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

October 15, 2018

Mr. Bryan C. Hanson
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer
Exelon Nuclear
LaSalle County Station
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: LASALLE COUNTY STATION, UNITS 1 AND 2 – ISSUANCE OF AMENDMENTS TO RENEWED FACILITY OPERATING LICENSES RE: APPLICATION TO REVISE TECHNICAL SPECIFICATIONS TO ADOPT TSTF-542, "REACTOR PRESSURE VESSEL WATER INVENTORY CONTROL" (EPID L-2017-LLA-0415)

Dear Mr. Hanson:

The U.S. Nuclear Regulatory Commission (NRC or Commission) has issued the enclosed Amendment No. 230 to Renewed Facility Operating License No. NPF-11 and Amendment No. 216 to Renewed Facility Operating License No. NPF-18 for the LaSalle County Station (LSCS), Units 1 and 2, respectively. The amendments revise the relevant portions of the technical specification and license pages in response to your application dated December 13, 2017, as supplemented by letter dated June 18, 2018.

The amendments revised the LSCS technical specifications to adopt Technical Specification Task Force (TSTF)-542, "Reactor Pressure Vessel Water Inventory Control."

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

Sincerely,

BKVaidya

Bhalchandra K. Vaidya, Project Manager
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-373 and 50-374

Enclosures:
1. Amendment No. 230 to NPF-11
2. Amendment No. 216 to NPF-18
3. Safety Evaluation

cc: Listserv

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

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-373

LASALLE COUNTY STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 230
Renewed License No. NPF-11

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

   A. The application for amendment filed by the Exelon Generation Company, LLC (the licensee), dated December 13, 2017, as supplemented by letter dated June 18, 2018, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;

   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 the Renewed Facility Operating License No. NPF-11 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised Through Amendment No. 230, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented for LSCS, Units 1 and 2 prior to initial entry into Mode 4 during the LSCS Unit 2 refueling outage in 2019 (i.e., L2R17), which is currently scheduled to occur in February 2019.

FOR THE NUCLEAR REGULATORY COMMISSION

David J. Wrona, Chief
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Date of Issuance: October 15, 2018

Attachment:
Revised License and Technical
Specification Pages

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

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-374

LASALLE COUNTY STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 216
Renewed License No. NPF-18

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

   A. The application for amendment filed by the Exelon Generation Company, LLC (the licensee), dated December 13, 2017, as supplemented by letter dated June 18, 2018, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;

   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 the Renewed Facility Operating License No. NPF-18 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 216, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented for LSCS, Units 1 and 2 prior to initial entry into Mode 4 during the LSCS Unit 2 refueling outage in 2019 (i.e., L2R17), which is currently scheduled to occur in February 2019.

FOR THE NUCLEAR REGULATORY COMMISSION

David J. Wrona, Chief
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Date of Issuance: October 15, 2018

Attachment:
Revised License and Technical
Specification Pages

ATTACHMENT TO LICENSE AMENDMENT NOS. 230 AND 216

RENEWED FACILITY OPERATING LICENSE NOS. NPF-11 AND NPF-18

LASALLE COUNTY STATION, UNITS 1 AND 2

DOCKET NOS. 50-373 AND 50-374

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

REMOVE	INSERT
License	License
NPF-11, Page 3	NPF-11, Page 3
NPF-18, Page 3	NPF-18, Page 3
TSs	TSs
TOC Page i	TOC Page i
TOC Page ii	TOC Page ii
TS 1.1-2	TS 1.1-2
TS 1.1-3	TS 1.1-3
TS 1.1-4	TS 1.1-4
TS 1.1-5	TS 1.1-5
TS 1.1-6	TS 1.1-6
TS 1.1-7	TS 1.1-7
TS 1.1-8	TS 1.1-8
- - -	TS 1.1-9
TS 3.3.5.1.2	TS 3.3.5.1.2
TS 3.3.5.1-3	TS 3.3.5.1-3
TS 3.3.5.1-4	TS 3.3.5.1-4
TS 3.3.5.1-9	TS 3.3.5.1-9
TS 3.3.5.1-10	TS 3.3.5.1-10
TS 3.3.5.1-11	TS 3.3.5.1-11
TS 3.3.5.1-12	TS 3.3.5.1-12
TS 3.3.5.2-1	TS 3.3.5.2-1
TS 3.3.5.2-2	TS 3.3.5.2-2
TS 3.3.5.2-3	TS 3.3.5.2-3
TS 3.3.5.2-4	TS 3.3.5.2-4
- - -	TS 3.3.5.3-1
- - -	TS 3.3.5.3-2
- - -	TS 3.3.5.3-3
- - -	TS 3.3.5.3-4
TS 3.3.6.1-9	TS 3.3.6.1-9
TS 3.3.6.2-4	TS 3.3.6.2-4
TS 3.3.7.1-1	TS 3.3.7.1-1
TS 3.3.8.1-3	TS 3.3.8.1-3
TS 3.3.8.2-1	TS 3.3.8.2-1
TS 3.3.8.2-3	TS 3.3.8.2-3
TS 3.5.1-1	TS 3.5.1-1
TS 3.5.2-1	TS 3.5.2-1

REMOVE	INSERT
TS 3.5.2-2	TS 3.5.2-2
TS 3.5.2-3	TS 3.5.2-3
TS 3.5.2-4	TS 3.5.2-4
- - -	TS 3.5.2-5
TS 3.5.3-1	TS 3.5.3-1
TS 3.6.1.3-1	TS 3.6.1.3-1
TS 3.6.1.3-5	TS 3.6.1.3-5
TS 3.6.4.1-1	TS 3.6.4.1-1
TS 3.6.4.1-2	TS 3.6.4.1-2
TS 3.6.4.2-1	TS 3.6.4.2-1
TS 3.6.4.2-3	TS 3.6.4.2-3
TS 3.6.4.3-1	TS 3.6.4.3-1
TS 3.6.4.3-2	TS 3.6.4.3-2
TS 3.6.4.3-3	TS 3.6.4.3-3
TS 3.7.4-1	TS 3.7.4-1
TS 3.7.4-2	TS 3.7.4-2
TS 3.7.4-3	TS 3.7.4-3
TS 3.7.5-1	TS 3.7.5-1
TS 3.7.5-2	TS 3.7.5-2
TS 3.7.5-3	TS 3.7.5-3
TS 3.8.2-3	TS 3.8.2-3
TS 3.8.2-4	TS 3.8.2-4
TS 3.8.5-3	TS 3.8.5-3
TS 3.8.8-2	TS 3.8.8-2

(3) Exelon Generation Company, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

Am. 146 01/12/01

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

Am. 202 07/21/11

(5) Exelon Generation Company, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of LaSalle County Station, Units 1 and 2, and such Class B and Class C low-level radioactive waste as may be produced by the operation of Braidwood Station, Units 1 and 2, Byron Station, Units 1 and 2, and Clinton Power Station, Unit 1.

C. This renewed license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

Am. 198 09/16/10

(1) Maximum Power Level

The licensee is authorized to operate the facility at reactor core power levels not in excess of full power (3546 megawatts thermal).

Am. 230 10/15/18

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 230, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

Am. 194 08/28/09

(3) DELETED

Am. 194 08/28/09

(4) DELETED

Am. 194 08/28/09

(5) DELETED

(2) Pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

(3) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

Am. 189
07/21/11

(5) Exelon Generation Company, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of LaSalle County Station, Units 1 and 2, and such Class B and Class C low-level radioactive waste as may be produced by the operation of Braidwood Station, Units 1 and 2, Byron Station, Units 1 and 2, and Clinton Power Station, Unit 1.

C. This renewed license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

Am. 185
09/16/10

(1) Maximum Power Level

The licensee is authorized to operate the facility at reactor core power levels not in excess of full power (3546 megawatts thermal). Items in Attachment 1 shall be completed as specified. Attachment 1 is hereby incorporated into this license.

Am. 216
10/15/18

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 216, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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1.1 Definitions (continued)

CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be 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. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS: a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and b. Control rod movement, provided there are no fuel assemblies in the associated core cell. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites;" Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977; or ICRP

(continued)

1.1 Definitions

DOSE EQUIVALENT I-131 (continued)	30, Supplement to Part 1, pages 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity."
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

(continued)

1.1 Definitions

DRAIN TIME (continued)	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 devices 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.
EMERGENCY CORE COOLING SYSTEM (ECCS) RESPONSE TIME	The ECCS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ECCS initiation setpoint at the channel sensor until the ECCS equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and method for verification have been previously reviewed and approved by the NRC.

(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. In lieu of measurement, response time may be verified for selected components provided that the components and method for verification have been previously reviewed and approved by the NRC.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
ISOLATION SYSTEM RESPONSE TIME	The ISOLATION SYSTEM RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation initiation setpoint at the channel sensor until the isolation valves travel to their required positions. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and method for verification have been previously reviewed and approved by the NRC.

(continued)

1.1 Definitions (continued)

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; and 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.
LOGIC SYSTEM FUNCTIONAL TEST	A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components required for OPERABILITY of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify OPERABILITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.

(continued)

1.1 Definitions (continued)

MINIMUM CRITICAL POWER RATIO (MCPR)	The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.
MODE	A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE—OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3546 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and method for verification have been previously reviewed and approved by the NRC.

(continued)

1.1 Definitions (continued)

SHUTDOWN MARGIN (SDM)	SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical throughout the operating cycle assuming that: a. The reactor is xenon free; b. The moderator temperature is $\geq$ 68°F, corresponding to the most reactive state; and c. All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn. With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TURBINE BYPASS SYSTEM RESPONSE TIME	The TURBINE BYPASS SYSTEM RESPONSE TIME shall be that time interval from when the turbine bypass control unit generates a turbine bypass valve flow signal until the turbine bypass valves travel to their required positions. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

Table 1.1-1 (page 1 of 1)
MODES

MODE	TITLE	REACTOR MODE SWITCH POSITION	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	Run	NA
2	Startup	Refuel[a] or Startup/Hot Standby	NA
3	Hot Shutdown[a]	Shutdown	> 200
4	Cold Shutdown[a]	Shutdown	≤ 200
5	Refueling[b]	Shutdown or Refuel	NA

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

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	B.1	--------NOTE-------- 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.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	AND		
	B.2	--------NOTE-------- Only applicable for Functions 3.a and 3.b. ----------	
		Declare High Pressure Core Spray (HPCS) System inoperable.	1 hour from discovery of loss of HPCS initiation capability
	AND		
	B.3	Place channel in trip.	24 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1 --------NOTE-------- Only applicable for Functions 1.c and 2.c. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	AND	
	C.2 Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1 --------NOTE-------- Only applicable for Functions 1.d, 1.e, 1.f, 1.g, 2.d, 2.e, and 2.f. ---------- Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	AND	
	D.2 --------NOTE-------- Only applicable for Functions 1.d and 2.d. ---------- Declare supported feature(s) inoperable.	24 hours from discovery of loss of initiation capability for feature(s) in one division
	AND	

(continued)

Table 3.3.5.1-1 (page 1 of 4)
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. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Vessel Water Level–Low Low Low, Level 1	1,2,3	2[a]	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 SR 3.3.5.1.6	≥ -147.0 inches
b. Drywell Pressure–High	1,2,3	2[a]	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 1.77 psig
c. LPCI Pump A Start–Time Delay Relay	1,2,3	1	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 5.5 seconds
d. Reactor Steam Dome Pressure–Low (Injection Permissive)	1,2,3	2	D	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 490 psig and ≤ 522 psig
e. LPCS Pump Discharge Flow–Low (Bypass)	1,2,3	1	D	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 1240 gpm and ≤ 1835 gpm
f. LPCI Pump A Discharge Flow–Low (Bypass)	1,2,3	1	D	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 1330 gpm and ≤ 2144 gpm
g. LPCS and LPCI A Injection Line Pressure–Low (Injection Permissive)	1,2,3	1 per valve	D	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 490 psig and ≤ 522 psig
h. Manual Initiation	1,2,3	1	C	SR 3.3.5.1.5	NA

(continued)

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

Table 3.3.5.1-1 (page 2 of 4)
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. LPCI B and LPCI C Subsystems					
a. Reactor Vessel Water Level–Low Low Low, Level 1	1,2,3	2[(a)]	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 SR 3.3.5.1.6	≥ -147.0 inches
b. Drywell Pressure–High	1,2,3	2[(a)]	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 1.77 psig
c. LPCI Pump B Start–Time Delay Relay	1,2,3	1	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 5.5 seconds
d. Reactor Steam Dome Pressure–Low (Injection Permissive)	1,2,3	2	D	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 490 psig and ≤ 522 psig
e. LPCI Pump B and LPCI Pump C Discharge Flow–Low (Bypass)	1,2,3	1 per pump	D	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 1330 gpm and ≤ 2144 gpm
f. LPCI B and LPCI C Injection Line Pressure–Low (Injection Permissive)	1,2,3	1 per valve	D	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 490 psig and ≤ 522 psig
g. Manual Initiation	1,2,3	1	C	SR 3.3.5.1.5	NA

(continued)

(a) Also required to initiate the associated DG.

Table 3.3.5.1-1 (page 3 of 4)
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
3. High Pressure Core Spray (HPCS) System					
a. Reactor Vessel Water Level–Low Low, Level 2	1,2,3	4[a]	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 SR 3.3.5.1.6	≥ -83 inches
b. Drywell Pressure–High	1,2,3	4[a]	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 1.77 psig
c. Reactor Vessel Water Level–High, Level 8	1,2,3	2	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	≤ 66.5 inches
d. HPCS Pump Discharge Pressure–High (Bypass)	1,2,3	1	D	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 113.2 psig
e. HPCS System Flow Rate–Low (Bypass)	1,2,3	1	D	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 1380 gpm and ≤ 2194 gpm
f. Manual Initiation	1,2,3	1	C	SR 3.3.5.1.5	NA
4. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level–Low Low Low, Level 1	1,2[b],3[b]	2	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -147.0 inches
b. Drywell Pressure–High	1,2[b],3[b]	2	E	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.77 psig
c. ADS Initiation Timer	1,2[b],3[b]	1	F	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 118 seconds

(continued)

(a) Also required to initiate the associated DG.

