



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

September 29, 2017

Mr. Bryan C. Hanson  
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 – ISSUANCE OF  
AMENDMENT RE: CYBER SECURITY PLAN IMPLEMENTATION SCHEDULE  
(CAC NO. MF8920)

Dear Mr. Hanson:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 316 to Renewed Facility Operating License No. DPR-59 for the James A. FitzPatrick Nuclear Power Plant. The amendment changes the Cyber Security Plan (CSP) Milestone 8 full implementation date in response to your application dated December 8, 2016.

The amendment revises the CSP Milestone 8 full implementation date by extending the date from December 15, 2017, to June 15, 2019. The amendment also revises second paragraph in paragraph 2.D in the Renewed Facility Operating License to incorporate the revised CSP implementation schedule.

A copy of our related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* Notice.

Sincerely,

A handwritten signature in black ink that reads "V. Booma".

Booma Venkataraman, Project Manager  
Plant Licensing Branch 1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-333

Enclosures:

1. Amendment No. 316 to  
Renewed License No DPR-59
2. Safety Evaluation

cc w/enclosures: Distribution via Listserv



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-333

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 316  
Operating License No. DPR-59

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Entergy Nuclear Operations Inc.<sup>1</sup> (the licensee), dated December 8, 2016, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to paragraph 2.D of Renewed Facility Operating License No. DPR-59.

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<sup>1</sup> The NRC approved the transfer of the license from Entergy Nuclear FitzPatrick, LLC and Entergy Nuclear Operations, Inc. (ENO) to Exelon Generation Company, LLC (Exelon) on March 31, 2017. By letter dated March 31, 2017, Exelon stated it would assume responsibility for actions and commitments submitted by ENO.

The second paragraph of paragraph 2.D (title listed below for clarity) is hereby amended to read as follows:

D. Physical Protection

Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). Exelon Generation Company CSP was approved by License Amendment No. 300, as supplemented by changes approved by License Amendment Nos. 303, 308, 311, and 316.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days. The full implementation of the CSP shall be in accordance with the implementation schedule submitted by the licensee on December 8, 2016, and approved by the NRC staff with this license amendment. All subsequent changes to the NRC-approved CSP implementation schedule will require NRC approval pursuant to 10 CFR 50.90.

FOR THE NUCLEAR REGULATORY COMMISSION



James G. Danna, Chief  
Plant Licensing Branch 1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to Renewed Facility  
Operating License

Date of Issuance: September 29, 2017

ATTACHMENT TO LICENSE AMENDMENT NO. 316  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
RENEWED FACILITY OPERATING LICENSE NO. DPR-59  
DOCKET NO. 50-333

Replace the following page of the license with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove Page  
5

Insert Page  
5

which contain Safeguards Information protected under 10 CFR 73.21, is entitled: "James A. FitzPatrick Nuclear Power Plant Physical Security, Training & Qualification and Safeguards Contingency Plan, Revision 0," submitted by letter dated October 26, 2004, as supplemented by letter dated May 17, 2006.

Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). Exelon Generation Company CSP was approved by License Amendment No. 300, as supplemented by changes approved by License Amendment Nos. 303, 308, 311, and 316.

Exelon Generation Company has been granted Commission authorization to use "stand alone preemption authority" under Section 161A of the Atomic Energy Act, 42 U.S.C. 2201a with respect to the weapons described in Attachment 1, Section II contained in its application submitted by letter dated August 30, 2013, as supplemented by letters dated November 12, 2013, and July 11, 2014. Exelon Generation Company shall fully implement and maintain in effect the provisions of the Commission-approved authorization.

E. Power Uprate License Amendment Implementation

The licensee shall complete the following actions as a condition of the approval of the power uprate license amendment.

(1) Recirculation Pump Motor Vibration

Perform monitoring of recirculation pump motor vibration during initial Cycle 13 power ascension for uprated power conditions.

