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

September 1, 2022

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

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT – ISSUANCE OF AMENDMENT NO. 353 RE: ADOPTION OF TSTF- 505, REVISION 2, "PROVIDE RISK-INFORMED EXTENDED COMPLETION TIMES - RITSTF INITIATIVE 4B," (EPID L-2021-LLA-0143)

Dear Mr. Rhoades:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 353 to Renewed Facility Operating License No. DPR-59 for the James A. FitzPatrick Nuclear Power Plant in response to your application dated July 30, 2021, as supplemented by letters dated March 4, 2022, and June 16, 2022.

The amendment revised the Technical Specifications to the Renewed Facility Operating License to use risk-informed completion times for actions to be taken when limiting conditions for operation are not met, in accordance with the Technical Specifications Task Force (TSTF) Traveler TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b," dated July 2, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18183A493).

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. 353 to DPR-59
2. Safety Evaluation

cc: Listserv

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

CONSTELLATION FITZPATRICK, LLC

AND

CONSTELLATION ENERGY GENERATION, LLC

DOCKET NO. 50-333

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 353
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 Constellation FitzPatrick, LLC and Constellation Energy Generation, LLC (collectively, the licensees) dated July 30, 2021, as supplemented on March 4, 2022, and June 16, 2022, 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. 353, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. Accordingly, the license is amended with the addition of paragraph 2.Y of Renewed Facility Operating License No. DPR-59 which reads as follows:

Adoption of Risk Informed Completion Times TSTF-505, Revision 2, "Provide Risk-Informed Extension Completion Times – RITSTF Initiative 4b"

Constellation Energy Generation, LLC is approved to implement TSTF-505, Revision 2, modifying the Technical Specification requirements related to Completion Times (CT) for Required Actions to provide the option to calculate a longer, risk-informed CT (RICT). The methodology for using the new Risk-Informed Completion Time Program is described in NEI 06-09-A, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines," Revision 0, which was approved by the NRC on May 17, 2007.

Constellation Energy Generation, LLC will complete the implementation items listed in Attachment 6 of Exelon Generation Company, LLC Letter to the NRC dated July 30, 2021, prior to implementation of the RICT Program. All issues identified in the attachment will be addressed and any associated changes will be made, focused-scope peer reviews will be performed on changes that are PRA upgrades as defined in the PRA standard (ASME/ANS RA-Sa -2009, as endorsed by RG 1.200, Revision 2), and any findings will be resolved and reflected in the PRA of record prior to the implementation of the RICT Program.

4. This license amendment is effective as of the date of its issuance and shall be implemented within 180 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Hipolito J. Gonzalez

Digitally signed by Hipolito J. Gonzalez
Date: 2022.09.01 13:13:33 -04'00'

Hipólito J. González, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

Date of Issuance: September 1, 2022

ATTACHMENT TO LICENSE AMENDMENT NO. 353

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

RENEWED FACILITY OPERATING LICENSE NO. DPR-59

DOCKET NO. 50-333

Replace the following page of the renewed facility operating license with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the area of change.

Remove Page	Insert Page
Page 3	Page 3
Page 9	Page 9
Page 10	Page 10

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
1.3-13	1.3-13
----	1.3-14
3.1.7-1	3.1.7-1
3.3.1.1-1 through 3.3.1.1-8	3.3.1.1-1 through 3.3.1.1-8
----	3.3.1.1-9
3.3.2.2-1 through 3.3.2.2-2	3.3.2.2-1 through 3.3.2.2-2
----	3.3.2.2-3
3.3.4.1-1 through 3.3.4.1-2	3.3.4.1-1 through 3.3.4.1-2
3.3.5.1-2 through 3.3.5.1-6	3.3.5.1-2 through 3.3.5.1-6
3.3.5.3-1 through 3.3.5.3-2	3.3.5.3-1 through 3.3.5.3-2
3.3.6.1-1 through 3.3.6.1-3	3.3.6.1-1 through 3.3.6.1-3
3.5.1-1 through 3.5.1-4	3.5.1-1 through 3.5.1-4
3.5.3-1	3.5.3-1
3.6.1.2-3	3.6.1.2-3
3.6.1.3-2 through 3.6.1.3-3	3.6.1.3-2 through 3.6.1.3-3
3.6.1.3-5	3.6.1.3-5
3.6.1.6-1	3.6.1.6-1
3.6.1.7-1	3.6.1.7-1
3.6.1.9-1	3.6.1.9-1
3.6.2.3-1	3.6.2.3-1
3.7.1-1	3.7.1-1
3.7.2-1 through 3.7.2-4	3.7.2-1 through 3.7.2-2
3.7.6-1	3.7.6-1
3.8.1-2 through 3.8.1-4	3.8.1-2 through 3.8.1-4
3.8.4-1 through 3.8.4-2	3.8.4-1 through 3.8.4-2
3.8.7-1 through 3.8.7-2	3.8.7-1 through 3.8.7-2
5.5-15	5.5-15
----	5.5-16

(3) Constellation Energy Generation, LLC, 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 as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Constellation Energy Generation, LLC, 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) Constellation Energy Generation, LLC, 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

Constellation Energy Generation, LLC 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. 353, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

W. Constellation Energy Generation, LLC shall, no later than the date the closing of the transaction approved on November 16, 2021, occurs, enter into a Support Agreement of approximately $85 million with Constellation FitzPatrick. Constellation FitzPatrick shall not take any action to cause Constellation Energy Generation, LLC, or its successors and assigns, to void, cancel, or materially modify the Constellation Energy Generation, LLC Support Agreement or cause it to fail to perform, or impair its performance under the constellation Energy Generation, LLC Support Agreement, without the prior written consent of the NRC. The Constellation Energy Generation, LLC Support Agreement may not be amended or modified without 30 days prior written notice to the Director of the Constellation Energy Generation, LLC Support Agreement shall be submitted to the NRC no later than 30 days after the completion of the proposed transaction. Constellation Energy Generation, LLC shall inform the NRC in writing no later than 14 days after any funds are provided to or for Constellation FitzPatrick under the Constellation Energy Generation, LLC Support Agreement.

X. Constellation Energy Generation, LLC is approved to implement 10 CFR 50.69 using the processes for categorization of Risk-Informed Safety Class (RISC)-1, RISC-2, RISC-3, and RISC-4 Structures, Systems, and Components (SSCs) using: Probabilistic Risk Assessment (PRA) models to evaluate risk associated with internal events, including internal flooding, and internal fire; the shutdown safety assessment process to assess shutdown risk; the Arkansas Nuclear One, Unit 2 (ANO-2) passive categorization method to assess passive component risk for Class 2 and Class 3 and non-Class SSCs and their associated supports; the results of the non-PRA evaluations that are based on the IPEEE Screening Assessment for External Hazards updated using the external hazard screening significance process identified in ASME/ANS PRA Standard RA-Sa-2009 for other external hazards except seismic; and the alternative seismic approach as described in Exelon Generation Company, LLC’s submittal letter dated July 30, 2021, and all its subsequent associated supplements as specified in License Amendment No. 352 dated August 23, 2022.

Prior NRC approval, under 10 CFR 50.90, is required for a change to the categorization process specified above (e.g., change from a seismic margins approach to a seismic probabilistic risk assessment approach).

Y. Adoption of Risk Informed Completion Times TSTF-505, Revision 2, "Provide Risk-Informed Extension Completion Times – RITSTF Initiative 4b"

Constellation Energy Generation, LLC is approved to implement TSTF-505, Revision 2, modifying the Technical Specification requirements related to Completion Times (CT) for Required Actions to provide the option to calculate a longer, risk-informed CT (RICT). The methodology for using the new Risk-Informed Completion Time Program is described in NEI 06-09-A, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical specifications (RMTS) Guidelines," Revision 0, which was approved by the NRC on May 17, 2007.

Constellation Energy Generation, LLC will complete implementation items listed in Attachment 6 of Exelon Generation Company, LLC Letter to the NRC dated July 30, 2021, prior to implementation of RICT Program. All issues identified in the attachment will be addressed and any associated changes will be made, focused-scope peer reviews will be performed on changes that are PRA upgrades as defined in PRA standard (ASME/ANS RA-Sa-2009, as endorsed by RG 1.200, Revision 2), and any findings will be resolved and reflected in the PRA of record prior to the implementation of the RICT Program.

3. This renewed operating license is effective as of the date of issuance and shall expire at midnight October 17, 2034.

FOR THE NUCLEAR REGULATORY COMMISSION

\RA\

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Attachments/Appendices:
1. Appendix A – Technical Specifications
2. Appendix B – Deleted
3. Appendix C – Additional Conditions

Date of Issuance: September 8, 2008

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-7 (continued)

and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.

EXAMPLE 1.3-8

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

When a subsystem is declared inoperable, Condition A is entered. The 7 day Completion Time may be applied as discussed in Example 1.3-2. However, the licensee may elect to apply the Risk Informed Completion Time Program which permits calculation of a Risk Informed Completion Time (RICT) that may be used to complete the Required Action beyond the 7 day Completion Time. The RICT cannot exceed 30 days. After the 7 day Completion Time has expired, the subsystem must be restored to OPERABLE status within the RICT or Condition B must also be entered.

The Risk Informed Completion Time Program requires recalculation of the RICT to reflect changing plant conditions. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-8 (continued)

If the 7 day Completion Time clock of Condition A has expired and subsequent changes in plant condition result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE status, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start.

If the RICT expires or is recalculated to be less than the elapsed time since the Condition was entered and the inoperable subsystem has not been restored to OPERABLE status, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition B is entered, Condition A is exited, and therefore, the Required Actions of Condition B may be terminated.

IMMEDIATE COMPLETION TIME

When "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Standby Liquid Control (SLC) System

LCO 3.1.7 Two SLC subsystems shall be OPERABLE

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SLC subsystem inoperable.	A.1 Restore SLC subsystem to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
B. Two SLC subsystems inoperable.	B.1 Restore one SLC subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

3.3 INSTRUMENTATION

3.3.1.1 Reactor Protection System (RPS) Instrumentation

LCO 3.3.1.1 The RPS Instrumentation for each Function in Table 3.3.1.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.1-1.