(b) With reactor steam dome pressure > 150 psig.

Table 3.3.5.1-1 (page 4 of 4)
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
4. ADS Trip System A (continued)					
d. Reactor Vessel Water Level–Low, Level 3 (Confirmatory)	1,2[b],3[b]	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 11.0 inches
e. LPCS Pump Discharge Pressure–High	1,2[b],3[b]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 131.2 psig and ≤ 271.0 psig
f. LPCI Pump A Discharge Pressure–High	1,2[b],3[b]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 105.0 psig and ≤ 128.6 psig
g. ADS Drywell Pressure Bypass Timer	1,2[b],3[b]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 598 seconds
h. Manual Initiation	1,2[b],3[b]	2	F	SR 3.3.5.1.5	NA
5. ADS Trip System B					
a. Reactor Vessel Water Level–Low Low Low, Level 1	1,2[b],3[b]	2	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -147.0 inches
b. Drywell Pressure–High	1,2[b],3[b]	2	E	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.77 psig
c. ADS Initiation Timer	1,2[b],3[b]	1	F	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 118 seconds
d. Reactor Vessel Water Level–Low, Level 3 (Confirmatory)	1,2[b],3[b]	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 11.0 inches
e. LPCI Pumps B & C Discharge Pressure–High	1,2[b],3[b]	2 per pump	F	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 105.0 psig and ≤ 128.6 psig
f. ADS Drywell Pressure Bypass Timer	1,2[b],3[b]	2	F	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 598 seconds
g. Manual Initiation	1,2[b],3[b]	2	F	SR 3.3.5.1.5	NA

(b) With reactor steam dome pressure > 150 psig.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.2 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	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 3.3.5.2-1.	C.1 Place channel in trip.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	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 ECCS injection/spray subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

----------NOTE----------
Refer to Table 3.3.5.2-1 to determine which SRs apply for each ECCS Function.

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

Table 3.3.5.2-1 (page 1 of 2)
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. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Steam Dome Pressure-Low (Injection Permissive)	4,5	1[(a)]	C	SR 3.3.5.2.2	≤ 522 psig
b. LPCS Pump Discharge Flow-Low (Bypass)	4,5	1 per pump[(a)]	D	SR 3.3.5.2.2	≥ 1240 gpm and ≤ 1835 gpm
c. LPCI Pump A Discharge Flow-Low (Bypass)	4,5	1 per pump[(a)]	D	SR 3.3.5.2.2	≥ 1330 gpm and ≤ 2144 gpm
d. LPCS and LPCI A Injection Line Pressure-Low (Injection Permissive)	4,5	1 per valve[(a)]	C	SR 3.3.5.2.2	≤ 522 psig
2. LPCI B and LPCI C Subsystems					
a. Reactor Steam Dome Pressure-Low (Injection Permissive)	4,5	1[(a)]	C	SR 3.3.5.2.2	≤ 522 psig
b. LPCI Pump B and LPCI Pump C Discharge Flow-Low (Bypass)	4,5	1 per pump[(a)]	D	SR 3.3.5.2.2	≥ 1330 gpm and ≤ 2144 gpm
c. LPCI B and LPCI C Injection Line Pressure-Low (Injection Permissive)	4,5	1 per valve[(a)]	C	SR 3.3.5.2.2	≤ 522 psig

(continued)

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "RPV Water Inventory Control."

Table 3.3.5.2-1 (page 2 of 2)
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
3. High Pressure Core Spray (HPCS) System					
a. HPCS Pump Discharge Pressure-High (Bypass)	4, 5	1[a]	D	SR 3.3.5.2.2	≥ 113.2 psig
b. HPCS System Flow Rate-Low (Bypass)	4, 5	1[a]	D	SR 3.3.5.2.2	≥ 1380 gpm and ≤ 2194 gpm
4. RHR Shutdown Cooling System Isolation					
a. Reactor Vessel Water Level-Low, Level 3	[b]	2 in one trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 11.0 inches
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level-Low Low, Level 2	[b]	2 in one trip system	B	SR 3.3.5.2.2	≥ -58.0 inches

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "RPV Water Inventory Control."

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

3.3 INSTRUMENTATION

3.3.5.3 Reactor Core Isolation Cooling (RCIC) System Instrumentation

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

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.3-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	B.1 Declare RCIC System inoperable. AND B.2 Place channel in trip.	1 hour from discovery of loss of RCIC initiation capability 24 hours

(continued)

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.5.3-1 to determine which SRs apply for each RCIC Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2 and 4; and (b) for up to 6 hours for Functions 1 and 3 provided the associated Function maintains RCIC initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.3.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5.3-1 (page 1 of 1)
Reactor Core Isolation Cooling System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level—Low Low, Level 2	4	B	SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.4	≥ -83 inches
2. Reactor Vessel Water Level—High, Level 8	2	C	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.4	≤ 66.5 inches
3. Condensate Storage Tank Level—Low	2	D	SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.4	≥ 713.6 ft
4. Manual Initiation	1	C	SR 3.3.5.3.4	NA

Table 3.3.6.1-1 (page 4 of 4)
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
4. RWCU System Isolation (continued)					
k. Reactor Vessel Water Level—Low Low, Level 2	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ -58.0 inches
l. Standby Liquid Control System Initiation	1,2,3	2(b)	I	SR 3.3.6.1.5	NA
m. Manual Initiation	1,2,3	1	G	SR 3.3.6.1.5	NA
5. RHR Shutdown Cooling System Isolation					
a. Reactor Vessel Water Level—Low, Level 3	3	2	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ 11.0 inches
b. Reactor Vessel Pressure—High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 143 psig
c. Manual Initiation	1,2,3	1	G	SR 3.3.6.1.5	NA

(b) Only inputs into one of two trip systems.

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

FUNCTION	APPLICABLE MODES AND OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level–Low Low, Level 2	1,2,3	2	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≥ -58.0 inches
2. Drywell Pressure–High	1,2,3	2	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 1.93 psig
3. Reactor Building Ventilation Exhaust Plenum Radiation–High	1,2,3,(a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 42.0 mR/hr
4. Fuel Pool Ventilation Exhaust Radiation–High	1,2,3,(a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 42.0 mR/hr
5. Manual Initiation	1,2,3,(a)	1	SR 3.3.6.2.4	NA

(a) During CORE ALTERATIONS, and during movement of irradiated fuel assemblies in the secondary containment.

3.3 INSTRUMENTATION

3.3.7.1 Control Room Area Filtration (CRAF) System Instrumentation

LCO 3.3.7.1 Two channels per trip system for the Control Room Air Intake Radiation—High Function shall be OPERABLE for each CRAF subsystem.

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 channels inoperable.	A.1 Declare associated CRAF subsystem inoperable.	1 hour from discovery of loss of CRAF subsystem initiation capability
	AND	
	A.2 Place channel in trip.	6 hours

(continued)

Table 3.3.8.1-1 (page 1 of 1)
Loss of Power Instrumentation

FUNCTION	REQUIRED CHANNELS PER DIVISION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Divisions 1, 2 and Opposite Unit Division 2 – 4.16 kV Emergency Bus Undervoltage			
a. Loss of Voltage – 4.16 kV Basis	2	SR 3.3.8.1.3 SR 3.3.8.1.4 SR 3.3.8.1.5	≥ 2870 V and ≤ 3127 V
b. Loss of Voltage – Time Delay	2	SR 3.3.8.1.3 SR 3.3.8.1.4 SR 3.3.8.1.5	≥ 3.1 seconds and ≤ 10.9 seconds
c. Degraded Voltage – 4.16 kV Basis	2	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.5	≥ 3814 V and ≤ 3900 V
d. Degraded Voltage – Time Delay, No LOCA	2	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.5	≥ 270.1 seconds and ≤ 329.9 seconds
e. Degraded Voltage – Time Delay, LOCA	2[(a)(b)]	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.5	≥ 9.4 seconds and ≤ 10.9 seconds
2. Division 3-4.16 kV Emergency Bus Undervoltage			
a. Loss of Voltage – 4.16 kV Basis	2	SR 3.3.8.1.3 SR 3.3.8.1.4 SR 3.3.8.1.5	≥ 2725 V and ≤ 3172 V
b. Loss of Voltage – Time Delay	2	SR 3.3.8.1.3 SR 3.3.8.1.4 SR 3.3.8.1.5	≤ 10.9 seconds
c. Degraded Voltage – 4.16 kV Basis	2	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.5	≥ 3814 V and ≤ 3900 V
d. Degraded Voltage – Time Delay, No LOCA	2	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.5	≥ 270.1 seconds and ≤ 329.9 seconds
e. Degraded Voltage – Time Delay, LOCA	2[(a)(b)]	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.5	≥ 9.4 seconds and ≤ 10.9 seconds

(a) In MODES 4 and 5, not required to be OPERABLE.

(b) With no fuel in the reactor vessel, not required to be OPERABLE.

3.3 INSTRUMENTATION

3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring

LCO 3.3.8.2 Two RPS electric power monitoring assemblies shall be OPERABLE for each inservice RPS motor generator set or alternate power supply.

APPLICABILITY: MODES 1, 2, and 3,
MODES 4 and 5 with residual heat removal (RHR) shutdown cooling (SDC) isolation valves open,
MODE 5, with any control rod withdrawn from a core cell containing one or more fuel assemblies,
During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both inservice power supplies with one electric power monitoring assembly inoperable.	A.1 Remove associated inservice power supply(s) from service.	72 hours
B. One or both inservice power supplies with both electric power monitoring assemblies inoperable.	B.1 Remove associated inservice power supply(s) from service.	1 hour

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment or during CORE ALTERATIONS.	F.1.1	Isolate the associated secondary containment penetration flow path(s).	Immediately
	OR		
	F.1.2	Declare the associated secondary containment isolation valve(s) inoperable.	Immediately
	AND		
	F.2.1	Place the associated standby gas treatment (SGT) subsystem(s) in operation.	Immediately
	OR		
	F.2.2	Declare associated SGT subsystem(s) inoperable.	Immediately

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

3.5.1 ECCS–Operating

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

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days

(continued)

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

3.5.2 RPV Water Inventory Control

LCO 3.5.2 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours.

AND

One 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 power.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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.	4 hours
	AND	
	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 the DRAIN TIME.	4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
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		
	D.4	Initiate action to verify one standby gas treatment subsystem is capable of being placed in operation.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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 3.5.2.1	Verify DRAIN TIME ≥ 36 hours.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.2.2	Verify, for a required low pressure ECCS injection/spray subsystem, the suppression pool water level is ≥ -12 ft 7 in.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	Verify, for a required High Pressure Core Spray (HPCS) System, the suppression pool water level is ≥ -12 ft 7 in.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.2.5	----------NOTE---------- Not required to be met for system vent flow paths opened under administrative control. ---------- Verify, for the required ECCS injection/spray subsystem, each 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 3.5.2.6	Operate the required ECCS injection/spray subsystem through the recirculation line for ≥ 10 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	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 3.5.2.8	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify the required ECCS injection/spray subsystem can be manually operated.	In accordance with the Surveillance Frequency Control Program

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

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RCIC System inoperable.	A.1	Verify by administrative means High Pressure Core Spray 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
	AND		
	B.2	Reduce reactor steam dome pressure to ≤ 150 psig.	36 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3

ACTIONS

---------- NOTES----------
1. Penetration flow paths may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.

4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.

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

(continued)

ACTIONS

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

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 irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS.

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

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Secondary containment inoperable during movement of irradiated fuel assemblies in the secondary containment or during CORE ALTERATIONS.	C.1 --------NOTE-------- LCO 3.0.3 is not applicable. ---------- Suspend movement of irradiated fuel assemblies in the secondary containment. AND	Immediately
	C.2 Suspend CORE ALTERATIONS.	Immediately

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 irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS.

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment or during CORE ALTERATIONS.	D.1	--------NOTE-------- LCO 3.0.3 is not applicable. ---------- Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND		
	D.2	Suspend CORE ALTERATIONS.	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 irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS.

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 irradiated fuel assemblies in the secondary containment or during CORE ALTERATIONS.	----------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 irradiated fuel assemblies in the secondary containment. AND C.2.2 Suspend CORE ALTERATIONS.	Immediately 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 irradiated fuel assemblies in the secondary containment, or during CORE ALTERATIONS.	E.1 --------NOTE-------- LCO 3.0.3 is not applicable. ---------- Suspend movement of irradiated fuel assemblies in the secondary containment. AND E.2 Suspend CORE ALTERATIONS.	 Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 15 continuous minutes with heaters operating.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each SGT subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.4 Control Room Area Filtration (CRAF) System

LCO 3.7.4 Two CRAF subsystems shall be OPERABLE.