(2) Startup Test Program

The licensee will follow a startup testing program, during Cycle 13 power ascension, as described in GE Licensing Topical Report NEDC-31897P-1, "Generic Guidelines for General Electric Boiling Water Reactor Power Uprate." The startup test program includes system testing of such process control systems as the feedwater flow and main steam pressure control systems. The licensee will collect steady-state operational data during various portions of the power ascension to the higher licensed power level so that predicted equipment performance characteristics can be verified. The licensee will do the startup testing program in accordance with its procedures. The licensee's approach is in conformance with the test guidelines of GE Licensing Topical Report NEDC-31897P-1, "Generic Guidelines for General Electric Boiling Water Reactor Power Uprate," June 1991 (proprietary), GE Licensing Topical Report NEDO-31897, "Generic Guidelines for General Electric Boiling Water Reactor Power Uprate," February 1992 (nonproprietary), and NEDC-31897P-AA, Class III (proprietary), May 1992.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 316 TO

RENEWED FACILITY OPERATING LICENSE NO. DPR-59

EXELON GENERATION COMPANY, LLC

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

DOCKET NO. 50-333

1.0 INTRODUCTION

By letter dated December 8, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16343A947), Entergy Nuclear Operations, Inc. (ENO, the licensee) requested a change to the renewed facility operating license (RFOL) for the James A. FitzPatrick Nuclear Power Plant (FitzPatrick).<sup>1</sup>

The proposed change would revise the date of the Cyber Security Plan implementation schedule Milestone 8 from December 15, 2017, to June 15, 2019, and would revise paragraph 2.D in the RFOL. Milestone 8 of the CSP implementation schedule concerns the full implementation of the CSP.

The U.S. Nuclear Regulatory Commission (NRC or the Commission) staff initially reviewed and approved the licensee's original Cyber Security Plan (CSP) implementation schedule by License Amendment No. 300, dated August 19, 2011 (ADAMS Accession No. ML11152A011), to RFOL No. DPR-59 for FitzPatrick, concurrently with the incorporation of the CSP into the facility's current licensing basis. The NRC staff then reviewed and approved the licensee's current CSP implementation schedule by License Amendment No. 308, dated December 1, 2014 (ADAMS Accession No. ML14202A372). This schedule required FitzPatrick to fully implement and maintain all provisions of the CSP no later than June 30, 2016. Amendment No. 311, dated April 6, 2016 (ADAMS Accession No. ML16062A388), extended full implementation until December 15, 2017.

The NRC issued a proposed finding that the amendment involves no significant hazards consideration, published in the *Federal Register* on January 31, 2017 (82 FR 8869). The NRC did not receive any public comments on this determination.

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<sup>1</sup> The NRC approved the transfer of the license from Entergy Nuclear FitzPatrick, LLC and Entergy Nuclear Operations, Inc. (ENO) to Exelon Generation Company, LLC (Exelon) on March 31, 2017. By letter dated March 31, 2017, Exelon stated it would assume responsibility for actions and commitments submitted by ENO.

## 2.0 REGULATORY EVALUATION

### Regulatory Requirements and Guidance

The NRC staff reviewed and approved the licensee's current CSP implementation schedule by License Amendment No. 308 and 311. The NRC staff considered the following regulatory requirements and guidance in its review of the license amendment request to modify the existing CSP implementation schedule:

- Title 10 of the *Code of Federal Regulations* (10 CFR), Section 73.54, "Protection of digital computer and communication systems and networks," which states, in part: "Each [CSP] submittal must include a proposed implementation schedule. Implementation of the licensee's cyber security program must be consistent with the approved schedule."
- The licensee's renewed facility operating license includes a license condition that requires the licensee to fully implement and maintain in effect all provisions of the Commission-approved CSP.
- In NRC Memorandum, "Review Criteria for Title 10 of the *Code of Federal Regulations* Part 73.54, Cyber Security Implementation Schedule Milestone 8 License Amendment Requests," dated October 24, 2013 (ADAMS Accession No. ML13295A467), the NRC staff lists criteria it considers in evaluating a licensee's request to postpone a cyber security program implementation date (commonly known as Milestone 8).

The NRC staff does not regard the CSP milestone implementation dates as regulatory commitments that can be changed unilaterally by the licensee, particularly in light of the regulatory requirement at 10 CFR 73.54, that states, "Implementation of the licensee's cyber security program must be consistent with the approved schedule." As the NRC staff explained in its letter to all operating reactor licensees dated May 9, 2011 (ADAMS Accession No. ML110980538), the implementation of the plan, including the key intermediate milestone dates and the full implementation date, shall be in accordance with the implementation schedule submitted by the licensee and approved by the NRC. All subsequent changes to the NRC-approved CSP implementation schedule, will require prior NRC approval as in 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit."

