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

November 16, 2021

Mr. David P. 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 – ISSUANCE OF AMENDMENT NO. 345 RE: ADOPTION OF TSTF-582 (EPID L-2021-LLA-0076)

Dear Mr. Rhoades:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 345 to Renewed Facility Operating License No. DPR-59 for the James A. FitzPatrick Nuclear Power Plant. The amendment consists of changes to the technical specifications (TSs) in response to your application dated April 16, 2021, as supplemented by letter dated September 3, 2021.

The amendment revises the TS related to reactor pressure vessel (RPV) water inventory control (WIC) based on Technical Specifications Task Force (TSTF)-582, Revision 0, "RPV WIC Enhancements" (ADAMS Accession No. ML19240A260), and the associated NRC staff safety evaluation (SE) of TSTF-582 (ADAMS Accession No. ML20219A333).

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

Sincerely,

/RA/

Justin C. Poole, Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-333

Enclosures:
1. Amendment No. 345 to DPR-59
2. Safety Evaluation

cc: Listserv

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

EXELON FITZPATRICK, LLC

AND

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-333

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 345
Renewed Facility Operating License No. DPR-59

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Exelon FitzPatrick, LLC and Exelon Generation Company, LLC (collectively, the licensees) dated April 16, 2021, as supplemented on September 3, 2021, 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 the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. DPR-59 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 345, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

James G. Danna

Digitally signed by James G. Danna
Date: 2021.11.16 15:19:05 -05'00'

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

Attachment:
Changes to the Renewed Facility Operating License and Technical Specifications

Date of Issuance: November 16, 2021

ATTACHMENT TO LICENSE AMENDMENT NO. 345

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 marginal lines indicating the areas of change.

Remove Page	Insert Page
Page 3	Page 3

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
1.1-2a	1.1-3
1.1-3	1.1-4
1.1-4	1.1-5
1.1-5	1.1-6
1.1-6	1.1-7
1.1-7	1.1-8
3.3.5.2-1	3.3.5.2-1
3.3.5.2-2	3.3.5.2-2
3.3.5.2-3	3.3.5.2-3
3.3.8.1-1	3.3.8.1-1
3.5.1-1	3.5.1-1
3.5.2-2	3.5.2-2
3.5.2-3	3.5.2-3
3.5.2-4	3.5.2-4
3.5.2-5	3.5.2-5
3.5.2-6	3.5.2-6
3.6.1.3-1	3.6.1.3-1
3.6.1.3-6	3.6.1.3-6
3.8.2-4	3.8.2-4

(4) Exelon Generation Company pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use, at any time, any byproduct, source, and special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration; or associated with radioactive apparatus, components or tools.

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level
Exelon Generation Company is authorized to operate the facility at steady state reactor core power levels not in excess of 2536 megawatts (thermal).

(2) Technical Specifications
The Technical Specifications contained in Appendix A, as revised through Amendment No. 345, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

(3) Fire Protection
Exelon Generation Company shall implement and maintain in effect all provisions of the approved fire protections program as described in the Final Safety Analysis Report for the facility and as approved in the SER dated November 20, 1972; the SER Supplement No. 1 dated February 1, 1973; the SER Supplement No. 2 dated October 4, 1974; the SER dated August 1, 1979; the SER Supplement dated October 3, 1980; the SER Supplement dated February 13, 1981; the NRC Letter dated February 24, 1981; Technical Specification Amendments 34 (dated January 31, 1978), 80 (dated May 22, 1984), 134 (dated July 19, 1989), 135 (dated September 5, 1989), 142 (dated October 23, 1989), 164 (dated August 10, 1990), 176 (dated January 16, 1992), 177 (dated February 10, 1992), 186 (dated February 19, 1993), 190 (dated June 29, 1993), 191 (dated July 7, 1993), 206 (dated February 28, 1994), and 214 (dated June 27, 1994); and NRC Exemptions and associated safety evaluations dated April 26, 1983, July 1, 1983, January 11, 1985,

1.1 Definitions (continued)

DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

a) The water inventory above the TAF is divided by the limiting drain rate:

b) The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure for all penetration flow paths below the TAF except:

1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are closed and administratively controlled in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;

2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or

3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.

c) The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;

d) No additional draining events occur; and

e) Realistic cross-sectional areas and drain rates are used.