ACTIONS

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

1. Separate Condition entry is allowed for each channel.
2. When Functions 2.b and 2.c channels are inoperable due to the calculated power exceeding the APRM output by more than 2% RTP while operating at ≥ 25% RTP, entry into associated Conditions and Required Actions may be delayed for up to 2 hours.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip. OR A.2 Place associated trip system in trip.	12 hours OR --------NOTE-------- Not applicable when trip capability is not maintained. ---------- In accordance with the Risk Informed Completion Time Program 12 hours OR --------NOTE-------- Not applicable when trip capability is not maintained. ---------- In accordance with the Risk Informed Completion Time Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with one or more required channels inoperable in both trip systems.	B.1 Place channel in one trip system in trip.	6 hours OR --------NOTE-------- Not applicable when trip capability is not maintained. ---------- In accordance with the Risk Informed Completion Time Program
	OR B.2 Place one trip system in trip.	6 hours OR --------NOTE-------- Not applicable when trip capability is not maintained. ---------- In accordance with the Risk Informed Completion Time Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with RPS trip capability not maintained.	C.1 Restore RPS trip capability.	1 hour
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Enter the Condition referenced in Table 3.3.1.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	E.1 Reduce THERMAL POWER to < 29% RTP.	4 hours
F. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	F.1 Be in MODE 2.	6 hours
G As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	G.1 Be in MODE 3.	12 hours
H. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	H.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

----------NOTES----------

1. Refer to Table 3.3.1.1-1 to determine which SRs apply for each RPS Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains RPS trip capability.

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.2	----------NOTE---------- Not required to be performed until 12 hours after THERMAL POWER ≥ 25% RTP. ---------- Verify the calculated power does not exceed the average power range monitor (APRM) channels by greater than 2% RTP while operating at ≥ 25% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.3	----------NOTE---------- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.4	Perform a functional test of each RPS automatic scram contactor.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.5	NOT USED	
SR 3.3.1.1.6	NOT USED	
SR 3.3.1.1.7	Calibrate the local power range monitors.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.8	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.9	----------NOTES---------- 1. Neutron detectors are excluded. 2. For Functions 1.a and 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. 3. For Function 2.b, the recirculation loop flow signal portion of the channel is excluded. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.10	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.11	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.12	----------NOTE---------- For Function 2.b, all portions of the channel except the recirculation loop flow signal portion are excluded. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.13	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.14	Verify Turbine Stop Valve-Closure and Turbine Control Valve Fast Closure, EHC Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 29% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.15	----------NOTES---------- 1. Neutron detectors are excluded. 2. "n" equals 2 channels for the purpose of determining the STAGGERED TEST BASIS Frequency. ---------- Verify the RPS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

Table 3.3.1.1-1 (page 1 of 3)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWED VALUE
1.	Intermediate Range Monitors					
	a. Neutron Flux - High	2	3	G	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ 120/125 divisions of full scale
		5[(a)]	3	H	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ 120/125 divisions of full scale
	b. Inop	2	3	G	SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.13	NA
		5[(a)]	3	H	SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.13	NA
2.	Average Power Range Monitors					
	a. Neutron Flux – High, (Startup)	2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.7 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ 15% RTP
	b. Neutron Flux – High (Flow Biased)	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.4 SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	As specified in the COLR and ≤ 117% RTP

(continued)

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWED VALUE
2.	Average Power Range Monitors (continued)					
	c. Neutron Flux – High (Fixed)	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.4 SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 120% RTP
	d. Inop	1,2	2	G	SR 3.3.1.1.4 SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.13	NA
3.	Reactor Pressure - High	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 1080 psig
4.	Reactor Vessel Water Level – Low (Level 3)	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13	≥ 177 inches
5.	Main Steam Isolation Valve - Closure	1	8	F	SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 15% closed
6.	Drywell Pressure - High	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 2.7 psig

(continued)

Table 3.3.1.1-1 (page 3 of 3)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7.	Scram Discharge Volume Water Level - High					
	a. Differential Pressure Transmitter/Trip Unit	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ 34.5 gallons
		5[(a)]	2	H	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ 34.5 gallons
	b. Level Switch	1,2	2	G	SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 34.5 gallons
		5[(a)]	2	H	SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 34.5 gallons
8.	Turbine Stop Valve - Closure	≥ 29% RTP	4	E	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 15% closed
9.	Turbine Control Valve Fast Closure, EHC Oil Pressure - Low	≥ 29% RTP	2	E	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ 500 psig and ≤ 850 psig
10.	Reactor Mode Switch – Shutdown Position	1,2	1	G	SR 3.3.1.1.11 SR 3.3.1.1.13	NA
		5[(a)]	1	H	SR 3.3.1.1.11 SR 3.3.1.1.13	NA
11.	Manual Scram	1,2	1	G	SR 3.3.1.1.8 SR 3.3.1.1.13	NA
		5[(a)]	1	H	SR 3.3.1.1.8 SR 3.3.1.1.13	NA

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

3.3 INSTRUMENTATION

3.3.2.2 Feedwater and Main Turbine High Water Level Trip Instrumentation

LCO 3.3.2.2 Three channels of feedwater and main turbine high water level trip instrumentation shall be OPERABLE.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One feedwater and main turbine high water level trip channel inoperable.	A.1 Place channel in trip.	7 days OR ---NOTE--- Not applicable when trip capability is not maintained --- In accordance with the Risk Informed Completion Time Program
B. Two or more feedwater and main turbine high water level trip channels inoperable.	B.1 Restore feedwater and main turbine high water level trip capability.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 --------NOTE-------- Only applicable if inoperable channel is the result of inoperable feedwater pump turbine or main turbine stop valve. ---------- Remove affected stop valve(s) from service.	4 hours
	OR	
	C.2 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

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

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided feedwater and main turbine high water level trip capability is maintained.

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.2	----------NOTE---------- Only required to be performed when in MODE 4 for > 24 hours. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 222.5 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuator.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.4.1 Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

LCO 3.3.4.1 Two channels per trip system for each ATWS-RPT instrumentation Function listed below shall be OPERABLE:

a. Reactor Vessel Water Level-Low Low (Level 2); and

b. Reactor Pressure-High.

APPLICABILITY: MODE 1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Restore channel to OPERABLE status. OR	14 days OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 --------NOTE-------- Not applicable if inoperable channel is the result of an inoperable breaker. ---------- Place channel in trip.	14 days OR --------NOTE-------- Not applicable when trip capability is not maintained. ---------- In accordance with the Risk Informed Completion Time Program
B. One Function with ATWS-RPT trip capability not maintained.	B.1 Restore ATWS-RPT trip capability.	72 hours
C. Both Functions with ATWS-RPT trip capability not maintained.	C.1 Restore ATWS-RPT trip capability for one Function.	1 hour
D. Required Action and associated Completion Time not met.	D.1 --------NOTE-------- Only applicable if inoperable channel is the result of an inoperable RPT breaker. ---------- Remove the affected recirculation pump from service. OR D.2 Be in MODE 2.	6 hours 6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 --------NOTE-------- Only applicable for Functions 3.a and 3.b. ---------- Declare High Pressure Coolant Injection (HPCI) System inoperable.	1 hour from discovery of loss of HPCI initiation capability
	AND	
	B.3 Place channel in trip.	24 hours OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1 --------NOTE-------- Only applicable for Functions 1.c, 1.d, 2.c, 2.d, and 2.f. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	AND	(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Restore channel to OPERABLE status.	24 hours OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1 --------NOTE-------- Only applicable if HPCI pump suction is not aligned to the suppression pool. ---------- Declare HPCI System inoperable. AND D.2.1 Place channel in trip. OR	 1 hour from discovery of loss of HPCI initiation capability 24 hours OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.2.2 Align the HPCI pump suction to the suppression pool.	24 hours
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1 --------NOTE-------- Only applicable for Functions 1.e, 1.f, and 2.g. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for subsystems in both divisions
	AND	
	E.2 Restore channel to OPERABLE status.	7 days OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	F.1 Declare Automatic Depressurization System (ADS) valves inoperable. AND F.2 Place channel in trip.	1 hour from discovery of loss of ADS initiation capability in both trip systems 96 hours from discovery of inoperable channel concurrent with HPCI or reactor core isolation cooling (RCIC) inoperable OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program AND 8 days OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	G.1 Declare ADS valves inoperable. AND G.2 Restore channel to OPERABLE status.	1 hour from discovery of loss of ADS initiation capability in both trip systems 96 hours from discovery of inoperable channel concurrent with HPCI or RCIC inoperable OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program AND 8 days OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program
H. Required Action and associated Completion Time of Condition B, C, D, E, F, or G not met.	H.1 Declare associated supported feature(s) inoperable.	Immediately

3.3 INSTRUMENTATION

3.3.5.3 Reactor Core Isolation Cooling (RCIC) System Instrumentation

LCO 3.3.5.3 The RCIC System instrumentation for each Function in Table 3.3.5.3-1 shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 with reactor steam dome pressure > 150 psig.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.3-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	B.1 Declare RCIC System inoperable. AND	1 hour from discovery of loss of RCIC initiation capability
	B.2 Place channel in trip.	24 hours OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	C.1	Restore channel to OPERABLE status.	24 hours
D. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	D.1	--------NOTE-------- Only applicable if RCIC pump suction is not aligned to the suppression pool. ---------- Declare (RCIC) System inoperable.	1 hour from discovery of loss of automatic RCIC initiation capability
	AND		
	D.2.1	Place channel in trip.	24 hours OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program
	OR		
	D.2.2	Align RCIC pump suction to the suppression pool.	24 hours
E. Required Action and associated Completion Time of Condition B, C, or D not met.	E.1	Declare RCIC System inoperable.	Immediately

