

**REQUEST FOR ADDITIONAL INFORMATION**  
**APPLICATION TO REVISE TECHNICAL SPECIFICATION TO ADOPT TSTF-542, REVISION**  
**2, “REACTOR PRESSURE VESSEL WATER INVENTORY CONTROL”**  
**EXELON GENERATION COMPANY LIMERICK GENERATING STATION UNITS 1 AND 2**  
**EPID: L-2017-LLA-0260**

By application dated July 19, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17200D096, Exelon Generation Company, LLC (Exelon), (the licensee), requested to adopt Technical Specifications Task Force (TSTF) Traveler TSTF-542, “Reactor Pressure Vessel Water Inventory Control,” Revision 2, which changes the Technical Specifications (TSs) for Limerick Generating Station, Units 1 and 2 (LGS). Traveler TSTF-542, Revision 2, was approved by the U.S. Nuclear Regulatory Commission (NRC) on December 20, 2016 (ADAMS Accession No. ML16343B008).

LGS TS Section 2.0, “Safety Limits and Limiting Safety System Settings,” 2.1.4 states; the reactor vessel water level shall be above the top of the active irradiated fuel for Operational Conditions 3, 4 and 5. If the reactor vessel water level is at or below the top of the active irradiated fuel, TS required actions are to initiate the Emergency Core Cooling System to restore the water level, after depressurizing the reactor vessel, if required. Safety Limit 2.1.4 is maintained through the TS Limited Condition of Operation (LCO), applicability, actions, and notes. The LGS TSs require certain safety systems to be OPERABLE during “operations with a potential for draining the reactor vessel” (OPDRVs).

The proposed changes would replace existing TS requirements associated to OPDRVs with revised TSs providing an alternative requirement for Reactor Pressure Vessel (RPV) Water Inventory Control (WIC). These alternative requirements would protect Safety Limit 2.1.4.

The Nuclear Regulatory Commission (NRC) staff has reviewed the information the licensee provided that supports the proposed amendment and is requesting for the licensee to address the following issues to be resolved and supplement the submittal:

**Question 1 (LGS-RAI-1):**

Background:

Markup pages 3/4 3-35 and 3/4 3-41b: The licensee proposed to move Mode 4 and 5 requirements for Function 1.d (Core Spray System - Manual Initiation) from LGS TS Table 3.3.3-1 to TS Table 3.3.3.A-1 as Function 1.b. The current Function 1.d is modified by Note (e) which states, “The manual initiation push buttons start the respective core spray pump and diesel generator. The “A” and “B” logic manual push buttons also actuate an initiation permissive in the injection valve opening logic.”

Question:

Please provide technical justification to explain why Note (e) would no longer be applicable to Table 3.3.3.A-1 Function 1.b, or revise the proposed changes.

**Question 2 (LGS-RAI-2):**

Background:

Markup page 3/4 5-6. The proposed title 3/4 5.2, REACTOR PRESSURE VESSEL (RPV) WATER INVENTORY CONTROL (WIC) is missing a period between 3/4 and 5. It should read, 3/4.5.2.

Question:

Correct the typo.

**Question 3 (LGS-RAI-3):**

Background:

Markup page 3/4 5-6a. Action e states, "With required ACTION and associated allowed outage time for ACTIONs c. or d. not met, or DRAIN TIME less than 1 hour, initiate action to restore DRAIN TIME to greater than or equal to 36 hours." In accordance with TSTF-542, LCO 3.5.2, Condition E, states a Completion Time of "immediately."

Question:

Correct LCO 3.5.2, Action e to be in accordance with the traveler or provide justification that the immediate Completion Time is not required.

**Question 4 (LGS-RAI-4):**

Background:

Markup pages 3/4 5.6 and 3/4 5.7. LCO 3.5.2 and surveillance requirements 4.5.2 uses "suppression chamber water level" and "suppression pool water level" in several places.

Question:

In order to bring consistence to new proposed TS, select one of these 'water levels,' or provide justification that the mixing of the terms 'chamber' and 'pool' is correct.

**Question 5 (LGS- RAI-5):**

Background:

Attachment 1, Page 2, first Variation states.

In alignment with TSTF-542, Rev. 2, Proposed Safety Basis (Section 3.1.2), the existing LGS TS 3.5.2 requirement to suspend core alterations as an action for Emergency Core Cooling System (ECCS) inoperability is no longer warranted since there are no postulated events associated with core alterations that are prevented or mitigated by the proposed RPV water inventory control requirements. In addition, loss of RPV inventory events are not initiated by core alteration operations. Refueling Limiting Conditions for Operation (LCOs) provide requirements to ensure safe operation during core alterations,

including required water level above the RPV flange. Therefore, LGS proposes to delete TS 3.5.2, Action 'b' in its entirety, including the action relating to core alterations.

Traveler 542 does not specifically address that existing TS that have in place requirement for CORE ALTERATION, can be deleted.

Question:

Re-instate the TS requirement for CORE ALTERATION as describe in the following sections; LCO 3.5.2, Action b, LCO 3.5.3, Action b, or provide stronger justification that these actions can be deleted.

**Question 6 (LGS- RAI-6):**

Background:

In Attachment 1 of the LAR, page 2 of 6, the licensee proposed the following variation:

Because LGS, Unit 1 and Unit 2 TS are based on NUREG-0123, Revision 2, the current LGS TS in Table 3.3.3-1, "Emergency Core Cooling System Actuation Instrumentation," do not include requirements for the following functions that are listed in TSTF-542: "1b - Core Spray Pump Discharge Flow-Low (Bypass)" and "2b - Low Pressure Coolant Injection Pump Discharge Flow-Low (Bypass)." Therefore, to align with current LGS instrumentation TS, no requirements were added for these functions as part of the newly proposed TS Table 3.3.3.A-1.

TSTF-542 moves the CS and LPCI bypass requirements from STS Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation," to new STS Table 3.3.5.2-1, "RPV Water Inventory Control Instrumentation." In particular, Section 3.3.4.2 of the TSTF-542 technical evaluation describes the purpose of the STS requirement:

The minimum flow 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 fully 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.

As per the requirements contained in TSTF-542, successful RPV water inventory control is based, in part, on the capability of an operable ECCS pump to inject water as needed to make up the inventory. Sections 5.4.7.1.2 and 6.2.4.3.1.3.1.1 of the LGS Updated Final Safety Analysis Report describe this protective function of the LGS minimum flow rate instruments to signal automatically opening or closing the valves in the minimum flow bypass lines for the low pressure RHR and CS pumps.

Furthermore, the presence or absence of a requirement in a current TS is not in and of itself justification for the proposed TS.

Question:

Since the licensee has omitted the equivalent of the TSTF-542 instrumentation requirements for both CS and LPCI Pump Discharge Flow-Low (Bypass) from the proposed TSs, please describe how there is reasonable assurance that a required LGS ECCS pump will operate as expected (e.g., the bypass line will not lessen expected discharge flow, and said pump will not overheat when the associated injection valve is not fully open.)