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

December 27, 2017

Mr. Bryan C. Hanson
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 – ISSUANCE OF AMENDMENTS RE: REVISE TECHNICAL SPECIFICATIONS TO ADOPT TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER TSTF-542, REVISION 2, "REACTOR PRESSURE VESSEL WATER INVENTORY CONTROL" (CAC NOS. MF9138 AND MF9139; EPID L-2017-LLA-0174)

Dear Mr. Hanson:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment Nos. 317 and 320 to Renewed Facility Operating License Nos. DPR-44 and DPR-56 for the Peach Bottom Atomic Power Station, Units 2 and 3, respectively. These amendments consist of changes to the technical specifications in response to your application dated January 30, 2017, as supplemented by letters dated August 11, 2017, September 8, 2017, and December 20, 2017.

The amendments replace existing technical specification requirements related to "operations with a potential for draining the reactor vessel" with new requirements on reactor pressure vessel water inventory control to protect Safety Limit 2.1.1.3. Safety Limit 2.1.1.3 requires reactor pressure vessel water level to be greater than the top of active irradiated fuel. The changes are based on Technical Specifications Task Force Traveler TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control."

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

Sincerely,

Richard B. Ennis, Senior Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-277 and 50-278

Enclosures:
1. Amendment No. 317 to Renewed DPR-44
2. Amendment No. 320 to Renewed DPR-56
3. Safety Evaluation

cc w/Enclosures: Distribution via Listserv

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

EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

DOCKET NO. 50-277

PEACH BOTTOM ATOMIC POWER STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 317
Renewed License No. DPR-44

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

   A. The application for amendment by Exelon Generation Company, LLC (Exelon Generation Company) and PSEG Nuclear LLC (the licensees), dated January 30, 2017, as supplemented by letters dated August 11, 2017, September 8, 2017, and December 20, 2017, 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-44 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 317, are hereby incorporated in the license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented prior to the Unit 2 fall 2018 refueling outage (P2R22).

FOR THE NUCLEAR REGULATORY COMMISSION

Michael F. Marshall for

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

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

Date of Issuance: December 27, 2017

ATTACHMENT TO LICENSE AMENDMENT NO. 317

PEACH BOTTOM ATOMIC POWER STATION, UNIT 2

RENEWED FACILITY OPERATING LICENSE NO. DPR-44

DOCKET NO. 50-277

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 a marginal line indicating the area of change.

Remove	Insert
3	3

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

Remove	Insert
i	i
ii	ii
1.1-3	1.1-3
---	1.1-3a
3.3-32	3.3-32
3.3-33	3.3-33
3.3-35	3.3-35
3.3-39	3.3-39
3.3-40	3.3-40
---	3.3-47a
---	3.3-47b
---	3.3-47c
---	3.3-47d
3.3-50	3.3-50
3.3-54	3.3-54
3.3-58	3.3-58
3.3-59	3.3-59
3.5-1	3.5-1
3.5-8	3.5-8
3.5-9	3.5-9
3.5-10	3.5-10
3.5-11	3.5-11
3.5-12	3.5-12
---	3.5-15
---	3.5-16
---	3.5-17
---	3.5-18
3.6-12	3.6-12
3.6-34	3.6-34
3.6-35	3.6-35
3.6-36	3.6-36
3.6-38	3.6-38
3.6-40	3.6-40
3.6-41	3.6-41
3.7-7	3.7-7
3.7-8	3.7-8
3.7-9	3.7-9
3.8-21	3.8-21
3.8-22	3.8-22
3.8-23	3.8-23
3.8-35	3.8-35
3.8-44	3.8-44
3.8-45	3.8-45

(5) Exelon Generation Company, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear material as may be produced by operation of the facility, and such Class B and Class C low-level radioactive waste as may be produced by the operation of Limerick Generating Station, Units 1 and 2.

C. This renewed 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, Section 50.54 of Part 50, and Section 70.32 of Part 70; all applicable provisions of the Act and the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

(1) Maximum Power Level

Exelon Generation Company is authorized to operate the Peach Bottom Atomic Power Station, Unit 2, at steady state reactor core power levels not in excess of 4016 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 317, are hereby incorporated in the license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications.

(3) Physical Protection

Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822), and the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans[1], submitted by letter dated May 17, 2006, is entitled: "Peach Bottom Atomic Power Station Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Independent Spent Fuel Storage Installation Security Program, Revision 3." The set contains Safeguards Information protected under 10 CFR 73.21.

Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Exelon Generation Company CSP was approved by License Amendment No. 281 and modified by Amendment No. 301.

(4) Fire Protection

The Exelon Generation Company shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report for the facility, and as approved in the NRC Safety Evaluation Report (SER) dated May 23, 1979, and Supplements dated August 14, September 15, October 10 and November 24, 1980, and in the NRC SERs dated September 16, 1993, and August 24, 1994, subject to the following provision:

[1] The Training and Qualification Plan and Safeguards Contingency Plan are Appendices to the Security Plan.

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(continued)

1.1 Definitions (continued)

DRAIN TIME

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

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

b) The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all penetration flow paths below the TAF except:

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

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

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

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

d) No additional draining events occur; and

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

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

(continued)

1.1 Definitions (continued)

END OF CYCLE RECIRCULATION PUMP TRIP (EOC-RPT) SYSTEM RESPONSE TIME	The EOC-RPT SYSTEM RESPONSE TIME shall be that time interval from initial signal generation by the associated turbine stop valve limit switch or from when the turbine control valve hydraulic oil control oil pressure drops below the pressure switch setpoint to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
LEAKAGE	LEAKAGE shall be: a. Identified LEAKAGE 1. LEAKAGE into the drywell, such as that from pump seals or valve packing, that is captured and conducted to a sump or collecting tank; or 2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE; b. Unidentified LEAKAGE All LEAKAGE into the drywell that is not identified LEAKAGE; c. Total LEAKAGE Sum of the identified and unidentified LEAKAGE; d. Pressure Boundary LEAKAGE LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.
LINEAR HEAT GENERATION RATE (LHGR)	The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.

(continued)

3.3 INSTRUMENTATION

3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation

LCO 3.3.5.1 The ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.1-1.

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 3.3.5.1-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	B.1 ---NOTE--- 1. Only applicable for Functions 1.a, 1.b, 2.a, and 2.b. --- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable. AND	1 hour from discovery of loss of feature initiation capability in both trip systems (continued)

ACTIONS

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
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1	--------NOTE-------- 1. Only applicable for Functions 1.c, 1.e, 1.f, 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 subsystem initiation capability in both subsystems
	AND		
	C.2	Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1 --------NOTE-------- 1. Only applicable to Functions 1.d and 2.g. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of subsystem initiation capability in both subsystems
	AND	
	E.2 Restore channel to OPERABLE status.	7 days

(continued)

Table 3.3.5.1-1 (page 1 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level -Low Low Low (Level 1)	1,2,3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -160.0 inches
b. Drywell Pressure -High	1,2,3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 2.0 psig
c. Reactor Pressure - Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 425.0 psig and ≤ 475.0 psig
d. Core Spray Pump Discharge Flow -Low (Bypass)	1,2,3	4 (1 per pump)	E	SR 3.3.5.1.2 SR 3.3.5.1.4	≥ 319.0 psid and ≤ 351.0 psid
e. Core Spray Pump Start-Time Delay Relay (loss of offsite power)	1,2,3	4 (1 per pump)	C	SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 5.0 seconds and ≤ 7.0 seconds
f. Core Spray Pump Start-Time Delay Relay (offsite power available)					
Pumps A,C	1,2,3	2 (1 per pump)	C	SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 12.1 seconds and ≤ 13.9 seconds
Pumps B,D	1,2,3	2 (1 per pump)	C	SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 21.4 seconds and ≤ 24.6 seconds

(continued)

(a) Deleted

(b) Also required to initiate the associated diesel generator (DG).

Table 3.3.5.1-1 (page 2 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level -Low Low Low (Level 1)	1,2,3	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -160 inches
b. Drywell Pressure -High	1,2,3	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 2.0 psig
c. Reactor Pressure -Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 425.0 psig and ≤ 475.0 psig
d. Reactor Pressure -Low Low (Recirculation Discharge Valve Permissive)	1(c), 2(c), 3(c)	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 211.0 psig
e. Reactor Vessel Shroud Level -Level 0	1,2,3	2	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -226.0 inches
f. Low Pressure Coolant Injection Pump Start -Time Delay Relay (offsite power available)	1,2,3	8 (2 per pump)	C	SR 3.3.5.1.4 SR 3.3.5.1.5	
Pumps A,B					≥ 1.9 seconds and ≤ 2.1 seconds
Pumps C,D					≥ 7.5 seconds and ≤ 8.5 seconds
g. Low Pressure Coolant Injection Pump Discharge Flow -Low (Bypass)	1,2,3	4 (1 per pump)	E	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 299.0 psid and ≤ 331.0 psid

(continued)

(a) Deleted

(c) With associated recirculation pump discharge valve open.

3.3 INSTRUMENTATION

3.3.5.3 Not Used

3.3 INSTRUMENTATION

3.3.5.4 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.4 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.4-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.4-1.

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 3.3.5.4-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.4-1.	B.1	Declare associated penetration flow path(s) incapable of automatic isolation.	Immediately
	AND		
	B.2	Calculate DRAIN TIME.	Immediately
C. As required by Required Action A.1 and referenced in Table 3.3.5.4-1.	C.1	Place channel in trip.	1 hour
D. As required by Required Action A.1 and referenced in Table 3.3.5.4-1.	D.1	Restore channel to OPERABLE status	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 Declare associated low pressure ECCS injection/spray subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.5.4-1 to determine which SRs apply for each ECCS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.5.4.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program.
SR 3.3.5.4.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program.
SR 3.3.5.4.3	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program.

(continued)

Table 3.3.5.4-1 (page 1 of 1)
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Pressure—Low (Injection Permissive)	4,5	4 (a)	C	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 425.0 psig and ≤ 475.0 psig
b. Core Spray Pump Discharge Flow—Low (Bypass)	4,5	1 per pump (a)	D	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 319.0 psid and ≤ 351.0 psid
c. Manual Initiation	4,5	1 per subsystem (a)	D	SR 3.3.5.4.3	NA
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Pressure-Low (Injection Permissive)	4,5	4 (a)	C	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 425.0 psig and ≤ 475.0 psig
b. Low Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	4,5	1 per pump (a),(c)	D	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 299.0 psid and ≤ 331.0 psid
c. Manual Initiation	4,5	1 per subsystem (a)	D	SR 3.3.5.4.3	NA
3. RHR System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	2	B	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 1.0 inches
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	2	B	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 1.0 inches

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.4, "Reactor Pressure Vessel Water Inventory Control."

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

(c) Function not required to be OPERABLE while associated pump is operating in decay heat removal when minimum flow valve is closed and deactivated.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1 Declare associated standby liquid control (SLC) subsystem inoperable. OR H.2 Isolate the Reactor Water Cleanup System.	1 hour 1 hour
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1 Initiate action to restore channel to OPERABLE status.	Immediately
J. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	J.1 Isolate the affected penetration flow path(s).	24 hours

Table 3.3.6.1-1 (page 3 of 3)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
a. RWCU Flow-High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 125% rated flow (23.0 in-wc)
b. SLC System Initiation	1,2,3	1	H	SR 3.3.6.1.7	NA
c. Reactor Vessel Water Level-Low (Level 3)	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 1.0 inches
6. RHR Shutdown Cooling System Isolation					
a. Reactor Pressure-High	1,2,3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 70.0 psig
b. Reactor Vessel Water Level-Low (Level 3)	3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 1.0 inches
7. Feedwater Recirculation Isolation					
a. Reactor Pressure-High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 600 psig
8. Traversing Incore Probe Isolation					
a. Reactor Vessel Water Level-Low (Level 3)	1,2,3	2	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 1.0 inches
b. Drywell Pressure-High	1,2,3	2	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 2.0 psig

(a) Deleted

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level -Low (Level 3)	1,2,3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≥ 1.0 inches
2. Drywell Pressure -High	1,2,3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 2.0 psig
3. Reactor Building Ventilation Exhaust Radiation -High	1,2,3, (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.3 SR 3.3.6.2.5	≤ 16.0 mR/hr
4. Refueling Floor Ventilation Exhaust Radiation -High	1,2,3, (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.3 SR 3.3.6.2.5	≤ 16.0 mR/hr

(a) Deleted

(b) During movement of RECENTLY IRRADIATED FUEL assemblies in secondary containment.

3.3 INSTRUMENTATION

3.3.7.1 Main Control Room Emergency Ventilation (MCREV) System Instrumentation

LCO 3.3.7.1 Two channels per trip system of the Control Room Air Intake Radiation-High Function shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Declare associated MCREV subsystems inoperable.	1 hour from discovery of loss of MCREV System initiation capability
	AND	
	A.2 Place channel in trip.	6 hours

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL (WIC), 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 five safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI) is not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 100 psig.

ACTIONS

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

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

(continued)

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

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3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL (WIC), 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.	Immediately
	AND		
	A.2	Restore RCIC System to OPERABLE status.	14 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours

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

3.5.4 Reactor Pressure Vessel (RPV) Water Inventory Control

LCO 3.5.4 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be $\geq$ 36 hours.

AND

One low pressure ECCS injection/spray subsystem shall be OPERABLE.

---NOTE---

A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODES 4 and 5

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately
C. DRAIN TIME < 36 hours and $\geq$ 8 hours.	C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME. AND	4 hours

(continued)

ACTIONS (continued)

C. (continued)	C.2	Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	4 hours
	AND		
	C.3	Verify one standby gas treatment subsystem is capable of being placed in operation in less than DRAIN TIME.	4 hours
D. DRAIN TIME < 8 hours.	D.1	-------NOTE---------- Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. ----------	
		Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.	Immediately
	AND		
	D.2	Initiate action to establish secondary containment boundary.	Immediately
	AND		
	D.3	Initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room.	Immediately
	AND		

(continued)

ACTIONS (continued)

D. (continued)	D.4 Initiate action to verify one Standby Gas Treatment subsystem is capable of being placed into operation.	Immediately
E. Required Action and associated Completion Time of Condition C or D not met. OR DRAIN TIME < 1 hour.	E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	Verify DRAIN TIME ≥ 36 hours.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.2	Verify, for a required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ 11.0 ft.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.3	Verify, for a required Core Spray (CS) subsystem, the: a. Suppression pool water level is ≥ 11.0 ft. or b. Condensate storage tank water level is ≥ 17.3 ft.	In accordance with the Surveillance Frequency Control Program.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.4.4	Verify, for the required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.5	----------NOTE---------- Not required to be met for system vent flow paths open under administrative control. ---------- Verify for the required 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 3.5.4.6	Operate the required ECCS injection/spray subsystem through the recirculation line for $\geq$ 10 minutes.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.7	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.8	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify the required ECCS injection/spray subsystem can be manually actuated.	In accordance with the Surveillance Frequency Control Program.