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation Instrumentation

LCO 3.3.6.1 The primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

----------NOTES----------

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.a, 2.b, 2.d, 2.g, 5.e, 5.f, 6.b, 7.a, and 7.b OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program AND (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A.	A.1 (continued)	24 hours for Functions other than Functions 2.a, 2.b, 2.d, 2.g, 5.e, 5.f, 6.b, 7.a, and 7.b OR --------NOTE-------- Not applicable when trip capability is not maintained ---------- In accordance with the Risk Informed Completion Time Program
B. One or more Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately
D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1 Isolate associated main steam line (MSL). OR D.2.1 Be in MODE 3. AND D.2.2 Be in MODE 4.	12 hours 12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1 Be in MODE 2.	6 hours
F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1 Isolate the affected penetration flow path(s).	1 hour
G. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	G.1 Isolate the affected penetration flow path(s).	24 hours
H. Required Action and associated Completion Time of Condition F or G not met. OR As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1 Be in MODE 3. AND H.2 Be in MODE 4.	12 hours 36 hours
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1 Declare associated standby liquid control subsystem (SLC) inoperable. OR I.2 Isolate the Reactor Water Cleanup System.	1 hour 1 hour
J. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	J.1 Initiate action to restore channel to OPERABLE status.	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* OR In accordance with the Risk Informed Completion Time Program
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 (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. HPCI System inoperable.	C.1 Verify by administrative means RCIC System is OPERABLE. AND C.2 Restore HPCI System to OPERABLE status.	Immediately 14 days OR In accordance with the Risk Informed Completion Time Program
D. HPCI System inoperable. AND Condition A entered.	D.1 Restore HPCI System to OPERABLE status. OR D.2 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program 72 hours OR In accordance with the Risk Informed Completion Time Program
E. One required ADS value inoperable.	E.1 Restore required ADS valve to OPERABLE status.	14 days OR In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One required ADS valve inoperable. AND Condition A entered.	F.1 Restore required ADS valve to OPERABLE status. OR F.2 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program 72 hours OR In accordance with the Risk Informed Completion Time Program
G. Required Action and associated Completion Time of Condition C, D, E, or F not met. OR Two or more required ADS valves inoperable.	G.1 Be in Mode 3. AND G.2 Reduce reactor steam dome pressure to ≤ 150 psig.	12 hours 36 hours
H. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A. OR HPCI System and one or more required ADS valves inoperable.	H.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each 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 3.5.1.2	Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program*
SR 3.5.1.3	Verify ADS pneumatic supply header pressure is ≥ 95 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify the RHR System cross tie valves are closed and power is removed from the electrical valve operator.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.5	Cycle open and closed each LPCI motor operated valve independent power supply battery charger AC input breaker and verify each LPCI inverter output voltage is ≥ 576 V and ≤ 624 V while supplying the respective bus.	In accordance with the Surveillance Frequency Control Program

(continued)

* This Surveillance for ST-4B is not required to be performed until following the return of the "A" RHR pump to OPERABLE. This past due Surveillance will be completed as stated in Section 3.5 of letter JAFP-21-0053, dated June 14, 2021.

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

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE

APPLICABILITY: MODE 1,
MODES 2 and 3 with reactor steam dome pressure > 150 psig.

ACTIONS

----------NOTE----------
LCO 3.0.4.b is not applicable to RCIC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCIC System inoperable.	A.1 Verify by administrative means High Pressure Coolant Injection System is OPERABLE. AND A.2 Restore RCIC System to OPERABLE status.	Immediately 14 days OR In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Reduce reactor steam dome pressure to ≤ 150 psig.	12 hours 36 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Lock an OPERABLE door closed in the affected air lock. AND	24 hour
	B.3 ----------NOTE---------- Air lock doors in high radiation areas or areas with limited access due to inerting may be verified locked closed by administrative means. ---------- Verify the OPERABLE door is locked closed in the affected air lock.	Once per 31 days
C. One or more primary containment air locks inoperable for reasons other than Condition A or B.	C.1 Initiate action to evaluate primary containment overall leakage rate per LCO 3.6.1.1, using current air lock test results. AND	Immediately
	C.2 Verify a door is closed in the affected air lock. AND	1 hour
	C.3 Restore air lock to OPERABLE status.	24 hours OR --------NOTE-------- Not applicable if leakage exceeds limits or if loss of function ---------- In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS

---NOTES---

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---NOTE--- Only applicable to penetration flow paths with two or more PCIVs. --- One or more penetration flow paths with one PCIV inoperable for reasons other than Conditions D and E.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.	4 hours except for main steam line OR In accordance with the Risk Informed Completion Time Program AND 8 hours for main steam line OR In accordance with the Risk Informed Completion Time Program
	AND	(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 ----------NOTES--------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days following isolation for isolation devices outside primary containment AND Prior to entering MODE 2 or 3 from MODE 4, if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days, for isolation devices inside primary containment

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 ----------NOTES--------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days following isolation
D. One or more penetration flow paths with one or more MSIVs not within leakage rate limit.	D.1 Restore leakage rate to within limit.	8 hours
E. One or more penetration flow paths with LPCI System or CS System testable check valve leakage limit not met.	E.1 Restore leakage rate to within limit.	72 hours OR --------NOTE-------- Not applicable if leakage exceeds limits or if loss of function ---------- In accordance with the Risk Informed Completion Time Program

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.1.6 Reactor Building-to-Suppression Chamber Vacuum Breakers

LCO 3.6.1.6 Each reactor building-to-suppression chamber vacuum breaker shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more lines with one reactor building-to-suppression chamber vacuum breaker not closed.	A.1 Close the open vacuum breaker.	72 hours
B. One or more lines with two reactor building-to-suppression chamber vacuum breakers not closed.	B.1 Close one open vacuum breaker.	1 hour
C. One line with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	C.1 Restore the vacuum breaker(s) to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.1.7 Suppression Chamber-to-Drywell Vacuum Breakers

LCO 3.6.1.7 Each suppression chamber-to-drywell vacuum breaker shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One suppression chamber-to-drywell vacuum breaker inoperable for opening.	A.1 Restore the vacuum breaker to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program
B. One suppression chamber-to-drywell vacuum breaker not closed.	B.1 Close the open vacuum breaker.	2 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.9 Residual Heat Removal (RHR) Containment Spray System

LCO 3.6.1.9 Two RHR containment spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR containment spray subsystem inoperable.	A.1 Restore RHR containment spray subsystem to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
B. Two RHR containment spray subsystems inoperable.	B.1 Restore one RHR containment spray subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

3.6 CONTAINMENT SYSTEMS

3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling

LCO 3.6.2.3 Two RHR suppression pool cooling subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool cooling subsystem inoperable.	A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
B. Two RHR suppression pool cooling subsystems inoperable.	B.1 Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

3.7 PLANT SYSTEMS

3.7.1 Residual Heat Removal Service Water (RHRSW) System

LCO 3.7.1 Two RHRSW subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHRSW pump inoperable.	A.1 Restore RHRSW pump to OPERABLE status.	30 days
B. One RHRSW pump in each subsystem inoperable.	B.1 Restore one RHRSW pump to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
C. One RHRSW subsystem inoperable for reasons other than Condition A.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.4.7, "Residual Heat Removal (RHR) Shutdown Cooling System – Hot Shutdown," for RHR shutdown cooling made inoperable by RHRSW System. ---------- C.1 Restore RHRSW subsystem to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program

(continued)

3.7 PLANT SYSTEMS

3.7.2 Emergency Service Water (ESW) System and Ultimate Heat Sink (UHS)

LCO 3.7.2 Two ESW subsystems an UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ESW subsystem inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources – Operating," for emergency diesel generator subsystem made inoperable by ESW. ---------- A.1 Restore the ESW subsystem to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met. OR Both ESW subsystems inoperable for reasons other than Condition A.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.2.1	Verify the water level in the ESW pump screenwell is ≥ 236.5 ft mean sea level.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.2	Verify the average water temperature of UHS is ≤ 85°F.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.3	----------NOTE---------- Isolation of flow to individual components does not necessarily render ESW System inoperable. ---------- Verify each ESW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.4	Verify each ESW subsystem actuates on an actual or simulated initiation signal, except for valves that are locked, sealed, or otherwise secured in the actuated position.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.6 Main Turbine Bypass System

LCO 3.7.6 The Main Turbine Bypass System shall be OPERABLE.

OR

The following limits are made applicable:

a. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for an inoperable Main Turbine Bypass System, as specified in the COLR; and

b. LCO 3.2.3, "LINEAR HEAT GENERATION RATE (LHGR)," limits for an inoperable Main Turbine Bypass System, as specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	2 hours OR In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	Restore offsite circuit to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
B. One EDG subsystem inoperable.	B.1	Perform SR 3.8.1.1 for OPERABLE offsite circuit(s).	1 hour AND Once per 8 hours thereafter
	AND		
	B.2	Declare required feature(s), supported by the inoperable EDG subsystem, inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	AND		
	B.3.1	Determine OPERABLE EDG subsystem is not inoperable due to common cause failure.	24 hours
	OR		
	B.3.2	Perform SR 3.8.1.2 for OPERABLE EDG subsystem.	24 hours
	AND		

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.4 Restore EDG subsystem to OPERABLE status.	14 days OR In accordance with the Risk Informed Completion Time Program
C. Two offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable. AND C.2 Restore one offsite circuit to OPERABLE status.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s) 7 days OR In accordance with the Risk Informed Completion Time Program
D. One offsite circuit inoperable. AND One EDG subsystem inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems – Operating," when Condition D is entered with no AC power source to any division. ---------- D.1 Restore Offsite circuit to OPERABLE status. OR	12 hours OR In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)	D.2	Restore EDG subsystem to OPERABLE status.	12 hours OR In accordance with the Risk Informed Completion Time Program
E. Two EDG subsystems inoperable.	E.1	Restore one EDG subsystem to OPERABLE status.	2 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1 AND F.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours
G. Three or more AC sources inoperable.	G.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each offsite circuit.	In accordance with the Surveillance Frequency Control Program

(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4 The following DC electrical power subsystems shall be OPERABLE:

a. Two 125 VDC subsystems; and

b. Two 419 VDC low pressure coolant injection (LPCI) MOV independent power supple subsystems.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One battery charger on One 125 VDC power subsystem inoperable.	A.1	Restore battery terminal voltage to greater than or equal to the minimum established float voltage (127.8 VDC).	2 hours
	AND		
	A.2	Verify battery float current ≤ 2 amps.	Once per 12 hours
	AND		
	A.3	Restore battery charger to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One 125 VDC electrical power subsystem inoperable for reasons other than Condition A.	B.1	Restore 125 VDC electrical power subsystem to OPERABLE status.	8 hours OR In accordance with the Risk Informed Completion Time Program
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours
D. One or both 419 VDC LPCI MOV independent power supply subsystems inoperable.	D.1	Declare associated LPCI subsystem(s) inoperable.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Distribution Systems - Operating

LCO 3.8.7 The Division 1 and Division 2 AC and 125 VDC electrical power distribution subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more AC electrical power distribution subsystems inoperable.	A.1 Restore AC electrical power distribution subsystems to OPERABLE status.	8 hours OR --------NOTE-------- Not applicable when loss of function can occur ---------- In accordance with the Risk Informed Completion Time Program
B. One 125 VDC electrical power distribution subsystem inoperable.	B.1 Restore 125 VDC electrical power distribution subsystems to OPERABLE status.	8 hours OR --------NOTE-------- Not applicable when loss of function can occur ---------- In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours
D. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct breaker alignments and voltage to required AC and 125 VDC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

5.5 Programs and Manuals

5.5.15 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of the Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

5.5.16 Risk Informed Completion Time Program

This program provides controls to calculate a Risk Informed Completion Time (RICT) and must be implemented in accordance with NEI 06-09-A, Revision 0, "Risk-Managed Technical Specifications (RMTS) Guidelines."