----------NOTE----------
The 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 CRAF subsystem inoperable for reasons other than Condition B.	A.1 Restore CRAF subsystem to OPERABLE status.	7 days
B. One or more CRAF subsystems inoperable due to inoperable CRE boundary in MODE 1, 2, or 3.	B.1 Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. AND B.3 Restore CRE boundary to OPERABLE status.	Immediately 24 hours 90 days

(continued)

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 CRAF subsystem in pressurization mode. 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 CRAF subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	E.1 Be in MODE 3.	12 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two CRAF subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment or during CORE ALTERATIONS. OR One or more CRAF subsystems inoperable due to 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 CRAF subsystem for ≥ 15 continuous minutes with the heaters operating.	In accordance with the Surveillance Frequency Control Program

(continued)

3.7 PLANT SYSTEMS

3.7.5 Control Room Area Ventilation Air Conditioning (AC) System

LCO 3.7.5 Two control room area ventilation AC subsystems shall be OPERABLE.

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 control room area ventilation AC subsystem inoperable.	A.1 Restore control room area ventilation AC subsystem to OPERABLE status.	30 days
B. Two control room area ventilation AC subsystems inoperable.	B.1 Verify control room area temperature < 90°F. AND B.2 Restore one control room area ventilation AC subsystem to OPERABLE status.	Once per 4 hours 72 hours
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

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
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 control room area ventilation AC subsystem in operation.	Immediately
	OR	
	D.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	D.2.2 Suspend CORE ALTERATIONS.	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition B not met during movement of irradiated fuel assemblies in the secondary containment or during CORE ALTERATIONS.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- E.1 Suspend movement of irradiated fuel assemblies in the secondary containment. AND E.2 Suspend CORE ALTERATIONS.	 Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Monitor control room and auxiliary electric equipment room temperatures.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.2	Verify correct breaker alignment and indicated power are available to the control room area ventilation AC subsystems.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. Required DG of LCO Item b. inoperable.	B.1 Suspend CORE ALTERATIONS. AND B.2 Suspend movement of irradiated fuel assemblies in secondary containment. AND B.3 Initiate action to restore required DG to OPERABLE status.	Immediately Immediately Immediately
C. Required DG of LCO Item c. inoperable.	C.1 Declare High Pressure Core Spray System inoperable.	72 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required offsite circuit or DG of LCO Item d. inoperable.	D.1 Declare associated standby gas treatment subsystem, control room area filtration subsystem, and control room area ventilation air conditioning subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	----------NOTES---------- 1. The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, SR 3.8.1.18, and SR 3.8.1.19. 2. SR 3.8.1.12 and SR 3.8.1.19 are not required to be met. ----------	
	For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, except SR 3.8.1.8, SR 3.8.1.17, and SR 3.8.1.20, are applicable.	In accordance with applicable SRs

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more required DC electrical power subsystems inoperable for reasons other than Condition A. OR Required Action and Completion Time of Condition A not met.	B.1 Declare affected required feature(s) 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 DC electrical power subsystems to OPERABLE status.	Immediately Immediately Immediately Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct breaker alignments and voltage to required AC and DC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 230 TO RENEWED FACILITY OPERATING

LICENSE NO. NPF-11 AND AMENDMENT NO. 216 TO RENEWED FACILITY

OPERATING LICENSE NO. NPF-18

EXELON GENERATION COMPANY, LLC

LASALLE COUNTY STATION, UNITS 1 AND 2

DOCKET NOS. 50-373 AND 50-374

1.0 INTRODUCTION

By application dated December 13, 2017 (Reference 1), and supplemented by letter dated June 18, 2018 (Reference 2), Exelon Generation Company, LLC (EGC, the licensee), requested to adopt Technical Specifications Task Force (TSTF) Traveler TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control" (Reference 3), which changes the technical specifications (TSs) for LaSalle County Station (LSCS), Units 1 and 2. The final safety evaluation (SE) for TSTF-542, Revision 2, was approved by the U.S. Nuclear Regulatory Commission (NRC, the Commission) on December 20, 2016 (Reference 4).

The proposed changes would replace existing TSs requirements associated with "operations with a potential for draining the reactor vessel," (OPDRVs) with revised TSs providing an alternative requirement for reactor pressure vessel (RPV) water inventory control (WIC). These alternative requirements would protect the Safety Limit in TS 2.1.1.3, which states: "Reactor vessel water level shall be greater than the top of active irradiated fuel."

Additionally, a new definition "DRAIN TIME," would be added to the LSCS TSs, Section 1.1, "Definitions." DRAIN TIME would establish requirements for the licensee to make RPV water level inventory determinations and to calculate water inventory drain rates for Modes 4 and 5 outage-related activities. Adequate licensee management of secondary containment requirements or mitigation of certain emergency core cooling system (ECCS) safety injection/spray systems during Modes 4 and 5 requires a properly calculated DRAIN TIME.

The licensee has proposed several variations from the TS changes described in the applicable parts of TSTF-542, Revision 2, or the NRC-approved TSTF-542 SE. These are explained below in Section 2.2.5 and evaluated in Section 3.5 of this SE.

The supplement dated June 18, 2018, 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 February 13, 2018 (83 FR 6223).

2.0 REGULATORY EVALUATION

2.1 System Description

The 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 Modes 1 (Power Operation – Reactor Mode Switch in Run), 2 (Startup – Reactor Mode Switch in Refuel [1] or Startup/Hot Standby), and 3 (Hot Shutdown[1]- Reactor Mode Switch in Shutdown and average reactor coolant temperature > 200 ° (degrees) Fahrenheit (° F)), the TS for instrumentation and ECCS systems require operability of sufficient equipment to ensure large quantities of water will be injected into the vessel should 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 and average reactor coolant temperature ≤ 200 °F), and Mode 5 (Refueling [2] - 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 head is removed), the water level is ≥ 22 feet (ft) over the top of the RPV flange with the spent fuel storage pool gates 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 potentially significant or unexpected drainage paths. These potential drainage paths in Modes 4 and 5 generally would require less water replacement capability to maintain water above TAF.

---

[1] All reactor vessel head closure bolts fully tensioned.

[2] One or more reactor vessel head closure bolts less than fully tensioned.

To address the drain down potential during Modes 4 and 5, the current LSCS TS contain specifications that are applicable during an OPDRV, or require suspension of OPDRVs if certain equipment is inoperable. The term OPDRV is not specifically defined in the TS and historically has been subject to inconsistent application by licensees. 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 (SR) and deleting references to OPDRVs throughout the TS.

2.2 Proposed TS Changes

Section 2.2.1 describes the proposed addition of a new definition, "DRAIN TIME" (evaluated below in Section 3.1).

Section 2.2.2 describes the proposed revisions: (1) TS 3.3, "Instrumentation," including the proposed revisions to TS 3.3.5.1, "ECCS Instrumentation;" (2) proposed addition of new TS 3.3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation;" (3) renumbering of existing TS 3.3.5.2, "Reactor Core Isolation Cooling (RCIC) System Instrumentation," to TS 3.3.5.3; and (4) proposed revision to TS 3.3.6.1, "Primary Containment Isolation Instrumentation." Section 2.2.2 is evaluated in Sections 3.2 and 3.4.

Section 2.2.3 describes the proposed revisions to TS 3.5, "Emergency Core Cooling System (ECCS) and Reactor Core Isolation Cooling (RCIC) System." These revisions include the proposed revisions to TS 3.5.2, "ECCS-Shutdown" (evaluated in Section 3.3.).

Section 2.2.4 describes the proposed deletion of existing TS references to OPDRVs (evaluated in Section 3.6).

Section 2.2.5 describes LSCS plant-specific variations to TSTF-542, Revision 2 (evaluated in Section 3.5).

2.2.1 Addition of DRAIN TIME Definition

The following definition of "DRAIN TIME" would be added to 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 devices 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 TS 3.3, "Instrumentation"

The following subsections describe the existing and proposed changes to the LSCS TS, Section 3.3, "Instrumentation."

2.2.2.1 TS 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, B.2, C.1, and D.1, which states:

"Only applicable in MODES 1, 2 and 3."

As a result, the numbering for Note 2 would be removed with no change in the note.

For Table 3.3.5.1-1, the applicability in Modes 4 and 5 was proposed for deletion because the instrumentation requirements during shutdown would be consolidated into the new TS 3.3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation." Modes 4 and 5 Applicability and associated requirements would be deleted for the following functions:

1. Low Pressure Coolant Injection - A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems:

   a. Reactor Vessel Water Level - Low Low Low, Level 1
   c. LPCI Pump A Start - Time Delay Relay
   d. Reactor Steam Dome Pressure - Low (Injection Permissive)

e. LPCS Pump Discharge Flow - Low (Bypass)
f. LPCI Pump A Discharge Flow - Low (Bypass)
g. LPCS and LPCI A Injection Line Pressure - Low (Injection Permissive)
h. Manual Initiation

2. LPCI B and LPCI C Subsystems:

a. Reactor Vessel Water Level - Low Low Low, Level 1
c. LPCI Pump B Start - Time Delay Relay
d. Reactor Steam Dome Pressure - Low (Injection Permissive)
e. LPCI Pump B and LPCI Pump C Discharge Flow - Low (Bypass)
f. LPCI B and LPCI C Injection Line Pressure - Low (Injection Permissive)
g. Manual Initiation

3. High Pressure Core Spray (HPCS) System;

a. Reactor Vessel Water Level - Low Low, Level 2
c. Reactor Vessel Water Level - High, Level 8
d. HPCS Pump Discharge Pressure - High (Bypass)
e. HPCS System Flow Rate - Low (Bypass)
f. Manual Initiation

In TS Table 3.3.5.1-1, Footnote (a), which states: "When associated ECCS subsystem(s) are required to be OPERABLE per LCO [limiting condition for operation] 3.5.2," would be deleted. As a result, existing Footnotes (b) and (c) would be renumbered (a) and (b), respectively.

2.2.2.2 New TS 3.3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation"

The proposed new TS 3.3.5.2 would contain existing 'ECCS' and 'Primary Containment Isolation' instrumentation functions that are relocated from TSs 3.3.5.1 and 3.3.6.1, as well as new requirements. The proposed new TS 3.3.5.2 is shown below:

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.2 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.2-1

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the	Immediately

B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	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 3.3.5.2-1.	C.1 Place channel in trip.	1 hour
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	D.1 Restore channel to OPERABLE status.	24 hours
E. Required Action and associated Completion Time of Condition C or D not met.	F.1 Declare associated ECCS injection/spray subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

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

Refer to Table 3.3.5.2-1 to determine which SRs apply for each ECCS Function.

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

The proposed TS Table 3.3.5.2-1, "RPV Water Inventory Control Instrumentation," is shown below and would include two footnotes.

Table 3.3.5.2-1
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. Low Pressure Coolant Injection - A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4,5	1 [(a)]	C	SR 3.3.5.2.2	≤ 522 psig
b. LPCS Pump Discharge Flow - Low (Bypass)	4,5	1 per pump[(a)]	D	SR 3.3.5.2.2	≥ 1240 gpm and ≤ 1835 gpm
c. LPCI Pump A Discharge Flow - Low (Bypass)	4,5	1 per pump [(a)]	D	SR 3.3.5.2.2	≥ 1330 gpm and ≤ 2144 gpm
d. LPCS and LPCI A Injection Line Pressure – Low (Injection Permissive)	4,5	1 per valve [(a)]	C	SR 3.3.5.2.2	≤ 522 psig
2. LPCI B and LPCI C Subsystems					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4,5	1 [(a)]	C	SR 3.3.5.2.2	≤ 522 psig
b. LPCI Pump B and LPCI Pump C Discharge Flow - Low (Bypass)	4,5	1 per pump [(a)]	D	SR 3.3.5.2.2	≥ 1330 gpm and ≤ 2144 gpm
c. LPCI B and LPCI C Injection Line Pressure - Low (Injection Permissive)	4,5	1 per valve [(a)]	C	SR 3.3.5.2.2	≤ 522 psig

3. High Pressure Core Spray (HPCS) System					
a. HPCS Pump Discharge Pressure – High (Bypass)	4,5	1 [(a)]	D	SR 3.3.5.2.2	≥ 113.2 psig
b. HPCS System Flow Rate - Low (Bypass)	4,5	1 [(a)]	D	SR 3.3.5.2.2	≥ 1380 gpm and ≤ 2194 gpm
4. RHR Shutdown Cooling System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	2 in one trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 11.0 inches
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low Low, Level 2	(b)	2 in one trip system	B	SR 3.3.5.2.2	≥ - 58.0 inches

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "RPV Water Inventory Control."

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

2.2.2.3 TS 3.3.5.2, "Reactor Core Isolation Cooling (RCIC) System Instrumentation"

The existing TS 3.3.5.2, "Reactor Core Isolation Cooling (RCIC) System Instrumentation Isolation," and its subsections would be renumbered to TS 3.3.5.3 in order to maintain the TS numbering conventions. This also includes renumbering of Table 3.3.5.2-1, "Reactor Core Isolation Cooling System Instrumentation."

2.2.2.3 TS 3.3.6.1, "Primary Containment Isolation Instrumentation"

The applicability in Modes 4 and 5 for TS Table 3.3.6.1-1, Function 5.a, RHR shutdown cooling system isolation, Reactor Vessel Water Level - Low, Level 3 was proposed for deletion. Also, Footnote (c) to Table 3.3.6.1-1 was proposed to be deleted, as it is applicable to Function 5.a during Modes 4 and 5. Footnote (c) is related to RHR shutdown cooling system integrity. This function would move to the new TS Table 3.3.5.2-1, Function 4.a, as shown in Section 2.2.2.2 of this SE.

2.2.3 TS Section 3.5, "Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling (RCIC) System"

The title of LSCS TS, 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), Reactor Pressure Vessel (RPV) Water Inventory Control, and Reactor Core Isolation Cooling (RCIC) System."

The title of LSCS TS Section 3.5.2 would be revised from "ECCS - Shutdown" to "RPV Water Inventory Control," and TS 3.5.2 would be revised as follows:

LCO 3.5.2 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours.