## 3.0 TECHNICAL EVALUATION

### 3.1 Licensee's Requested Change

The NRC staff issued License Amendment No. 300 to RFOL No. DPR-59 by letter dated August 19, 2011. This amendment approved the licensee's CSP and associated implementation schedule, and added a license condition requiring the licensee to fully implement and maintain the Commission-approved CSP. The implementation schedule was based on a template prepared by the Nuclear Energy Institute (NEI), which was transmitted to the NRC by letter dated February 28, 2011 (ADAMS Accession No. ML110600206). By letter dated March 1, 2011, the NRC staff found the NEI template acceptable for licensees to use to develop their CSP implementation schedules (ADAMS Accession No. ML110070348). Subsequently, NRC staff approved Amendment No. 308, dated December 1, 2014 (ADAMS Accession No. ML14202A372), which extended the FitzPatrick Milestone 8 implementation to June 30, 2016. Amendment No. 311, dated April 6,

2016 (ADAMS Accession No. ML16062A388), extended full implementation until December 15, 2017.

The licensee's proposed implementation schedule for the CSP identified completion dates and bases for the following eight milestones:

- 1) Establish the Cyber Security Assessment Team;
- 2) Identify Critical Systems and Critical Digital Assets (CDAs);
- 3) Install deterministic one-way devices between lower level devices and higher level devices;
- 4) Implement the security control "Access Control For Portable And Mobile Devices";
- 5) Implement observation and identification of obvious cyber-related tampering to existing insider mitigation rounds by incorporating the appropriate elements;
- 6) Identify, document, and implement technical cyber security controls in accordance with "Mitigation of Vulnerabilities and Application of Cyber Security Controls" for CDAs that could adversely impact the design function of physical security target set equipment;
- 7) Ongoing monitoring and assessment activities for those target set CDAs whose security controls have been implemented; and
- 8) Fully implement the CSP.

Currently, Milestone 8 of the FitzPatrick CSP requires the licensee to fully implement the CSP by December 15, 2017. By letter dated December 8, 2016, the licensee proposed to modify the Milestone 8 completion date to June 15, 2019. The licensee provided the following information pertinent to each of the criteria identified in the NRC guidance memorandum dated October 24, 2013.

- 1) Identification of the specific requirement or requirements of the CSP that the licensee needs additional time to implement.

The licensee said that ENO requests that full implementation of CSP requirements per Milestone 8 be rescheduled from December 15, 2017, to June 15, 2019. During this additional period, the requirements of Milestones 1-7 will be maintained.

- 2) Detailed justification that describes the reason the licensee required additional time to implement the specific requirement or requirements identified.

In November 2015, ENO notified the NRC of its intent to permanently cease power operations at FitzPatrick in late 2016 or early 2017. ENO states in its application of December 8, 2016, that after its notification, several unanticipated and significant developments occurred. These developments include the restructuring of the New York State energy market, followed in August 2016 by ENO and Exelon Generation Company, LLC (Exelon), agreeing to the sale of FitzPatrick and the



transfer of the operating license to Exelon. The sale and license transfer was expected to be completed by April 2017, but was completed ahead of schedule on March 31, 2017. The FitzPatrick refueling outage was completed in January-February 2017. Exelon began implementing the Milestone 8 requirements in April 2017. The next refueling outage is scheduled for September-October 2018. ENO requests authorization to reschedule the Milestone 8 implementation date by 18 months, from December 15, 2017, to June 15, 2019, because Milestone 8 work was suspended from November 2015 to March 2017.

- 3) A proposed completion date for Milestone 8 should be consistent with the remaining scope of work to be conducted and the resources available.

The licensee states that the proposed completion date for Milestone 8 is June 15, 2019.

- 4) An evaluation of the impact that the additional time to implement the requirements will have on the effectiveness of the licensee's overall cyber security program in the context of milestones already completed.