The program shall include the following:

a. The RICT may not exceed 30 days;

b. A RICT may only be utilized in MODE 1, 2;

c. When a RICT is being used, any change to the plant configuration, as defined in NEI 06-09-A, Appendix A, must be considered for the effect on the RICT.

1. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration.

2. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

3. Revising the RICT is not required if the plant configuration change would lower plant risk and would result in a longer RICT.

(continued)

5.5 Programs and Manuals (continued)

5.5.16 Risk Informed Completion Time Program (continued)

d. For emergent conditions, if the extent of condition evaluation for inoperable structures, systems, or components (SSCs) is not complete prior to exceeding the Completion Time, the RICT shall account for the increased possibility of common cause failure (CCF) by either:

1. Numerically accounting for the increased possibility of CCF in the RICT calculation; or

2. Risk Management Actions (RMAs) not already credited in the RICT calculation shall be implemented that support redundant or diverse SSCs that perform the function(s) of the inoperable SSCs, and, if practicable, reduce the frequency of initiating events that challenge the function(s) performed by the inoperable SSCs.

e. The risk assessment approaches and methods shall be acceptable to the NRC. The plant PRA shall be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant, as specified in Regulatory Guide 1.200, Revision 2. Methods to assess the risk from extending the Completion Times must be PRA methods used to support License Amendment No. , or other methods approved by the NRC for generic use; and any change in the PRA methods to assess risk that are outside these approval boundaries require prior NRC approval.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 353

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-59

CONSTELLATION FITZPATRICK, LLC

CONSTELLATION ENERGY GENERATION, LLC

DOCKET NO. 50-333

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

1.0 INTRODUCTION

By letter dated July 30, 2021 (Reference 1), as supplemented by letters dated March 4, 2022, and June 16, 2022 (References 2 and 3), Exelon Generation Company, LLC submitted a license amendment request (LAR) for James A. Fitzpatrick Nuclear Power Plant (FitzPatrick). On February 1, 2022 (Reference 4), Exelon Generation Company, LLC was renamed Constellation Energy Generation, LLC (the licensee). The amendment would revise technical specification (TS) requirements to permit the use of risk-informed completion times (RICTs) for actions to be taken when limiting conditions for operation (LCOs) are not met. The proposed changes are based on Technical Specifications Task Force (TSTF) Traveler TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b," dated July 2, 2018 (Reference 5). The U.S. Nuclear Regulatory Commission (NRC or the Commission) issued a final model safety evaluation (SE) approving TSTF-505, Revision 2, on November 21, 2018 (Reference 6).

The licensee has proposed variations from the TS changes approved in TSTF-505, Revision 2, which are provided in Section 2.3 of the LAR and evaluated in Section 3.2.1 of this SE.

The NRC staff participated in a regulatory audit in January 2022 to ascertain the information needed to support its review of the application and to develop requests for additional information (RAIs), as needed. On August 31, 2022, the NRC staff issued an audit summary (Reference 7). Following the regulatory audit, the licensee submitted a supplement letter dated March 4, 2022, that included additional information resulting from the audit. In review of the supplemental information, the NRC issued a request for additional information (RAI) in email correspondence dated May 4, 2022 (Reference 8). The licensee provided a response to the RAIs in letter dated June 16, 2022. The supplemental letters of March 4, 2022, and June 16, 2022, 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 November 30, 2021 (86 FR 67988).

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 provides the general provisions for *Domestic Licensing of Production and Utilization Facilities*. The general provisions include but are not limited to establishing the regulatory requirements that a licensee must adhere to for the submittal of a license application. The NRC staff has identified the following applicable sections within 10 CFR Part 50, along with the provision provided in 10 CFR Part 20 for the staff's review of a licensee's application to adopt TSTF-505, Revision 2.

- 10 CFR 50.36(c)(2), and (c)(5), Technical Specifications
- 10 CFR 50.55a(h), Codes and Standards
- 10 CFR 50.65, Requirements for monitoring the effectiveness of maintenance at nuclear power plants (i.e., the Maintenance Rule)
- 10 CFR Part 20, Standard for Protection Against Radiation

NRC Regulatory Guides (RGs) provide one way to ensure that the codified regulations continue to be met. The NRC staff considered the following guidance, along with industry guidance endorsed by the NRC during its review of the proposed changes:

- RG 1.200, Revision 2, and Revision 3, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities." (References 9 and 10, respectively)
- RG 1.174, Revision 3, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis." (Reference 11)
- RG 1.177, Revision 2, "Plant-Specific, Risk-Informed Decision-making: Technical Specifications." (Reference 12)
- NUREG-1855, Revision 1, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision-making." (Reference 13)
- NUREG-0800, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [light-water reactor] Edition," Chapter 19, Section 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance" and Section 16.1, "Risk-Informed Decision Making: Technical Specifications." (Reference 14)
- NEI 06-09-A, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines" provides guidance for risk-informed TS. The NRC staff issued a final model SE approving NEI 06-09 on May 17, 2007. (Reference 15)

In certain instances, the licensee's submittal cites Revision 2 and Revision 3 of RG 1.200. RG 1.200 has been updated to Revision 3. The updates do not include any technical changes that would impact the consistency with Nuclear Energy Institute (NEI) Topical Report (TR) 06-09-A; therefore, the NRC staff finds the updated revision to the RG 1.200 also applicable for use in the adoption of TSTF-505, Revision 2.

2.1 Description of Risk-Informed Completion Time Program

The TS LCOs are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When an LCO is not met, the licensee must shut down the reactor or follow any remedial or required action (e.g., testing, maintenance, or repair activity)

permitted by the TSs until the condition can be met. The remedial actions (i.e., ACTIONS) associated with an LCO contain conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s) (CT). The CTs are referred to as the “front stops” in the context of this SE. For certain conditions, the TSs require exiting the Mode of Applicability of an LCO (i.e., shut down the reactor).

The licensee’s submittal requested approval to add a RICT program to the Administrative Controls Section of the TS, and modify selected CTs to permit extending the CTs, provided risk is assessed and managed as described in NEI 06-09-A.

The licensee is proposing no changes to the design of the plant or any operating parameter, and no new changes to the design basis in the proposed changes to the TS. The effect of the proposed changes when implemented will allow CTs to vary, based on the risk significance of the given plant configuration (i.e., the equipment out-of-service at any given time), provided that the system(s) retain(s) the capability to perform the applicable safety function(s) without any further failures (e.g., one train of a two-train system is inoperable). These restrictions on inoperability of all required trains of a system ensure that consistency with the defense-in-depth (D-I-D) philosophy is maintained by following existing guidance when the capability to perform TS safety function(s) is lost.

The proposed RICT program uses plant -specific operating experience for component reliability and availability data. Thus, the allowances permitted by the RICT program are directly reflective of actual component performance in conjunction with component risk significance.

For TS use and application:

Example 1.3-8, will be added to TS 1.3, CTs, and will read as follows:

EXAMPLE 1.3-8

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program.
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

When a subsystem is declared inoperable, Condition A is entered. The 7 day Completion Time May be applied as discussed in Example 1.3-2. However, the licensee may elect to apply the Risk Informed Completion Time Program which permits calculation of a Risk Informed Completion Time (RICT) that may be used to complete the Required Action beyond the 7 day Completion Time. The RICT cannot exceed 30 days. After the 7 day Completion Time has expired, the subsystem must be restored to OPERABLE status within the RICT or Condition B must also be entered.

The Risk Informed Completion Time Program requires recalculation of the RICT to reflect changing plant conditions. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

If the 7 day Completion Time clock of Condition A has expired and subsequent changes in plant condition result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE status, Condition B is also entered, and the Completion Time clocks for Required Actions B.1 and B.2 start.

If the RICT expires or is recalculated to be less than the elapsed time since the Condition was entered and the inoperable subsystem has not been restored to OPERABLE status, Condition B is also entered, and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition B is entered, Conditions A is exited, and therefore, the Required Actions of Condition B may be terminated.

3.0 TECHNICAL EVALUATION

An acceptable approach for making risk-informed decisions about proposed TS changes, including both permanent and temporary changes, is to demonstrate that the proposed licensing basis (LB) changes meet the five key principles provided in Section C of RG 1.174 and the three-tiered approach outlined in Section C of RG 1.177 (Reference 13). These key principles and tiers are:

Principle 1: The proposed LB change meets the current regulations unless it is explicitly related to a requested exemption.

Principle 2: The proposed LB change is consistent with the defense in depth (D-I-D) philosophy.

Principle 3: The proposed LB change maintains sufficient safety margins.

Principle 4: When the proposed LB change results in an increase in risk, the increase should be small and consistent with the intent of the Commission's policy statement on safety goals for the operations of nuclear power plants.

- Tier 1: PRA Capability and Insights
- Tier 2: Avoidance of Risk-Significant Plant Configurations
- Tier 3: Risk-Informed Configuration Risk Management

Principle 5: The impact of the proposed LB change should be monitored by using performance measures strategies.

3.1 Method of NRC Staff Review

Each of the key principles and tiers are addressed in NEI 06-09-A and approved in the final model SE issued by the NRC for TSTF-505, Revision 2. The industry guidance provides a methodology for extending existing CTs, and thereby, delay exiting the operational mode of applicability or taking Required Actions if risk is assessed and managed within the limits and programmatic requirements established by a RICT program. The NRC staff's evaluation of the licensee's proposed use of RICTs against the key safety principles of RG 1.174 and RG 1.177 is discussed below.