AND

One 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 the DRAIN TIME.	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. 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 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

The proposed SRs for TS 3.5.2 are shown below:

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify DRAIN TIME ≥ 36 hours.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify, for a required low pressure ECCS injection/spray subsystem, the suppression pool water level is ≥ - 12 ft 7 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	Verify, for a required HPCS system, the suppression pool water level is ≥ - 12 ft 7 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	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 3.5.2.5	----------NOTE---------- Not required to be met for system vent flow paths opened under administrative control. ---------- Verify, for the required ECCS injection/spray subsystem, each 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 (SFCP)
SR 3.5.2.6	Operate the required ECCS injection/spray subsystem through the recirculation line for ≥ 10 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	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 3.5.2.8	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify the required ECCS injection/spray subsystem can be manually operated.	In accordance with the Surveillance Frequency Control Program

2.2.4 Deletion of Reference to OPDRVs Term

In Reference 1, the licensee proposed to revise existing TS requirements related to "operations with a potential for draining the reactor vessel" or "OPDRV," with new requirements on RPV WIC that will protect Safety Limit 2.1.1.3. To remain consistent with the TSTS-542, all references to the term OPDRVs in the LSCS TSs will be deleted. The TS location of these references are summarized as follows:

LSCS LCO	Location of OPDRVs Reference
3.3.6.1, Primary Containment Isolation Instrumentation	Table 3.3.6.1-1, Footnote (c), is deleted (Previously described in Section 2.2.2.4 of this SE)
3.3.6.2, Secondary Containment Isolation Instrumentation	Table 3.3.6.2-1, Footnote (a), is deleted
3.3.7.1, Control Room Area Filtration (CRAF) System Instrumentation	Applicability
3.3.8.1, Loss of Power (LOP)	Table 3.3.8.1-1, Footnote (a), is modified from: In Modes 4 and 5, when associated ECCS subsystems(s) are required to be OPERABLE per LCO 3.5.2, "ECCS- Shutdown." to: In MODES 4 and 5, not required to be OPERABLE.
3.3.8.2, Reactor Protection System (RPS) Electrical Power Monitoring	Applicability, Condition F
3.6.1.3, Primary Containment Isolation Valves (PCIVs)	Applicability is deleted which states: "When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation." Condition F
3.6.4.1, Secondary Containment	Applicability, Condition C
3.6.4.2, Secondary Containment Isolation Valves (SCIVs)	Applicability, Condition D
3.6.4.3, Standby Gas Treatment (SGT) system	Applicability, Condition C, Condition E
3.7.4, Control Room Area Filtration (CREF) System	Applicability, Condition D, Condition F
3.7.5, Control Room Area Ventilation Air Conditioning (AC) System	Applicability, Condition D, Condition E

3.8.2, AC Sources - Shutdown	Required Action and Completion Time for A.2.3, existing Required Actions A.2.4 is renumbered as A.2.3 Required Action and Completion Time for B.3, existing Required Actions B.4 is renumbered as B.3 SR 3.8.2.1 Note 2 is modified to remove association with LCO 3.5.2, "ECCS-Shutdown" (see Variation 7 in Section 2.2.5.7 of this SE)
3.8.5, DC Sources - Shutdown	Required Action and Completion Time for B.2.3, existing Required Actions B.2.4 is renumbered as B.2.3
3.8.8, Distribution Systems - Shutdown	Required Action and Completion Time for A.2.3, existing Required Actions A.2.4 and A.2.5 are renumbered as A.2.3 and A.2.4, respectively

2.2.5 LSCS Plant-Specific TSTF-542 Variations

In Attachment 2 of Section 2.2 of Reference 1, the licensee identified several LSCS plant-specific TS variations from the TSTF-542, Revision 2 (Reference 3), or the NRC-approved TSTF-542 SE (Reference 4). The licensee states that these variations do not affect the applicability of the TSTF-542 or the NRC staff's SE. The staff has determined the licensee's proposed variations can be characterized as either administrative or technical. Section 3.5 of this SE includes the staff's technical evaluation of each of these technical variations.

2.2.5.1 Variation 1, Condensate Storage Tank (CST) - Level-Low Instrumentation

The LSCS TS Table 3.3.5.1-1 contains no function similar to Standard Technical Specification (STS) Function 3.d (i.e., CST Level - Low). This is a minor difference, due to the fact that the HPCS systems for LSCS, Units 1 and 2, are normally aligned to take suction from their unit's suppression pool, which provides the same function as the CST described in the STS (i.e., provides water source for the required HPCS system).

2.2.5.2 Variation 2, TS Table 3.3.5.2-1, ECCS Injection Permissives – Line Pressure

In addition to the LPCI and LPCS subsystem injection permissive functions based on Reactor Steam Dome Pressure - Low, the LSCS low pressure ECCS subsystems require an additional injection permissive signal based on their associated Injection Line Pressure - Low (i.e., proposed Table 3.3.5.2-1 Functions 1.d and 2.c). These permissive functions are utilized to protect the low pressure ECCS systems from pressures that exceed their design; therefore, their inclusion in the proposed LCO 3.3.5.2, Table 3.3.5.2-1, is essentially the same as the justification for the inclusion of the Reactor Steam Dome Pressure - Low injection permissive functions (see Section 3.2.4.1 of this SE).

2.2.5.3 Variation 3, TS Table 3.3.5.2-1, Channel Checks

LSCS, Units 1 and 2, do not currently have the capability to perform Channel Checks for the following proposed Table 3.3.5.2-1, Functions:

1. LPCI A and LPCS subsystems:

    a. Reactor Steam Dome Pressure - Low (Injection Permissive)
    b. LPCS Pump Discharge Flow - Low (Bypass)
    c. LPCI Pump A Discharge Flow - Low (Bypass)
    d. LPCS and LPCI A Injection Line Pressure - Low (Injection Permissive)

2. LPCI B and LPCI C subsystems:

    a. Reactor Steam Dome Pressure - Low (Injection Permissive)
    b. LPCI Pump B and LPCI Pump C Discharge Flow - Low (Bypass)
    c. LPCI B and LPCI C Injection Line Pressure - Low (Injection Permissive)

3. HPCS system:

    a. HPCS Pump Discharge Pressure - High (Bypass)
    b. HPCS System Flow Rate - Low (Bypass)

5. RWCU system isolation:

    a. Reactor Vessel Water Level-Low Low, Level 2.

Per the current LSCS, Units 1 and 2, TSs do not include Channel Checks for these functions, no Channel Check SRs were added for these functions.

2.2.5.4 Variation 4, TS LCO 3.3.8.1, Loss of Power (LOP) Instrumentation

LSCS LCO 3.3.8.1, "Loss of Power (LOP) Instrumentation," currently contains a footnote in Table 3.3.8.1-1 that is required to be modified along with the adoption of TSTF-542 as-proposed. Currently, Table 3.3.8.1-1, Footnote (a), adds applicability for Functions 1.e and 2.e, "Degraded Voltage - Time Delay, LOCA." The purpose of this footnote is to ensure that the Degraded Voltage Time Delay, LOCA, function is operable in Modes 4 and 5 when the associated ECCS subsystem is required to be operable for automatic initiation. EGC's justification for the proposed modification of Table 3.3.8.1-1, Footnote (a), is that following the adoption of TSTF-542, no ECCS subsystems will be required to start automatically in Modes 4 and 5; therefore, these functions will no longer be required.

2.2.5.5 Variation 5, TS LCO 3.6.1.3, PCIVs

The licensee proposes to delete a portion of the applicability for LSCS, Units 1 and 2, LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," and LCO 3.6.1.3, Condition F, and all of its associated Required Actions. The Applicability for LCO 3.6.1.3 is: "MODES 1, 2, and 3 - When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation." These changes are justified since all OPDRV requirements will be deleted and Modes 4 and 5 have been relocated from LCOs 3.3.6.1 and 3.6.1.3 to the proposed LCOs 3.3.5.2 and 3.5.2.

2.2.5.6 Variation 6, LPCS, LPCI, and HPCS Manual Initiation and HPCS RPV High Water Level - 8

The licensee proposes to revise Table 3.3.5.2-1, "RPV Water Inventory Control Instrumentation," as described in TSTF-542 to reflect the LSCS, Units 1 and 2, design. Specifically, Function 1, "Low Pressure Coolant Injection - A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems," Function 1.d, "Manual Initiation," Function 2, "LPCI B and LPCI C Subsystems," Function 2.c, "Manual Initiation," and Function 3, "High Pressure Core Spray (HPCS) System," Function 3.a, "Reactor Vessel Water Level - High, Level 8," and Function 3.e, "Manual initiation," that appear in the BWR [General Electric plant]/6 TSs in TSTF-542 are not included in the LSCS TSs. This corrects an issue in TSTF-542 associated with the BWR/5 and BWR/6 ECCS instrumentation requirements. In addition, Condition E is deleted because the removal of these functions removes all functions that reference this condition.

2.2.5.7 Variation 7, TS LCO 3.8.2, AC Sources - Shutdown

The licensee proposes to modify LCO 3.8.2, "AC Sources - Shutdown," SR 3.8.2.1. The purpose for SR 3.8.2.1 is to define the LCO 3.8.1, "AC Sources-Operating," SRs that are necessary for ensuring the operability of the AC sources in modes or conditions other than Modes 1, 2, and 3. SR 3.8.2.1 currently contains two notes and Note 2 is being revised to remove references to LCO 3.5.2, "ECCS Shutdown."

The purpose of the Note 1 is to preclude rendering the require diesel generator (DG) inoperable for testing, and disconnecting a required offsite circuit during the performance of the listed SRs. This note is not being revised.

Note 2 relaxes requirements for performing SR 3.8.1.12 and SR 3.8.1.19 when ECCS subsystems are not required to be operable in accordance with LCO 3.5.2, "ECCS-Shutdown." The intent of Note 2 is to be consistent with other ECCS instrumentation requirements that are not required when the associated ECCS subsystem will not receive an initiation signal.

2.2.5.8 Variation 8, TS Table 3.3.5.2-1, Functions 1a (LPCS) and (LPCI B and LPCI C), Reactor Steam Dome Pressure- Low (Permissive)

For Table 3.3.5.2-1 Functions 1.a and 2.a, "Reactor Steam Dome Pressure Low (Injection Permissive)," only one required channel per function is identified which differs from the TSTF-542 change which would retain the same required channels per function as the original function, which is two in this case. This applies to the required LPCI A and LPCS subsystems, and required LPCI B and LPCI C subsystems, respectively.

2.3 Applicable Regulatory Requirements and Guidance

The regulation at Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36(a)(1), requires an applicant for an operating license to include in the application proposed TSs in accordance with the requirements of 10 CFR 50.36. The applicant must also include in the application, a "summary statement of the bases or reasons for such specifications, other than those covering administrative controls." However, per 10 CFR 50.36(a)(1), these TS bases "shall not become part of the technical specifications."

As required by 10 CFR 50.36(c)(1)(i)(a), TSs will include items in the following categories: (1) Safety limits, limiting safety system settings, and limiting control settings. (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 NRC, 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 NRC.

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. Per 10 CFR 50.36(c)(2)(i), 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.

Regulation 10 CFR 50.36(c)(2)(ii) requires licensees to establish TS LCOs for items meeting one or more of the listed criteria. Specifically, 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 via operating experience.

Regulation 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.

Pursuant to 10 CFR 50.90, whenever a holder of an operating license desires to amend the license, application for an amendment must be filed with the NRC fully describing the changes desired, and following as far as applicable, the form prescribed for original applications. The technical information to be included in an application for an operating license is governed in particular by 10 CFR 50.34(b).

As described in 10 CFR 50.92(a), in determining whether an amendment to a license will be issued to the applicant, the NRC will be guided by the considerations which govern the issuance of initial licenses applicable and appropriate. The general considerations that guide the NRC include, as stated in 10 CFR 50.40(a), how the TSs provide reasonable assurance the health and safety of the public will not be endangered. In order to issue an operating license of which TSs are a part, the NRC must make the findings of 10 CFR 50.57, including 10 CFR 50.57(a)(3)(i), that there is reasonable assurance that the activities authorized by the operating license can be conducted without endangering the health and safety of the public.

Per NUREG-1434, Revision 4 (References 5 and 6), contains the STS for BWR/6 plants and is part of the regulatory standardization effort. The NRC staff has prepared STS for each of the light-water reactor nuclear designs. LSCS is a BWR/5 plant and is aligned with BWR/6 STSs (NUREG-1434), without a setpoint control program. The TSTF-542 changes would be incorporated into future revisions of NUREG-1434, Volumes 1 and 2.

The NRC staff's guidance for review of TSs is in Chapter 16, Technical Specifications, of NUREG-0800, Revision 3, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants," dated March 2010 (Reference 7).

2.3.1 LSCS Applicable Design Requirements

The LSCS' updated final safety analysis report (UFSAR), Section 3.1, contains an evaluation of the LSCS design basis as measured against the NRC general design criteria (GDC) for nuclear power plants, Appendix A, of 10 CFR, Part 50. The following criterion from the UFSAR are related to this license amendment request (LAR).

Criterion 13 - Instrumentation and Control (I&C). Instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary (RCPB), and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges.

Criterion 14 - RCPB. The RCPB shall be designed, fabricated, erected, and tested so as to have an extremely low probability of abnormal leakage, of rapidly propagating failure, and of gross rupture.

Criterion 16 - Containment Design. Reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

Criterion 30 - Quality of RCPB. Components which are part of the RCPB shall be designed, fabricated, erected, and tested to the highest quality standards practical. Means shall be provided for detecting and, to the extent practical, identifying the location of the source of reactor coolant leakage.