A bounding DRAIN TIME may be used in lieu of a calculated value.

(continued)

1.1 Definitions (continued)

INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
ISOLATION INSTRUMENTATION RESPONSE TIME	The ISOLATION INSTRUMENTATION RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation initiation setpoint at the channel sensor until the isolation valve receives the isolation signal (e.g., de-energization of the main steam isolation valve solenoids). The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
LEAKAGE	LEAKAGE shall be: a. Identified LEAKAGE 1. LEAKAGE into the drywell, such as that from pump seals or valve packing, that is captured and conducted to a sump or collecting tank; or 2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE: b. Unidentified LEAKAGE All LEAKAGE into the drywell that is not identified LEAKAGE; c. Total LEAKAGE Sum of the identified and unidentified LEAKAGE; d. Pressure Boundary LEAKAGE LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.

(continued)

1.1 Definitions (continued)

LINEAR HEAT GENERATION RATE (LHGR)	The LHGR shall be the heat generation rate per unit length of fuel rod. It Is the Integral of the heat flux over the heat transfer area associated with the unit length.
LOGIC SYSTEM FUNCTIONAL TEST	A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components required for OPERABILITY of a logic circuit, from as close to the sensor as practicable up to, but not Including, the actuated device, to verify OPERABILITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system Is tested.
MINIMUM CRITICAL POWER RATIO (MCPR)	The MCPR shall be the smallest critical power that exists In the core for each type of fuel. The CPR Is that power In the assembly that Is calculated by application of the appropriate correlation(s) to cause some point In the assembly to experience boiling transition, divided by the actual assembly operating power.
MODE	A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified In Table 1.1-1 with fuel in the reactor vessel.
OPERABLE-OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when It Is capable of performing Its specified safety function(s) and when all necessary attendant Instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform Its specified safety function(s) are also capable of performing their related support function(s).
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	The PTLR Is the unit specific document that provides the reactor vessel pressure and temperature limits, Including heatup and cooldown rates, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.7.

(continued)

1.1 Definitions (continued)

RATED THERMAL POWER	RTP shall be a total reactor core heat transfer (RTP) rate to the reactor coolant of 2536 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
SHUTDOWN MARGIN (SDM)	SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical throughout the operating cycle assuming that: a. The reactor is xenon free; b. The moderator temperature is ≥ 68°F, corresponding to the most reactive state; and c. All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn. With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during n Surveillance Frequency intervals, where n is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

(continued)

1.1 Definitions (continued)

TURBINE BYPASS SYSTEM RESPONSE TIME	The TURBINE BYPASS SYSTEM RESPONSE TIME consists of two components: a. The time from initial movement of the main turbine stop valve or control valve until 80% of the assumed turbine bypass capacity is established; and b. The time from initial movement of the main turbine stop valve or control valve until initial movement of the turbine bypass valve. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

Table 1.1-1 (page 1 of 1)
MODES

MODE	TITLE	REACTOR MODE SWITCH POSITION	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	Run	NA
2	Startup	Refuel [(a)] or Startup/Hot Standby	NA
3	Hot Shutdown[(a)]	Shutdown	> 212
4	Cold Shutdown[(a)]	Shutdown	≤ 212
5	Refueling[(b)]	Shutdown or Refuel	NA

(a) All reactor vessel head closure bolts fully tensioned.

(b) One or more reactor vessel head closure bolts less than fully tensioned.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.2 The Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Initiate action to place channel in trip.	Immediately
	OR	
	A.2.1 Declare associated penetration flow path(s) incapable of automatic isolation.	Immediately
	AND	
	A.2.2 Initiate action to calculate DRAIN TIME.	Immediately

SURVEILLANCE REQUIREMENTS

----------NOTE----------

These SRs apply to each Function in Table 3.3.5.2-1.