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Purge/Vent flowpath open for an accumulated time greater than 90 hours for the calendar year while in MODE 1 or 2 with Reactor Pressure greater than 100 psig.	E.1	Isolate the penetration.	4 hours
	OR		
	E.2.1	Be in MODE 3.	12 hours
		AND	
	E.2.2	Be in MODE 4.	36 hours
F. Required Action and associated Completion Time of Condition A, B, C, or D not met in MODE 1, 2, or 3.	F.1	Be in MODE 3.	12 hours
	AND		
	F.2	Be in MODE 4.	36 hours
G. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during MODE 4 or 5.	G.1	Initiate action to restore valve(s) to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.1	Verify nitrogen inventory is equivalent to ≥ 22 inches water column in the liquid nitrogen storage tank.	In accordance with the Surveillance Frequency Control Program.

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1 Restore secondary containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
C. Secondary containment inoperable during movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	C.1 --------NOTE-------- LCO 3.0.3 is not applicable. ---------- Suspend movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program.
SR 3.6.4.1.2	Verify one secondary containment access door in each access opening is closed, except when the access opening is being used for entry or exit.	In accordance with the Surveillance Frequency Control Program.
SR 3.6.4.1.3	Verify secondary containment can be drawn down to ≥ 0.25 inch of vacuum water gauge in ≤ 180 seconds using one standby gas treatment (SGT) subsystem.	In accordance with the Surveillance Frequency Control Program.
SR 3.6.4.1.4	Verify the secondary containment can be maintained ≥ 0.25 inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 10,500 cfm.	In accordance with the Surveillance Frequency Control Program.

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment

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 SCIVs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. AND	8 hours (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met during movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	D.1 --------NOTE-------- LCO 3.0.3 is not applicable. ---------- Suspend movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	Immediately

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3.	12 hours
C. Required Action and associated Completion Time of Condition A not met during movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- C.1 Place OPERABLE SGT subsystem in operation. OR	Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Suspend movement of RECENTLY IRRADIATED FUEL assemblies in secondary containment.	Immediately
D. Two SGT subsystems inoperable in MODE 1, 2, or 3.	D.1 Be in MODE 3.	12 hours
E. Two SGT subsystems inoperable during movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	E.1 --------NOTE-------- LCO 3.0.3 is not applicable. ---------- Suspend movement of RECENTLY IRRADIATED FUEL assemblies in secondary containment.	Immediately

3.7 PLANT SYSTEMS

3.7.4 Main Control Room Emergency Ventilation (MCREV) System

LCO 3.7.4 Two MCREV subsystems shall be OPERABLE.

---------- NOTE ----------
The main control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One MCREV subsystem inoperable for reasons other than Condition B.	A.1	Restore MCREV subsystem to OPERABLE status.	7 days
B. One or more MCREV subsystems inoperable due to inoperable CRE boundary in MODE 1, 2 or 3.	B.1	Initiate action to implement mitigating actions.	Immediately
	AND		
	B.2	Verify mitigating actions ensure CRE occupant exposures to radiological/chemical hazards will not exceed limits and mitigating actions for smoke hazards are taken as required.	24 hours
	AND		
	B.3	Restore CRE boundary to OPERABLE status.	90 days

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3.	12 hours
D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment, or during CORE ALTERATIONS.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- D.1 Place OPERABLE MCREV subsystem in operation. OR D.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment. AND D.2.2 Suspend CORE ALTERATIONS.	 Immediately Immediately Immediately
E. Two MCREV subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	E.1 Be in MODE 3.	12 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two MCREV subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, or during CORE ALTERATIONS. OR One or more MCREV subsystems inoperable due to an inoperable CRE Boundary during movement of irradiated fuel assemblies in the secondary containment, or during CORE ALTERATIONS.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- F.1 Suspend movement of irradiated fuel assemblies in the secondary containment. AND F.2 Suspend CORE ALTERATIONS.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each MCREV subsystem for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.4.2	Perform required MCREV filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify each MCREV subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.4.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program.

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required offsite circuits inoperable.	----------NOTE---------- Enter applicable Condition and Required Actions of LCO 3.8.8, with one or more required 4 kV emergency buses de-energized as a result of Condition A. --- A.1 Declare affected required feature(s), with no offsite power available inoperable. OR A.2.1 Suspend CORE ALTERATIONS. AND A.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment. AND	Immediately Immediately Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to restore required offsite power circuit(s) to OPERABLE status.	Immediately
B. One required DG inoperable.	B.1 Declare affected required feature(s) with no DG available inoperable. OR B.2.1 Suspend CORE ALTERATIONS AND B.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment. AND B.2.3 Initiate action to restore required DGs to OPERABLE status.	Immediately Immediately Immediately Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two or more required DGs inoperable.	C.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	C.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	C.3 Initiate action to restore required DG(s) to OPERABLE status.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment. AND	Immediately
	A.2.3 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Distribution Systems - Shutdown

LCO 3.8.8 The necessary portions of the following AC and DC electrical power distribution subsystems shall be OPERABLE:

a. Unit 2 AC and DC electrical power distribution subsystems needed to support equipment required to be OPERABLE; and

b. Unit 3 AC and DC electrical power distribution subsystems needed to support equipment required to be OPERABLE by LCO 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System - Cold Shutdown," LCO 3.5.4, "RPV Water Inventory Control," LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," LCO 3.8.2, "AC Sources - Shutdown," LCO 3.9.7, "RHR - High Water Level," and LCO 3.9.8, "RHR - Low Water Level."

APPLICABILITY: MODES 4 and 5,
During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC or DC electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable. OR A.2.1 Suspend CORE ALTERATIONS. AND	Immediately Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Suspend handling of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	A.2.3 Initiate actions to restore required AC and DC electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.4 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

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

EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

DOCKET NO. 50-278

PEACH BOTTOM ATOMIC POWER STATION, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 320
Renewed License No. DPR-56

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

   A. The application for amendment by Exelon Generation Company, LLC (Exelon Generation Company) and PSEG Nuclear LLC (the licensees), dated January 30, 2017, as supplemented by letters dated August 11, 2017, September 8, 2017, and December 20, 2017, 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-56 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 320, are hereby incorporated in the license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented prior to the Unit 2 fall 2018 refueling outage (P2R22).

FOR THE NUCLEAR REGULATORY COMMISSION

Michael L. Marshall for

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

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

Date of Issuance: December 27, 2017

ATTACHMENT TO LICENSE AMENDMENT NO. 320

PEACH BOTTOM ATOMIC POWER STATION, UNIT 3

RENEWED FACILITY OPERATING LICENSE NO. DPR-56

DOCKET NO. 50-278

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 a marginal line indicating the area of change.

Remove	Insert
3	3

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

Remove	Insert
i	i
ii	ii
1.1-3	1.1-3
---	1.1-3a
3.3-32	3.3-32
3.3-33	3.3-33
3.3-35	3.3-35
3.3-39	3.3-39
3.3-40	3.3-40
---	3.3-47a
---	3.3-47b
---	3.3-47c
---	3.3-47d
3.3-50	3.3-50
3.3-54	3.3-54
3.3-58	3.3-58
3.3-59	3.3-59
3.5-1	3.5-1
3.5-8	3.5-8
3.5-9	3.5-9
3.5-10	3.5-10
3.5-11	3.5-11
3.5-12	3.5-12
---	3.5-15
---	3.5-16
---	3.5-17
---	3.5-18
3.6-12	3.6-12
3.6-34	3.6-34
3.6-35	3.6-35
3.6-36	3.6-36
3.6-38	3.6-38
3.6-40	3.6-40
3.6-41	3.6-41
3.7-7	3.7-7
3.7-8	3.7-8
3.7-9	3.7-9
3.8-21	3.8-21
3.8-22	3.8-22
3.8-23	3.8-23
3.8-35	3.8-35
3.8-44	3.8-44
3.8-45	3.8-45

(5) Exelon Generation Company, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear material as may be produced by operation of the facility, and such Class B and Class C low-level radioactive waste as may be produced by the operation of Limerick Generating Station, Units 1 and 2.

C. This renewed 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, Section 50.54 of Part 50, and Section 70.32 of Part 70; all applicable provisions of the Act and the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

(1) Maximum Power Level

Exelon Generation Company is authorized to operate the Peach Bottom Atomic Power Station, Unit No. 3, at steady state reactor core power levels not in excess of 4016 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 320, are hereby incorporated in the license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications.

(3) Physical Protection

Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822), and the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans[1], submitted by letter dated May 17, 2006, is entitled: "Peach Bottom Atomic Power Station Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Independent Spent Fuel Storage Installation Security Program, Revision 3." The set contains Safeguards Information protected under 10 CFR 73.21.

Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Exelon Generation Company CSP was approved by License Amendment No. 283 and modified by Amendment No. 304.

[1] The Training and Qualification Plan and Safeguards Contingency Plan and Appendices to the Security Plan.

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(continued)

1.1 Definitions (continued)

DRAIN TIME

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

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

b) The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all penetration flow paths below the TAF except:

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

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

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

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

d) No additional draining events occur; and

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

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

(continued)

1.1 Definitions (continued)

END OF CYCLE RECIRCULATION PUMP TRIP (EOC-RPT) SYSTEM RESPONSE TIME	The EOC-RPT SYSTEM RESPONSE TIME shall be that time interval from initial signal generation by the associated turbine stop valve limit switch or from when the turbine control valve hydraulic oil control oil pressure drops below the pressure switch setpoint to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
LEAKAGE	LEAKAGE shall be: a. Identified LEAKAGE 1. LEAKAGE into the drywell, such as that from pump seals or valve packing, that is captured and conducted to a sump or collecting tank; or 2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE; b. Unidentified LEAKAGE All LEAKAGE into the drywell that is not identified LEAKAGE; c. Total LEAKAGE Sum of the identified and unidentified LEAKAGE; d. Pressure Boundary LEAKAGE LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.
LINEAR HEAT GENERATION RATE (LHGR)	The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.

(continued)

3.3 INSTRUMENTATION

3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation

LCO 3.3.5.1 The ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.1-1.

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 3.3.5.1-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	B.1 --------NOTE-------- 1. Only applicable for Functions 1.a, 1.b, 2.a, and 2.b. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable. AND	1 hour from discovery of loss of feature initiation capability in both trip systems (continued)

ACTIONS

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. AND	1 hour from discovery of loss of HPCI initiation capability
	B.3	Place channel in trip.	24 hours
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1	--------NOTE-------- 1. Only applicable for Functions 1.c, 1.e, 1.f, 2.c, 2.d, and 2.f. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable. AND	1 hour from discovery of loss of subsystem initiation capability in both subsystems
	C.2	Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1	--------NOTE-------- 1. Only applicable to Functions 1.d and 2.g. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of subsystem initiation capability in both subsystems
	AND		
	E.2	Restore channel to OPERABLE status.	7 days

(continued)

Table 3.3.5.1-1 (page 1 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level—Low Low Low (Level 1)	1,2,3	4[b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -160.0 inches
b. Drywell Pressure—High	1,2,3	4[b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 2.0 psig
c. Reactor Pressure—Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 425.0 psig and ≤ 475.0 psig
d. Core Spray Pump Discharge Flow—Low (Bypass)	1,2,3	4 (1 per pump)	E	SR 3.3.5.1.2 SR 3.3.5.1.4	≥ 319.0 psid and ≤ 351.0 psid
e. Core Spray Pump Start-Time Delay Relay (loss of offsite power)	1,2,3	4 (1 per pump)	C	SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 5.0 seconds and ≤ 7.0 seconds
f. Core Spray Pump Start-Time Delay Relay (offsite power available)					
Pumps A,C	1,2,3	2 (1 per pump)	C	SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 12.1 seconds and ≤ 13.9 seconds
Pumps B,D	1,2,3	2 (1 per pump)	C	SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 21.4 seconds and ≤ 24.6 seconds

(continued)

(a) Deleted

(b) Also required to initiate the associated diesel generator (DG).

Table 3.3.5.1-1 (page 2 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level—Low Low Low (Level 1)	1,2,3	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -160 inches
b. Drywell Pressure—High	1,2,3	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 2.0 psig
c. Reactor Pressure-Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 425.0 psig and ≤ 475.0 psig
d. Reactor Pressure-Low Low (Recirculation Discharge Valve Permissive)	1[(c)],2[(c)], 3[(c)]	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 211.0 psig
e. Reactor Vessel Shroud Level—Level 0	1,2,3	2	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -226.0 inches
f. Low Pressure Coolant Injection Pump Start—Time Delay Relay (offsite power available)	1,2,3	8 (2 per pump)	C	SR 3.3.5.1.4 SR 3.3.5.1.5	
Pumps A,B					≥ 1.9 seconds and ≤ 2.1 seconds
Pumps C,D					≥ 7.5 seconds and ≤ 8.5 seconds
g. Low Pressure Coolant Injection Pump Discharge Flow—Low (Bypass)	1,2,3	4 (1 per pump)	E	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 299.0 psid and ≤ 331.0 psid

(continued)

(a) Deleted

(c) With associated recirculation pump discharge valve open.

3.3 INSTRUMENTATION

3.3.5.3 Not Used

3.3 INSTRUMENTATION

3.3.5.4 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.4 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.4-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.4-1.

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 3.3.5.4-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.4-1.	B.1	Declare associated penetration flow path(s) incapable of automatic isolation.	Immediately
	AND		
	B.2	Calculate DRAIN TIME.	Immediately
C. As required by Required Action A.1 and referenced in Table 3.3.5.4-1.	C.1	Place channel in trip.	1 hour
D. As required by Required Action A.1 and referenced in Table 3.3.5.4-1.	D.1	Restore channel to OPERABLE status	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 Declare associated low pressure ECCS injection/spray subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.5.4-1 to determine which SRs apply for each ECCS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.5.4.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program.
SR 3.3.5.4.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program.
SR 3.3.5.4.3	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program.