Criterion 33 - Reactor Coolant Makeup. A system to supply reactor coolant makeup for protection against small breaks in the RCPB shall be provided. The system safety function shall be to assure that specified acceptable fuel design limits are not exceeded as a result of reactor coolant loss due to leakage from the RCPB and rupture of small piping or other small components which are part of the boundary. The system shall be designed to assure that for onsite electric power system operation (assuming offsite power is not available), and for offsite electric power system operation (assuming onsite power is not available), the system safety function can be accomplished using the piping, pumps, and valves, used to maintain coolant inventory during normal reactor operation.

Criterion 35 – Emergency Core Cooling (ECC). A system to provide abundant ECC shall be provided. The system safety function shall be to transfer heat from the reactor core following any loss of reactor coolant at a rate such that: (1) fuel and clad damage that could interfere with continued effective core cooling is prevented, and (2) clad metal-water reaction is limited to negligible amounts.

Suitable redundancy in components and features, suitable interconnections, leak detection, isolation, and containment capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure.

3.0 TECHNICAL EVALUATION

Section 2.2 above lists proposed TS changes as included in References 1 and 2, for the licensee to adopt TSTF-542, Revision 2. The following sections include the NRC staff's evaluation of each of these proposed changes.

3.1 Staff Evaluation of Proposed DRAIN TIME Definition

As discussed in Section 2.2.1 above, the DRAIN TIME 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 penetrations flow paths with the largest flow rate, or a combination of penetration flow paths that could open due to a common mode failure, were to open and the licensee took no mitigating action.

The NRC staff reviewed the proposed DRAIN TIME definition from TSTF-542. For the purpose of staff considerations, the term "break" describes a pathway for water to drain from the RPV that has not been prescribed in the "DRAIN TIME" definition proposed in TSTF-542. Based on information furnished by the licensee, the NRC staff has determined that the licensee is appropriately adopting that the principles of DRAIN TIME as specified in TSTF-542.

As part of this evaluation, the NRC staff reviewed requests for additional information used during the development of TSTF-542, Revision 2, which provided examples of bounding DRAIN TIME calculations for three examples: (1) water level at or below the RPV flange; (2) water level above RPV flange with fuel pool gates installed, and; (3) water level above RPV flange with fuel pool gates removed. 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. This calculation provides a conservative approach to determining the DRAIN TIME of the RPV.

The NRC staff concluded that the licensee will use methods resulting in conservative calculations to determine RPV DRAIN TIME, thereby, protecting TS Safety Limit 2.1.1.3. Based on these considerations, the staff has determined the licensee's proposed addition of the DRAIN TIME definition to the LSCS TSs is acceptable.

3.2 Staff Evaluation of Proposed TS 3.3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation"

The existing TS 3.3.5.2, "Reactor Core Isolation Cooling (RCIC) System Instrumentation," is renumbered as TS 3.3.5.3. This increases consistency within the BWR STS and is acceptable.

The purpose of the RPV WIC Instrumentation is to support the requirements of revised TS LCO 3.5.2 and the definition of DRAIN TIME. There are I&Cs functions that are required for manual pump starts or required as a permissive 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 revised TS 3.5.2. For LSCS, reactor operators have alternate means often requiring several more steps to start and inject water than the preferred simple push button start, but these actions can still be accomplished within the time frames assumed in development of TSTF-542.

Specifically, the proposed new TS 3.3.5.2 supports operation of the LPCI with subsystems LPCI A, LPCI B, LPCI C, LPCS, and HPCS, including manual alignment when needed 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 3.5.2 and the bases for LCO 3.5.2. The following sections evaluate the various parts of the new TS 3.3.5.2.

3.2.1 Staff Evaluation of Proposed TS 3.3.5.2 LCO and Applicability

In Reference 1, the licensee proposed a new TS 3.3.5.2 to provide alternative instrumentation requirements to support manual initiation of the ECCS injection/spray subsystem. This subsystem is required in the revised TS 3.5.2 and automatic isolation of penetration flow paths that may be credited in the determination of drain time. The current TS 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, TS 3.3.7.1, and TS 3.3.8.1-1. The requirements from Tables 3.3.5.1-1 and Table 3.3.6.1-1 would be consolidated into new TS 3.3.5.2. The OPDRVs requirements in Tables 3.3.6.2-1 and 3.3.7.1-1 would be deleted, as discussed in Section 3.6 of this SE.

The proposed LCO 3.3.5.2 would state:

> "The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE."

The proposed Applicability would state:

> "According to Table 3.3.5.2-1."

The TSTF-542 selected Table 3.3.5.2-1 to contain those instrumentation functions needed to support manual initiation of the ECCS injection/spray subsystem required by LCO 3.5.2, and for automatic isolation of penetration flow paths that may be credited in a calculation of DRAIN TIME. The functions that are required in Modes 4 or 5, or during OPDRVs, are relocated to Table 3.3.5.2-1 from existing TS 3.3.5.1, "Emergency Core Cooling System Instrumentation," and TS 3.3.6.1, "Primary Containment Isolation Instrumentation." Creation of TS 3.3.5.2 places these functions in a single location with requirements appropriate to support the safety function for TS 3.5.2.

As identified in Section 2.2.5.7 above (Variation 6), the LSCS proposed TS LCO 3.3.5.2 does not include any manual initiation logic for the ECCS injection/spray subsystems. Therefore, as an alternative, the licensee proposed to add new SR 3.5.2.8 to TS 3.5.2 to verify that ECCS injection/spray subsystems can be manually operated through the manipulation of subsystem components from the main control room.

The NRC staff concluded that the licensee's proposed alternative is acceptable for LSCS since either HPCS, LPCS, or LPCI (or all three) subsystems would be available to perform the

intended function to inject water into the RPV; this meets the intent of NRC-approved TSTF-542.

3.2.2 Staff Evaluation of Proposed TS 3.3.5.2 Actions

As discussed in Section 2.2.2.2 above, the NRC staff has reviewed the licensee's proposed new TS 3.3.5.2 actions to determine whether they provide effective remedial measures when one or more instrument channels are inoperable and cannot complete the required function in the normal manner.

Action A would be applicable when one or more instrument channels are inoperable from Table 3.3.5.2-1 and directs the licensee to immediately enter the Condition referenced in Table 3.3.5.2-1 for that channel.

Action B (concerning the RHR shutdown cooling system isolation and RWCU system isolation functions) would be 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 RPV steam dome pressure low (injection permissive) and LPCS/LPCI injection line pressure – low (injection permissive)) functions are necessary for the manual operation of the low pressure ECCS injection/spray subsystems. If these permissives are inoperable, manual operation of the affected subsystem is prohibited. Therefore, the affected permissive must be placed in the trip condition within 1 hour. With a permissive in the trip condition, manual operation may be performed. The completion time of 1 hour is intended to allow the operator time to evaluate any discovered inoperabilities and to place the affected channel in trip prior to declaring the affected subsystem inoperable.

Action D (concerning LPCS/LPCI pump discharge flow (bypass) function and HPCS system flow (bypass)) functions addresses an event in which the minimum flow is inoperable since 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 valve to ensure the pump does not overheat.

The 24-hour completion time was chosen to allow time for the operator to evaluate and repair any discovered inoperabilities prior to declaring the affected subsystem inoperable. The completion time is appropriate given the ability to manually start the ECCS pumps and open the injection valves as necessary to ensure the affected pump does not overheat.

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

These actions direct the licensee to take appropriate actions as necessary and enter into the conditions referenced in Table 3.3.5.2-1. Therefore, the staff has concluded there is reasonable assurance that the licensee will take appropriate actions during an unexpected drain event to either prevent or to mitigate RPV water level being lowered to the TAF and, therefore, the proposed actions are acceptable.

3.2.3 Staff Evaluation of Proposed TS 3.3.5.2 Surveillances

The proposed new TS 3.3.5.2 SRs include Channel Checks and Channel Functional Tests numbered SR 3.3.5.2.1 and SR 3.3.5.2.2, respectively.

The NRC staff finds these tests are sufficient and adequate because they will ensure that the Functions of TS 3.3.5.2 are operable (i.e., capable of performing the specified safety function in support of TS 3.5.2, DRAIN TIME, and the protection from a potential drain down of the RPV in Modes 4 and 5).

SR 3.3.5.2.1 would require a Channel Check and applies to system isolation functions in TS Table 3.3.5.2-1 for RHR shutdown cooling. 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 channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A Channel Check will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each Channel Functional Test. The frequency of SR 3.3.5.2.1 is in accordance with the SFCP. Channel Checks related to other functions are identified as Variation 3, Section 3.5.3, of this SE.

SR 3.3.5.2.2 would require a Channel Functional Test and applies to all functions in TS Table 3.3.5.2-1. A test is performed on each required channel to ensure that it will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This is acceptable because all of the other required contacts of the relay are verified by other TSs and non-TS tests. Any setpoint adjustment shall be consistent with the assumptions of the current plant-specific setpoint methodology. The frequency of SR 3.3.5.2.2 is in accordance with the SFCP.

The 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. A draining event in Modes 4 or 5 is not an analyzed accident and, therefore, there is no accident analysis on which to base the calculation of a setpoint. The purpose of the TS 3.3.5.2 functions is to allow ECCS injection/spray 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 TSs 3.3.5.1 and 3.3.6.1 continue to require the Functions to be calibrated on an established interval. The NRC staff has determined that the Mode 3 allowable value and established calibration intervals are adequate to ensure the channel will respond with the required accuracy to allow manual initiation of the pumping systems to inject water and automatic isolation of penetration flow paths.

The TS includes SRs to ensure that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. These are: ECCS response time (LSCS SR 3.3.5.1.6) and isolation system response time (LSCS SR 3.3.6.1.6) testing ensures proposed new TS 3.3.5.2 does not include SRs to participate in any ECCS response time testing and isolation system response time testing. The purpose of these tests are to ensure that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis, but a draining event in Modes 4 or 5 is not an analyzed accident and there are alternate manual methods for achieving the safety function. A potential draining event in Modes 4 and 5 is a slower event than an LOCA. More significant protective actions are required as the calculated DRAIN TIME decreases. NRC staff finds this is acceptable.

The NRC staff finds that the proposed SRs of LCO 3.3.5.2 are acceptable and concluded that these SRs satisfy 10 CFR 50.36(c)(3) by providing specific SRs relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained.

3.2.4 Staff Evaluation of Proposed Table 3.3.5.2-1, "RPV Water Inventory Control Instrumentation"

In order to support the requirements of proposed TS 3.5.2, the associated instrumentation requirements are designated in Table 3.3.5.2-1. These instruments would be 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 3.5.2 (Section 3.3 below).

Table 3.3.5.2-1 specifies the instrumentation that shall be operable for each function in the tables 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 values, and footnotes concerning items of the table.

The NRC staff finds this table 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, D) if the function is inoperable, the applicable SRs, the selection of the allowable value, and justification of differences between the existing and proposed TS functions.

This RPV WIC instrumentation set is acceptable as it adequately ensures that the instrument channels respond permitting pump systems to inject water when needed and activating isolation equipment when commanded to support prevention or mitigation of a potential RPV draining event.

Each of the ECCS injection/spray subsystems in Modes 4 and 5 can be started by manual alignment of a small number of components. 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 (gpm). Considering the action statements as the DRAIN TIME decreases (the proposed TS 3.5.2, Action E, prohibits plant conditions that could result in DRAIN TIME less than 1 hour), there is sufficient time for the reactor operators to take manual action (e.g., hours versus minutes) to stop the draining event, and to manually start an ECCS injection/spray subsystem or additional method of water injection as

needed. Consequently, there is no need for automatic initiation of ECCS to respond to an unexpected draining event. The NRC staff finds this acceptable.

3.2.4.1 Staff Evaluation of Proposed Table 3.3.5.2-1 Functions

For Table 3.3.5.2-1 Functions 1.a (LPCS and LPCI-A) and 2.a (LPCI B and C), Reactor Steam Dome Pressure - Low (Injection Permissive), and Functions 1.d (LPCS and LPCI-A) and 2.c (LPCI B and C), Injections Line Pressure - Low (Injection Permissive), these signals are used as permissives for the low pressure ECCS subsystems. These functions ensure that prior to opening the injection valves of the low pressure ECCS subsystems, the reactor pressure has fallen to a value below these subsystems' maximum design pressure. Even though the reactor pressure is expected to always be below the ECCS maximum design pumping pressure during Modes 4 and 5, these functions are required to be operable to permit manual operation of the ECCS equipment to inject water into the vessel if needed.

The Reactor Steam Dome Pressure - Low (Injection Permissive) signals are initiated from four pressure switches that sense the reactor dome pressure. The LPCI and LPCS Injection Line Pressure - Low (Injection Permissive) signals are initiated from four pressure switches that sense the pressure in the injection line (one switch for each low pressure ECCS injection line). The Allowable Values are low enough to prevent over-pressurizing the equipment in the low pressure ECCS.

For Functions 1.a and 2.a, the proposed Allowable Value is ≤ 522 pounds per square inch gauge (psig), with one required channels per function. Currently in LSCS TS Table 3.3.5.1-1 for Functions 1.d and 2.d there are two required channels per function. The proposed allowable value is revised to eliminate the low pressure limit and to retain the high pressure limit. Functions 1.a and 2a 'channel per function' are further evaluated in Section 3.5.8 of this E (Variation 8).

For Functions 1.d and 2.c, the proposed Allowable Value is ≤ 522 psig, with 'one per valve' required channels per function which is currently in LSCS TS Table 3.3.5.1-1 for Functions 1.g and 2.f. The proposed allowable value is revised to eliminate the low pressure limit and to retain the high pressure limit.