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5.2-1 (page 1 of 1)
Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	ALLOWABLE VALUE
1.	RHR System Isolation			
	a. Reactor Vessel Water Level – Low Level 3	(a)	2 in one trip system	$\geq$ 177 inches
2.	Reactor Water Cleanup (RWCU) System Isolation			
	a. Reactor Vessel Water Level – Low Level 3	(a)	2 in one trip system	$\geq$ 177 inches

(a) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable	A.1 Place channel in trip.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Declare associated EDG(s) inoperable.	Immediately

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), REACTOR PRESSURE VESSEL (RPV) WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.1 ECCS-Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of six safety/relief valves shall be OPERABLE.

---NOTE---

Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) cut in permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI) and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig.

ACTIONS

---NOTE---

LCO 3.0.4.b is not applicable to High Pressure Coolant Injection (HPCI).

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable. OR One low pressure coolant injection (LPCI) pump in both LPCI subsystems inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	7 days*
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in Mode 4.	12 hours 36 hours

(continued)

* The Completion Time to return the “A” RHR pump to OPERALE is extended to 34 days, contingent on implementation of Compensatory Actions stated in Section 3.4 of letter JAFP-21-0053, dated June 14, 2021, as a one-time only change ending upon restoration the “A” RHR pump to OPERABLE, or on July 11, 2021 at 20:00 hours.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2	Verify each secondary containment penetration flow path in capable of being isolated in less than the DRAIN TIME.	4 hours
	AND		
	C3	Verify one standby gas treatment (SGT) subsystem is capable of being placed in operation in less than the DRAIN TIME.	4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. DRAIN TIME < 8 hours	D.1	--------NOTE-------- Reduce ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. ---------- Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.	Immediately
	AND		
	D.2	Initiate action to establish secondary containment boundary.	Immediately
	AND		
	D.3	Initiate action to isolate each secondary containment penetration flow path or verify it can be automatically or manually isolated from the control room.	Immediately
	AND		
	D.4	Initiate action to verify one SGT subsystem is capable of being placed in operation.	Immediately
E. Required Action and associated Completion Time of Condition C or D not met. OR DRAINTIME < 1 hour.	E.1	Initiate action to restore DRAIN TIME to ≥ 36 hours.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify DRAIN TIME ≥ 36 hours.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify, for a required LPCI subsystem, the suppression pool water level is ≥ 10.33 ft.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.3	Verify, for a required Core Spray (CS) subsystem, the: a. Suppression pool water level is ≥ 10.33 ft; or b. The water level in each condensate storage tank is ≥ 324 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	Verify, for the required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.5	Not Used	

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	----------NOTES---------- 1. Operation may be through the test return line. 2. Credit may be taken for normal system operation to satisfy this SR. ---------- Operate the required ECCS injection/spray subsystem for ≥ 10 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual simulated isolation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.8	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify the required ECCS injection/spray subsystem can be manually operated.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	----------NOTES---------- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.8, and SR 3.8.1.11. ---------- For following SRs are applicable for AC sources required to be OPERABLE: SR 3.8.1.1, SR 3.8.1.2, SR 3.8.1.3, SR 3.8.1.4, SR 3.8.1.5, SR 3.8.1.6, SR 3.8.1.8, and SR 3.8.1.11.	In accordance with applicable SRs

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 345

EXELON FITZPATRICK, LLC

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-333

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-59

1.0 INTRODUCTION

By letter dated April 16, 2021, as supplemented by letter dated September 3, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML21109A113 and ML21246A145, respectively), Exelon Generation Company, LLC (Exelon, the licensee) submitted a request for changes to the James A. FitzPatrick Nuclear Power Plant (FitzPatrick) Technical Specifications (TSs). In its license amendment request application, the licensee requested that the U.S. Nuclear Regulatory Commission (NRC, the Commission) process the proposed request under the Consolidate Line-Item Improvement Process (CLIIP). The proposed changes would revise the TSs related to reactor pressure vessel (RPV) water inventory control (WIC) based on Technical Specifications Task Force (TSTF)-582, Revision 0, "RPV WIC Enhancements" (ADAMS Accession No. ML19240A260), and the associated NRC staff safety evaluation (SE) of TSTF-582 (ADAMS Accession No. ML20219A333).