(continued)

Table 3.3.5.4-1 (page 1 of 1)
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Pressure—Low (Injection Permissive)	4,5	4 (a)	C	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 425.0 psig and ≤ 475.0 psig
b. Core Spray Pump Discharge Flow—Low (Bypass)	4,5	1 per pump (a)	D	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 319.0 psid and ≤ 351.0 psid
c. Manual Initiation	4,5	1 per subsystem (a)	D	SR 3.3.5.4.3	NA
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Pressure-Low (Injection Permissive)	4,5	4 (a)	C	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 425.0 psig and ≤ 475.0 psig
b. Low Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	4,5	1 per pump (a),(c)	D	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 299.0 psid and ≤ 331.0 psid
c. Manual Initiation	4,5	1 per subsystem (a)	D	SR 3.3.5.4.3	NA
3. RHR System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	2	B	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 1.0 inches
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	2	B	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 1.0 inches

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.4, "Reactor Pressure Vessel Water Inventory Control."

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

(c) Function not required to be OPERABLE while associated pump is operating in decay heat removal when minimum flow valve is closed and deactivated.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1 Declare associated standby liquid control (SLC) subsystem inoperable. OR H.2 Isolate the Reactor Water Cleanup System.	1 hour 1 hour
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1 Initiate action to restore channel to OPERABLE status.	Immediately
J. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	J.1 Isolate the affected penetration flow path(s).	24 hours

Table 3.3.6.1-1 (page 3 of 3)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
a. RWCU Flow – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 125% rated flow (23.0 in-wc)
b. SLC System Initiation	1,2,3	1	H	SR 3.3.6.1.7	NA
c. Reactor Vessel Water Level – Low (Level 3)	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 1.0 inches
6. RHR Shutdown Cooling System Isolation					
a. Reactor Pressure – High	1,2,3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 70.0 psig
b. Reactor Vessel Water Level – Low (Level 3)	3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 1.0 inches
7. Feedwater Recirculation Isolation					
a. Reactor Pressure – High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 600 psig
8. Traversing Incore Probe Isolation					
a. Reactor Vessel Water Level-Low (Level 3)	1,2,3	2	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 1.0 inches
b. Drywell Pressure-High	1,2,3	2	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 2.0 psig

(a) Deleted

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level--Low (Level 3)	1,2,3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≥ 1.0 inches
2. Drywell Pressure--High	1,2,3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 2.0 psig
3. Reactor Building Ventilation Exhaust Radiation--High	1,2,3, (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.3 SR 3.3.6.2.5	≤ 16.0 mR/hr
4. Refueling Floor Ventilation Exhaust Radiation--High	1,2,3, (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.3 SR 3.3.6.2.5	≤ 16.0 mR/hr

(a) Deleted

(b) During movement of RECENTLY IRRADIATED FUEL assemblies in secondary containment.

3.3 INSTRUMENTATION

3.3.7.1 Main Control Room Emergency Ventilation (MCREV) System Instrumentation

LCO 3.3.7.1 Two channels per trip system of the Control Room Air Intake Radiation-High Function shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Declare associated MCREV subsystems inoperable.	1 hour from discovery of loss of MCREV System initiation capability
	AND	
	A.2 Place channel in trip.	6 hours

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL (WIC), 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 five safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI) is not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 100 psig.

ACTIONS

NOTE
LCO 3.0.4.b is not applicable to HPCI.

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

(continued)

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

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3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL (WIC), 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.	Immediately
	AND		
	A.2	Restore RCIC System to OPERABLE status.	14 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours

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

3.5.4 Reactor Pressure Vessel (RPV) Water Inventory Control

LCO 3.5.4 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be $\geq$ 36 hours.

AND

One low pressure ECCS injection/spray subsystem shall be OPERABLE.

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

A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODES 4 and 5

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately
C. DRAIN TIME < 36 hours and $\geq$ 8 hours.	C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME. AND	4 hours

(continued)

ACTIONS (continued)

C. (continued)	C.2	Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	4 hours
	AND		
	C.3	Verify one standby gas treatment subsystem is capable of being placed in operation in less than DRAIN TIME.	4 hours
D. DRAIN TIME < 8 hours.	D.1	-------NOTE---------- Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. ---------- Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.	Immediately
	AND		
	D.2	Initiate action to establish secondary containment boundary.	Immediately
	AND		
	D.3	Initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room.	Immediately
	AND		

(continued)

ACTIONS (continued)

D. (continued)	D.4 Initiate action to verify one Standby Gas Treatment subsystem is capable of being placed into operation.	Immediately
E. Required Action and associated Completion Time of Condition C or D not met. OR DRAIN TIME < 1 hour.	E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	Verify DRAIN TIME ≥ 36 hours.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.2	Verify, for a required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ 11.0 ft.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.3	Verify, for a required Core Spray (CS) subsystem, the: a. Suppression pool water level is ≥ 11.0 ft. or b. Condensate storage tank water level is ≥ 17.3 ft.	In accordance with the Surveillance Frequency Control Program.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.4.4	Verify, for the required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.5	----------NOTE---------- Not required to be met for system vent flow paths open under administrative control. ---------- Verify for the required 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 3.5.4.6	Operate the required ECCS injection/spray subsystem through the recirculation line for $\geq$ 10 minutes.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.7	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.8	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify the required ECCS injection/spray subsystem can be manually actuated.	In accordance with the Surveillance Frequency Control Program.

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Purge/Vent flowpath open for an accumulated time greater than 90 hours for the calendar year while in MODE 1 or 2 with Reactor Pressure greater than 100 psig.	E.1	Isolate the penetration.	4 hours
	OR		
	E.2.1	Be in MODE 3.	12 hours
		AND	
	E.2.2	Be in Mode 4.	36 hours
F. Required Action and associated Completion Time of Condition A, B, C, or D not met in MODE 1, 2, or 3.	F.1	Be in MODE 3.	12 hours
	AND		
	F.2	Be in MODE 4.	36 hours
G. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during MODE 4 or 5.	G.1	Initiate action to restore valve(s) to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.1	Verify nitrogen inventory is equivalent to ≥ 22 inches water column in the liquid nitrogen storage tank.	In accordance with the Surveillance Frequency Control Program.

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1 Restore secondary containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
C. Secondary containment inoperable during movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	C.1 --------NOTE-------- LCO 3.0.3 is not applicable. ---------- Suspend movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program.
SR 3.6.4.1.2	Verify one secondary containment access door in each access opening is closed, except when the access opening is being used for entry or exit.	In accordance with the Surveillance Frequency Control Program.
SR 3.6.4.1.3	Verify secondary containment can be drawn down to ≥ 0.25 inch of vacuum water gauge in ≤ 180 seconds using one standby gas treatment (SGT) subsystem.	In accordance with the Surveillance Frequency Control Program.
SR 3.6.4.1.4	Verify the secondary containment can be maintained ≥ 0.25 inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 10,500 cfm.	In accordance with the Surveillance Frequency Control Program.

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.

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 SCIVs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. AND	8 hours (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met during movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	D.1 --------NOTE-------- LCO 3.0.3 is not applicable. ---------- Suspend movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	Immediately

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3.	12 hours
C. Required Action and associated Completion Time of Condition A not met during movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- C.1 Place OPERABLE SGT subsystem in operation. OR	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1 Suspend movement of RECENTLY IRRADIATED FUEL assemblies in secondary containment.	Immediately
D. Two SGT subsystems inoperable in MODE 1, 2, or 3.	D.1 Be in MODE 3.	12 hours
E. Two SGT subsystems inoperable during movement of RECENTLY IRRADIATED FUEL assemblies in the secondary containment.	E.1 --------NOTE-------- LCO 3.0.3 is not applicable. ---------- Suspend movement of RECENTLY IRRADIATED FUEL assemblies in secondary containment.	Immediately

3.7 PLANT SYSTEMS

3.7.4 Main Control Room Emergency Ventilation (MCREV) System

LCO 3.7.4 Two MCREV subsystems shall be OPERABLE.

---NOTE---

The main control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One MCREV subsystem inoperable for reasons other than Condition B.	A.1	Restore MCREV subsystem to OPERABLE status.	7 days
B. One or more MCREV subsystems inoperable due to inoperable CRE boundary in MODE 1, 2 or 3.	B.1	Initiate action to implement mitigating actions.	Immediately
	AND		
	B.2	Verify mitigating actions ensure CRE occupant exposures to radiological/chemical hazards will not exceed limits and mitigating actions for smoke hazards are taken as required.	24 hours
	AND		
	B.3	Restore CRE boundary to OPERABLE status.	90 days

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3.	12 hours
D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment, or during CORE ALTERATIONS.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- D.1 Place OPERABLE MCREV subsystem in operation. OR D.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment. AND D.2.2 Suspend CORE ALTERATIONS.	 Immediately Immediately Immediately
E. Two MCREV subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	E.1 Be in MODE 3.	12 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two MCREV subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, or during CORE ALTERATIONS. OR One or more MCREV subsystems inoperable due to an inoperable CRE boundary during movement of irradiated fuel assemblies in the secondary containment, or during CORE ALTERATIONS.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- F.1 Suspend movement of irradiated fuel assemblies in the secondary containment. AND F.2 Suspend CORE ALTERATIONS.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each MCREV subsystem for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.4.2	Perform required MCREV filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify each MCREV subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.4.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program.

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required offsite circuits inoperable.	----------NOTE---------- Enter applicable Condition and Required Actions of LCO 3.8.8, with one or more required 4 kV emergency buses de-energized as a result of Condition A. --- A.1 Declare affected required feature(s), with no offsite power available inoperable. OR A.2.1 Suspend CORE ALTERATIONS. AND A.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment. AND	Immediately Immediately Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to restore required offsite power circuit(s) to OPERABLE status.	Immediately
B. One required DG inoperable.	B.1 Declare affected required feature(s) with no DG available inoperable. OR B.2.1 Suspend CORE ALTERATIONS AND B.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment. AND B.2.3 Initiate action to restore required DGs to OPERABLE status.	Immediately Immediately Immediately Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two or more required DGs inoperable.	C.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	C.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	C.3 Initiate action to restore required DG(s) to OPERABLE status.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment. AND	Immediately
	A.2.3 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Distribution Systems - Shutdown

LCO 3.8.8 The necessary portions of the following AC and DC electrical power distribution subsystems shall be OPERABLE:

a. Unit 3 AC and DC electrical power distribution subsystems needed to support equipment required to be OPERABLE; and

b. Unit 2 AC and DC electrical power distribution subsystems needed to support equipment required to be OPERABLE by LCO 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System - Cold Shutdown," LCO 3.5.4, "RPV Water Inventory Control," LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," LCO 3.7.4, "Main Control Room Emergency Ventilation (MCREV) System," LCO 3.8.2, "AC Sources - Shutdown," LCO 3.9.7, "RHR - High Water Level," and LCO 3.9.8, "RHR - Low Water Level."

APPLICABILITY: MODES 4 and 5,
During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC or DC electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable. OR A.2.1 Suspend CORE ALTERATIONS. AND	Immediately Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Suspend handling of irradiated fuel assemblies in the secondary containment. AND	Immediately
	A.2.3 Initiate actions to restore required AC and DC electrical power distribution subsystems to OPERABLE status. AND	Immediately
	A.2.4 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 317 TO

RENEWED FACILITY OPERATING LICENSE NO. DPR-44 AND

AMENDMENT NO. 320 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-56

EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3

DOCKET NOS. 50-277 AND 50-278

1.0 INTRODUCTION

By application dated January 30, 2017 (Reference 1), as supplemented by letters dated August 11, 2017 (Reference 2), September 8, 2017 (Reference 3), and December 20, 2017 (Reference 11), Exelon Generation Company, LLC (Exelon, the licensee), submitted a license amendment request (LAR) for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3.

The amendments would replace existing Technical Specification (TS) requirements related to "operations with a potential for draining the reactor vessel" (OPDRVs) with new requirements on reactor pressure vessel (RPV) water inventory control (WIC) to protect Safety Limit 2.1.1.3. Safety Limit 2.1.1.3 requires RPV water level to be greater than the top of active irradiated fuel. The proposed changes are based on Technical Specifications Task Force (TSTF) Traveler TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control," dated March 14, 2016 (Reference 4). The U.S. Nuclear Regulatory Commission (NRC or the Commission) issued a final safety evaluation (SE) approving TSTF-542, Revision 2, on December 20, 2016 (Reference 5).

The licensee has proposed several variations from the TS changes described in TSTF-542. The variations are described in SE Section 2.2.5 and evaluated in SE Section 3.5.

The supplemental letters dated August 11, 2017, September 8, 2017, and December 20, 2017, 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 March 28, 2017 (82 FR 15382).

2.0 REGULATORY EVALUATION

2.1 System Description

Boiling-water reactor (BWR) RPVs have a number of penetrations located below the top of active fuel (TAF). These penetrations provide entry for control rods, recirculation flow, and shutdown cooling. Since these penetrations are below the TAF, this creates a potential to drain the reactor vessel water inventory and lose effective core cooling. The loss of water inventory and effective core cooling can potentially lead to fuel cladding failure and radioactive release.

During operation in Mode 1 (Power Operation - Reactor Mode Switch in Run); Mode 2 (Startup - Reactor Mode Switch in Refuel with all reactor vessel head closure bolts fully tensioned) or Startup/Hot Standby); and Mode 3 (Hot Shutdown - Reactor Mode Switch in Shutdown and average reactor coolant temperature > 212 degrees Fahrenheit (°F)); the TSs for instrumentation and emergency core cooling systems (ECCS) require operability of sufficient equipment to ensure large quantities of water can be injected into the vessel, should the level decrease below the preselected value. These requirements are designed to mitigate the effects of a loss-of-coolant accident (LOCA), but also provide protection for other accidents and transients that involve a water inventory loss.

During BWR operation in Mode 4 (Cold Shutdown - Reactor Mode Switch in Shutdown with all reactor vessel head closure bolts fully tensioned and average reactor coolant temperature ≤ 212 °F), and Mode 5 (Refueling - one or more reactor vessel head closure bolts less than fully tensioned and Reactor Mode Switch in Shutdown or Refuel), the pressures and temperatures that could cause a LOCA are not present. During certain phases of refueling (Mode 5), a large volume of water is available above the RPV (i.e., the RPV head is removed, the water level is ≥ 458 inches (38 1/6 feet) above RPV instrument zero), and the spent fuel storage pool gates are removed.