One channel of Reactor Steam Dome Pressure-Low (Injection Permissive) Function per associated Division and one channel of LPCI and LPCS Injection Line Pressure-Low (Injection Permissive) per associated injection line are only required to be Operable in Modes 4 and 5 when the associated subsystem is required to be Operable by LCO 3.5.2, since these channels support the manual operation of these systems.

With respect to the TS Table 3.3.5.2-1, Functions 1.b (LPCS), 1.c (LPCI A), and 2.b (LPCI B and C), these instruments are provided to protect the associated low pressure ECCS pump from overheating when the pump is operating and the associated injection valve is not sufficiently open. The minimum flow line valve is opened when low flow is sensed and the valve is automatically closed when the flow rate is adequate to protect the pump.

One flow switch per ECCS pump is used to detect the associated subsystem flow rate. The logic is arranged such that each switch causes its associated minimum flow valve to open when flow is low with the pump running. 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 approximately 8 seconds after the switches detect low flow. The time

delay is provided to limit reactor vessel inventory loss during the startup of the RHR shutdown cooling mode.

The Pump Discharge Flow-Low (Bypass) Allowable Values are high enough to ensure that the pump flow rate is sufficient to protect the pump, yet low enough to ensure that the closure of the minimum flow valve is initiated to allow full flow into the RPV.

The proposed allowable values for Functions 1.b, 1.c, and 2.b, are as follows (relocated from LSCS existing TS Table 3.3.5.1-1):

Function 1.b	LPCS	≥ 1240 gpm and ≤ 1835 gpm
Functions 1.c and 2.b	LPCI A/B/C	≥ 1330 gpm and ≤ 2144 gpm

One channel per pump of Pump Discharge Flow-Low (Bypass) Function is required to be OPERABLE when the associated LPCS or LPCI pump and is required to be OPERABLE by LCO 3.5.2 to ensure that the pump is capable of injecting into the RPV when manually operated.

For Table 3.3.5.2-1, Functions 3.a, HPCS system, HPCS Pump Discharge Pressure - High (Bypass) and HPCS System Flow Rate - Low (Bypass), these instruments are provided to protect the HPCS pump from overheating when the pump is operating and the associated injection valve is not sufficiently open. The minimum flow line valve is opened when low flow and high pump discharge pressure are sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump or the discharge pressure is low (indicating the HPCS pump is not operating).

One flow switch is used to detect the HPCS system's flow rate. The logic is arranged such that the switch causes the minimum flow valve to open, provided the HPCS pump discharge pressure, sensed by another switch, is high enough (indicating the pump is operating). The logic will close the minimum flow valve once the closure setpoint is exceeded. (The valve will also close upon HPCS pump discharge pressure decreasing below the setpoint.)

The HPCS System Flow Rate - Low (Bypass) Allowable Values are high enough to ensure that pump flow rate is sufficient to protect the pump, yet low enough to ensure that the closure of the minimum flow valve is initiated to allow full flow into the RPV.

The HPCS Pump Discharge Pressure-High (Bypass) Allowable Value is set high enough to ensure that the valve will not be open when the pump is not operating.

One channel of HPCS System Flow Rate - Low is required to be Operable and one channel of HPCS Pump Discharge Pressure-High (Bypass) is required to be Operable when HPCS is required to be Operable by LCO 3.5.2 in Modes 4 and 5.

The existing Allowable Value for Function 3.a (HPCS Pump Discharge Pressure - High (Bypass)) is ≥ 113.2 psig and the existing Allowable Valve for Function 3.b (HPCS System Flow Rate - Low (Bypass)), is ≥ 1380 gpm and ≤ 2194 gpm. The existing required channels per function are 1 and were previously found in LSCS TS Table 3.3.5.1-1, Functions 3.d and 3.e, respectively.

For Table 3.3.5.2-1, Function 4.a, RHR shutdown cooling system isolation, Reactor Vessel Water Level - Low, Level 3, the function would only be required to be operable when

automatic isolation of the associated penetration flow path is credited in the drain time calculation. Reactor Vessel Water Level-Low, Level 3, signals are initiated from differential pressure transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. While four channels (i.e., two channels per trip system) of the Reactor Vessel Water Level-Low, Level 3, Function are available, only two channels (all in the same trip system) are required to be Operable. The allowable value was chosen to be the same as the Primary Containment Isolation Instrumentation Reactor Vessel Water Level - Low, Allowable Value from TS Table 3.3.6.1-1 (Function 5.a), which is ≥ 11.0 inches.

For Table 3.3.5.2-1, Function 5.a, RWCU system isolation, Reactor Vessel Water Level - Low Low, Level 2, 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 Reactor Vessel Water Level - Low Low, Level 2 Function, associated with RWCU system isolation may be credited for automatic isolation of penetration flow paths.

Reactor Vessel Water Level - Low Low, Level 2 signals are initiated from differential pressure transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. While four channels (two per trip system) of the Reactor Vessel Water Level - Low Low, Level 2 Function are available, only two channels (all in the same trip system) are required to be Operable.

The RWCU system Water Level - Low Low, Level 2 Allowable Value was chosen to be the same as the RWCU System Isolation Water Level - Low Low, Level 2 Allowable Value (LCO Table 3.3.6.1-1, Function 4.k, Modes 1, 2, and 3), since the capability to cool the fuel may be threatened with the same allowable value of ≥ - 58 inches.

The NRC staff finds that proposed LCO 3.3.5.2 correctly specifies the lowest functional capability or performance levels of equipment required for safe operation of the facility. This meets the requirements of 10 CFR 50.36(c)(2)(i). There is reasonable assurance that the Required Actions to be taken when the LCO is not met and the Required Actions are adequate to protect the health and safety of the public in accordance with 10 CFR 50.40(a). Therefore, the staff has determined the licensee's proposed changes to LCO 3.3.5.2 and the action statements are acceptable.

3.3 Staff Evaluation TS 3.5.2 - RPV WIC

The NRC staff reviewed the water sources that would be applicable to the proposed TS LCO 3.5.2 that would state, in part:

> "One ECCS injection/spray subsystem shall be OPERABLE."

"One ECCS injection/spray subsystem" is defined as either one of the three LPCI subsystems (LPCI A, LPCI B, or LPCI C), one LPCS system, or one HPCS system. The LPCI subsystem and the LPCS system consist of one motor driven pump, piping, and valves to transfer water from the suppression pool to the RPV. The HPCS system consists of one motor-driven pump, 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 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 considered to be operable to perform its safety function while it is aligned and operating for decay heat removal (DHR) if it is capable of being manually realigned. The DHR in Modes 4 and 5 is not affected by the proposed LSCS TS change as the requirements on the number of shutdown cooling subsystems that must be operable to ensure adequate DHR from the core are unchanged. These requirements can be found in the LSCS TS 3.4.10, "Residual Heat Removal (RHR) Shutdown Cooling System-Cold Shutdown," TS 3.9.8, "Residual Heat Removal (RHR)-High Water Level," and TS 3.9.9, "Residual Heat Removal (RHR) - Low Water Level." These LSCS DHR requirements are similar to the STSs and can be found in NUREG-1434, TS 3.4.10, "Residual Heat Removal (RHR) Shutdown Cooling System - Cold Shutdown," TS 3.9.7, "Reactor Pressure Vessel (RPV) Water Level - New Fuel or Control Rods," TS 3.9.8, "Residual Heat Removal (RHR) - High Water Level," and TS 3.9.9, "Residual Heat Removal (RHR) - Low Water Level." Based on these considerations, the NRC staff finds that the water sources provide reasonable assurance that the lowest functional capability required for safe operation is maintained and the safety limit is protected.

The proposed TS 3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control," LCO contains two parts. The first part states that drain time of RPV water inventory to the TAF shall be ≥ 36 hours, and the second part states, one ECCS injection/spray subsystem shall be OPERABLE. The proposed Applicability for TS 3.5.2 is Modes 4 and 5.
The proposed LCO 3.5.2 note would state:

> 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 reviewed the proposed TS 3.5.2, focusing on ensuring that the fuel remains covered with water and on the changes made compared to the current TS. The proposed TS 3.5.2 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 3.5.2 states that only one ECCS injection/spray subsystem shall be operable. This change is reflected in Condition A. The change from two ECCS injection/spray subsystems to one ECCS injection/spray subsystem is because this redundancy is not required. With one ECCS injection/spray subsystem and nonsafety-related injection sources, defense-in-depth (DID) will be maintained. The DID 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 Modes 4 and 5 Applicability of TS 3.5.2 is appropriate given that the TS requirements on ECCS in Modes 1, 2, and 3, will be unaffected.

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 shall 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, to (C.1) verify the secondary containment boundary is capable of being established in less than the DRAIN TIME with a completion time of 4 hours, and (C.2) verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME with a completion time of 4 hours, and (C.3) verify one SGT subsystem is capable of being placed in operation in less than the DRAIN TIME with a completion time of 4 hours. The proposed Condition C provides adequate protection should the DRAIN TIME be < 36 hours and ≥ 8 hours because of the ability to establish secondary containment, isolate additional flow paths, and have the SGT subsystem capable of being placed in operation.

The proposed Condition D states that when DRAIN TIME < 8 hours to (D.1) immediately 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) immediately initiate action to establish secondary containment boundary, and (D.3) immediately initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room, and (D.4) immediately initiate action to verify required SGT subsystem(s) are capable of being placed in operation. 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 proposed Condition B. The current LSCS TS for Condition D (Required Action C.2 and associated completion time not met) is similar to proposed Condition D. The proposed Condition D provides adequate protection should the DRAIN TIME be < 8 hours because of the requirement for the ability to establish an additional method of water injection (without offsite electrical power), establish secondary containment, isolate additional flow paths, and have the SGT subsystem capable of being placed in operation.

The proposed Condition E states that when the required action and associated completion time of Condition C or D is not met, or the DRAIN TIME is < 1 hour, then immediately initiate action to restore DRAIN TIME to ≥ 36 hours. The proposed Condition E is new and is not present in the current LSCS TS. The proposed Condition E is acceptable.

The NRC staff evaluated the proposed changes to TS 3.5.2. The LCO 3.5.2 correctly 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. The staff finds them acceptable.

3.3.1 Staff Evaluation of Proposed TS 3.5.2 Surveillances Requirements

The proposed TS 3.5.2 SRs includes verification of DRAIN TIME, verification of water levels/volumes that support ECCS subsystems, verification of water filled pipes to preclude water hammer events, verification of correct valves positions for the required ECCS injection/spray subsystem, operation of the ECCS injection/spray systems ≥ 10 minutes through 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 eight SRs are described below.

SR 3.5.2.1: The DRAIN TIME would be determined or calculated and required to be verified to be ≥ 36 hours in accordance with the SFCP. This surveillance 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.

SR 3.5.2.2: The suppression pool water level (≥ - 12 ft 7 inches) for a required low pressure (LPCS/LPCI) subsystem is required to be verified to ensure pump net positive suction head (NPSH) and vortex prevention is available for the subsystem required to be operable by the LCO. Indications are available either locally or in the control room regarding suppression pool water level. This surveillance would be required to be performed in accordance with the SFCP.

SR 3.5.2.3: The suppression pool water level (≥ - 12 ft 7 inches) for a required HPCS system is required to be verified to ensure pump NPSH and vortex prevention is available for the HPCS system required to be operable by the LCO. Indications are available either locally or in the control room regarding suppression pool water level. This surveillance would be required to be performed in accordance with the SFCP.

SR 3.5.2.4: The surveillance requirement to verify the ECCS injection/spray subsystem piping is sufficiently filled of water at locations susceptible to gas accumulation would be retained from the existing TS 3.5.2. The proposed change would update the SR to reflect the change to LCO 3.5.2, which would require, in part, one low pressure ECCS injection/spray subsystem to be operable instead of two. The existing SR 3.5.2.3 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. Maintaining the pump discharge lines of the required ECCS injection/spray subsystem sufficiently full of water ensures that the subsystem will perform properly. This will also prevent a water hammer following an ECCS initiation signal. One acceptable method of ensuring that the lines are full is to vent at the high points. This surveillance would be required to be performed in accordance with the SFCP.

SR 3.5.2.5: The SR to verify the correct alignment for each manual, power operated, and automatic valves in the required ECCS injection/spray subsystem flow path would be retained from the existing TS 3.5.2. Similar to the change discussed above for proposed SR 3.5.2.4, changes to SR 3.5.2.5 would clarify a proposed requirement for LCO 3.5.2. The proposed SR wording for SR 3.5.2.5 is, "Verify, for the required ECCS injection/spray subsystem, each manual, power operated..." would replace existing SR 3.5.2.4, "Verify each required ECCS injection/spray subsystem manual, power operated ..." SR 3.5.2.5 would provide assurance that the proper flow path will be available for ECCS operation to support TS 3.5.2. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be in advertently misaligned, such as check valves. This surveillance would be required to be performed in accordance with the SFCP.

The surveillance is modified by a Note which exempts system vent flow paths opened under administrative control. The administrative control should be proceduralized and include stationing a dedicated individual at the system vent flow path who is in continuous communication with the operators in the control room. This individual will have a method to rapidly close the system vent flow path if directed.

SR 3.5.2.6: The required ECCS injection/spray subsystem would be required to be operated for at least 10 minutes through the recirculation line in accordance with the SFCP. Testing the ECCS injection/ spray subsystem through the full flow test recirculation line is adequate to confirm the operational readiness of the required ECCS injection/spray subsystem. The minimum operating time of 10 minutes was based on engineering judgment.

SR 3.5.2.7: 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 surveillance would be required to be performed in accordance with the SFCP.