FitzPatrick has one General Electric boiling water reactor (BWR) and its RPV design includes multiple penetrations located below the top of active fuel (TAF). These penetrations provide entry for control rods, recirculation flow, reactor water cleanup (RWCU), and shutdown cooling. Since these penetrations are below the TAF, this creates a potential to drain the reactor vessel water inventory and lose effective core cooling. The loss of water inventory and effective core cooling can potentially lead to fuel cladding failure and radioactive release. Drain Time is the time it would take for the water inventory in and above the RPV to drain to the TAF.

The supplement dated September 3, 2021, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on July 13, 2021 (86 FR 36780).

1.1 Proposed TS Changes to Adopt TSTF-582

In accordance with NRC staff-approved TSTF-582, the licensee proposed changes that would revise the TSs related to RPV WIC to incorporate operating experience and to correct errors and omissions that the licensee incorporated into the FitzPatrick TSs when adopting TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control" (ADAMS Accession No. ML16074A448). The NRC Staff approved FitzPatrick's TSTF-542 related changes on August 24, 2018 via Amendment No. 321 (ADAMS Accession No. ML18194A882).

The licensee proposed the following changes to adopt TSTF-582:

- The Drain Time definition in TS 1.1 would be revised to move the examples of common mode failure mechanisms to the Bases and delete seismic events.

- In TS 1.1, Drain Time definition, the exception from considering the Drain Time for penetration flow paths isolated with manual or automatic valves that are "locked, sealed, or otherwise secured" would be revised to apply the exception for manual or automatic valves that are "closed and administratively controlled."

- The Actions of TS 3.3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation," would be revised to permit placing an inoperable isolation channel in trip as an alternative to declaring the associated penetration flow path incapable of automatic isolation.

- TS 3.3.5.2, Required Action B.2 requires calculating Drain Time with a Completion Time of "immediately." The Required Action would be renumbered as A.2.2 and revised to state, "Initiate action to calculate Drain Time."

- TS 3.5.1, "Emergency Core Cooling Systems (ECCS), Reactor Pressure Vessel (RPV) Water Inventory Control, And Reactor Core Isolation Cooling (RCIC) System," Actions Note, the first use of the acronym "HPCI" would be defined.

- In TS 3.5.2, the first use of the acronym "SGT" would be defined in Required Action C.3 and the acronym "SGT" would be used in Required Action D.4.

- TS 3.5.2 and TS 3.3.5.2 would be revised to eliminate the requirement for a manual ECCS initiation signal to start the required ECCS injection/spray subsystem, and to instead rely on manual valve alignment and pump start. TS 3.5.2 Surveillance Requirements (SRs) related to manual initiation using the ECCS signal (such as verifying automatic alignment of valves on an initiation signal) would be eliminated. Related to this change, the TS 3.3.5.2 functions, SRs, and Actions that only support manual initiation using an ECCS signal (including interlocks and minimum flow instruments) would be eliminated.

- A redundant definition of "LPCI" in SR 3.5.2.2 would be eliminated.

- SR 3.5.2.6, that requires operating the required ECCS injection/spray subsystem for at least 10 minutes through the recirculation line would be modified by the addition of two notes. The first Note would replace the existing SR that the ECCS subsystem be run through the recirculation line with a Note that states that operation may be through

the test return line. The second Note would permit crediting normal operation of the low-pressure ECCS subsystem for performance of the SR.

- The Applicability of TS 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," would be revised to delete the phrase, "When associated instrumentation is required to be OPERABLE per Limiting Condition for Operation (LCO) 3.3.6.1, 'Primary Containment Isolation Instrumentation.'" This would make TS 3.6.1.3 only applicable in Modes 1, 2, and 3. Following adoption of TSTF-542, no functions in LCO 3.3.6.1 are applicable outside of Modes 1, 2, or 3. The Actions and SRs of TS 3.6.1.3 would be revised to reflect this change.

- TS 3.8.2, "AC [Alternating Current] Sources - Shutdown," SR 3.8.2.1, would be revised to not require specified SRs because emergency diesel generator response on an offsite power or ECCS initiation signal is not required. TSTF-542 eliminated the automatic ECCS initiation in Modes 4 and 5.