The large volume of water available in and above the RPV (during much of the time when in Mode 5) provides time for operator detection and manual operator action to stop and mitigate an RPV draining event. However, typically at other times during a refueling outage during Cold Shutdown (Mode 4) or Refueling (Mode 5), there may be a potential for significant drainage paths from certain outage activities, human error, and other events when it is more likely to have some normally available equipment, instrumentation, and systems inoperable due to maintenance and outage activities. There may not be as much time for operator action as compared to times when there are large volumes of water above the RPV.

In comparison to Modes 1, 2, and 3, with typical high temperatures and pressures (especially in Modes 1 and 2), Modes 4 and 5 generally do not have the high pressure and temperature considered necessary for a LOCA envisioned from a high energy pipe failure. Thus, while the potential sudden loss of large volumes of water from a LOCA are not expected, operators monitor for BWR RPV water level decrease from potential significant or even unexpected drainage paths. These potential drainage paths in Modes 4 and 5 generally would require less water replacement capability to maintain water above TAF.

To address the drain down potential during Modes 4 and 5, the current PBAPS TSs contain specifications that are applicable during an OPDRV or that require suspension of OPDRVs if certain equipment is inoperable. The term OPDRV is not specifically defined in the TSs. The changes discussed in this SE are intended to resolve any ambiguity by creating a new RPV WIC TS with attendant equipment operability requirements, required actions and surveillance requirements (SRs), and deleting references to OPDRVs throughout the TSs.

2.2 Changes to the TSs

The proposed changes to the TSs are shown in Attachment 1 to the licensee's application dated January 30, 2017, as modified by the TS changes shown in Attachment 2 to the supplement dated August 11, 2017, and the attachment to the supplement dated September 8, 2017. In addition, Attachment 3 to the application provided revised TS Bases.

The proposed TS changes would: (1) revise TS 1.1 to add a definition of a new term, Drain Time; (2) revise TS 3.3, "Instrumentation," to add new TS 3.3.5.4, "Reactor Pressure Vessel Water (RPV) Inventory Control Instrumentation"; (3) revise TS 3.5, "Emergency Core Cooling System (ECCS) and Reactor Core Isolation Cooling (RCIC) System," to add new TS 3.5.4, "Reactor Pressure Vessel Water Inventory Control"; and (4) delete existing references to "operations with the potential to drain the reactor pressure vessel" throughout the PBAPS TSs. The descriptions of the proposed changes are provided in this section.

2.2.1 Add New Definition - Drain Time

The following definition of "DRAIN TIME" would be added to TS Section 1.1, "Definitions":

> The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:
>
> a) The water inventory above the TAF is divided by the limiting drain rate;
>
> b) The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all penetration flow paths below the TAF except:
>
> 1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;
>
> 2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or
>
> 3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.
>
> c) The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;

d) No additional draining events occur; and

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

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

2.2.2 Changes to TS 3.3, "Instrumentation"

2.2.2.1 Changes to TS Limiting Condition for Operation (LCO) 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation"

Proposed changes to TS 3.3.5.1 include the deletion of Note 1 in Required Actions B.1, C.1, and E.1, which states: "Only Applicable in Modes 1, 2, and 3."

In Table 3.3.5.1-1, the applicability in Modes 4 and 5 is proposed for deletion because the instrumentation requirements during shutdown are being consolidated into the new TS 3.3.5.4, "Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation," Table 3.3.5.4-1. Mode 4 and 5 applicability and associated requirements would be deleted for the following functions:

1. Core Spray System
   a. Reactor Vessel Water Level – Low Low Low (Level 1)
   c. Reactor Pressure – Low (Injection Permissive)
   d. Core Spray Pump Discharge Flow – Low (Bypass)
   e. Core Spray Pump Start – Time Delay Relay (loss of offsite power)
   f. Core Spray Pump Start – Time Delay Relay (offsite power available)

2. Low Pressure Coolant Injection (LPCI) System
   a. Reactor Vessel Water Level – Low Low Low (Level 1)
   c. Reactor Pressure –Low (Injection Permissive)
   f. Low Pressure Coolant Injection Pump Start – Time Delay Relay (offsite power available)
   g. Low Pressure Coolant Injection Pump Discharge Flow – Low (Bypass)

Table 3.3.5.1-1 footnote (a), which states, "When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2, ECCS – Shutdown," would be deleted. The word "Deleted" would replace the existing text.

2.2.2.2 Add New TS 3.3.5.3, "Not Used"

A page would be added following existing TS 3.3.5.2, "Reactor Core Isolation Cooling (RCIC) System Instrumentation," titled TS 3.3.5.3, stating "Not Used."

2.2.2.3 Add New TS LCO 3.3.5.4, "Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation"

The proposed new TS 3.3.5.4 would contain functions that are comprised of requirements moved from TSs 3.3.5.1 and 3.3.6.1, as well as new requirements. The proposed new TS 3.3.5.4 would read as follows:

3.3.5.4 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.4 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.4-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.4-1.

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 3.3.5.4-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.4-1.	B.1 Declare associated penetration flow path(s) incapable of automatic isolation. AND B.2 Calculate DRAIN TIME.	Immediately Immediately
C. As required by Required Action A.1 and referenced in Table 3.3.5.4-1.	C.1 Place channel in trip.	1 hour
D. As required by Required Action A.1 and referenced in Table 3.3.5.4-1.	D.1 Restore channel to OPERABLE status.	24 hours
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 Declare associated low pressure ECCS injection/spray subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.5.4-1 to determine which SRs apply for each ECCS Function.

SURVEILLANCE	FREQUENCY
SR 3.3.5.4.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program.
SR 3.3.5.4.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program.
SR 3.3.5.4.3 Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program.

The proposed TS Table 3.3.5.4-1, "RPV Water Inventory Control Instrumentation," is shown below and would include three footnotes, the third of which is a variation introduced by Exelon for PBAPS:

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Pressure – Low (Injection Permissive)	4,5	4[(a)]	C	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 425.0 psig and ≤ 475.0 psig
b. Core Spray Pump Discharge Flow-Low (Bypass)	4,5	1 per pump (a)	D	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 319.0 psid and ≤ 351.0 psid
c. Manual Initiation	4,5	1 per subsystem (a)	D	SR 3.3.5.4.3	N/A
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Pressure – Low (Injection Permissive)	4,5	4[(a)]	C	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 425.0 psig and ≤ 475.0 psig

b. Low Pressure Coolant Injection Pump Discharge Flow–Low (Bypass)	4,5	1 per loop (a),(c)	D	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 299.0 psid and ≤ 331.0 psid
c. Manual Initiation	4,5	1 per subsystem (a)	D	SR 3.3.5.4.3	N/A
3. RHR System Isolation					
a. Reactor Vessel Water Level – Low, Level 3	(b)	2	B	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 1.0 inches
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level – Low, Level 3	(b)	2	B	SR 3.3.5.4.1 SR 3.3.5.4.2	≥ 1.0 inches

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.4, "Reactor Pressure Vessel Water Inventory Control."

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

(c) Function not required to be OPERABLE while associated pump is operating in decay heat removal when minimum flow valve is closed and deactivated.

2.2.2.4 Deletion of OPDRV References and Additional Changes to TS 3.3

The licensee proposed to delete references to OPDRVs throughout the PBAPS TSs for each unit. These instrumentation TSs contain one or more OPDRV references such as LCO or conditional applicability "During operations with a potential for draining the reactor vessel (OPDRVs)"; "during OPDRVs," or if certain conditions are not met, the required actions may direct the licensee to "initiate action to suspend OPDRVs"; or "operations with a potential for draining the reactor vessel." The following table is a list of these TSs and their affected sections:

PBAPS LCO	Location of OPDRV Reference
3.3.6.1, Primary Containment Isolation Instrumentation	Required Action I.2, Table 3.3.6.1-1, footnote (a) (see below)
3.3.6.2, Secondary Containment Isolation Instrumentation	Table 3.3.6.2-1, footnote (a)
3.3.7.1, Main Control Room Emergency Ventilation (MCREV) System Instrumentation	Applicability

For the TS 3.3.6.1, "Primary Containment Isolation Instrumentation," actions table, the Required Action I.2, "Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System," and the preceding "or" would be deleted. For Unit 2 only, an open parentheses was

added just prior to "RWCU" so that the title of Function 5 in Table 3.3.6.1-1 would now read "Reactor Water Cleanup (RWCU) System Isolation." The Mode 4 and 5 applicability would be removed from Function 6.b, "Reactor Vessel Water Level – Low (Level 3)," of Table 3.3.6.1-1. Additionally, the text of footnote a, "In MODES 4 and 5, provided RHR Shutdown Cooling System integrity is maintained, only one channel per trip system with an isolation signal available to one shutdown cooling pump suction isolation valve is required," would be replaced with the text "Deleted," for Table 3.3.6.1-1.

For TS 3.3.6.2, "Secondary Containment Isolation Instrumentation," footnote a, "During operations with a potential for draining the reactor vessel," would be replaced with the text "Deleted," in Table 3.3.6.2-1. Reference to the footnote would be removed from Functions 3 and 4.

In TS LCO 3.3.7.1, "Main Control Room Emergency Ventilation (MCREV) System Instrumentation," the text "During operations with a potential for draining the reactor vessel (OPDRVs)," would be removed from the applicability statement.

2.2.3 Changes to TS Section 3.5

2.2.3.1 Title of TS 3.5

The title of Section 3.5 would be revised from "Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling (RCIC) System" to "Emergency Core Cooling Systems (ECCS), RPV Water Inventory Control (WIC), and Reactor Core Isolation Cooling (RCIC) System.

2.2.3.2 TS 3.5.2

Existing TS 3.5.2 would be deleted in its entirety. Instead of marking-up existing TS 3.5.2 from "ECCS Shutdown," to "RPV Water Inventory Control" as done in TSTF-542, Exelon proposed that a new TS 3.5.4 for PBAPS called "Reactor Pressure Vessel (RPV) Water Inventory Control" be added to Section 3.5 in place of the markups. Hereafter in this SE, TS 3.5.4 is contrasted to TS 3.5.2, since proposed TS 3.5.4 will supplant existing TS 3.5.2 in its applicability.

2.2.3.3 TS 3.5.4

TS 3.5.4, "RPV Water Inventory Control," would be added as shown below:

3.5.4 Reactor Pressure Vessel (RPV) Water Inventory Control

LCO 3.5.4 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours.

AND

One low pressure ECCS injection/spray subsystem shall be OPERABLE.

----------NOTE----------
A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODES 4 and 5

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately
C. DRAIN TIME < 36 hours and ≥ 8 hours.	C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME. AND C.2 Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME. AND C.3 Verify one standby gas treatment subsystem is capable of being placed in operation in less than DRAIN	4 hours 4 hours 4 hours
D. DRAIN TIME < 8 hours.	D.1 ----------NOTE---------- Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. ---------- Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours. AND D.2 Initiate action to establish secondary containment boundary.	 Immediately Immediately

	AND D.3 Initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room. AND D.4 Initiate action to verify one Standby Gas Treatment subsystem is capable of being placed in operation.	Immediately Immediately
E. Required Action and associated Completion Time of Condition C or D not met. OR DRAIN TIME < 1 hour.	E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.	Immediately

2.2.3.4 TS 3.5.4 Surveillance Requirements

TS 3.5.4 SRs would be added as shown below:

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	Verify DRAIN TIME ≥ 36 hours.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.2	Verify, for a required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ 11.0 ft.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.3	Verify, for a required Core Spray (CS) subsystem, the: a. Suppression pool water level is ≥ 11.0 ft. or b. Condensate storage tank water level ≥ 17.3 ft.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.4	Verify for the required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program.

SR 3.5.4.5	----------NOTE---------- Not required to be met for system vent flow paths open under administrative control. ---------- Verify for the required 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 3.5.4.6	Operate the required ECCS injection/spray subsystem through the recirculation line for ≥ 10 minutes.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.7	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.4.8	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify the required ECCS injection/spray subsystem can be manually actuated.	In accordance with the Surveillance Frequency Control Program.

2.2.4 Miscellaneous Deletion of OPDRV References to Other TS Sections

The licensee proposed to delete references to OPDRVs throughout the PBAPS TSs for each unit. These TSs contain one or more OPDRV references such as LCO or conditional applicability "During operations with a potential for draining the reactor vessel (OPDRVs)," "during OPDRVs," or if certain conditions are not met, the required actions may direct the licensee to "initiate action to suspend OPDRVs," or "operations with a potential for draining the reactor vessel." The following table is a list of these TSs and their affected sections:

PBAPS LCO	Location of OPDRV Reference
3.6.1.3 Primary Containment Isolation Valves (PCIVs)	Required Action G.1
3.6.4.1 Secondary Containment	Applicability, Condition C, Required Action C.2
3.6.4.2, Secondary Containment Isolation Valves (SCIVs)	Applicability, Condition D, Required Action D.2
3.6.4.3 Standby Gas Treatment (SGT) System	Applicability, Condition C, Required Action C.2.2 Condition E, Required Action E.2
3.7.4 Main Control Room Emergency Ventilation (MCREV) System	Applicability, Condition D, Required Action D.2.3 Condition F, Required Action F.3
3.8.2 AC Sources – Shutdown	Required Actions A.2.3, B.2.3, and C.3
3.8.5 DC Sources – Shutdown	Required Action A.2.3
3.8.8 Distribution Systems – Shutdown	LCO (see below), Required Action A.2.3

For each of these TSs, the applicability and/or actions table sections would be revised to delete references to OPDRVs and delete required actions for OPDRVs. Additionally, conforming changes would be made like renumbering remaining required actions, or in the case of TS 3.8.8, to change an existing reference to LCO 3.5.2 (which is proposed to be deleted) to the proposed LCO 3.5.4.

2.2.5 Licensee's Identified Variations in Reference to TSTF-542

The licensee proposed the following variations from the TS changes described in TSTF-542 or the applicable parts of the NRC staff's SE. The licensee stated in the LAR that these variations do not affect the applicability of TSTF-542 or the NRC staff's SE to the proposed license amendment.