SR 3.5.2.8: This SR would state, "Verify the required ECCS injection/spray subsystem can be manually operated." It would demonstrate that the required LPCS, HPCS, or LPCI subsystem could be manually operated, using the associated pump and valve switches (including throttling injection valves), to provide additional RPV water inventory, if needed. Vessel injection/spray may be excluded from the SR, per the existing Note from SR 3.5.2.6, since all active components are testable and full flow can be demonstrated by recirculation through the full flow test line, coolant injection into the RPV is not required during the Surveillance. This surveillance would be required to be performed in accordance with the SFCP.

Variation 6 (see SE Section 3.5.6) further describes manual operations of the ECCS injection/spray subsystems.

The NRC staff evaluated each of these proposed SRs associated with the new LCO 3.5.2 and concluded they are appropriate for ensuring the operability of the equipment and instrumentation specified in LCO 3.5.2. The staff concluded that each of the proposed SRs are acceptable since they meet the requirements of 10 CFR 50.36(c)(2)(ii). Specifically, the NRC staff concludes that the proposed SRs support TS 3.5.2 DRAIN TIME requirements, assure that water inventory is available for ECCS injection/spray subsystem, the ECCS injection/spray subsystems are adequately filled (mitigates effects of gas accumulation or voiding), the subsystems have verified valve positions to support RPV injection, verified pumps provide adequate flow to support DRAIN TIME and RPV injection, verification of automatic isolation, and ECCS injection/spray subsystems can be manually operated.

3.4 Staff Evaluation of TS Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation"

The TS LCO 3.3.5.1 currently states that: "the ECCS instrumentation for each function in Table 3.3.5.1-1, shall be OPERABLE." TS Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation" contains requirements for function operability during Modes 4 and 5 when the associated ECCS injection/spray subsystem(s) are required to be operable. Conforming changes were proposed for the actions table of LCO 3.3.5.1.

As discussed above in Section 2.2.2.1, the licensee proposed to delete the following Modes 4 and 5, Table 3.3.5.1-1, function requirements:

FUNCTION	FUNCTIONS DELETED	FUNCTION RELOCATED TO TABLE 3.3.5.2-1
1. Low Pressure Coolant Injection - A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems;		
a. Reactor Vessel Water Level - Low Low Low, Level 1	Yes	
c. LPCI Pump A Start - Time Delay Relay	Yes	
d. Reactor Steam Dome Pressure - Low (Injection Permissive)	No	Function 1.a
e. LPCS Pump Discharge Flow - Low (Bypass)	No	Function 1.b
f. LPCI Pump A Discharge Flow - Low (Bypass)	No	Function 1.c
g. LPCS and LPCI A Injection Line Pressure - Low (Injection Permissive)	No	Function 1.d
h. Manual Initiation	Yes	
2. LPCI B and LPCI C Subsystems;		
a. Reactor Vessel Water Level - Low Low Low, Level 1	Yes	
c. LPCI Pump B Start - Time Delay Relay	Yes	
d. Reactor Steam Dome Pressure - Low (Injection Permissive)	No	Function 2.a
e. LPCI Pump B and LPCI Pump B Discharge Pressure - Low (Bypass)	No	Function 2.b
f. LPCI B and C Injection Line Pressure - Low (Injection Permissive)	No	Function 2.c
g. Manual Initiation	Yes	
3. High Pressure Core Spray (HPCS) System;		
a. Reactor Vessel Water Level - Low Low, Level 2	Yes	
c. Reactor Vessel Water Level - High, Level 8	Yes	
d. HPCS Pump Discharge Pressure – High (Bypass)	No	Function 3.a
e. HPCS System Flow Rate - Low (Bypass)	No	Function 3.b
f. Manual Initiation	Yes	

As shown in the table above, nine functions above would be deleted completely to support the consolidation of RPV WIC instrumentation requirements into the proposed new TS 3.3.5.2. The other nine functions would be moved to proposed TS Table 3.3.5.2-1, as discussed in Section 3.2.4.1 of this SE.

The LSCS TSs currently require automatic initiation of ECCS pumps on low reactor vessel water level. 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.

For the reasons stated above, the NRC staff finds the deletion of TS Table 3.3.5.1,-1 Functions 1.a, 2.a, and 3.a acceptable.

The deletion of the LPCS/LPCI/HPCS manual initiations, Functions 1.h, 2.g, 3.f, and HPCS vessel water high Level 8 interlock, Function 3.c are evaluated in Variation 6 in Section 3.5.6 of this SE.

The deletion of the LPCI start time delay relay Functions 1.c and 2.c for LPCI Pumps A and B, respectively, are evaluated in Variation 6 in Section 3.5.6 of this SE.

3.5 Staff Evaluation of Proposed Technical Variations

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

3.5.1 Variation 1, Condensate Storage Tank (CST) Level-Low Instrumentation

The LSCS TS Table 3.3.5.1-1 contains no function similar to STS Function 3.d (i.e., CST Level - Low). This is a minor difference as the HPCS systems for LSCS, Units 1 and 2, are normally aligned to take suction from the unit's suppression pool that provides the same function as the CST described in the STS.

The NRC staff finds the STS and the LSCS licensing bases are different as it relates to ECCS water supplies. Presently, TS SR 3.5.2.2 does not have a CST as a water source for the HPCS and the CST exists for the RCIC systems (existing TS Table 3.3.5.2-1, "Reactor Core Isolation Cooling System Isolation"). The CST is the normal water source for RCIC; therefore, the NRC finds Variation 1 acceptable.

3.5.2 Variation 2, TS Table 3.3.5.2-1, ECCS Injection Permissives - Line Pressure

In addition to the LPCI and LPCS subsystem injection permissive functions based on Reactor Steam Dome Pressure - Low, the LSCS low pressure ECCS subsystems require an additional injection permissive signal based on their associated Injection Line Pressure - Low (i.e., proposed Table 3.3.5.2-1, Functions 1.d and 2.c). These permissive functions are utilized to protect the low pressure ECCS systems from pressures that exceed their design; therefore, their inclusion in the proposed LCO 3.3.5.2, Table 3.3.5.2-1 is justified.

The NRC staff finds the STS and the LSCS licensing bases are different as it relates to ECCS system protection and has additional requirements for LPCI and LPCS injection permissive as it relates to line pressure. These permissive functions are utilized to protect the low pressure ECCS systems that exceed their design and the justification is similar to the explanation for the Reactor Steam Dome Pressure – Low which has already been accepted in TSTF-542. Therefore, the NRC finds Variation 2 acceptable.

3.5.3 Variation 3, TS Table 3.3.5.2-1, Channel Checks

The LSCS, Units 1 and 2, do not currently have the capability to perform Channel Checks for the following proposed Table 3.3.5.2-1 Functions:

1. LPCI A and LPCS subsystems:

   a. Reactor Steam Dome Pressure - Low (Injection Permissive)
   b. LPCS Pump Discharge Flow - Low (Bypass)
   c. LPCI Pump A Discharge Flow - Low (Bypass)
   d. LPCS and LPCI A Injection Line Pressure - Low (Injection Permissive)

2. LPCI B and LPCI C subsystems:

   a. Reactor Steam Dome Pressure - Low (Injection Permissive)
   b. LPCI Pump B and LPCI Pump C Discharge Flow - Low (Bypass)
   c. LPCI B and LPCI C Injection Line Pressure - Low (Injection Permissive)

3. HPCS system:

   a. HPCS Pump Discharge Pressure - High (Bypass)
   b. HPCS System Flow Rate - Low (Bypass)

5. RWCU System Isolation:

   a. Reactor Vessel Water Level - Low Low, Level 2.

The current LSCS, Units 1 and 2, TSs do not include Channel Checks for these functions and the applicant did not propose to add them.

The NRC staff has determined that the above instrument functions do not have existing Channel Checks (TS Table 3.3.5.1-1) and no future Channel Checks were proposed for the instruments being relocated to new TS Table 3.3.5.2-1. Since Channel Checks for these functions would have no impact on manual ECCS injection/spray capabilities for LPCS, HPCS, or LPCI, the NRC staff, therefore, has determined the proposed Variation 3 is acceptable.

3.5.4 Variation 4, TS LCO 3.3.8.1, LOP Instrumentation

The LSCS LCO 3.3.8.1, "Loss of Power (LOP) Instrumentation," currently contains a footnote in Table 3.3.8.1-1 that is required to be modified along with the adoption of TSTF-542, as proposed. Currently, Table 3.3.8.1-1, Footnote (a), adds applicability for Functions 1.e (Electrical Division 1 and 2) and 2.e (Electrical Division 3), "Degraded Voltage - Time Delay, LOCA." This footnote currently adds applicability for these functions in Modes 4 and 5 when associated ECCS subsystem(s) are required to be operable by LCO 3.5.2, "ECCS-Shutdown." The purpose of this footnote is to ensure that the degraded voltage - time delay, LOCA function is operable. The licensee's justification for the proposed modification to remove Footnote (a) of Table 3.3.8.1-1 following the adoption of TSTF-542, is that no ECCS subsystems will be required to start automatically. Therefore, these functions will no longer be required.

Presently, TS Table 3.3.8.1-1, "Loss of Power Instrumentation," has a Footnote (a) related to TS LCO 3.5.2, "ECCS - Shutdown." STS does not have this requirement for Division 1, 2, or 3 electrical power as it relates to OPDRV. With the adoption of TSTF-542, and the use of operator actions for manual operations of ECCS pumps for a draindown event, there is no

longer any need for the degraded voltage time delay LOCA function during Modes 4 and 5; therefore, the NRC finds Variation 4 acceptable.

3.5.5 Variation 5, TS LCO 3.6.1.3, PCIVs

The licensee proposes to delete a portion of the applicability for LSCS, Units 1 and 2, LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," and LCO 3.6.1.3, Condition F, and all of its associated Required Actions. The applicability for LCO 3.6.1.3 is: "MODES 1, 2, and 3 - When associated instrumentation is required to be OPERABLE per LCO 3.3 6.1, "Primary Containment Isolation Instrumentation."" These changes are justified since all OPDRV requirements are being deleted and Modes 4 and 5 (i.e., the only non-Mode 1, 2, and 3 PCIV requirement in LCO 3.3.6.1) PCIV requirements have been relocated from LCOs 3.3.6.1 and 3.6.1.3 to the proposed LCOs 3.3.5.2 and 3.5.2.

The existing LSCS LCO 3.6.1.3 applicability, which states in part, 'when associate instrumentation is required to be OPERABLE,' and TS 3.6.1.3, Condition F, which states, "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," are proposed to be deleted. With the adoption of TSTF-542, the RPV WIC requirements would be consolidated into TSs 3.3.5.2 and 3.5.2 and the MODE 4 and 5 requirements in TS 3.6.1.3 for OPDRVs would no longer be applicable. Therefore, the staff has concluded that the proposed variation is consistent with the requirements of TSTF-542, therefore, the NRC finds Variation 5 acceptable.

3.5.6 Variation 6, LPCS, LPCI, and HPCS Manual Initiation and HPCS RPV High Water Level - 8

The licensee proposes to revise Table 3.3.5.2-1, "RPV Water Inventory Control Instrumentation," as described in TSTF-542 to reflect the LSCS, Units 1 and 2, design. Specifically, Function 1, "Low Pressure Coolant Injection - A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems," Function 1.d, "Manual Initiation," Function 2, "LPCI B and LPCI C Subsystems," Function 2.c, "Manual Initiation," and Function 3, High Pressure Core Spray (HPCS) System, Function 3.a, "Reactor Vessel Water Level - High, Level 8," and Function 3.e, "Manual initiation," that appear in the BWR/6 TSs in TSTF-542 are not included in the LSCS TSs. This corrects an issue in TSTF-542 associated with the BWR/5 and BWR/6 ECCS instrumentation requirements.

The purpose of the manual initiation functions is to allow manual actuation of the ECCS subsystems required by TS 3.5.2 to mitigate a draining event. Licensed operators in the main control room have the capability to manually start the LPCI, LPCS, and HPCS pumps and to manually align valves to add water inventory, if needed. This can be accomplished without the "Manual Initiation" functions. All actions can be performed from the main control room and can be accomplished well within the 1-hour minimum DRAIN TIME limit specified in TS 3.5.2, Condition E.

The Reactor Vessel Water Level High, Level 8, signal (i.e., TSTF-542, Table 3.3.5.2-1, Function 3.a), prevents overfilling of the reactor vessel into the main steam lines by closing the HPCS injection valves when the water level is above the Level 8 setpoint. Therefore, if HPCS is the required ECCS subsystem and the water level is above Level 8 (which it typically is during refueling conditions), using the "Manual Initiation," Function 3.e will not result in inventory injection into the reactor vessel until the water level drops below the Level 8

setpoint. If Level 8 is retained in Table 3.3.5.2-1, the function would need to be rendered inoperable in order to inject water when the water level is above the Level 8 setpoint.

Consequently, Table 3.3.5.2-1, Functions 1.d, 2.c, 3.a, and 3.e, as described in TSTF-542 are not needed to actuate the LPCI, LPCS, and HPCS subsystem components to mitigate a draining event, and are not included in the proposed Table 3.3.5.2-1 for LSCS. Since the licensee proposes to not include the Manual Initiation logic functions, the need for including a SR to perform a logic system functional test for Table 3.3.5.2 function is eliminated. Therefore, SR 3.3.5.2.3, as described in TSTF-542, is not included in the proposed LCO 3.3.5.2 for LSCS. The remaining functions and conditions have been renumbered accordingly.

Additionally, LSCS implements a variation to proposed TS 3.5.2 SR 3.5.2.8. TSTF-542 SR 3.5.2.8 is:

> Verify the required ECCS injection/spray subsystem actuates on a manual initiation signal.