1.2 Additional Proposed TS Changes

1.2.1 Licensee Proposed TS Changes

The licensee proposed to make the following additional changes:

- TS 3.3.8.1, "Loss of Power (LOP) Instrumentation," would be revised to delete "When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, 'AC Sources – Shutdown'." from the Applicability.

- SR 3.8.2.1 would be revised to add SR 3.8.1.9, SR 3.8.1.12, and SR 3.8.1.13 to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1. The format of SR 3.8.2.1 would also be restructured to list the SRs that are still applicable instead of listing the SRs that are not applicable.

The NRC staff notes that the above proposed changes are consistent with TSTF-583-T, Revision 0, "TSTF-582 Diesel Generator Variation" (ADAMS Accession No. ML20248H330).

1.2.2 Editorial Variations

The FitzPatrick TS utilize different numbering and titles than the Standard Technical Specifications on which TSTF-582 was based. The licensee's application explains the variation as follows:

- The model application provided in TSTF-582 includes an attachment for typed, camera-ready (revised) TS pages reflecting the proposed changes. [FitzPatrick] is not including such an attachment due to the number of TS pages included in this submittal that have the potential to be affected by other unrelated license amendment requests and the straightforward nature of the proposed changes. Providing only mark-ups of the proposed TS changes satisfies the requirements of 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," in that the mark-ups fully describe the changes desired. This is an administrative deviation from TSTF-582 with no impact on the NRC's model safety evaluation published on August 13, 2020. As a result of this deviation, the contents and numbering of the attachments for this

amendment request differ from the attachments specified in the model application in TSTF-582.

- As an editorial improvement, SR 3.8.2.1 is revised to list the TS 3.8.1 SRs that are applicable instead of listing the TS 3.8.1 SRs that are not applicable. The SR 3.8.2.1 Bases are not affected and explain why the omitted TS 3.8.1 SRs are not applicable to TS 3.8.2.

- Regarding deletion of SR 3.5.2.5 per TSTF-582, the licensee states, "[FitzPatrick] will delete verbiage associated with the SR and annotate this SR as "Not Used." The remaining SRs numbers will not be revised to avoid an excessive administrative burden to update station procedure where these SRs may be Optional Changes and variations - referenced."

2.0 REGULATORY EVALUATION

The regulation at 10 CFR 50.36(c)(2) requires that TSs include LCOs. Per 10 CFR 50.36(c)(2)(i), LCOs "are the lowest functional capability or performance levels of equipment required for safe operation of the facility." The regulation also requires that when an LCO of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TS until the condition can be met.

The regulation at 10 CFR 50.36(c)(3) requires that TSs include items in the category of SRs, which are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met.

The NRC staff's guidance for the review of TSs is in Chapter 16.0, "Technical Specifications," of NUREG-0800, Revision 3, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition" (SRP), March 2010 (ADAMS Accession No. ML100351425). As described therein, as part of the regulatory standardization effort, the NRC staff has prepared Standard Technical Specifications (STSs) for each of the LWR nuclear designs. Accordingly, the NRC staff's review includes consideration of whether the proposed changes are consistent with the "Standard Technical Specifications, General Electric BWR/4 Plants," NUREG-1433, Volume 1, "Specifications," and Volume 2, "Bases," Revision 4.0, April 2012 (ADAMS Accession Nos. ML12104A192 and ML12104A193), as modified by NRC-approved travelers.

Traveler TSTF-582 revised the STSs related to RPV WIC to incorporate operating experience and to correct editorial errors in TSTF-542, Revision 2. The NRC approved TSTF-542, Revision 2, on December 20, 2016 (ADAMS Package Accession No. ML16343B066). The NRC staff approved TSTF-582 under the CLIIP in letter dated August 13, 2020 (ADAMS Accession No. ML20219A333). The TSTF-582 SE states that a licensee may adopt the STS changes approved in TSTF-582, if the licensee has already adopted the STS changes approved in TSTF-542.