3.2 Review of Key Principles

3.2.1 Key Principle 1: Evaluation of Compliance with Current Regulations

Paragraph 50.36(c)(2) of 10 CFR requires that LCOs are the lowest functional capability or performance levels of equipment required for safe operation of the facility. 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 CTs in the current TSs were established using experiential data, risk insights, and engineering judgement. The RICT program provides the necessary administrative controls to permit extension of CTs and, thereby, delay reactor shutdown or Required Actions, if risk is assessed and managed appropriately within specified limits and programmatic requirements and the safety margins and D-I-D remains sufficient. The option to determine the extended CT in accordance with the RICT program allows the licensee to perform an integrated evaluation in accordance with the methodology prescribed in NEI 06-09-A and TS 5.5.16. The RICT is limited to a maximum of 30 days (termed the "back stop").

The typical CT is modified by the application of the RICT program as shown in the following example. The changed portion is indicated in italics.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days <u>*OR*</u> *In accordance with the Risk Informed Completion Time Program*

In Attachment 2 and Enclosure 1 of the LAR, as supplemented, the licensee provided a list of the TSs, associated LCOs, and Required Actions for the CTs that included modifications and variations from the approved TSTF-505. In response to the probabilistic risk assessment (PRA) Licensing Branch-A (APLA) RAI 02.a, the licensee removed their initial submittal request for TS 3.3.7.2.A from the scope of the RICT program. In response to the Electrical Engineering Branch (EEEB) RAI 07, the licensee removed 3.3.8.1 from the scope of the RICT program. The modifications and variations consisted of proposed changes to the Required Actions and CTs. The NRC staff reviewed the proposed changes to the TSs, associated LCOs, Required Actions and CTs provided by the licensee for the scope of the RICT program and concluded, with the incorporation of the RICT program, that the required performance levels of equipment specified in LCOs are not changed, only the required CT for the Required Actions are modified, such that 10 CFR 50.36(c)(2) will remain met. Based on the discussion provided above, the NRC staff finds that the TS program provided in Section 2.0 of this SE, LCOs, Required Actions, and CTs meet the first key principle of RG 1.174, Revision 3, and RG 1.177, Revision 2.

3.2.2 Key Principle 2: Evaluation of Defense in Depth

In RG 1.174, Revision 3, the NRC identified the following considerations used for evaluation of how the LB change is maintained for the D-I-D philosophy:

- Preserve a reasonable balance among the layers of defense.
- Preserve adequate capability of design features without an overreliance on programmatic activities as compensatory measures.
- Preserve system redundancy, independence, and diversity commensurate with the expected frequency and consequences of challenges to the system, including consideration of uncertainty.
- Preserve adequate defense against potential common cause failures (CCFs).
- Maintain multiple fission product barriers.
- Preserve sufficient defense against human errors.
- Continue to meet the intent of the plant's design criteria.

The licensee requested to use the RICT program to extend the existing CTs for the respective TS LCOs prescribed in Attachment 2 of the LAR, as supplemented. For the TS LCOs in Attachment 5 and Enclosure 1 of the LAR, as supplemented, the licensee provided a description and assessment of the redundancy and diversity for the proposed changes. The NRC staff's evaluation of the proposed changes for these LCOs assessed Fitzpatrick's redundant or diverse means to mitigate accidents to ensure consistency with the plant LB requirements using the

guidance prescribed in RG 1.174, RG 1.177, and TSTF-505, to ensure adequate D-I-D (for each of the functions) to operate the facility in the proposed manner (i.e., that the changes are consistent with the D-I-D criteria).

Attachment 5, "Information Supporting Instrumentation Redundancy and Diversity," and Enclosure 1 of the LAR provided information supporting the FitzPatrick evaluation of the redundancy, diversity, and D-I-D for each TS LCO and TS Required Action as it related to instrumentation and control (I&C) and electrical power systems. The NRC notes that in response to APLA RAI 02.a and EEEB Question 7 provided in supplements, the licensee removed TS 3.3.7.2.A and TS 3.3.8.1 respectively from the scope of the RICT program. The NRC staff confirmed that for the following TS LCOs, the above D-I-D criteria were applicable except for the criteria for maintaining multiple fission product barriers.

- TS 3.3.1.1, Reactor Protection System (RPS) Instrumentation [I&C specific]
- TS 3.3.2.2, Feedwater System and Main Turbine High Water Level Trip Instrumentation [I&C specific]
- TS 3.3.4.1, Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation [I&C specific]]
- TS 3.3.5.1, Emergency Core Cooling System (ECCS) Instrumentation [I&C specific]
- TS 3.3.5.3, Reactor Core Isolation Cooling (RCIC) System Instrumentation [I&C specific]
- TS 3.3.6.1, Primary Containment Isolation Instrumentation [I&C specific]
- TS 3.8.1, AC Sources – Operating [power-related]
- TS 3.8.4, DC Sources **–** MODES 1, 2, 3, and 4 [power-related]
- TS 3.8.7, AC Instrument Bus Sources – MODES 1, 2, 3, and 4 [electrical-related]
- TS 3.8.9, Distribution Systems – MODES 1, 2, 3, and 4 [power-related]

For the TS LCOs specific to I&C (i.e., TS 3.3.x.x), the NRC staff reviewed the specific trip logic arrangements, redundancy, backup systems, manual actions, and diverse trips specified for each of the protective safety functions and associated instrumentation as described in the associated Updated Final Safety Analysis Report (UFSAR) (Reference 16) sections, and as reflected in Attachment 5 and Enclosure 1 of the LAR, as supplemented, for each I&C LCO above. The NRC staff verified, that in accordance with the FitzPatrick UFSAR and equipment and actions credited in Attachment 5 and Enclosure 1 of the LAR, as supplemented, in all applicable operating modes, the affected protective feature would perform its intended function by ensuring the ability to detect and mitigate the associated event or accident when the CT of a channel is extended. Furthermore, the NRC staff concludes that there is sufficient redundancy, diversity, and D-I-D, to protect against CCFs and potential single failure for the FitzPatrick instrumentation systems evaluated in LAR Attachment 5 and Enclosure 1, as supplemented, during a RICT. There is at least one diverse means specified by the licensee for initiating mitigating action for each accident event, thus providing D-I-D against a failure of instrumentation during the RICT for each TS LCO. The D-I-D specified by the licensee does not overly rely on manual actions as the diverse means; therefore, there is not over-reliance of programmatic activities as compensatory measures. Therefore, the NRC staff finds that the intent of the plant's design criteria (e.g., safety functions) for the above TS LCOs related to I&C are maintained.

For the TS LCOs specific to electrical-power systems (i.e., TS 3.8.x), the FitzPatrick UFSAR states that the plant is designed such that the safety functions are maintained assuming a single failure within the electrical power system. Single-failure requirements are typically suspended

for the time that a plant is not meeting an LCO (i.e., in an ACTION statement). The NRC staff reviewed the information the licensee provided throughout the entirety of the LAR and its supplement for the proposed TS LCOs, TS Bases, and the UFSAR to verify the capacity and capability of the affected electrical power systems to perform their safety functions (assuming no additional failures) is maintained. The NRC staff verified that the design success criteria for the affected TS LCOs reflect the redundant or absolute minimum electrical power source/subsystem required to be operable to support the safety functions necessary to mitigate postulated design-basis accidents (DBAs), safely shutdown the reactor, and maintain the reactor in a safe shutdown condition. In addition, the NRC staff reviewed the risk management action (RMA) examples which provide reasonable assurance that the appropriate RMAs will be implemented to monitor and control risk. The NRC staff finds that the intent of the plant's design criteria (e.g., safety functions) applicable to the electrical-power related TS LCOs provided above are maintained.

The NRC staff notes that while in a TS LCO condition, the redundancy of the affected system will be temporarily relaxed and, consequently, the system reliability will be degraded accordingly. The NRC staff examined the design information from the FitzPatrick UFSAR and the risk informed TS LCO conditions for the affected safety functions. Based on this information, the NRC staff confirmed that under any given DBA evaluated in the FitzPatrick UFSAR, the affected protective features maintain adequate D-I-D.

Considering that the CT extensions will be implemented in accordance with the NEI 06-09-A guidance, that also considers RMAs, and the redundancy of the offsite and onsite power system, the NRC staff finds that the plant will maintain adequate D-I-D. Therefore, the NRC staff finds that the TS LCOs proposed by the licensee in Attachment 2 of the LAR, as supplemented, are acceptable for the RICT program.

The NRC staff reviewed all TS LCOs proposed by the licensee in Attachment 2 of the LAR, as supplemented, and concludes that the proposed changes do not alter the ways in which the FitzPatrick systems fail, do not introduce new CCF modes, and the system independence is maintained. The NRC staff finds that some proposed changes reduce the level of redundancy of the affected systems, and this reduction may reduce the level of defense against some CCFs; however, such reductions in redundancy and defense against CCFs are acceptable due to existing diverse means available to maintain adequate D-I-D against a potential single failure during a RICT. The NRC staff finds that extending the selected CTs with the RICT program following loss of redundancy, but maintaining the capability of the system to perform its safety function, is an acceptable reduction in D-I-D during the proposed RICT period provided that the licensee identifies and implements compensatory measures in accordance with the RICT program during the extended CT.

Based on the above, the NRC staff finds that the licensee's proposed changes are consistent with the NRC-endorsed guidance prescribed in the NEI 06-09-A and satisfy the second key principle in RG 1.174 and RG 1.177. Additionally, the NRC staff concludes that the changes are consistent with the D-I-D philosophy as described in RG 1.174.

3.2.3 Key Principle 3: Evaluation of Safety Margins

Paragraph 50.55a(h) of 10 CFR ("Codes and Standards") requires in part, that protection systems of nuclear power reactors of all types must meet the requirements specified in this paragraph. Section 2.2.2 of RG 1.177 states, in part, that sufficient safety margins are maintained when:

- Codes and standards or alternatives approved for use by the NRC are met.
- Safety analysis acceptance criteria in the final safety analysis report (FSAR) are met or proposed revisions provide sufficient margin to account for analysis and data uncertainties.

The licensee is not proposing in this application to change any quality standard, material, or operating specification. In the LAR, the licensee proposed to add a new program, "Risk Informed Completion Time Program," in Section 5.0, "Administrative Controls," of the TSs, which would require adherence to NEI 06–09-A.