2.2.5.1 Variation 1, TS Numbering

Exelon proposed to change the number for the revised TS 3.5.2, "Reactor Pressure Vessel (RPV) WIC," as shown in TSTF-542 to TS 3.5.4. The instrumentation section TSs would be 3.3.5.4 for PBAPS, Units 2 and 3, for consistency purposes. Because of this proposed change in the application of TSTF-542, Exelon would not revise existing PBAPS TS 3.3.5.2. Additionally, Exelon proposed to delete TS 3.5.2 for PBAPS, Units 2 and 3, in lieu of modifying it as marked-up in TSTF-542.

2.2.5.2 Variation 2, Note (a) of Table 3.3.5.1-1 Shown as Deleted

Exelon did not propose to revise PBAPS TS 3.3.5.1, Table 3.3.5.1-1, note (b), to '(a)' as marked-up in TSTF-542. Instead, note (b) is proposed to remain as note (b).

2.2.5.3 Variation 3, PBAPS RWCU System Isolation – Reactor Vessel Water Level – Low

Exelon stated that the PBAPS design for RWCU isolation is on Reactor Vessel Water Level - Low (Level 3), not Reactor Vessel Water Level – Low, Low (Level 2) in the PBAPS, Units 2 and 3, design. Therefore, Exelon proposed to revise PBAPS TS Table 3.3.5.4-1 to reflect this design difference for PBAPS.

2.2.5.4 Variation 4, PBAPS Manual Initiation via Hand Switch

Exelon proposed to revise PBAPS SR 3.5.4.8 and TS Bases 3.3.5.4 to clarify that, for manual initiations, PBAPS utilizes hand switches in lieu of push buttons.

2.2.5.5 Variation 5, Proposed Clarification Note (c) when RHR in Decay Heat Removal Mode

Exelon proposed to add a note to the proposed TS Table 3.3.5.4-1 (RPV WIC Instrumentation) to clarify the intent of allowing credit for an operable LPCI subsystem when it is aligned and operating in the decay heat removal mode of RHR.

2.3 Applicable Regulatory Requirements and Guidance

2.3.1 Technical Specifications

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36(a)(1) requires each applicant for a license authorizing operation of a utilization facility to include in the application

proposed TSs. A summary statement of the bases or reasons for such specifications shall also be included in the application but shall not become part of the TSs.

The categories of items required to be in the TSs are provided in 10 CFR 50.36(c). As required by 10 CFR 50.36(c)(1)(i)(A), safety limits for nuclear reactors are limits upon important process variables that are found to be necessary to reasonably protect the integrity of certain of the physical barriers that guard against the uncontrolled release of radioactivity. If any safety limit is exceeded, the reactor must be shut down. The licensee shall notify the Commission, review the matter, and record the results of the review, including the cause of the condition and the basis for corrective action taken to preclude recurrence. Operation must not be resumed until authorized by the Commission.

As required by 10 CFR 50.36(c)(2)(i), the TSs will include LCOs, which 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 TSs until the condition can be met.

The regulation at 10 CFR 50.36(c)(2)(ii) requires licensees to establish TS LCOs for items meeting one or more of the listed criteria. Criterion 4, "A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety," supports the establishment of LCOs for RPV WIC due to insights gained by operating experience.

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

2.3.2 General Design Criteria

The construction permit for PBAPS, Units 2 and 3, was issued by the Atomic Energy Commission (AEC) on January 31, 1968. As discussed in Appendix H to the PBAPS Updated Final Safety Analysis Report (UFSAR), during the construction/licensing process, both units were evaluated against the then-current AEC draft of the 27 General Design Criteria (GDC) issued in November 1965. On July 11, 1967, the AEC published, for public comment in the *Federal Register* (32 FR 10213), a revised and expanded set of 70 draft GDC (hereinafter referred to as the "draft GDC"). Appendix H of the PBAPS UFSAR contains an evaluation of the design basis of PBAPS, Units 2 and 3, against the draft GDC. The licensee concluded that PBAPS, Units 2 and 3, conform to the intent of the draft GDC.

On February 20, 1971, the AEC published in the *Federal Register* (36 FR 3255) a final rule that added Appendix A to 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants" (hereinafter referred to as the "final GDC"). Differences between the draft GDC and final GDC included a consolidation from 70 to 64 criteria. As discussed in the NRC's Staff Requirements Memorandum for SECY-92-223, dated September 18, 1992 (Reference 8), the Commission decided not to apply the final GDC to plants with construction permits issued prior to May 21, 1971. At the time of the promulgation of Appendix A to 10 CFR Part 50, the Commission stressed that the final GDC were not new requirements and were promulgated to more clearly articulate the licensing requirements and practice in effect at that time. Each plant licensed before the final GDC were formally adopted was evaluated on a plant-specific basis determined to be safe and licensed by the Commission.

The licensee for PBAPS, Units 2 and 3, has made changes to the facility over the life of the plant that may have invoked the final GDC. The extent to which the final GDC have been invoked can be found in specific sections of the UFSAR and in other plant-specific design and licensing basis documentation.

The NRC staff identified the following GDC as being applicable to the LAR:

- Draft GDC 9, "Reactor Coolant Pressure Boundary (Category A)," which requires that the reactor coolant pressure boundary (RCPB) be designed and constructed so as to have an exceedingly low probability of gross rupture or significant leakage throughout its design lifetime.

- Draft GDC 12, "Instrumentation and Control Systems (Category B)," which requires that instrumentation and controls be provided as required to monitor and maintain variables within prescribed operating ranges.

- Draft GDC 13, "Fission Process Monitors and Controls (Category B)," which requires that means be provided for monitoring and maintaining control over the fission process throughout core life and for all conditions that can reasonably be anticipated to cause variations in reactivity of the core, such as indication of position of control rods and concentration of soluble reactivity control poisons.

- Draft GDC 16, "Monitoring Reactor Coolant Pressure Boundary (Category B)," which requires that means be provided for monitoring the RCPB to detect leakage.

- Draft GDC 33, "Reactor Coolant Pressure Boundary Capability (Category A)," which requires, in part, that the RCPB be capable of accommodating without rupture, and with only limited allowance for energy absorption through plastic deformation, the static and dynamic loads imposed on any boundary component as a result of any inadvertent and sudden release of energy to the coolant.

- Draft GDC 37, "Engineered Safety Features Basis for Design (Category A)," which requires, in part, that engineered safety features (ESFs) be provided to back up the safety provided by the core design, the RCPB, and their protective systems.

- Draft GDC 41, "Engineered Safety Features Performance Capability (Category A)," which requires, in part, that ESFs such as emergency core cooling and containment heat removal systems provide the required safety function, assuming a failure of a single active component.

- Draft GDC 44, "Emergency Core Cooling Systems Capability (Category A)," which requires, in part, that at least two ECCSs, preferably of different design principles, each with a capability for accomplishing abundant emergency core cooling, shall be provided. Each ECCS and the core shall be designed to prevent fuel and clad damage that would interfere with the emergency core cooling function and to limit the clad metal-water reaction to negligible amounts for all sizes of breaks in the RCPB, including the double-ended rupture of the largest pipe.

2.3.3 Guidance

The guidance that the NRC staff considered in its review of this LAR included the following:

- NUREG-0800, Revision 3, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition," Chapter 16, "Technical Specifications" (Reference 6), provides guidance on review of TSs.

- NUREG-1433, Revision 4.0, "Standard Technical Specifications - General Electric BWR/4 Plants" (Reference 7), provides guidance on TS format and content for General Electric boiling-water reactor/4 (BWR/4) plants.

3.0 TECHNICAL EVALUATION

Exelon stated in its application dated January 30, 2017 (Reference 1), that it performed a review of the SE provided to the TSTF on December 20, 2016 (Reference 5), as well as the information provided in the approved TSTF-542 traveler. Exelon concluded that the justifications presented in the TSTF-542 traveler and the SE prepared by the NRC staff are applicable to PBAPS, Units 2 and 3, and justify this LAR for the incorporation of the changes into the PBAPS TSs. The following sections include the NRC staff's evaluation of each of the proposed TS changes.

3.1 Drain Time Definition

The proposed drain time definition in TS 1.1, "Definitions," is the time it would take the RPV water inventory to drain from the current level to the TAF, assuming the most limiting of the RPV penetration flow paths with the largest flow rate, or a combination of penetration flow paths that could open due to a common mode failure.

The NRC staff reviewed the proposed drain time definition. For the purpose of NRC staff considerations, the term "break" describes a pathway for water to drain from the RPV that has not been prescribed in the proposed drain time definition. All RPV penetrations below the TAF are included in the determination of drain time as potential pathways. The drain time is calculated by taking the water inventory above the break and dividing by the limiting drain rate until the TAF is reached. The limiting drain rate is a variable parameter depending on the break size and the reduction of elevation head above break location during the drain down event. The discharge point will depend on the lowest potential drain point for each RPV penetration flow path on a plant-specific basis. The NRC staff finds the proposed "drain time" definition acceptable because the calculation provides a conservative approach to determining the drain time of the RPV.

3.2 TS 3.3.5.4, "Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation"

The proposed new TS 3.3.5.4, "Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation," would consolidate the instrumentation required for successful control of RPV water inventory in Modes 4 and 5 into one area of the TSs.

The purpose of the RPV WIC instrumentation is to support the requirements of new TS LCO 3.5.4 and the definition of drain time. There are instrumentation and controls that are required for manual initiation or required as permissives or operational controls on the equipment of the systems that provide water injection capability, certain start commands, pump protection, and isolation functions. These instruments are required to be operable if the systems that provide water injection and isolation functions are to be considered operable as described in Section 3.3 of this SE for new TS 3.5.4. At PBAPS, the reactor operators have a hand switch

start for injecting water that is more complex than the preferred simple push button switch start. This variation is evaluated in Section 3.5.4 of this SE.

Specifically, the RPV WIC instrumentation supports operation of the core spray (CS) and LPCI, including manual initiation, as well as the system isolation of the RHR system and the RWCU system. The equipment involved with each of these systems is described in the evaluation of TS 3.5.4 and the Bases for LCO 3.5.4.

3.2.1 Proposed TS 3.3.5.4 LCO and Applicability

The licensee proposed new TS 3.3.5.4 to provide alternative instrumentation requirements to support manual initiation of the ECCS injection/spray subsystem required in new TS 3.5.4 and automatic isolation of penetration flow paths that may be credited in the determination of drain time. The current TSs contain instrumentation requirements related to OPDRVs in TS Table 3.3.5.1-1, TS Table 3.3.6.1-1, TS Table 3.3.6.2-1, and TS 3.3.7.1. These requirements from Table 3.3.5.1-1 and Table 3.3.6.1-1 would be consolidated into new TS 3.3.5.4.

The proposed LCO 3.3.5.4 states, "The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.4-1 shall be OPERABLE."

The proposed applicability would state, "According to Table 3.3.5.4-1."

Exelon substituted TS 3.3.5.4 for TSTF-542's TS 3.3.5.2 and TS 3.5.4 for TSTF-542's TS 3.5.2. This variation is discussed further in Section 3.5.1 of this SE.

The functions in the proposed PBAPS Table 3.3.5.4-1 are moved from existing TS 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation," and TS 3.3.6.1, "Primary Containment Isolation Instrumentation," functions that are required in Modes 4 or 5 or during OPDRVs. Creation of TS 3.3.5.4 places these functions in a single location with requirements appropriate to support the safety function for TS 3.5.4. Additionally, proposed Table 3.3.5.4-1 contains new requirements for functions to support manual initiation of the ECCS injection/spray subsystem required by proposed LCO 3.5.4.

3.2.2 Proposed TS 3.3.5.4 Actions

The proposed TS 3.3.5.4 actions are shown in Section 2.2.2.3 of this SE. The NRC staff has determined that these actions are sufficient and necessary because when one or more instrument channels are inoperable, the equipment and function controlled by these instruments cannot complete the required function in the normal manner, and these actions direct the licensee to take appropriate actions as necessary and enter immediately into the conditions referenced in Table 3.3.5.4-1. These actions satisfy the requirements of 10 CFR 50.36(c)(2)(i) by providing a remedial action permitted by the TSs until the LCO can be met. The remedial actions provide reasonable assurance that an unexpected draining event can be prevented or mitigated before the RPV water level would be lowered to the TAF.

Action A is applicable when one or more instrument channels are inoperable from Table 3.3.5.4-1 and directs the licensee to immediately enter the condition referenced in Table 3.3.5.4-1 for that channel.

Action B (concerning the RHR System Isolation and RWCU System Isolation functions) is applicable when automatic isolation of the associated penetration flow path is credited as a path for potential drainage in calculating drain time. If the instrumentation is inoperable, Required Action B.1 directs an immediate declaration that the associated penetration flow path(s) are

incapable of automatic isolation. Required Action B.2 requires an immediate recalculation of drain time, but automatic isolation of the affected penetration flow paths cannot be credited.

Action C (concerning low reactor pressure permissive functions necessary for ECCS subsystem manual injection valve opening) would address an event in which the permissive is inoperable. The function must be placed in the trip condition within 1 hour. With the permissive function instrument in the trip condition, manual initiation valve opening may now be performed using the control board hand switches. This 1-hour completion time is acceptable because, despite the preferred start method being prevented, the reactor operator can take manual control of the pump and the injection valve to inject water into the RPV and achieve the safety function. The time of 1 hour also provides reasonable time for evaluation and placing the channel in trip.

Action D (concerning pump discharge flow bypass functions) would address actions when the bypass is inoperable and then there is a risk that the associated ECCS pump could overheat when the pump is operating and the associated injection valve is not fully open. In this condition, the operator can take manual control of the pump and the injection valves. Similar to justification in Action C, while this is not the preferred method, if a manual initiation function is inoperable, the CS and LPCI subsystem pumps can be started manually and the valves can be opened manually. The 24-hour completion time is acceptable because the functions can be performed manually and it allows time for the operator to evaluate and have necessary repairs completed.

Action E is needed and becomes necessary if the required actions and associated completion times of Condition C or D are not met. If they are not met, then the associated low pressure ECCS injection/spray subsystem may be incapable of performing the intended function, and the ECCS subsystem must be declared inoperable immediately.

3.2.3 Proposed TS 3.3.5.4 Surveillances

The TS 3.3.5.4 SRs include Channel Checks, Channel Functional Tests, and Logic System Functional Tests. There are three SRs numbered SR 3.3.5.4.1, SR 3.3.5.4.2, and SR 3.3.5.4.3, as discussed below.