The licensee stated that the completion of cyber security protections under Milestones 1 through 7 continue to be effective in significantly mitigating the risk of the design basis threat from cyber attacks. Most notably, safety-related, important-to-safety, and security Critical Digital Assets (CDA) are being deterministically isolated from external networks; stringent control of portable media and mobile devices connected to CDAs continues, including use of standalone scanning kiosks, and implementation of technical cyber security controls and security officer observation for CDAs that support physical security target set functions.

Additionally, ENO implemented procedures governing CDA configuration management, cyber security incident response and recovery, cyber security training, identification of rogue connections, and CDA physical protections. The completion of these initial Milestone 8 activities provides protection against cyber attacks, while FitzPatrick continues to implement the full program. The licensee provided details about the completed milestones and in-progress Milestone 8 activities in its application.

- 5) Description of the methodology for prioritizing completion of work for CDAs associated with significant safety, security and emergency preparedness (SSEP) consequences and with reactivity effects in the balance of plant.

The licensee states that because CDAs are plant components, its work prioritization follows the normal work management process. The process places the highest priority on apparent conditions adverse to quality in system, structure, and component design functions and related factors such as safety risk and nuclear defense-in-depth, as well as threats to continuity of electric power generation in the balance-of-plant. The licensee continues to promptly address emergent issues that concern CDAs and that have the potential to undermine cyber protective barriers. Further, the licensee's engagement with the NEI Cyber Security Task Force continues. Cyber security developments will be

communicated through the NRC's Security Frequently Asked Questions process and will receive timely attention and prioritization.

- 6) A discussion of cyber security program performance up to the date of the license amendment request.

The licensee states that no cyber compromises of SSEP functions have been identified through NRC inspections. An NRC inspection of FitzPatrick compliance with Milestones 1-7 was conducted March 16-19, 2015. The inspection findings were designated as low-level (green, non-cited, granted enforcement discretion). Additionally, annual FitzPatrick quality assurance audits have been conducted every year since 2013, as required by the FitzPatrick physical security plan and physical security program review, which complies with 10 CFR 73.55(m). The quality assurance audit assesses cyber security program implementation. These audits have resulted in no significant findings in FitzPatrick's overall cyber security program performance and effectiveness.

- 7) A discussion of cyber security issues pending in the corrective action program.

The licensee said that it has not identified cyber security issues that constitute a threat to proper function of CDAs or that question the effectiveness of the cyber security program. Therefore, currently there are no cyber security issues pending in the corrective action program.

- 8) A discussion of modifications completed to support the cyber security program and a discussion of pending cyber security modifications.

The licensee discussed completed modifications and pending modifications. These are consistent with the CSP. Currently, full compliance with the rule (full Milestone 8 implementation) is to be completed by December 15, 2017. As discussed in Criterion 4, ENO has implemented procedures governing CDA configuration management, cyber security incident response and recovery, cyber security training, identification of rogue connections, and CDA physical protections as part of Milestone 8.

### 3.2 NRC Staff Evaluation

The NRC staff has evaluated the licensee's application in accordance with the regulatory requirements and NRC guidance, set forth above. The NRC staff finds that the actions necessary and the proposed timetable to achieve full compliance with the FitzPatrick CSP are reasonable, as discussed in the staff evaluation below.

The licensee indicated that the activities associated with the CSP, as described in Milestones 1 through 7, were completed prior to December 31, 2012, and provide a high degree of protection to ensure that the most significant digital computer and communication systems and networks associated with SSEP functions are sufficiently protected against cyber attacks, while FitzPatrick implements the full program. FitzPatrick continues to maintain the previously implemented Milestone 1 through 7 actions. The NRC staff concludes that the licensee's site is more secure after the implementation of Milestones 1 through 7 because the activities the licensee has completed mitigate the most significant cyber attack vectors for the most significant CDAs.

FitzPatrick ceased operations in November 2015 and suspended Milestone 8 activities as it began shutdown and decommissioning planning. ENO notified the NRC of its intent to permanently cease power operations at FitzPatrick in late 2016 or early 2017. However, concerns about electricity supply for the northeastern United States brought about the restructuring of the New York energy market with the involvement of New York state and Federal regulators. In August 2016, ENO and Exelon agreed to the sale of FitzPatrick.