The NRC staff evaluated the effect on safety margins when the RICT is applied to extend the CT up to a backstop of 30 days in a TS condition with sufficient trains remaining operable to fulfill the TS safety function. Although the licensee will be able to have design-basis equipment out of service longer than the current TS allow any increase in unavailability is expected to be insignificant and is addressed by the consideration of the single failure criterion in the design-basis analyses. Acceptance criteria for operability of equipment are not changed and, if sufficient trains remain operable to fulfill the TS safety function, the operability of the remaining train(s) ensures that the current safety margins are maintained. The NRC staff finds that if the specified TS safety function remains operable, sufficient safety margins would be maintained during the extended CT of the RICT program.

Safety margins are also maintained if PRA functionality is determined for the inoperable train which would result in an increased CT. Credit for PRA functionality, as described in NEI 06-09-A, is limited to the inoperable train, LOOP, or component.

Based on the above, the NRC staff finds that the design-basis analyses for FitzPatrick remains applicable and unchanged, sufficient safety margins would be maintained during the extended CT and the proposed changes to the TSs do not include any change in the standards applied or the safety analysis acceptance criteria. The NRC staff concludes that the proposed changes meet 10 CFR 50.55a(h), and therefore, the third key principle in RG 1.174 and RG 1.177.

3.2.4 Key Principle 4: Change in Risk Consistent with the Safety Goal Policy Statement

NEI 06-09-A provides a methodology for a licensee to evaluate and manage the risk impact of extensions to TS CTs. Permanent changes to the fixed TS CTs are typically evaluated by using the three-tiered approach described in Chapter 16.1 of NUREG-0800, RG 1.177, and RG 1.174. This approach addresses the calculated change in risk as measured by the change in core damage frequency (CDF) and large early release frequency (LERF), as well as the incremental conditional core damage probability and incremental conditional large early release probability; the use of compensatory measures to reduce risk; and the implementation of a configuration risk management program (CRMP) to identify risk-significant plant configurations.

The NRC staff evaluated the licensee's processes and methodologies for determining that the change in risk from implementation of RICTs will be small and consistent with the intent of the

Commission's Safety Goal Policy Statement. In addition, the NRC staff evaluated the licensee's proposed changes against the three-tiered approach in RG 1.177 for the licensee's evaluation of the risk associated with a proposed TS CT change. The results of the staff's review are discussed below.

3.2.4.1 Tier 1: PRA Capability and Insights

The first tier evaluates the impact of the proposed changes on plant operational risk. The Tier 1 review involves two aspects: (1) scope and acceptability of the PRA models and their application to the proposed changes, and (2) a review of the PRA results and insights described in the licensee's application.

Enclosures 2 and 4 of the LAR identified the following modeled hazards and alternate methodologies the licensee proposed to be used in the FitzPatrick RICT program to assess the risk contribution for extending the CT of a TS LCO.

- Internal Events PRA model (includes internal floods)
- Internal Fire Events PRA model
- Seismic Hazard: CDF penalty of 2.5E-06 per year, and a LERF penalty of 1.0E-06 per year
- Other External Hazards: screened out from RICT program based on Appendix 6-A of the ASME/ANS RA-Sa-2009 PRA Standard

Evaluation of Internal Events and Fire PRA Models

The internal events PRA (IEPRA) and fire PRA (FPRA) models supporting the RICT program are discussed in Enclosure 2 of the LAR, as supplemented. The licensee stated that the PRA models had been peer reviewed using the American Society of Mechanical Engineers/ American Nuclear Society (ASME/ANS) RA-Sa-2009 PRA Standard (Reference 17) for the IEPRA and FPRA and RG 1.200 Revision 2. For the open F&Os resulting from these peer reviews, the licensee stated that closure of the F&Os was performed using an independent assessment process. The NRC staff confirmed that the licensee performed closure of the F&Os consistent with Appendix X to NEI 05-04, 07-12, and 12-13, (Reference 18) as endorsed in RG 1.200, Revision 3.

In Enclosure 9 of the LAR, as supplemented, the licensee provided a discussion of potential key assumptions and sources of uncertainty, along with treatment for the application of TSTF-505. The licensee discussed PRA modeling of FLEX strategies and associated uncertainties. The NRC staff concluded that the licensee's credit for FLEX equipment in the TSTF-505 application is appropriate because the licensee used consensus human reliability analysis methodologies and practices and performed sensitivity studies to assess the impact on the TSTF-505 application.

The NRC staff reviewed the PRA models' peer review history provided by the licensee in Enclosure 2 of the LAR, as supplemented. The licensee adequately applied the guidance for establishing PRA technical acceptability for the aforementioned models. The NRC staff further considered the potential key assumptions and key sources of uncertainty identified by the licensee, proposed use of surrogates in the PRA models for specific TS functions, and credit for FLEX. Therefore, the NRC staff finds the FitzPatrick IEPRA and FPRA models to be acceptable

commensurate with the RICT application. As such, their use in the integrated decision-making process is consistent with RG 1.174.

Evaluation of Seismic Hazard

The licensee's approach for including the seismic risk contribution in the RICT calculation was to add a penalty seismic CDF and a penalty seismic LERF to each RICT calculation. The proposed bounding seismic CDF estimate was based on using the plant-specific seismic hazard curves developed in response to the Near-Term Task Force (NTTF) recommendation 2.1 (Reference 19), and a plant-level high confidence of low probability of failure (HCLPF) capacity of 0.22g referenced to peak ground acceleration (PGA). The uncertainty parameter for seismic capacity was represented by a composite beta factor (βc) of 0.4. The calculated seismic CDF penalty was 2.5E-06 per year. The NRC staff's review finds the method to determine the baseline seismic CDF acceptable because it is consistent with the approach used in GI-199 (Reference 20). The NRC staff convolved the input parameters identified by the licensee to confirm the proposed bounding seismic CDF estimate.

Concerning the proposed bounding seismic LERF estimate, the licensee provided justification for the representative fragilities selected for FitzPatrick based on available industry sources of at-power SPRAs in the March 4, 2022, supplement. The licensee stated that, consistent with industry risk assessment guidance documents, the breakdown of SCDF by accident sequence type in the FitzPatrick seismic LERF calculation used representative fragility information and the approach has been used in other past RICT LARs and judged a reasonable approach for the purpose of estimating the seismic LERF in the absence of a plant-specific SPRA and plant-specific fragilities. In addition, the licensee corrected its seismic conditional large early release probability (SCLERP) of 0.21 in the LAR to 0.29 in the supplement for certain accident scenarios, which led to a new SCLERP value of 0.4 and seismic LERF penalty of 1.0E-06 per year. The NRC staff finds the method to determine the bounding seismic LERF acceptable because the approach (1) uses a technically defensible accident sequence breakdown with generic fragilities, (2) is consistent with the approach used in past approved RICT LARs, and (3) results in a SCLERP of 0.4, which is conservative based on the staff's review of ratios between seismic LERF and seismic CDF from multiple SPRA submittals and TSTF-505 LAR submittals.

The licensee addressed the incremental risk associated with seismically induced LOOP in its March 4, 2022, supplement. A seismic LOOP frequency across the entire hazard interval is 1.4E-05 per year. This frequency is about 0.6 percent of the total internal events 24-hour non-recovered LOOP frequency of 2.2E-03 per year already addressed in the internal events PRA model. The NRC staff evaluated the licensee's analysis and finds it adequately addressed the impact of seismically induced LOOP on risk and that its exclusion from the non-recovered LOOP frequency had an insignificant impact on the RICT program calculations.

The NRC staff finds that, during RICTs for structures, systems, and components (SSCs) credited in the design basis to mitigate seismic events, the licensee's proposed methodology captures the risk associated with seismically induced failures of redundant SSCs because such SSCs are assumed to be fully correlated. In summary, the NRC staff finds the licensee's proposal to use a seismic CDF contribution of 2.5E-06 per year and a seismic LERF contribution of 1.0E-06 per year acceptable for the licensee's RICT program for FitzPatrick because (1) the licensee used the most current site-specific seismic hazard information for FitzPatrick; (2) the licensee used an acceptably low plant HCLPF value of 0.22g and a combined beta factor of 0.4, which is consistent with the information for FitzPatrick in the GI-199 evaluation , in the convolution to develop the bounding seismic CDF; (3) the licensee used an

acceptable approach to calculate an SCLERP of 0.4 for the inerted containment and an SCLERP of 1.0 for the de-inerted containment; and (4) adding baseline seismic risk to RICT calculations, which assumes fully correlated failures, is conservative for SSCs credited in seismic events, while any potential non-conservative results for SSCs that are not credited in seismic events are small or nonexistent.

Evaluation of Other External Hazards

Besides the seismic hazard discussed above, the licensee confirmed that other external hazards for FitzPatrick have an insignificant contribution to risk and proposed these hazards be screened from the RICT program. The licensee provided its evaluation of the extreme wind and tornado hazards for the RICT program in Section 4, “Extreme Winds Analysis,” of Enclosure 4 to the LAR. The licensee’s evaluation was based on the design of the SSCs and a site-specific tornado missile analysis. The licensee concluded that all non-missile high wind hazards and tornado missile hazards could be screened from consideration for the TSTF-505 application based on EXT-C1 Criterion C of ASME/ANS RA-Sa-2009, which is screening criterion “PS4” (i.e., bounding mean CDF is < 1E-06 per year).

The NRC staff reviewed the licensee’s evaluation of the extreme wind and tornado hazards and finds that the licensee appropriately considered the risk from extreme winds and tornadoes in the proposed RICTs and that the extreme winds and tornado hazards have an insignificant contribution to configuration risk and can be excluded from the calculation of the proposed RICTs.

The licensee provided its evaluation of the external flooding hazard in Section 5, “External Flooding Assessment,” of Enclosure 4 to the LAR. The licensee’s evaluation was based on the licensee’s flood hazard reevaluation report for FitzPatrick (Reference 21) and the licensee’s follow-up flooding focused evaluation for FitzPatrick (Reference 22). The licensee concluded that the external flooding hazard could be screened from consideration for the TSTF-505 application based on EXT-B1 Criterion 1 of ASME/ANS RA-Sa-2009, which is screening criterion “C1” (i.e., event damage potential is less than events for which the plant is designed).