SR 3.3.5.4.1 would require a Channel Check and applies to all functions except manual initiation. Performance of the Channel Check ensures that a gross failure of instrumentation has not occurred. A Channel Check is normally a comparison of the parameter indicated on one channel to a similar parameter on other related channels. A Channel Check is significant in assuring that there is a low probability of an undetected complete channel failure and is a key safety practice to verifying the instrumentation continues to operate properly between each Channel Functional Test. The frequency of "In Accordance with the Surveillance Frequency Control Program," is consistent with the existing requirements and supports operating shift situational awareness.

SR 3.3.5.4.2 would require a Channel Functional Test and applies to all functions except manual initiation. A Channel Functional Test is the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify operability of all devices in the channel required for channel operability. It is performed on each required channel to ensure that the entire channel will perform the intended function. The frequency is in accordance with the Surveillance Frequency Control Program. This is acceptable because it is consistent with the existing requirements for these functions.

SR 3.3.5.4.3 would require a Logic System Functional Test and is only applied to the manual initiation functions. The Logic System Functional Test is a test of all logic components required

for operability of a logic circuit from as close to the sensor as practicable up to, but not including, the actuated device, and demonstrates the operability of the required manual initiation logic for a specific channel. The frequency is in accordance with the Surveillance Frequency Control Program. The ECCS subsystem functional testing performed in proposed SRs 3.5.4.7 and 3.5.4.8 overlap this surveillance to complete testing of the assumed safety function by actuating the required pumps and valves. Therefore, this SR is acceptable.

TSTF-542 did not include SRs to verify or adjust the instrument setpoint derived from the allowable value using a channel calibration or a surveillance to calibrate the trip unit. Since a draining event in Modes 4 or 5 is not an analyzed accident, there is no accident analysis on which to base the calculation of a setpoint. The purpose of the functions is to allow ECCS manual initiation or to automatically isolate a penetration flow path, but no specific RPV water level is assumed for those actions. Therefore, the Mode 3 allowable value was chosen for use in Modes 4 and 5, as it will perform the desired function. Calibrating the functions in Modes 4 and 5 is not necessary, as TS 3.3.5.1 and TS 3.3.6.1 continue to require the functions to be calibrated on an established interval. Similarly, there are no accident analysis assumptions on response time as well because a draining event in Modes 4 or 5 is not an analyzed accident. The NRC staff has determined the above approach is acceptable because it is adequate to ensure the channel responds with the required pumping systems to inject water when needed and perform the necessary isolation functions when commanded.

3.2.4 Proposed TS Table 3.3.5.4-1

In order to support the requirements of proposed TS 3.5.4, "Reactor Pressure Vessel (RPV) Water Inventory Control," the associated instrumentation requirements are designated in Table 3.3.5.4-1, "RPV Water Inventory Control Instrumentation." These instruments are required to be operable if the systems that provide water injection and isolation functions are to be considered operable as described in the NRC staff's evaluation of TS 3.5.4.

Table 3.3.5.4-1 specifies the instrumentation that shall be operable for each function in the table for Modes 4 and 5 (or other specified conditions), the required number of channels per function, conditions referenced from Required Action A.1, SRs for the functions, the allowable value, and footnotes concerning items of the table.

The NRC staff finds the presentation in Table 3.3.5.4-1 acceptable because it sufficiently discusses the purpose of the functions, the applicability, the number of required channels, the references to the condition to be entered by letter (e.g., A, B, C) if the function is inoperable, the applicable SRs, and the selection of the allowable value.

Each of the ECCS subsystems in Modes 4 and 5 can be started by a manual alignment of a small number of components. This is further explained in Section 3.5.4 of this SE. Automatic initiation of an ECCS injection/spray subsystem may be undesirable because it could lead to overflowing the RPV cavity due to injection rates of thousands of gallons per minute. Thus, there is adequate time to take manual actions (e.g., hours versus minutes). Considering the action statements as the drain time decreases (the proposed TS 3.5.4, Action E, prohibits plant conditions that could result in drain times less than 1 hour), there is sufficient time for the reactor operators to take manual action to stop the draining event and to manually start an ECCS injection/spray subsystem or the additional method of water injection, as needed. Consequently, there is no need for automatic initiation of ECCS to respond to an unexpected draining event. This is acceptable because a draining event is a slow evolution when compared to a design-basis LOCA assumed to occur at a significant power level.

For the Table 3.3.5.4-1 Functions 1.a and 2.a, CS and LPCI Systems, Reactor Pressure - Low (Injection Permissive), these signals are used as a permissive and protection for these low pressure ECCS injection/spray subsystem manual initiation functions. This function would ensure that the reactor pressure has fallen to a value below these subsystems' maximum design pressure before permitting the operator to open the injection valves of the low pressure ECCS subsystems. Even though the reactor pressure is expected to virtually always be below the ECCS maximum design pumping pressure during Modes 4 and 5, the Reactor Pressure - Low signals are required to be operable to permit manual initiation of the ECCS equipment to inject water into the vessel if needed. The proposed allowable value would be ≥ 425.0 pounds per square inch gauge (psig) and ≤ 475.0 psig, with four required channels per function, as it is currently in PBAPS TS Table 3.3.5.1-1.

For the Table 3.3.5.4-1 Functions 1.b and 2.b, CS and LPCI Systems, Pump Discharge Flow - Low (Bypass), these minimum flow instruments are provided to protect the associated low pressure ECCS pumps from overheating when the pump is operating and the associated injection valve is not fully open. One differential pressure switch per ECCS pump is used to detect the associated subsystems' flow rates. The logic is arranged such that each transmitter causes its associated minimum flow valve to open. The logic will close the minimum flow valve once the closure setpoint is exceeded. The LPCI minimum flow valves are time delayed such that the valves will not open for 10 seconds after the switches detect low flow. This time delay is acceptable because it is provided to limit reactor vessel inventory loss during the startup of the RHR shutdown cooling mode. The proposed allowable values for the CS system would be ≥ 319.0 pounds per square inch differential (psid) and ≤ 351.0 psid. The proposed allowable values for the LPCI system would be ≥ 299.0 psid and ≤ 331.0 psid. For both systems, there would be one required instrument channel per pump. All values are the same as they are currently in PBAPS TS Table 3.3.5.1-1 when the instruments are required to be operable in Modes 4 and 5.

For the Table 3.3.5.4-1, Function 3.a, RHR System Isolation, Reactor Vessel Water Level - Low, Level 3, the function is only required to be operable when automatic isolation of the associated penetration flow path is credited in the drain time calculation. The number of required instrument channels is two, which retains the requirement that the two instrument channels must be associated with the same trip system. Each trip system isolates one of two redundant isolation valves, and only one trip system is required to be operable to ensure that automatic isolation of one of the two isolation valves will occur on low reactor vessel water level indication. The allowable value was chosen to be the same as the Primary Containment Isolation Instrumentation Reactor Vessel Water Level - Low, Level 3 allowable value from LCO 3.3.6.1.

In a request for additional information dated August 2, 2017 (Reference 9), the NRC staff asked the licensee for information concerning the RHR System Isolation, Reactor Vessel Water Level - Low, Level 3 function. The staff was concerned that an existing note at the bottom of PBAPS TS Table 3.3.6.1-1 apparently indicated that only one channel per trip system may be needed. Additionally, the staff identified that the proposed Table 3.3.5.4-1 language did not contain the words "In one trip system." On page 6 of Attachment 1 of the response dated August 11, 2017 (Reference 2), the licensee explained operation of the RHR System Isolation, Reactor Vessel Water Level - Low, Level 3, function, and stated, in part, that:

> TSTF-542 excludes RHR SDC [shutdown cooling] penetration flow paths from the DRAIN TIME calculation if either the flow path can be isolated by the automatic SDC isolation or by maintaining the system in an intact closed loop configuration (i.e., when system integrity is maintained). The new TSTF-542 requirements for use of the isolation function to exclude RHR SDC penetration flow paths from the

DRAIN TIME calculation conflict with the previous Table 3.3.6.1-1, Page 3 of 3 note. Therefore, the note is proposed for deletion.

The NRC staff agrees with this reasoning and agrees that the note may be removed. The licensee additionally explained that the suffix "in one trip system" was not added to the required channels as presented in the markup because although the PBAPS function performed is the same as that considered in TSTF-542, PBAPS TS Instrumentation Section 3.3 tables do not use that verbiage. Therefore, Exelon did not propose adding the language for the sake of remaining consistent with the existing TSs. The NRC staff accepts the licensee's reason for not adding the suffix "in one trip system."

Functions 1.c and 2.c, "Manual Initiation," are new for PBAPS. These functions take the place of the current automatic initiation functions. This variation is discussed further in Section 3.5.4 of this SE.

For the Table 3.3.5.4-1, Function 4.a, RWCU System Isolation, Reactor Vessel Water Level - Low, Level 3, the function is only required to be operable when automatic isolation of the associated penetration flow path is credited in the drain time calculation. The number of required channels is two, which retains the requirement that the two instrument channels must be associated with the same trip system. Only one trip system is required to be operable to ensure that automatic isolation of one of the two isolation valves will occur on low reactor vessel water level. The allowable value was chosen to be the same as the Reactor Vessel Water Level - Low, Level 3 allowable value in other PBAPS TSs (i.e., TS Tables 3.3.1.1-1, 3.3.6.1-1, and 3.3.6.2-1).

Similar to the discussion above for the RHR System Isolation function, the NRC staff identified that the proposed TS Table 3.3.5.4-1, "Required Channels per Function" column, did not contain the words "In one trip system" after the numeral 2 for the RWCU System Isolation, Reactor Vessel Water Level - Low, Level 3, function. On page 7 of Attachment 1 to Exelon's letter dated August 11, 2017 (Reference 2), the licensee explained how the PBAPS TS Instrumentation Section 3.3 tables do not use that verbiage. Therefore, Exelon did not propose adding the language for the sake of consistency with the existing TSs. The NRC staff agrees with the licensee's reason.

3.2.5 Conclusion for TS 3.3.5.4

Based on the above evaluation, the NRC staff has determined that proposed LCO 3.3.5.4 and Table 3.3.5.4-1 satisfy the requirements of 10 CFR 50.36(c)(2)(i) since they specify the lowest functional capability or performance levels of equipment required for safe operation of the facility. There is reasonable assurance that the required actions to be taken when the LCO is not met can be conducted without endangering the health and safety of the public.

In addition, the NRC staff has determined that the proposed SRs of LCO 3.3.5.4, as described above, satisfy 10 CFR 50.36(c)(3) by providing the specific SRs relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained. Accordingly, the NRC staff concludes that proposed TS 3.3.5.4 is acceptable.

3.3 TS 3.5.4, "Reactor Pressure Vessel (RPV) Water Inventory Control"

3.3.1 Proposed TS 3.5.4 LCO and Applicability

The NRC staff reviewed the water sources that would be applicable to the proposed TS 3.5.4, as discussed below.

The LCO for proposed TS 3.5.4, "Reactor Pressure Vessel (RPV) Water Inventory Control," contains two parts. The first part states, "DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours." The second part states, "One low pressure ECCS injection/spray subsystem shall be OPERABLE." The proposed applicability for TS 3.5.4 is Modes 4 and 5. Both of these conditions must be met during operational Modes 4 and 5 to meet the proposed LCO.

The PBAPS ECCS is described in UFSAR Section 6.0, "Core Standby Cooling Systems." As shown in UFSAR Table 6.3-1, two of these systems (CS and LPCI) are designed to operate in low pressure plant conditions (289 psig to 0 psig for CS and 295 psig to 0 psig for LPCI).

One low pressure ECCS injection/spray subsystem would consist of either one CS subsystem or one LPCI subsystem. A CS subsystem consists of two motor-driven pumps, piping, and valves to transfer water from the suppression pool to the RPV. At PBAPS, LPCI is one mode of operation of the RHR system. A LPCI subsystem consists of two motor-driven pumps, piping, and valves to transfer water from the suppression pool to the RPV.

The ECCS pumps are high-capacity pumps with flow rates of thousands of gallons per minute (gpm). Most RPV penetration flow paths would have a drain rate on the order of tens or hundreds of gpm. The manual initiation/start of an ECCS pump would provide the necessary water source to counter these expected drain rates. The LPCI subsystem is to be considered operable during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable. Decay heat removal in Modes 4 and 5 is not affected by the proposed change. The requirements on the number of RHR shutdown cooling subsystems that must be operable and in operation to ensure adequate decay heat removal from the core are unchanged. These requirements for PBAPS, Units 2 and 3, can be found in TS 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System – Cold Shutdown," TS 3.9.7, "Residual Heat Removal (RHR) – High Water Level," and TS 3.9.8, "Residual Heat Removal (RHR) – Low Water Level." Based on these considerations, the NRC staff finds the water sources provide reasonable assurance that the lowest functional capability required for safe operation is maintained and supports the safety limit.

The NRC staff reviewed the proposed TS 3.5.4, focusing on ensuring the fuel remains covered with water and the changes made compared to the current TSs. The proposed TS 3.5.4 contains Conditions A through E based on either required ECCS injection/spray subsystem operability or drain time. The current TS LCO states that two ECCS injection/spray subsystems shall be operable, whereas the proposed LCO 3.5.4 states that only one ECCS injection/spray subsystem shall be operable. This change is reflected in Condition A. Changing from two ECCS injection/spray subsystems to one ECCS injection/spray subsystem is satisfactory because this level of redundancy is not required. With one ECCS injection/spray subsystem and non-safety related injection sources, defense-in-depth will be maintained. The defense-in-depth measure is consistent with other events considered during shutdown with no additional single failure assumed. The drain time controls, in addition to the required ECCS injection/spray subsystem, provide reasonable assurance that an unexpected draining event can be prevented or mitigated before the RPV water level would be lowered to the TAF.

The proposed Mode 4 and 5 applicability of TS 3.5.4 is appropriate, given that the TS requirements on ECCS in Modes 1, 2, and 3 will be unaffected. Based on the evaluation above, the NRC staff has determined that LCO 3.5.4 correctly specifies the lowest functional capability or performance levels of equipment required for safe operation of the facility to protect Safety Limit 2.1.1.3.

3.3.2 Proposed TS 3.5.4 Actions

The proposed Condition A states that if the required ECCS injection/spray subsystem is inoperable, it is to be restored to operable status within 4 hours. Proposed Condition B states that if Condition A is not met, a method of water injection capable of operating without offsite electrical power should be established immediately. The proposed Condition B provides adequate assurance of an available water source should Condition A not be met within the 4-hour completion time.