On December 8, 2016, while the sale and transfer of the facility were being negotiated, ENO requested an extension of the implementation of Milestone 8 from December 15, 2017, until June 15, 2019. Exelon was informed about ENO's suspension of the cyber full implementation during negotiations for the purchase of the FitzPatrick facility. Exelon completed its purchase of FitzPatrick on March 31, 2017, with the intention of continuing operations. The full extent of the remaining Milestone 8 activities required to bring the FitzPatrick plant into compliance were identified by Exelon after completion of the purchase and license transfer.

Milestone 8 activities were initiated by Exelon in April 2017 and will continue until completion. In addition, the scheduled refueling outage in fall 2018 will enable Exelon to implement Milestone 8 changes to safety, emergency planning, and balance-of-plant systems, activities which need to be undertaken during a shutdown. The suspension of Milestone 8 activities from November 2015 until March 2017, while ENO prepared first for facility closure and then for its sale and license transfer, as well the refueling outage scheduled for September-October 2018, have added time to the CSP implementation schedule.

The NRC staff finds the unique and unanticipated circumstances that developed at the FitzPatrick facility justify an extension of the CSP implementation schedule until June 15, 2019. The staff concludes the completion of initial Milestone 8 activities and Exelon's commitment to fully implement the cyber security rule and FitzPatrick's CSP provide assurance that 10 CFR 73.54 will be met. Therefore, the NRC has reasonable assurance that full implementation of the CSP by June 15, 2019, will provide adequate protection of the public health and safety and the common defense and security. The NRC staff finds the proposed change acceptable.

### 3.3 NRC Staff Conclusion

The NRC staff finds that the licensee's request to delay the full implementation of its CSP until June 15, 2019, is reasonable; therefore, the staff grants the amendment. The bases for the staff's determination are: (i) the licensee's implementation of Milestones 1 through 7 provides mitigation for significant cyber attack vectors for the most significant CDAs as discussed in the staff evaluation above, and (ii) additional time to fully comply with the CSP implementation schedule is needed due to unique circumstances that arose in the FitzPatrick case.

### 3.4 Revision to License Condition in 2.D

The license is amended by changes to paragraph 2.D of Renewed Facility Operating License No. DPR 59.

In its letter dated December 8, 2016, the licensee proposed to modify the second paragraph of paragraph 2.D of RFOL No. DPR-59 for FitzPatrick, which provides a license condition to require the licensees to fully implement and maintain in effect all provisions of the NRC-approved CSP.

The current license condition in paragraph 2.D of RFOL No. DPR-59 for FitzPatrick states:

Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). Exelon Generation Company CSP was approved by License Amendment No. 300, as supplemented by changes approved by License Amendment Nos. 303, 308, and 311.

The revised license condition in paragraph 2.D of RFOL No. DPR-59 for FitzPatrick would state:

Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). Exelon Generation Company CSP was approved by License Amendment No. 300, as supplemented by changes approved by License Amendment Nos. 303, 308, 311, and 316.

Based on the information in Section 3.0 of this safety evaluation and the modified license condition described above, the NRC staff concludes this is acceptable.

#### 4.0 REGULATORY COMMITMENTS

By letter dated December 8, 2016, the licensee made the following regulatory commitment:

Fully implement the CSP for all SSEP functions.

Scheduled Completion Date: June 15, 2019

The above-stated commitment is consistent with the revised Milestone 8 implementation date proposed by the licensee and evaluated by the NRC staff.

#### 5.0 STATE CONSULTATION

In accordance with the Commission's regulations, New York State official was notified of the proposed issuance of the amendment on August 28, 2017. The New York State official had no comments.

#### 6.0 ENVIRONMENTAL CONSIDERATION

This is an amendment to a 10 CFR Part 50 license that relates solely to safeguards matters and does not involve any significant construction impacts. This amendment is an administrative change to extend the date by which the licensee must have its CSP fully implemented. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on January 31, 2017 (82 FR 8869). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(12). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 7.0 CONCLUSION

After consideration of the issues discussed above, the Commission concludes that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations; and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Shyrl Coker, NSIR

Date: September 29, 2017

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT – ISSUANCE OF AMENDMENT RE: CYBER SECURITY PLAN IMPLEMENTATION SCHEDULE (CAC NO. MF8920) DATED SEPTEMBER 29, 2017

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\*by e-mail

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