon's corrective actions associated with an NRC-identified minor violation of Technical Specification 3.4.5 Condition C. This violation was detailed in inspection report 05000333/2019004 (ML20038A125) dated February 5, 2020.

Specifically, during a routine semiannual trend review under inspection procedure 71152, the inspectors identified that procedure RP-JF-03.01, "Drywell Continuous Atmospheric Monitoring," Revision 40, was not properly implemented by FitzPatrick staff to obtain samples that provided meaningful data to effectively monitor the drywell for leakage. Technical Specification 3.4.5 "RCS Leakage Detection Instrumentation" requires that the

drywell floor drain sump monitoring system, one channel of the drywell continuous atmospheric particulate monitoring system, and one channel of the drywell continuous atmospheric gaseous monitoring system be operable. Technical Specification 3.4.5 Condition C states that, with both drywell continuous atmospheric monitoring systems inoperable, the station is to analyze grab samples of the drywell atmosphere once per 12 hours. Condition C is satisfied through the use of procedure RP-JF-03.01. When using this procedure between October 6, 2019 and October 8, 2019 (63 hours), the station did not obtain particulate grab samples; rather, isotopic radionuclide data was gathered from a gaseous grab sample. Failing to collect a particulate sample is contrary to Technical Specification 3.4.5 which requires information regarding particulates in the drywell atmosphere. It also hampered implementation of the drywell leakage adverse condition monitoring plan (ACMP "Drywell CAM High Particulate Counts," Revision 3), as the grab sample data was not comparable to the criteria provided in the plan.

Exelon entered this issue into its corrective action program as IR 04295162 and IR 4295136. The inspectors assessed the selection and implementation of the corrective actions associated with those two IRs. The inspectors determined that Exelon had not adequately assessed the operability concerns associated with IRs 0429516 and IR 04295136. The inspectors determined that operators failed to consider all aspects of the RCS leakage detection system. Specifically, the operators failed to assess the loss of the primary indicator of RCS leakage, particulate activity, in their operability assessment. The inspectors reviewed the Technical Specification Bases for Section 3.4.5 Condition C.1 and C.2, which state "grab samples of the drywell atmosphere must be taken and analyzed to provide periodic leakage information". The inspectors determined that the leakage information obtained did not allow Exelon staff to adequately trend an RCS leak. Specifically, the station relied on only gaseous samples, and did not obtain a particulate sample to continue to trend RCS leakage that was previously established by the particulate channel of the continuous air monitors (CAMs), and was being monitored by Exelon's operators using an Adverse Condition Monitoring Plan (ACMP).

The inspectors reviewed Revision 4 to the "Drywell CAM High Particulate Counts" ACMP, which was a corrective action that was written as a result of IR 04295162 Action #4. The revised ACMP includes a "NOTE 3" for a condition in which both drywell CAMs are out of service. Item 2 of that note directs the reader to "Commence taking grab samples per LCO 3.4.5". The note does not specifically direct the reader to collect a particulate sample and does not provide any means to compare CAM readings in counts per minute (CPM) to chemistry grab sample results in microCuries per milliliter. Although the format of the revised ACMP is significantly different, the content regarding the use of drywell CAM readings in CPM is essentially unchanged. The corrective action does not address either of the problems identified in the IR and is ineffective.

The inspectors reviewed Revision 41 to procedure RP-JF-03.01 which was required as a corrective action in IR 4295136 Action #4. The inspectors noted that the corrective action does not identify what issues within RP-JF-03.01 need to be altered in order to support Technical Specification 3.4.5 Condition C.1 requirements. The inspectors found that the only notable difference between revisions 40 (old) and 41 (revised) is a change to the definition of a "Grab Sample". Revision 41 Step 3.2.4 still indicates that the reader MAY perform sampling per Attachment 7. Attachment 7 is essentially unchanged.

Revision 41 does not clearly state that a particulate grab sample is required in order to comply with Technical Specification 3.4.5 Condition C.1, and it does not provide any method

to relate a grab sample's results in microCuries per milliliter to CAM readings in CPM. The corrective action is ineffective.

In addition to the review of corrective actions, the inspectors noted that HU-AA-101-1002, Revision 5, Section 4.1.1 requires a Human Performance Review Board (HURB) for "Non-Discretionary Station and Department Event-Free Clock Resets" and that procedure OP-AA-101-113-1001, Revision 23, Item 6 presents a "Department Clock Reset Criteria" for a "Missed technical specification or other regulatory required surveillance".

As discussed previously, Technical Specification 3.4.5 Condition C.1 requires that both particulate and gaseous grab samples of the drywell atmosphere be collected when both drywell CAMS are inoperable. The collection of a particulate grab sample was not performed for a period of 63 hours, therefore the required action per Technical Specification was missed and the RCS Leakage Detection System was inoperable during that period. It appears that an Operations Department Clock Reset and a HURB for the event were both warranted. These actions were not taken as required by procedure, and the failure went unidentified by Exelon throughout the corrective action screening, review, and approval processes.

The annual follow-up of selected issues ensures that the licensee has planned and/or implemented corrective actions commensurate with the significance of identified issues. The inspectors reviewed six relevant corrective actions as provided in two IRs. Five of the six were found to be ineffective. In addition, the inspectors identified a failure to perform an Operations Department Clock Reset and a HURB for one of the two issues described in the NRC-identified minor violation of Technical Specification 3.4.5 in November 2019.

These corrective action program issues were determined to be minor because, although the station failed to effectively address the items discussed above, there were no additional drywell CAM failures that would have challenged the station with execution of Technical Specification 3.4.5 or in monitoring for drywell leakage via atmospheric particulate grab samples. Exelon entered the NRC's concerns into their corrective action program as IR 04394510.