The NRC staff reviewed the licensee’s evaluation of the external flooding hazard and finds that the licensee appropriately considered the risk from external flooding in the proposed RICTs and that the external flooding hazard has an insignificant contribution to configuration risk and can be excluded from the calculation of the proposed RICTs. The NRC staff also finds that plant procedures exist to ensure that the flood protection features will be available during RICTs to manage the external flooding risk in the RICT program.

The licensee provided its evaluation all other external hazards in Section 6, “Evaluation of External Event Challenges and IPEEE Update Results,” of Enclosure 4 to the LAR. Regarding the screening of the ice cover hazard, the licensee explained in the LAR supplement that the suction for the intake structure is at the bottom of Lake Ontario and is designed to prevent ice from entering the intake, and that a potential impact of ice cover is a LOOP, which is included in the internal events PRA.

The NRC staff reviewed the licensee’s evaluation of the ice cover hazard and finds that the licensee appropriately considered the risk from the ice cover hazard in the proposed RICTs and that the ice cover hazard has an insignificant contribution to configuration risk and can be excluded from the calculation of the proposed RICTs. The NRC staff also finds that plant

procedures exist to ensure that the ice conditions do not challenge the safety-related cooling system suctions during RICTs.

The licensee stated that the hazards assessed in Table E4-4 of Enclosure 4 to the LAR were those identified for consideration in non-mandatory Appendix 6-A of the ASME/ANS PRA standard, which provides a guide for identification of most of the possible external events for a plant site. The NRC staff notes that the list of hazards assessed is essentially the same list of hazards as presented in Table 4-1 of NUREG-1855, Revision 1. The licensee provided a screening disposition for each external hazard and concluded that no unique PRA model for these hazards is required to assess configuration risk for the RICT program. The NRC staff notes that the preliminary screening criteria and progressive screening criteria used is the same criteria presented in supporting requirements EXT-B1, EXT-B2, and EXT-C1 of the ASME/ANS PRA Standard.

Based on the NRC staff's review of the information provided by the licensee, the NRC staff finds that the contributions from the other external hazards have an insignificant contribution to configuration risk and can be excluded from the calculation of the proposed RICTs because they either do not challenge the plant or they are bounded by the external hazards analyzed for the plant.

Application of PRA Models, Results and Insights in the RICT Program

The FitzPatrick base PRA models that have been determined to be acceptable in this SE will be modified as an application-specific PRA model (i.e., CRMP tool) that will be used to analyze the risk for an extended CT. The CRMP model produces results (i.e., risk metrics) that are consistent with the NEI 06-09-A guidance. The LAR, as supplemented provided all information needed to support the requested LCO actions proposed for the FitzPatrick RICT program consistent with the Limitations and Conditions prescribed in Section 4.0 of NRC's final SE incorporated in NEI 06-09-A.

The NRC staff did not identify any insufficiencies in the licensee's information or the CRMP tool as described in Enclosure 8 of the LAR. Furthermore, as stated in Attachment 5 of the LAR, the LAR does not change the design, configuration, or method of operation of the plant. The proposed changes do not involve a physical alteration of the plant (no new or different kind of equipment will be installed). The NRC staff finds that the FitzPatrick PRA models and CRMP tool used will continue to reflect the as-built, as-operated plant consistent with RG 1.200 for ensuring PRA acceptability is maintained. Therefore, the NRC staff concludes that the proposed application of the FitzPatrick RICT program is appropriate for use in the adoption of TSTF-505 for performing RICT calculations.

The licensee provided in Enclosure 5 of the submittal the estimated total CDF and LERF of the base PRA models to demonstrate that FitzPatrick meets the 1E-4/year CDF and 1E-5/year LERF criteria of RG 1.174, consistent with the guidance in NEI 06-09-A, and that these guidelines will be satisfied for implementation of a RICT.

The licensee has incorporated NEI 06-09-A into TS 5.5.16. The estimated current total CDF and LERF for FitzPatrick PRAs meet the RG 1.174 guidelines, therefore, the NRC staff concludes the PRA results and insights to be used by the licensee in the RICT program will continue to be consistent with NEI 06-09-A.

Tier 1 Conclusions

Based on the above conclusions, the NRC staff finds that the licensee has satisfied the intent of Tier 1 in RG 1.177 for determining the acceptability of the PRA, including the scope of the PRA models (i.e., IEPRA, FPRA), the evaluation of other external hazards, and seismic methodology, and is appropriate for this application.

3.2.4.2 Tier 2: Avoidance of Risk-Significant Plant Configurations

As prescribed in RG 1.177, the second tier evaluates the capability of the licensee to identify and avoid risk-significant plant configurations that could result if equipment, in addition to that associated with the proposed change, is taken out of service simultaneously or if other risk-significant operational factors, such as concurrent system or equipment testing, are also involved. In Section 2 of Enclosure 10 of the LAR, the licensee confirmed that the risk thresholds associated with 10 CFR 50.65(a)(4) will be coordinated with the RICT limits. Enclosure 12 of the LAR identifies three kinds of RMAs (i.e., actions to provide increased risk awareness and control, actions to reduce the duration of maintenance activities, and actions to minimize the magnitude of the risk increase). The LAR also explains that RMAs will be implemented in accordance with current plant procedures and no later than the time at which the 1E-06 incremental core damage probability (ICDP) or 1E-07 incremental large early release probability (ILERP) threshold is reached and under emergent conditions when the instantaneous CDF and LERF thresholds are exceeded.

The NRC staff concludes that the Tier 2 attributes of the proposed RICT program, including the limits established for entry into a RICT and implementation of RMAs, are consistent with NEI 06-09-A. Therefore, the proposed changes are consistent with the intent of Tier 2 in RG 1.177.

3.2.4.3 Tier 3: Risk-Informed Configuration Risk Management

The third tier stipulates that the licensee should develop a program that ensures the risk impact of out-of-service equipment is appropriately evaluated prior to performing any maintenance activity. The proposed RICT program establishes a CRMP based on the underlying PRA models. The CRMP is then used to evaluate configuration-specific risk for planned activities associated with the RMTS extended CT, as well as emergent conditions which may arise during an extended CT. This required assessment of configuration risk, along with the implementation of compensatory measures and RMAs, is consistent with the principle of Tier 3 for assessing and managing the risk impact of out-of-service equipment.

Paragraph 50.36(c)(5) of 10 CFR identifies administrative controls as the provisions relating to organization and management, procedures, thereby assuring operation of the facility in a safe manner. In Enclosure 8 of the submittal, “Attributes of the Real Time Risk Model,” the licensee confirmed that future changes made to the baseline PRA models and changes made to the online model (i.e., CRMP) are controlled and documented by plant procedures. Enclosure 10 of the LAR provided the attributes that the licensee’s RICT program procedures will address, which are consistent with NEI 06-09-A. The NRC staff finds that the licensee has identified appropriate administrative controls consistent with NEI 06-09-A and 10 CFR 50.36(c)(5).

Based on the licensee’s incorporation of NEI 06-09-A in the TS (discussed in LAR Attachment 1, as supplemented and its use of RMAs (discussed in LAR Enclosure 12), and because the proposed changes are consistent with the Tier 3 guidance of RG 1.177, the NRC

staff finds the licensee's Tier 3 program is acceptable and supports the proposed implementation of the RICT program.

3.2.4.4 Key Principle 4: Conclusions

The licensee has demonstrated the technical acceptability and scope of its PRA models and alternative methods, including consideration of the impact of seismic events, extreme winds and tornado hazards, and other external hazards, and that the models can support implementation of the RICT program for determining extensions to CTs. The licensee has made proper consideration of key assumptions and sources of uncertainty. The risk metrics are consistent with the approved methodology of NEI 06-09-A and the acceptance guidance in RG 1.177 and RG 1.174. The RICT program will be controlled administratively through plant procedures and training and follows the NRC-approved methodology in NEI 06-09-A. The NRC staff concludes that the RICT program satisfies the fourth key principle of RG 1.174 and RG 1.177, and therefore, is acceptable.

3.2.5 Key Principle 5: Performance Measurement Strategies – Implementation and Monitoring

RG 1.174 and RG 1.177 establish the need for an implementation and monitoring program to ensure that extensions to TS CTs do not degrade operational safety over time and that no adverse degradation occurs due to unanticipated degradation or common cause mechanisms. Enclosure 11 of the LAR states, the SSCs in scope of the RICT program are also in the scope of 10 CFR 50.65 for the Maintenance Rule. The Maintenance Rule monitoring programs will provide for evaluation and disposition of unavailability impacts which may be incurred from implementation of the RICT program. Furthermore, in Enclosure 11 of the LAR, the licensee confirmed that the cumulative risk is calculated at least every refueling cycle, but the recalculation period does not exceed 24 months, which is consistent with NEI 06-09-A.

The NRC staff concludes that the RICT program satisfies the fifth key principle of RG 1.174 and RG 1.177 because: (1) the RICT program will monitor the average annual cumulative risk increase as described in NEI 06-09-A, thereby, ensuring the program, as implemented, continues to meet RG 1.174 guidance for small risk increases; and (2) all affected SSCs are within the Maintenance Rule program, which is used to monitor changes to the reliability and availability of these SSCs.

3.2.6 NRC Staff Conclusion

The NRC staff evaluated the proposed changes against each of the five key principles in RG 1.177 and RG 1.174, including the optional variations from the approved TSTF-505 discussed in Section 3.2.1 of this SE. The NRC staff concludes that the changes proposed by the licensee satisfy the key principles of risk-informed decision-making identified in RG 1.174 and RG 1.177, and therefore the requested adoption of the proposed changes to the TSs, implementation items, and associated guidance, is acceptable to ensure 10 CFR Part 20 continues to be met.

4.0 PROPOSED REVISION TO THE OPERATING LICENSE

In the LAR, the licensee proposed the addition of the following license condition to the renewed facility operating license for FitzPatrick:

Adoption of Risk Informed Completion Times TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times -RITSTF Initiative 4b"

Exelon is approved to implement TSTF-505, Revision 2, modifying the Technical Specification requirements related to Completion Times (CT) for Required Actions to provide the option to calculate a longer, risk-informed CT (RICT). The methodology for using the new Risk-Informed Completion Time Program is described in NEI 06-09-A, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed, Technical Specifications (RMTS) Guidelines," Revision 0, which was approved by the NRC on May 17, 2007.