The proposed Condition C states that for a drain time < 36 hours and ≥ 8 hours, verify secondary containment boundary is capable of being established in less than the drain time (Required Action C.1), and verify each secondary containment penetration flow path is capable of being isolated in less than drain time (Required Action C.2), and verify one standby gas treatment subsystem is capable of being placed in operation in less than the drain time (Required Action C.3). All three required actions have a completion time of 4 hours. The proposed Condition C provides adequate protection if the drain time is < 36 hours and ≥ 8 hours because of the ability to establish secondary containment, isolate additional flow paths, and have the standby gas treatment subsystem operable.

The proposed Condition D states that when drain time < 8 hours to immediately initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours (Required Action D.1), immediately initiate action to establish secondary containment boundary (Required Action D.2), immediately initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room (Required Action D.3), and immediately initiate action to verify one standby gas treatment subsystem is capable of being placed in operation (Required Action D.1). Additionally, there is a note stating that required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power, which is similar to the proposed Condition B. The current PBAPS TSs for Condition D (Required Action C.2 and associated Completion Time not met) is similar to the proposed Condition D. The proposed Condition D provides adequate protection should the drain time be < 8 hours because of the ability to establish additional method of water injection (without electric power), establish secondary containment, isolate additional flow paths, and have the standby gas treatment subsystem capable of being placed in operation.

The proposed Condition E states that when the required action and associated completion time of Conditions C or D is not met, or the drain time is < 1 hour, then initiate action to restore drain time to ≥ 36 hours immediately. The proposed Condition E is new, as it is not present in the current TSs. The proposed Condition E is acceptable, as it provides the necessary step to restore the drain time to ≥ 36 hours should the other conditions not be met, or if the drain time is < 1 hour.

The NRC staff reviewed the proposed new TS 3.5.4 and had determined it is acceptable as a substitute for existing TS 3.5.2 based on the actions taken to mitigate the water level reaching the TAF with the water sources available and maintaining drain time ≥ 36 hours. There is reasonable assurance that the proposed required actions to be taken when the LCO is not met are acceptable remedial actions if taken within the specified completion times.

3.3.3 Proposed TS 3.5.4 Surveillance Requirements

The proposed TS 3.5.4 SRs include verification of drain time, verification of water levels/volumes that support ECCS injection/spray subsystems, verification of water-filled pipes to preclude water hammer events, verification of correct valve positions for the required ECCS injection/spray subsystem, operation of the ECCS injection/spray systems in the recirculation line, verification of valves credited for automatic isolation actuated to the isolation position, and verification that the required ECCS injection/spray subsystem can be manually operated. Each of the SRs are described below.

3.3.3.1 Surveillance Requirement 3.5.4.1

The drain time would be determined or calculated and required to be verified to be ≥ 36 hours in accordance with the Surveillance Frequency Control Program. This is a new surveillance and would verify that the LCO for drain time is met. Numerous indications of changes in RPV level are available to the operator. The period of 36 hours is considered reasonable to identify and initiate action to mitigate draining of reactor coolant (normally three operator shifts). Changes in RPV level would necessitate recalculation of the drain time.

3.3.3.2 Surveillance Requirement 3.5.4.2

Suppression pool water level ≥ 11 feet for a required LPCI subsystem would be required to be verified to ensure pump net positive suction head and vortex prevention are available for the LPCI injection subsystem required to be operable by the LCO. This SR is retained from the existing SR 3.5.2.1 and would be required to be performed in accordance with the Surveillance Frequency Control Program.

3.3.3.3 Surveillance Requirement 3.5.4.3

Suppression pool water level ≥ 11 feet or condensate storage tank level ≥ 17.3 feet for a required CS subsystem would be required to be verified to ensure pump net positive suction head and vortex prevention is available for the CS subsystem required to be operable by the LCO. This SR is retained from the existing SR 3.5.2.2 and would be required to be performed in accordance with the Surveillance Frequency Control Program.

3.3.3.4 Surveillance Requirement 3.5.4.4

The SR to verify the ECCS injection/spray subsystem piping is sufficiently filled with water would be retained from the existing SR 3.5.2.3. The proposed change would update the SR to reflect the change to LCO 3.5.4, which would require, in part, one low pressure ECCS injection/spray subsystem to be operable instead of two. The wording would change from "Verify, for each required ECCS..." to "Verify, for the required ECCS..." This change clarifies the requirement to maintain consistency with the proposed LCO. This SR would be required to be performed in accordance with the Surveillance Frequency Control Program.

3.3.3.5 Surveillance Requirement 3.5.4.5

The SR to verify the correct alignment for manual, power-operated, and automatic valves in the required ECCS subsystem flow path would be retained from the existing SR 3.5.2.4. Similar to the proposed SR 3.5.4.4, the proposed SR wording, "Verify for the required ECCS injection/spray subsystem each manual..." would replace "Verify each required ECCS injection/spray subsystem manual..." SR 3.5.4.5 would provide assurance that the proper flow

path will be available for ECCS operation to support TS 3.5.4. This SR would not apply to valves that are locked, sealed, or otherwise secured in position, since these valves would be verified to be in the correct position prior to locking, sealing, or securing. Additionally, a note modifies the SR so that it would not have to be met for system vent flow paths open under administrative control. This PBAPS note is retained from SR 3.5.2.4. This SR would be required to be performed in accordance with the Surveillance Frequency Control Program.

3.3.3.6 Surveillance Requirement 3.5.4.6

The required ECCS injection/spray subsystem would be required to be operated through its recirculation line for ≥ 10 minutes in accordance with the Surveillance Frequency Control Program. This would demonstrate that the subsystem is capable for operation to support TS 3.5.4, RPV WIC, and is retained from SR 3.5.2.5.

3.3.3.7 Surveillance Requirement 3.5.4.7

Verification that each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated RPV water level isolation signal would be required to prevent RPV water inventory from dropping below the TAF, should an unexpected draining event occur. This SR would be required to be performed in accordance with the Surveillance Frequency Control Program and is retained from SR 3.5.2.6.

3.3.3.8 Surveillance Requirement 3.5.4.8

This SR would state, "Verify the required ECCS injection/spray subsystem can be manually actuated." This SR is new for PBAPS and it would demonstrate that the required CS or LPCI subsystem could be manually initiated by control board hand switches to provide additional RPV water inventory, if needed. By operating the associated pump and valve switches that operate all active components, water flow can be demonstrated by recirculation through the test line. Vessel injection/spray may be excluded from the SR per a note. Previously, PBAPS relied only on automatic initiation of ECCS subsystems and manual actuation that, while possible, was not discussed in the TSs. Section 3.6.4 of this SE contains amplifying information on the use of the hand switches to initiate subsystem function. As further discussed in Section 3.3.1 of this SE, manual initiation is sufficient to counter expected drain rates within the drain time. This surveillance would be required to be performed in accordance with the Surveillance Frequency Control Program.

3.3.3.9 Conclusion for TS 3.5.4 Surveillance Requirements

The NRC staff reviewed the proposed SRs associated with the new LCO 3.5.4 and determined that they are appropriate for ensuring the operability of the equipment and instrumentation specified in LCO 3.5.4.

3.3.4 Conclusion for TS 3.5.4

Based on the above evaluation, the NRC staff has determined that proposed LCO 3.5.4 satisfies the requirements of 10 CFR 50.36(c)(2)(i) since it specifies the lowest functional capability or performance levels of equipment required for safe operation of the facility. There is reasonable assurance that the required actions to be taken when the LCO is not met can be conducted without endangering the health and safety of the public.

In addition, the NRC staff has determined that the proposed SRs of LCO 3.5.4, as described above, satisfy 10 CFR 50.36(c)(3) by providing the specific SRs relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained.

Accordingly, the NRC staff concludes that proposed TS 3.5.4 is acceptable.

3.4 Proposed Changes to TS Table 3.3.5.1-1

LCO 3.3.5.1 currently states, "The ECCS instrumentation for each Function in Table 3.3.5.1-1, shall be OPERABLE," with the applicability as stated in the table. Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation," currently contains requirements for operability of certain functions during Modes 4 and 5 when the associated ECCS subsystem(s) are required to be operable per LCO 3.5.2, "ECCS – Shutdown." For the following functions in Table 3.3.5.1-1, Mode 4 and 5 requirements would be deleted:

1. Core Spray System
   a. Reactor Vessel Water Level – Low Low Low (Level 1)
   c. Reactor Pressure – Low (Injection Permissive)
   d. Core Spray Pump Discharge Flow – Low (Bypass)
   e. Core Spray Pump Start – Time Delay Relay (loss of offsite power)
   f. Core Spray Pump Start – Time Delay Relay (offsite power available)

2. Low Pressure Coolant Injection (LPCI) System
   a. Reactor Vessel Water Level – Low Low Low (Level 1)
   c. Reactor Pressure –Low (Injection Permissive)
   f. Low Pressure Coolant Injection Pump Start – Time Delay Relay (offsite power available)
   g. Low Pressure Coolant Injection Pump Discharge Flow – Low (Bypass)

Conforming changes were proposed for the actions table of LCO 3.3.5.1 as well.

The Mode 4 and 5 requirements for the nine functions above would be deleted to support consolidation of RPV WIC instrumentation requirements into the proposed TS 3.3.5.4. The requirements for Functions 1.c, 1.d, 2.c, and 2.g would be moved to the proposed TS Table 3.3.5.4-1, as discussed in Section 3.2.4 of this SE.

For the other TS Table 3.3.5.1-1 Functions (i.e., 1.a, 1.e, 1.f, 2.a, and 2.f), the Mode 4 and 5 requirements would not be retained. The PBAPS TSs currently require automatic initiation of ECCS pumps on low reactor vessel water level. Functions 1.a and 2.a provide signals that automatically initiate the associated CS or LPCI pumps. Functions 1.e, 1.f, and 2.f are time delay relay functions that prevent overloading of the power source during an automatic initiation. However, in Modes 4 and 5, automatic initiation of ECCS pumps could result in overfilling the refueling cavity or water flowing into the main steam lines, potentially damaging plant equipment. The NRC staff finds acceptable the deletion of TS Table 3.3.5.1-1, Functions 1.a, 1.e, 1.f, 2.a, and 2.f, because manual ECCS initiation is preferred over automatic initiation during Modes 4 and 5, and the operator would be able to use other more appropriately sized pumps if needed to mitigate a draining event.

3.5 Variations

The licensee proposed the following five variations from the TS changes described in TSTF-542 or the applicable parts of the NRC staff's SE for TSTF-542. The NRC staff evaluated each variation below.

3.5.1 Variation 1, TS Numbering

Exelon proposed to change the number for the revised TS 3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control," as shown in TSTF-542 to TS 3.5.4. The instrumentation section TS would be 3.3.5.4 for PBAPS, Units 2 and 3, for consistency purposes. Because of this proposed change in the application of TSTF-542, Exelon would not revise existing PBAPS TS 3.3.5.2. Additionally, Exelon proposed to delete TS 3.5.2 for PBAPS, Units 2 and 3, in lieu of modifying it as marked-up in TSTF-542. The TSs Table of Contents and TS Section 3.3 would add TS 3.3.5.3, "Not Used," as a placeholder in order to accommodate the addition of TS 3.3.5.4, "RPV Water Inventory Control."

The NRC staff reviewed the proposed variation and determined that the revised text is in accordance with TSTF-542. The NRC staff determined that this variation is editorial in nature and does not affect the applicability of TSTF-542, Revision 2, to the PBAPS, Units 2 and 3, TSs. Therefore, this variation is acceptable.

3.5.2 Variation 2, Note (a) of Table 3.3.5.1-1 Shown as Deleted

Exelon did not propose to revise PBAPS TS 3.3.5.1, Table 3.3.5.1-1, note (b), to '(a)' as marked-up in TSTF-542. Instead, note (b) is proposed to remain as note (b).

The NRC staff reviewed this variation and determined that it is editorial in nature. Therefore, this variation does not affect the applicability of TSTF-542, Revision 2, to the PBAPS, Units 2 and 3, TSs and is acceptable.

3.5.3 Variation 3, PBAPS RWCU System Isolation – Reactor Vessel Water Level – Low

The PBAPS RWCU initiates on Reactor Vessel Water Level – Low (Level 3), not Reactor Vessel Water Level – Low, Low (Level 2), as stated in TSTF-542. This is an existing design difference for PBAPS, Units 2 and 3. On page 2 of Attachment 1 to the application dated January 30, 2017 (Reference 1), the licensee states:

> PBAPS design for RWCU isolation is on Reactor Vessel Water Level – Low (Level 3), not Reactor Vessel Water Level – Low, Low (Level 2). Therefore, it is appropriate to revise PBAPS TS Table 3.3.5.4-1 to reflect this design difference for PBAPS.

The NRC staff agrees with the licensee's reasoning for the variation. The staff has determined that this variation is administrative in nature and does not affect the applicability of TSTF-542, Revision 2, to the PBAPS, Units 2 and 3, TSs. Therefore, this variation is acceptable.

3.5.4 Variation 4, PBAPS Manual Initiation via Hand Switch

Exelon proposed to revise PBAPS SR 3.5.4.8 and TS Bases 3.3.5.4 to clarify that, for manual initiations, PBAPS utilizes hand switches in lieu of push buttons.

In a request for additional information dated August 2, 2017 (Reference 9), the NRC staff asked the licensee for further clarification on this change. The licensee explained in its response dated August 11, 2017 (Reference 2), that the ECCS hand switches only start and stop the associated ECCS pumps. Operators will manually align the ECCS train (valves) from their associated remote control switches located in the main control room or locally for injection, as required, for making up water to the reactor vessel.

The licensee further explained that ECCS push buttons use the ECCS auto initiation logic such that use of the push button would automatically actuate multiple ECCS pumps and that use of ECCS manual push buttons would exceed expected makeup requirements of most water inventory control leaks. The licensee added that, because of the restrictions on drain time, sufficient time would be available during an unexpected drain event to manually align the valves and start the pumps with hand switches to maintain RPV level above TAF.

Automatic initiation of an ECCS injection/spray subsystem may be undesirable because it could lead to overfilling the RPV cavity due to injection rates of thousands of gallons per minute and because a draining event is a slow evolution when compared to a design-basis LOCA assumed to occur at a significant power level. Accordingly, the NRC staff accepts the licensee's justification for the use of hand switches in lieu of push buttons at PBAPS. Therefore, Variation 4 is acceptable.