3.0 TECHNICAL EVALUATION

3.1 Proposed TS Changes to Adopt TSTF-582

The NRC staff compared the licensee's proposed TS changes in Section 1.1 of this SE against the changes approved in TSTF-582. In accordance with the standard review plan (SRP) Chapter 16.0, the NRC staff determined that the STS changes approved in TSTF-582 are applicable to FitzPatrick TSs because FitzPatrick is a BWR-4 design, and the NRC staff approved the TSTF-582 changes for BWR-4 designed facilities. The licensee meets the TSTF-582 SE provision for adoption of TSTF-582 since the licensee adopted Traveler TSTF 542 Revision 2 by Amendment No. 321, dated August 24, 2018 (ADAMS Accession No. ML18194A882). Therefore, the NRC staff concludes that the licensee's proposed changes to the FitzPatrick TSs in Section 1.1 of this SE are acceptable in that they are consistent with TSTF-582 and the terms for use stated in the NRC staff's SE of TSTF-582.

The NRC staff finds that proposed changes to the TS 1.1 definition and LCOs 3.3.5.2, 3.5.2, and 3.6.1.3 correctly specify the lowest functional capability or performance levels of equipment required for safe operation of the facility in accordance with 10 CFR 50.36(c)(2)(i). Also, the NRC staff finds that proposed changes to the Actions of LCOs 3.3.5.2, 3.5.2, and 3.6.1.3 are adequate remedial actions to be taken until each LCO can be met provide protection to the health and safety of the public, thereby satisfying 10 CFR 50.36(c)(2)(i).

The NRC staff finds that the proposed revisions to the SRs in TS 3.3.5.2, 3.5.2, and 3.8.2 continue to provide requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met in accordance with 10 CFR 50.36(c)(3).

Thus, the proposed changes continue to meet the requirements of 10 CFR 50.36(c)(2)(i) and 10 CFR 50.36(c)(3) as discussed in Section 3.0 of the NRC staff's SE of TSTF-582.

3.2 Additional Proposed TS Changes

3.2.1 TS 3.3.8.1, Applicability

FitzPatrick TS 3.3.8.1, "Loss of Power (LOP) Instrumentation," is applicable in Modes 1, 2, and 3, and when the associated diesel generator is required to be operable by TS 3.8.2. The licensee stated, and the NRC staff confirmed that TSTF-582 revised TS 3.8.2 to no longer require automatic start and loading of a diesel generator (DG) on a loss of offsite power signal. The NRC staff finds it acceptable to revise the Applicability of LCO 3.3.8.1 by deleting "When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, 'AC Sources – Shutdown'," because the LOP instrumentation that generates the LOP signal does not need to be operable when the DG is required to be operable by TS 3.8.2. Therefore, the NRC staff concludes that the LCO applicability changes will continue to provide for the lowest functional capability or performance levels of equipment required for safe operation of the facility and, therefore, meet the LCO requirements of 10 CFR 50.36(c)(2).

3.2.2 TS 3.8.2, SR 3.8.2.1

LCO 3.8.2, "AC Sources - Shutdown," requires one offsite circuit and one DG capable of supplying one division of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems-Shutdown," to be operable in

shutdown conditions. The existing SR 3.8.2.1 lists the TS 3.8.1 SRs that are applicable in shutdown conditions with some exceptions.

TS SR 3.8.1.9 and SR 3.8.1.12 require that the DG starts from standby or hot conditions, respectively, and achieve required voltage and frequency within 11 seconds and required steady state voltage and frequency ranges. The 11-second start requirement associated with the DG automatic start supports the assumptions in the design basis loss-of-coolant accident analysis. The NRC staff confirmed that 11-second timing is not required during a manual DG start to respond to a draining event, which has a minimum Drain Time of 1 hour. In addition, SR 3.8.1.2, which requires the DG to start from standby conditions and achieve the required steady state voltage and frequency ranges, is applicable under SR 3.8.2. The NRC staff finds that the SR 3.8.1.7 and SR 3.8.1.15 testing for the DG's capability to achieve required steady state voltage and frequency ranges will be performed in SR 3.8.1.2 since SR 3.8.1.2 provides the test for this DG capability. Therefore, the NRC staff finds it acceptable to add SR 3.8.1.9 and SR 3.8.1.12 to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1.