Exelon will complete the implementation items listed in Attachment 6 of Exelon Letter to the NRC dated July 30, 2021, prior to implementation of the RICT Program. All issues identified in the attachment will be addressed and any associated changes will be made, focused-scope peer reviews will be performed on changes that are PRA upgrades as defined in the PRA standard (ASME/ANS RA-Sa -2009, as endorsed by RG 1.200, Revision 2), and any findings will be resolved and reflected in the PRA of record prior to the implementation of the RICT Program.

In response to APLA RAI 02.a, the licensee removed their initial submittal request for TS 3.3.7.2.A from the scope of the RICT program and provided updated TS markups. Therefore, implementation item 1, associated with this TS provided in Attachment 7 of the LAR is no longer applicable. The NRC staff finds that the proposed license condition is acceptable because it explicitly states for implementation that the FitzPatrick RICT program and PRAs will: (1) be consistent with NEI 06-09-A, and (2) address all changes consistent with RG 1.200, Revision 2.

On February 1, 2022, Exelon Generation Company, LLC was renamed Constellation Energy Generation, LLC. Therefore, with conforming changes to reflect this name change, the license condition will state:

Adoption of Risk Informed Completion Times TSTF-505, Revision 2, "Provide Risk- Informed Extension Completion Times – RITSTF Initiative 4b"

Constellation Energy Generation, LLC is approved to implement TSTF-505, Revision 2, modifying the Technical Specification requirements related to Completion Times (CT) for Required Actions to provide the option to calculate a longer, risk-informed CT (RICT). The methodology for using the new Risk-Informed Completion Time Program is described in NEI 06-09-A, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines," Revision 0, which was approved by the NRC on May 17, 2007.

Constellation Energy Generation, LLC will complete the implementation items listed in Attachment 6 of the Exelon Generation Company, LLC Letter to the NRC dated July 30, 2021, prior to implementation of the RICT Program. All issues identified in the attachment will be addressed and any associated changes will be made, focused-scope peer reviews will be performed on changes that are PRA upgrades as defined in the PRA standard (ASME/ANS RA-Sa -2009, as endorsed by RG 1.200, Revision 2), and any findings will be resolved and reflected in the PRA of record prior to the implementation of the RICT Program.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment on July 20, 2022. The New York State official had no comments.

6.0 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 or change inspections or 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 (November 30, 2021; 86 FR 67988). 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.

7.0 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.

8.0 REFERENCES

1. Gudger, David, Constellation Generation, letter to U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise Technical Specifications to Adopt Risk Informed Completion Times TSTF-505, Revision 2, 'Provide Risk-Informed Extended Completion Times - RITSTS Initiative 4b,'" dated July 30, 2021 (Agencywide Documents Access and Management System (ADAMS Accession No. ML21211A053).

2. Gudger, David, Constellation Generation, letter to U.S. Nuclear Regulatory Commission, "Supplement Information No. 1 for James A. FitzPatrick Nuclear Power Plant to Adopt Risk Informed Completion Times TSTF-505, Revision 2, 'Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b.' and 10 CFR 50.69, 'Risk-Informed categorization and treatment of structures, systems and components for nuclear power reactors,'" dated March 4, 2022 (ML22063A135).

3. Gudger, David, Constellation Generation, letter to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information for James A. FitzPatrick Nuclear Power Plant to Adopt Risk Informed Completion Times TSTF-505, Revision 2, 'Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b.' and 10 CFR 50.69, 'Risk-Informed categorization and treatment of structures, systems and components for nuclear power reactors,'" dated June 16, 2022 (ML22167A071).

4. Reddick, D.M., Constellation Generation Company letter to U.S. Nuclear Regulatory Commission, “Notification of Completion of License Transfer and Request to Continue Processing Pending NRC Actions Previously Requested by Exelon Generation Company, LLC,” February 1, 2022 (ML22032A333)

5. U.S. Nuclear Regulatory Commission, “TSTF-505, Revision 2, TSTF Comments on Draft Safety Evaluation for Traveler TSTF-505, Provide Risk-Informed Extended Completion Times and Submittal of TSTF-505, Revision 2,” dated July 2, 2018 (ADAMS Package Accession No. ML18183A493).

6. U.S. Nuclear Regulatory Commission, “Final Revised Model Safety Evaluation of Traveler TSTF-505, Revision 2, Provide Risk Informed Extended Completion Times - RITSTF Initiative 4B,” TSTF-505, Revision 2, dated November 21, 2018 (ML18269A041).

7. Poole J., U.S. Nuclear Regulatory Commission, letter to Constellation Generation Company, LLC, “James A. Fitzpatrick, - Regulatory Audit Summary Regarding License Amendment Requests to Adopt 10 CFR 50.69 and Permit Use of Risk-Informed Completion Times in Accordance with TSTF-505, Revision 2,” dated August 31, 2022 (ML22238A120).

8. EMAIL CAPTURE: Poole, J (NRC) to Hodge, J. (Constellation Nuclear), “SUBJECT: Request for Additional Information RE: TSTF-505 LAR,” ATTACHMENTS: L-2021-LLA-0143 TSTF-505 RAIs.pdf (ML22124A267).

9. U.S. Nuclear Regulatory Commission, “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities,” RG 1.200, Revision 2, dated March 2009 (ML090410014).

10. U.S. Nuclear Regulatory Commission, RG 1.200, “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities,” Revision 3, December 2020 (ML20238B871).

11. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.174, Revision 3, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis,” January 2018 (ML17317A256).

12. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.177, Revision 2, “Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications,” Issue Date: January 2021 (ML20164A034).

13. NUREG-1855, Revision 1, “Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision-making,” March 2017 (ML17062A466).

14. U.S. Nuclear Regulatory Commission, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, Risk-Informed Decision Making: Technical Specifications,” NUREG-0800, Chapter 16.1, dated March 2007 (ML070380228).

15. Nuclear Energy Institute, “Risk-Informed Technical Specifications Initiative 4b: Risk-Managed Technical Specification (RMTS),” Topical Report NEI 06-09, Revision 0-A, dated October 2012 (ML122860402).

16. Constellation Generation Company, LLC, “James A. Fitzpatrick Nuclear Plant (JAF) Updated Final Safety Analysis Report,” dated April 5, 2021 (ML21095A296).

17. ASME/ANS, “Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications,” dated February 2009, Addendum A to RA-S-2008, PRA Standard ASME/ANS RA-Sa-2009.

18. Andersen, Victoria, Nuclear Energy Institute, letter to Rosenberg, Stacey, U.S. Nuclear Regulatory Commission, “Final Revision of Appendix X to NEI 05-04/07-12/12-16, Close-Out of Facts and Observations,” NEI 05-04/07-12/12-16, dated February 21, 2017 (ML17086A431).

19. Coyle, L.M. Entergy Nuclear Operations, Inc. to U.S. NRC Document Control Desk, “Entergy Seismic Hazard and Screening Report (CEUS), Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1 of the Near Team Task Force Review,” March 31, 2014 (ML14090A243).

20. Generic Issue 199, “Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants,” dated September 2020 (ML100270582).

21. Sullivan, B.R., Entergy Nuclear Operations, Inc. to U.S. NRC Document Control Desk, “Flood Hazard Reevaluation Report - Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendation 2.1 of the NTTF Review of Insights from the Fukushima Dai-ichi Accident, James A. FitzPatrick.,” dated March 12, 2015 (ML15082A250).

22. Pacher, J. E., Exelon Generation Co, LLC to U.S. NRC Document Control Desk, “Focused Evaluation Summary Pursuant to 10 CFR 50.54(f) Request for Information Regarding Recommendation 2.1: Flooding of the NTTR Review of Insights from the Fukushima Dai-ich Accident, James A. Fitzpatrck Nuclear Power Plant,” dated July 27, 2017 (ML17208B063).

Principal Contributors: A. Brown, NRR
T. Hilsmeier, NRR
J. Ashcraft, NRR
K. Nguyen, NRR
N. Carte, NRR
F. Forsaty, NRR
K. Hsu, NRR
S. Wyman, NRR
A. Russell, NRR
C. Moulton, NRR
D. Wu, NRR
D. Scully, NRR
H. Wagage, NRR
R. Vettori, NRR
S. Alferink, NRR

Date: September 1, 2022

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT – ISSUANCE OF AMENDMENT NO. 353 RE: ADOPTION OF TSTF- 505, REVISION 2, "PROVIDE RISK-INFORMED EXTENDED COMPLETION TIMES RITSTF INITIATIVE 4B," (EPID L-2021-LLA-0143) DATED SEPTEMBER 1, 2022

DISTRIBUTION:

PUBLiC	MPatterson, NRR	RidsNrrDorlLpl1
PM File Copy	RidsNrrDssSnsb	RidsACRS_MailCTR
RidsNrrPMFitzPatrick	RidsNrrLAKZeleznock	RidsNrrDssScpb
RidsRgn1MailCenter	RidsNrrDraApla	RidsNrrDraAplb
RidsNrrDraAplc	RidsNrrDexEeeb	RidsNrrDexEmib
RidsNrrDexEicb	RidsNrrDnrlNphp	RidsNrrDnrlNvib
RidsNrrDssStsb		

ADAMS Accession No.: ML22223A141

OFFICE	NRR/DORL/LPL1/PM	NRR/DORL/LPL1/LA	NRR/DRA/APLA/BC	NRR/DRA/APLB/BC
NAME	JPoole	KZeleznock (SLent for)	RPascarelli	JWhitman
DATE	08/12/2022	08/12/2022	08/4/2022	08/03/2022
OFFICE	NRR/DRA/APLC/BC(A)	NRR/DSS/SNSB/BC(A)	NRR/DEX/EMIB/BC	NRR/DEX/EEEB/BC
NAME	SVasavada	DWoodyatt	SBailey	WMorton
DATE	08/03/2022	08/03/2022	08/16/2022	8/4/2022
OFFICE	NRR/DEX/ELTB/BC	NRR/DEX/EEIC/BC	NRR/DNRL/NPHP/BC	NRR/DSS/STSB/BC
NAME	JPaige	MWaters	MMitchell	VCusumano
DATE	08/04/2022	08/03/2022	08/15/2022	08/03/2022
OFFICE	NRR/DSS/SCPB/BC	OGC – NLO	NRR/DORL/LPL1/BC	NRR/DORL/LPL1/PM
NAME	BWittick	LShrum	HGonzález	JPoole
DATE	08/15/2022	08/30/2022	09/01/2022	09/01/2022

OFFICIAL RECORD COPY