3.5.5 Variation 5, Proposed Clarification Note (c) when RHR in Decay Heat Removal Mode

Exelon proposed to add a note to the proposed TS Table 3.3.5.4-1 (RPV WIC Instrumentation) to clarify the intent of allowing credit for an operable LPCI subsystem when it is aligned and operating in the decay heat removal mode of RHR. Specifically, note "(c)" in TS Table 3.3.5.4-1 would read:

> Function not required to be OPERABLE while associated pump is operating in decay heat removal when minimum flow valve is closed and deactivated.

Exelon stated that this is appropriate since the associated RHR pump minimum flow valve (while operating in the decay heat removal mode) is closed and deactivated to prevent the inadvertent vessel drain down events. Because the minimum flow valve is closed and deactivated, the associated TS Table 3.3.5.4-1, Function 2.b, would not be required to be operable. Without the note, TS 3.3.5.4-1, Condition D, would require that the associated RHR pump be declared inoperable, which would be contrary to the intent of the LCO 3.5.4 note, which allows the LPCI subsystem to be operable when aligned for decay heat removal. The proposed LCO 3.5.4 note, similar to the current LCO 3.5.2 note, states:

> A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

The NRC staff agrees with the licensee's reasoning. Proposed TS Table 3.3.5.4-1, Function 2.b, contains LPCI pump discharge flow requirements for instruments designed to protect the LPCI pump from overheating when the pump is operating and the associated injection valve is not fully open. LPCI pumps perform the dual function of serving as decay heat removal pumps for normal shutdown cooling in Modes 4 and 5, as well as serving as a low head safety injection pump. PBAPS normally closes and removes power from the associated minimum flow valve after the pump is operating in decay heat removal mode to prevent inadvertent reactor vessel drain down to the suppression pool. Proposed TS Table 3.3.5.4-1, note (c), simply allows for this practice to continue, in agreement with the current LCO note for TS 3.5.2, and carried into new TS 3.5.4. If the pump was required to perform its injection function following or during use as a decay heat removal pump, the injection valves could be opened while still aligned for decay heat removal. Therefore, Variation 5 is acceptable.

3.6 OPDRVS and Related Requirements

Sections 2.2.2.4 and 2.2.4 of this SE list the PBAPS TSs where the licensee proposed deletion of phrases used for controls during OPDRVs from applicability, condition descriptions, required actions, and table footnotes. The proposed changes remove the following from the current PBAPS TSs: the term "operations with a potential for draining the reactor vessel"; the acronym "OPDRVs"; and related concepts such as "RHR Shutdown Cooling System integrity maintained" and required actions to "suspend OPDRVs." TS OPDRV requirements have existed for many years, but there is no clearly stated description of the event that is being prevented or mitigated. However, from the existing TS requirements, one can infer the postulated event that forms the basis of the existing TSs.

The current PBAPS TSs contain instrumentation requirements related to OPDRVs in four TS: three of them, which have the OPDRV phrases described above, and TS 3.3.5.1. The proposed TS 3.3.5.4 consolidates the instrumentation requirements into a single location to simplify the presentation and provide requirements consistent with TS 3.5.4. The remaining TSs with OPDRV requirements are for containment, containment isolation valves, standby gas treatment system, control room habitability, temperature control, and electrical sources. Each of these system's requirements during OPDRVs were proposed for consolidation into new TS 3.5.4 for RPV WIC based on the appropriate plant conditions and calculated drain time.

The NRC staff has determined that deletion of OPDRV references, along with the corresponding editorial changes, are appropriate because the proposed TSs governing RPV WIC and the associated instrumentation, TSs 3.5.4 and 3.3.5.4, respectively, are a greatly clarified and simplified alternative set of controls for ensuring water level is maintained above the TAF.

3.7 TS 3.10, Special Operations and TSTF-484

The current PBAPS, Units 2 and 3, TS LCO 3.10.1, "Inservice Leak and Hydrostatic Testing Operation," allows performance of an inservice leak or hydrostatic test with the average reactor coolant temperature greater than 212 °F, while considering operational conditions to still be in Mode 4, provided certain secondary containment and standby gas treatment system LCOs are met.

TSTF-484, Revision 0, "Use of TS 3.10.1 for Scram Time Testing activities" (Agencywide Documents Access and Management (ADAMS) Accession No. ML052930102), revised LCO 3.10.1 to expand its scope to include operations where temperature exceeds 212 °F: (1) as a consequence of maintaining adequate reactor pressure for an inservice leak or hydrostatic test, or (2) as a consequence of maintaining adequate reactor pressure for control rod scram time testing initiated in conjunction with an inservice leak or hydrostatic test.

By PBAPS Amendment Nos. 307 and 311 (Units 2 and 3, respectively) dated May 9, 2016 (Reference 10), the NRC approved changes to PBAPS TS LCO 3.10.1 in accordance with TSTF-484. The NRC staff's SE for these amendments stated, in part, that: "two low-pressure emergency core cooling systems (ECCS) injection/spray subsystems are required to be operable in Mode 4 by PBAPS TS LCO 3.5.2, "ECCS–Shutdown."" However, per the proposed new LCO 3.5.4, which would replace the requirements of LCO 3.5.2 for the TSTF-542 LAR, only one low pressure ECCS injection/spray subsystem would be required to be operable in Mode 4.

The NRC staff determined that changing from two ECCS injection/spray subsystems to one ECCS injection/spray subsystem is satisfactory because, as stated previously in SE Section 3.3.1, this level of redundancy is not required, even during application of LCO 3.10.1. When the licensee applies LCO 3.10.1 at the end of a refueling outage, an exceptionally large volume of

water is present in the reactor vessel since the vessel is nearly water solid. There is much more water in the reactor vessel than that present during power operation and more than that present during most of an outage. Small leaks from the reactor coolant system would be detected by inspections before a significant loss of inventory occurred. In the event of a large reactor coolant system leak, the RPV would rapidly depressurize and allow operation of the low pressure ECCS. At low decay heat values and near Mode 4 conditions, the stored energy in the reactor core will be very low. Therefore, the reasoning that operators would have time to respond with manual actions to start any ECCS pumps and properly align valves for injection from the control room remains valid.

As stated in Section 3.3.1 of this SE, with one ECCS injection/spray subsystem and non-safety related injection sources, defense-in-depth will be maintained. The defense-in-depth measure is consistent with other events considered during shutdown with no additional single failure assumed. The drain time controls, in addition to the required ECCS injection/spray subsystem, provide reasonable assurance that an unexpected draining event can be prevented or mitigated before the RPV water level would be lowered to the TAF.

After consideration of the reasoning presented in this SE, and after additional review of PBAPS Amendment Nos. 307 and 311 (Reference 10), the NRC staff determined that the LCO 3.3.5.4.1 and 3.5.4 requirements, adopted consistent with TSTF-542, are satisfactory and will, therefore, be acceptable even during application of LCO 3.10.1.

3.8 Technical Evaluation Conclusion

Safety Limit 2.1.1.3 requires that reactor vessel water level shall be greater than the top of active irradiated fuel. Maintaining water level above the TAF ensures that the fuel cladding fission product barrier is protected during shutdown conditions. The proposed changes to the TSs establish new LCO requirements that address the preventive and mitigative equipment and associated instrumentation that provide an alternative means to support Safety Limit 2.1.1.3 during Mode 4 and 5 operations.

During operation in Modes 4 and 5, the reactor coolant system is at a low operating temperature (≤212 °F) and is depressurized. An event involving a loss of inventory while in the shutdown condition is judged to not exceed the capacity of one ECCS subsystem. The accident that is postulated to occur during shutdown conditions – the fuel handling accident, does not involve a loss of inventory. The equipment and instrumentation associated with the RPV WIC TSs do not provide detection or mitigation related to this design-basis accident.

The proposed TS LCO 3.5.4 contains requirements for operability of one ECCS subsystem, along with requirements to maintain a sufficiently long drain time, so that plant operators would have time to diagnose and mitigate an unplanned draining event. The NRC staff has determined that LCOs 3.5.4 and 3.3.5.4 provide for the lowest functional capability or performance levels of equipment required for safe operation of the facility, and therefore, meet the LCO requirements of 10 CFR 50.36(c)(2)(i).

Additionally, the proposed TS LCOs 3.5.4 and 3.3.5.4 provide remedial actions to be taken in the event the LCO is not satisfied, and therefore, meets the requirements of 10 CFR 50.36(c)(2)(i). The NRC staff has determined that the remedial actions provide reasonable assurance that an unexpected draining event can be prevented or mitigated before the RPV water level would be lowered to the TAF.

The licensee proposed to delete phrases used for controls during OPDRVs from TS applicabilities, condition descriptions, required actions, and table footnotes. The NRC staff has

reviewed the proposed changes and determined that deletion of OPDRV references, along with the corresponding editorial changes, are appropriate, because the proposed TSs governing RPV WIC and the associated instrumentation, TSs 3.5.4 and 3.3.5.4, respectively, are a greatly clarified and simplified alternative set of controls for ensuring water level is maintained above the TAF.

The NRC staff reviewed the SRs associated with the new LCOs 3.5.4 and 3.3.5.4. The NRC staff has determined that the proposed TS 3.5.4 SRs are acceptable since they provide assurance that: (1) the drain time requirements will be met, (2) water inventory is available for ECCS injection/spray subsystem RPV injection and pump performance, (3) the ECCS injection/spray subsystem is adequately filled, (4) the subsystems are properly aligned to support RPV injection, (5) pumps will provide adequate flow to support drain time and RPV injection, (6) valves will actuate to the proper position on an automatic isolation signal, and (7) the ECCS injection/spray subsystems can be manually operated to inject. The NRC staff finds that the SRs proposed for TS 3.3.5.4 are sufficient and adequate because they are essential to ensure that the functions are capable of performing their specified safety functions in support of TS 3.5.4 and the protection from a potential drain down of the RPV in Modes 4 and 5. Therefore, the NRC staff concludes that the proposed SRs satisfy 10 CFR 50.36(c)(3).

The NRC staff evaluated the proposed changes against PBAPS's applicable GDC listed in Section 2.3.2 of this SE. The NRC staff has determined that the proposed changes for Mode 4 and 5 operations related to the new drain time definition and the removal of OPDRV references, are consistent with the GDC in that the PBAPS design requirements are maintained for instrumentation, reactor coolant leakage detection, reactor coolant pressure boundary, and reactor coolant makeup.

The regulation at 10 CFR 50.36(a)(1) states that a summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the TSs. In accordance with this requirement, the licensee provided TS Bases changes in Attachment 3 of the application dated January 30, 2017. The NRC staff has concluded that the TS Bases changes provided describe the basis for the affected TSs and follow the Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors (July 22, 1993; 58 FR 39132).

Additionally, the proposed TS changes were reviewed for technical clarity and consistency with the existing PBAPS requirements for customary terminology and formatting. The NRC staff found that the proposed changes were consistent with TSTF-542 and Chapter 16 of NUREG-0800, Revision 3 (Reference 6).

Based on the preceding evaluation, the NRC staff concludes that the proposed LAR is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments on October 24, 2017. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change SRs. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (March 28, 2017; 82 FR 15382). Accordingly, the amendments meet 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 amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. Letter from Exelon to NRC, "Peach Bottom Atomic Power Station, Units 2 and 3, Application to Revise Technical Specifications to Adopt TSTF-542, 'Reactor Pressure Vessel Water Inventory Control,' Revision 2," dated January 30, 2017 (ADAMS Accession No. ML17030A302).

2. Letter from Exelon to NRC, "Peach Bottom Atomic Power Station, Units 2 and 3, Response to Request for Additional Information, Application to Revise Technical Specifications to Adopt TSTF-542, 'Reactor Pressure Vessel Water Inventory Control,' Revision 2," dated August 11, 2017 (ADAMS Accession No. ML17223A626).

3. Letter from Exelon to NRC, "Peach Bottom Atomic Power Station, Units 2 and 3, Supplemental Response Concerning License Amendment Request to Revise Technical Specifications to Adopt TSTF-542, 'Reactor Pressure Vessel Water Inventory Control,' Revision 2," dated September 8, 2017 (ADAMS Accession No. ML17251A855).

4. Technical Specifications Task Force Traveler TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control," dated March 14, 2016 (ADAMS Accession No. ML16074A448).

5. Letter from NRC to Technical Specifications Task Force, "Final Safety Evaluation of Technical Specifications Task Force Traveler TSTF-542, Revision 2, 'Reactor Pressure Vessel Water Inventory Control'" (TAC No. MF3487)," dated December 20, 2016 (ADAMS Accession No. ML16343B008).

6. NUREG-0800, Revision 3, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Chapter 16, "Technical Specifications," dated March 2010 (ADAMS Accession No. ML100351425).

7. NUREG-1433, Revision 4.0, "Standard Technical Specifications - General Electric BWR/4 Plants," dated April 2012 (ADAMS Accession Nos. ML12104A192 and ML12104A193).

8. NRC SECY-92-223, "Resolution of Deviations Identified During the Systematic Evaluation Program," dated September 18, 1992 (ADAMS Accession No. ML003763736).

9. E-mail from NRC to Exelon, "Peach Bottom Units 2 and 3 - Request for Additional Information - TSTF-542 Amendment Request (CACs MF9138 and MF9139)," dated August 2, 2017 (ADAMS Accession No. ML17214A616).

10. Letter from NRC to Exelon, "Peach Bottom Atomic Power, Units 2 and 3 - Issuance of Amendments Re: Inservice Leak and Hydrostatic Testing Operation (CAC Nos. MF7208 and MF7209)," dated May 9, 2016 (ADAMS Accession No. ML16084A968).

11. Letter from Exelon to NRC, "Peach Bottom Atomic Power Station, Units 2 and 3, Supplemental Response Concerning License Amendment Request to Revise Technical Specifications to Adopt TSTF-542, 'Reactor Pressure Vessel Water Inventory Control,' Revision 2," dated December 20, 2017 (ADAMS Accession No. ML17354A381).

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Date: December 27, 2017

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 – ISSUANCE OF AMENDMENTS RE: REVISE TECHNICAL SPECIFICATIONS TO ADOPT TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER TSTF-542, REVISION 2, "REACTOR PRESSURE VESSEL WATER INVENTORY CONTROL" (CAC NOS. MF9138 AND MF9139; EPID L-2017-LLA-0174) DATED DECEMBER 27, 2017

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