EXIT MEETINGS AND DEBRIEFS

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

- On January 28, 2021, the inspectors presented the integrated inspection results to Mr. Pat Navin, Site Vice President, and other members of the licensee staff.
- On January 4, 2021, the inspectors presented the Green Finding - multiple performance deficiencies lead to an unplanned intake of radioactive material inspection results - to Mr. Timothy Peter, Plant Manager, and other members of the licensee staff.
- On January 4, 2021, the inspectors presented the annual PI&R sample inspection results to Mr. Timothy Peter, Plant Manager, and other members of the licensee staff.

THIRD PARTY REVIEWS

During the first quarter of 2020 the inspectors reviewed Institute on Nuclear Power Operations reports for the evaluation conducted in May 2018.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Miscellaneous	JAF-RPT-14-00035	Fukushima Project Walkdown of Plant Features (i.e. doors, hatches, etc.) That Are Potentially Subject to BDBEE Flood Water Infiltration	0
		JAF-RPT-15-00004	James A. FitzPatrick Flooding Hazard Re-Evaluation Report	0
	Procedures	WC-JF-107-1000	Seasonal Readiness T&RM for JAF	3
	Work Orders	04978437		
71111.05	Fire Plans	PFP-PWR36	Radwaste Building/Elev. 250' Fire Area/Zone XIX/RW-1	01
		PFP-PWR38	Radwaste/Elev. 272', 279' Fire Area/Zone XIX/RW-1	02
		PFP-PWR39	Radwaste Control Room/Elev. 284" Fire Area/Zone XIX/CR-2	03
		PFP-PWR40	Radwaste/Elev. 298' Fire Area/Zone XIV/RW-1	01
71111.06	Corrective Action Documents	04375824		
		04379733		
	Engineering Changes	0000629605	Evaluation of the 5kV B Train Cable 1RHRBBH003 for !OP-3C(M)	
71111.07A	Drawings	4.95-53	East Electric Bay Unit Cooler 67UC-16B Tube Plugging Map	2
	Procedures	ER-AA-340-1001	GL 89-13 Program Implementation Instructional Guide	11
71111.11Q	Procedures	OP-65	Startup and Shutdown Procedure	129
71111.12	Corrective Action Documents	04371937		
		04372008		
		04384093		
71111.13	Corrective Action Documents	04384096		
		04391731		
	Work Orders	04878227		
		5110063		
71111.15	Corrective Action Documents	04377749		
	Engineering Evaluations	JAF-RPT-BYM-04431	Basis for Acceptability of Opening Removable Floor Slab RS-4 with the Plant in Operation	April 30, 2002

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Procedures	AP-16.14	Hazard Barrier Controls	8
		IMP-93.9	EDG Governor Tuning Procedure	13
		IMP-93.9	EDG Governor Tuning Procedure	14
	Work Orders	82445886		
		82445887		
71111.18	Engineering Changes	625089	JAF Digital Reactor Water Level Controls Upgrade	0
71111.19	Procedures	ST-4N	HPCI Quick-Start, Inservice, and Transient Monitoring Test (IST)	78
71111.20	Corrective Action Documents Resulting from Inspection	04383376		
	Procedures	OP-65	Startup and Shutdown Procedure	128
	Corrective Action Documents	04738808		
71124.01	Miscellaneous	RP-AA-222 Attachment 3	Calculation Worksheet, CDE and CEDE Determination for unplanned intake on 9/26/2020 in the condenser.	
		RP-AA-232 Attachment 1	Whole Body Count Log 1/7/2020 to 9/20/2020	
	Procedures	NISP-RP-002	Radiation and Contamination Surveys	1
		NISP-RP-003	Radiological Air Sampling	1
		NISP-RP-004	Radiological Posting and Labeling	1
		NISP-RP-006	Personnel Contamination Monitoring	1
		NISP-RP-010	Radiological Job Coverage	1
		NISP-RP-011	Radiological Protection Fundamentals	1
	Radiation Surveys	2020-080174	Condenser - False Floor	September 19, 2020
	Radiation Work Permits (RWPs)	JF-1-20-00802	Main Condenser Activities	1
71152	Corrective Action Documents	04024416		
		04255338		
		04255339		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		04277823		
		04291381		
		04330794		
		04350294		
		04374171		
		04375824		
		04376427		
		04377749		
		04379733		
		04387496		
		04391040		
		04295162		
		04295136		
	Miscellaneous	IR/EOS# 4295136	HURB Report Template, "NRC identified gaps in procedural guidance and in RP implementation for drywell atmosphere sampling"	December 3, 2019
		N-JF-OPS-DWCAMS	Continuing training lesson plan, drywell cams	0
	OP-AA-108-111, Attachment 1	Adverse Condition Monitoring and Contingency Plan, Drywell CAM high particulate counts	3, 4	
	Technical Specification 3.4.5	RCS Leakage Detection Instrumentation		
Procedures	HU-AA-101-1002	Human Performance Review Board	5	
	OP-AA-101-113-1001	Station Event Free Clock (EFC) Program	23	
	RP-JF-03.01	Drywell Continuous Atmospheric Monitoring	40, 41	
71153	Procedures	IMP-93.9	EDG Digital Reference Unit (DRU) Check	15
		OP-22	Emergency Diesel Generator Power	70
		TST-187	EDG B and D Full Load Test (8 Hour Run)	0
		WC-AA-106	Work Screening and Processing	
	Work Orders	04930661		
		82445886-05		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		82445887-05		
		82445888-03		
		82445888-05		
		82445889-03		
		82445889-05		