LSCS proposes for SR 3.5.2.8:

> Verify the required ECCS injection/spray subsystem can be manually operated.

The variation of "can be manually operated," aligns SR 3.5.2.8 with the LSCS design which can manually operate the required ECCS/injection spray subsystem from the control room.

The NRC staff finds that manual initiation functions and HPCS Vessel Water Level 8 function can be deleted. Table 3.3.5.2-1, Functions 1.d, 2.c, 3.a, and 3.e, as described in TSTF-542 (Reference 3), are not needed to actuate the LPCI, LPCS, and HPCS subsystem components to mitigate a draining event, and are not included in the proposed Table 3.3.5.2-1 for LSCS. As previously stated in Section 3.3 of this SE, the ECCS pumps are high-capacity pumps, with flow rates of thousands of 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 at more controllable flow rates in Mode 4 and 5 draindown events. NRC finds that TS 3.3.5.2, Condition E, and associated Required Actions E.1 and E.2 from TSTF-542, which is associated with the HPCS Level 8 instrumentation, is no longer needed.

In addition, the NRC staff finds acceptable the deletion of TS Table 3.3.5.1-1 Functions 1.c and 2.c for the LPCI A and B pump Start time delay relays. The purpose of these time delays is to stagger the automatic start of LPCI pumps thus limiting the starting transients on the emergency buses. The staggered starting of the ECCS pumps is unnecessary for manual ECCS operation.

Based on the discussion above, the NRC finds Variation 6 acceptable.

3.5.7 Variation 7, TS LCO 3.8.2, AC Sources - Shutdown

The licensee proposes to modify Note 2 of LCO 3.8.2, "AC Sources - Shutdown," SR 3.8.2.1, to remove references to LCO 3.5.2, "ECCS Shutdown." The purpose for SR 3.8.2.1 is to define the LCO 3.8.1, "AC Sources-Operating," SRs that are necessary for ensuring the operability of the AC sources in modes or conditions other than Modes 1, 2, and 3.

The purpose of the Note 1 is to preclude rendering the required DG inoperable for testing and disconnecting a required offsite circuit during the performance of the listed SRs. This note is not being changed as part of this application.

Note 2 relaxes requirements for performing SR 3.8.1.12 and SR 3.8.1.19 when ECCS subsystems are not required to be operable in accordance with LCO 3.5.2, "ECCS-Shutdown." The intent of Note 2 is to be consistent with other ECCS instrumentation requirements that are not required when the associated ECCS subsystem will not receive an initiation signal.

The NRC staff finds that SR 3.8.2.1, Note 2, can be modified to delete the reference to LCO 3.5.2, "ECCS-Shutdown." Following the adoption of TSTF-542 as proposed, no ECCS initiation signal will be provided in Modes 4 and 5. This revision to Note 2 will continue to ensure that the required AC sources are adequately tested without unnecessarily rendering them inoperable during shutdown periods when the available AC sources are limited. Therefore, the NRC finds Variation 7 acceptable.

3.5.8 Variation 8, TS Table 3.3.5.2-1, Functions 1.a (LPCS) and 2.a(LPCI-B and LPCI-C), Reactor Steam Dome Pressure- Low (Permissive)

For Table 3.3.5.2-1, Functions 1.a and 2.a, "Reactor Steam Dome Pressure Low (Injection Permissive)," only one required channel per function is needed. This applies to the required LPCI A and LPCS subsystems and required LPCI B and LPCI C subsystems, respectively.

Specifically, the instruments associated with TS Table 3.3.5.2-1, Functions 1.a and 2.a, are installed in a parallel configuration, so only one of the two channels for these functions is required to satisfy the logic and provide the permissive for the associated subsystem required to be operable. Moreover, if the required channel is found to be inoperable, LCO 3.3.5.2, "RPV Water Inventory Control Instrumentation," Condition C, applies. Required Action C.1, requires the channel to be placed in trip within 1 hour, which will allow manual operation of the associated subsystem.

The NRC staff finds that since two parallel channels are provided and only one channel of the two is needed to complete the logic for the steam dome pressure permissive for the associated subsystem required to be operable; this is an acceptable variation from the STS and TSTF-542. Therefore, the NRC staff finds Variation 8 acceptable.

3.6 Staff Evaluation of Proposed Deletion of Reference to OPDRVs

Section 2.2.4 above lists the numerous OPDRV references proposed for deletion. The proposed changes would replace the existing specifications related to OPDRVs with revised specifications for RPV WIC.

The term OPDRVs is not specifically defined in the TSs and historically has been subject to inconsistent application by licensees. 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, SRs, and deleting references to OPDRVs throughout the TS.

The current LSCS TSs contain instrumentation requirements related to OPDRVs in four separate TS sections. The proposed TS 3.3.5.2 consolidates the instrumentation

requirements into a single location to simplify the presentation and provide requirements consistent with TS 3.5.2. The remaining TSs with OPDRVs requirements are for primary and secondary containment and isolation valves, RPS electrical, LOP instrumentation, SGT system, control room area filtration system and ventilation A/C system, and electrical sources. Each of these systems' requirements during OPDRVs were proposed for consolidation into revised TS 3.5.2 for RPV WIC based on the appropriate plant conditions and calculated DRAIN TIME.

The NRC staff determined that the deletion of OPDRVs references, along with the corresponding editorial changes, are appropriate because the proposed TSs governing RPV WIC and the associated instrumentation, TSs 3.5.2 and 3.3.5.2, respectively, are a simplified alternative set of controls for ensuring water level is maintained above the TAF and, therefore, these changes are acceptable.

3.7 Staff Evaluation of TS 3.10, Special Operations, and TSTF-484

The current LSCS TS LCO 3.10.8, "Inservice Leak and Hydrostatic Testing Operation," allows performance of an inservice leak or hydrostatic test with the average reactor coolant temperature greater than 200 °F, while considering operational conditions to still be in Mode 4 provided certain secondary containment LCOs were met.

TSTF-484, Revision 0, "Use of TS 3.10.1 for Scram Time Testing Activities," revised STS LCO 3.10.1 (for LSCS TS 3.10.8) to expand its scope to include operations where temperature exceeds 200 °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 test or hydrostatic test.

By Amendment No. 219 (LSCS, Unit 1) and Amendment No. 205 (LSCS, Unit 2), dated December 17, 2015, the NRC approved changes to LSCS TS LCO 3.10.8 in accordance with TSTF-484 (Reference 8). The NRC staff's SE for these amendments stated, in part, that "Two ECCS injection/spray (i.e., HPCS, LPCS, or LPCI mode of the RHR system) subsystems are required to be operable in Mode 4 at LSCS per TS 3.5.2." However, per the proposed new LCO 3.5.2, one low pressure ECCS injection/spray subsystem would be required to be operable in Mode 4.

The NRC staff has determined that changing from two ECCS injection/spray subsystems to one ECCS injection/spray subsystem is acceptable. As stated previously in Section 3.3 of this SE, this level of redundancy is not required even during application of LCO 3.10.8. When the licensee applies LCO 3.10.8 at the end of a refueling outage (Mode 5), 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 in Mode 5 than what is present during power operation modes (Modes 1, 2, 3, and 4) when the reactor pressure vessel is not water solid. 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 ECCS pumps and properly align valves for injection from the control room remains valid.

As stated previously in Section 3.3 of this SE, with one ECCS injection/spray subsystem and nonsafety-related injection sources, DID will be maintained. The DID 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.

Using the reasoning presented elsewhere in this SE for TSTF-542, including an additional review of the SE for LSCS TS 3.10.8 (Reference 8) and the SE for TSTF-484, the NRC staff determined that proposed LCO 3.3.5.2.1 and LCO 3.5.2, continue to represent either the lowest functional capability or performance level of equipment required for safe operation of the facility, and therefore the licensee's proposed changes are acceptable.

3.8 Technical Conclusion

The LSCS 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 TAF ensures that the fuel cladding fission product barrier is protected during shutdown conditions. The proposed changes to the TS establish new LCO requirements that address the preventive, mitigative equipment, and associated instrumentation that provide an alternative means to support Safety Limit 2.1.1.3 during Modes 4 and 5 operations.

The reactor coolant system is at a low operating temperature (<200 °F) and is depressurized during Modes 4 and 5 conditions. An event involving a loss of inventory while in the shutdown condition does not exceed the capacity of one ECCS injection/spray subsystem. The accidents that are postulated to occur during shutdown conditions, the Fuel Handling Accident (final safety analysis report (FSAR) 15.7.4) and the Postulated Radioactive Releases Due to Liquid Radwaste Tank Failure, (FSAR 15.7.3), do not involve a loss of inventory. Therefore, the equipment and instrumentation associated with the RPV WIC TSs do not provide detection or mitigation related to these design basis accidents.

The proposed TS LCO 3.5.2 contains requirements for operability of one ECCS injection/spray 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 3.5.2 and 3.3.5.2 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).

The NRC staff finds that the proposed action statements 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 OPDRV references from the TS Applicability, Conditions, Required Actions, and Footnotes descriptions. The NRC staff has reviewed the proposed changes and determined that the deletion of OPDRVs references, along with the corresponding editorial changes, are appropriate because the proposed TSs governing RPV WIC and the associated instrumentation, TSs 3.5.2 and 3.3.5.2, respectively, are a clarified and simplified alternative set of controls for ensuring that water level is maintained above the TAF.

The NRC staff reviewed the SRs associated with the new LCOs 3.5.2 and 3.3.5.2. The NRC staff finds that the proposed TS SRs in TS 3.5.2 are acceptable since they support TS 3.5.2 DRAIN TIME requirements, assure that water inventory is available for ECCS injection/spray subsystem, RPV injection, pump performance, and ECCS injection/spray subsystems are adequately filled (mitigates effects of gas accumulation or voiding), the subsystems have verified valve positions to support RPV injection, verified pumps provide adequate flow to support DRAIN TIME and RPV injection, verification of automatic isolation, and ECCS injection/spray subsystems can be manually operated. The staff finds that the two SRs proposed for TS 3.3.5.2 are sufficient and adequate as they ensure that the system parameters such as dome pressure, discharge flow, vessel water levels, are operable and therefore the system is capable of performing its specified safety functions in support of TS 3.5.2, DRAIN TIME, and provide 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 LSCS changes against each of the unit applicable design requirements listed in Section 2.3.1 of this SE. The staff finds that the proposed changes for Modes 4 and 5 operations, as they relate to the proposed TS changes for the new DRAIN TIME definition, and the removal of OPDRV references, remain consistent with the GDCs in that the LSCS design requirements for instrumentation, reactor coolant leakage detection, the RCPB, and reactor coolant makeup are unaffected.

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 the proposed LAR (Reference 1). The NRC staff has concluded that the TS bases change provided describe the basis for the affected TS and follow the "Final Policy Statement on TSs Improvements for Nuclear Power Reactors" (58 *Federal Register* 39132).

Additionally, the proposed TS changes were reviewed for technical clarity and consistency with the existing LSCS requirements for customary terminology and formatting. The NRC staff found that the proposed changes were consistent with Traveler TSTF-542, Revision 2 (Reference 3), and Chapter 16 of the SRP (Reference 7).

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois State official was notified of the proposed issuance of the amendment on September 17, 2018. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes SRs. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (83 FR 6223; February 13, 2018). Accordingly, the amendment meets the eligibility

criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

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

7.0 REFERENCES

1. Letter dated December 13, 2017, from Exelon Generation Company (LLC), to US NRC, LaSalle County Generating Station, Units 1 and 2, Docket No. 50-373 and 50-374, Application to Revise Technical Specifications to Adopt TSTF-542, "Reactor Pressure Vessel Water Inventory Control," ADAMS Accession No. ML17360A159.

2. Letter dated June 18, 2018, Supplemental Information Related to Application to Revise Technical Specifications to Adopt TSTF-542, "Reactor Pressure Vessel Water Inventory Control," ADAMS Accession No. ML18169A401.

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

4. Final Safety Evaluation for 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.

5. US NRC, Standard Technical Specifications, General Electric BWR/6 Plants, Revision 4.0, Volume 1, Specifications (NUREG-1434), dated April 2012, ADAMS Accession No. ML12104A195.

6. US NRC, Standard Technical Specifications, General Electric BWR/6 Plants, Revision 4.0, Volume 2, Bases (NUREG-1434), dated April 2012, ADAMS Accession No. ML12104A196.

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

8. Letter dated December 17, 2015, from US NRC to Exelon Generating Company, LLC, Dresden Nuclear Power Station, Units 2 and 3; LaSalle County Station, Units 1 and 2; and Quad Cities Nuclear Power Station, Units 1 and 2 - Issuance of Amendment to add Technical Specification 3.10.8, "Inservice Leak and Hydrostatic Testing Operations," (CAC NOS. MF5471-MF5476), ADAMS Accession No. ML15324A439.

Technical contacts: Larry Wheeler, NRR/DSS/STSB
Diana Woodyatt, NRR/DSS/SRXB
Dan Warner, NRR/DE/EICB

Date of issuance: October 15, 2018

SUBJECT: LASALLE COUNTY STATION, UNITS 1 AND 2 – ISSUANCE OF AMENDMENTS TO RENEWED FACILITY OPERATING LICENSES RE: APPLICATION TO REVISE TECHNICAL SPECIFICATIONS TO ADOPT TSTF-542, "REACTOR PRESSURE VESSEL WATER INVENTORY CONTROL" (EPID L-2017-LLA-0415) DATED OCTOBER 15, 2018

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NAME	BVaidya	SRohrer	VCusumano
DATE	08/08/18	08/23/18	08/08/18
OFFICE	OGC(*)	NRR/DORL/LPL3/BC	NRR/DORL/LPL3/PM
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