TS SR 3.8.1.13 states, "Verify interval between each sequenced load block is greater than or equal to the minimum design load interval." Regarding SR 3.8.1.13, the application states,

> "[FitzPatrick] TS SR 3.8.1.13 state, "Verify interval between each sequenced load block is greater than or equal to the minimum design load interval." TSTF-582 retained SR 3.8.1.18 (Equivalent to [FitzPatrick] SR 3.8.1.13) as a test that must be met but not performed. The relay logic schemes that perform a function equivalent to a load sequencer are only used for the automatic start and loading of the diesel generator and are not used during a manual diesel generator start. Therefore, [FitzPatrick] SR 3.8.1.13 is added to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1. This SR is not included under SR 3.8.2.1."

TS 3.5.2 requires manual starting of the equipment for water injection to respond to a draining event so that the DG will be manually loaded during a draining event. No other postulated events require automatic loading of the DG during shutdown conditions. The NRC staff confirmed that with respect to SR 3.8.13, relay logic schemes are used for the automatic loading of the DG and are not used during a manual loading of the DG. Therefore, the NRC staff finds it acceptable to add SR 3.8.1.13 to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1.

Additionally, the licensee proposed to recast SR 3.8.2.1 from a listing of exceptions (i.e., a list of TS 3.8.1 SRs that do not need to be performed) to a listing the SRs that need to be performed to demonstrate the operability of the offsite and onsite AC power sources during shutdown conditions. The NRC staff confirmed that the list of SRs that need to be performed during shutdown conditions are correctly listed in SR 3.8.2.1. The NRC staff finds that the proposed revision of SR 3.8.2.1 is acceptable because it is an editorial clarification and does not substantively change TS requirements.

The NRC staff finds that the proposed changes to revise SR 3.8.2.1 are acceptable because the remaining applicable SRs will continue to demonstrate the operability of the required AC power sources and, as such, ensure the availability of the AC power required to operate the plant in a safe manner and mitigate postulated events during shutdown conditions. Therefore, the NRC staff finds the proposed changes to SR 3.8.2.1 are acceptable because the changes continue to assure that the necessary quality of systems and components is maintained, that

facility operation will be within safety limits, and that the associated LCO will continue to be met in accordance with 10 CFR 50.36(c)(3).

3.3 Editorial Changes

The NRC Staff's review of the licensee's variations as stated in section 1.2.2 of this SE, finds that the proposed changes are acceptable because they are editorial clarifications and do not substantively change TS requirements.

3.4 TS Change Consistency

The NRC staff reviewed the proposed TS changes for technical clarity and consistency with the existing requirements for customary terminology and formatting. The NRC staff finds that the proposed changes are consistent with Chapter 16.0 of the SRP and are therefore acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment on October 13, 2021. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. 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 (July 13, 2021; 86 FR 36780). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). 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.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above 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: R. Grover

Date: November 16, 2021

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT – ISSUANCE OF AMENDMENT NO. 345 RE: ADOPTION OF TSTF-582 (EPID L-2021-LLA-0076) DATED NOVEMBER 16, 2021

DISTRIBUTION:
Public
PM File Copy
RidsNrrDorlLpl1 Resource
RidsNrrDssStsb Resource
RidsACRS_MailCTR Resource
RidsNrrPMFitzPatrick Resource
RidsNrrLAKZeleznock Resource
RidsRgn1MailCenter Resource
RGrover, NRR

ADAMS Accession No.: ML21300A355 *via memorandum

OFFICE	NRR/DORL/LPL1/PM	NRR/DORL/LPL1/LA	NRR/DSS/STSB/BC(A)*
NAME	JPoole	KZeleznock	NJordan
DATE	10/27/2021	11/02/2021	10/07/2021
OFFICE	NRR/DORL/LPL1/BC	NRR/DORL/LPL1/PM	
NAME	JDanna	JPoole	
DATE	11/16/2021	11/16/2021	

OFFICIAL RECORD COPY