

NRR-DMPSPeM Resource

From: Buckberg, Perry
Sent: Thursday, January 18, 2018 1:39 PM
To: Frehafer, Ken
Cc: Snyder, Mike; Mack, Jarrett (Jarrett.Mack@fpl.com); Catron, Steve; Shoop, Undine
Subject: Request for Additional Information - St. Lucie Inop AFW Steam Supply LAR (L-2017-LLA-0296)
Attachments: RAI - St Lucie Inop AFW Steam Supply SBPB (L-2017-LLA-0296).pdf

Ken,

By letter dated September 14, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17257A300), Florida Power and Light Company (the licensee), submitted a license amendment request (LAR) to modify the St. Lucie Unit Nos. 1 and 2 Technical Specifications (TSs) for the auxiliary feedwater (AFW) system. Specifically, the licensee proposed to modify St. Lucie Unit Nos. 1 and 2 TS 3.7.1.2, "Auxiliary Feedwater System," to add a new required action for an inoperable turbine-driven AFW pump steam supply and add a new required action for an inoperable turbine-driven AFW pump steam supply concurrent with an inoperable motor-driven AFW pump. The staff has identified areas where additional information is needed to complete the review.

The NRC staff's Request for Additional Information (RAI) related to this LAR is attached. A draft version of this RAI was provided to you on January 4, 2018, and a clarification call held earlier today resulted in no changes to the draft.

Consistent with our communications earlier today, the NRC requests that the response to the attached final RAI be issued within 30 days of this email.

Thanks,

Perry Buckberg

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Subject: Request for Additional Information - St. Lucie Inop AFW Steam Supply LAR
(L-2017-LLA-0296)
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From: Buckberg, Perry

Created By: Perry.Buckberg@nrc.gov

Recipients:

"Snyder, Mike" <Mike.Snyder@fpl.com>
Tracking Status: None
"Mack, Jarrett (Jarrett.Mack@fpl.com)" <Jarrett.Mack@fpl.com>
Tracking Status: None
"Catron, Steve" <Steve.Catron@fpl.com>
Tracking Status: None
"Shoop, Undine" <Undine.Shoop@nrc.gov>
Tracking Status: None
"Frehafer, Ken" <Ken.Frehafer@fpl.com>
Tracking Status: None

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MESSAGE	1462	1/18/2018 1:39:00 PM	
RAI - St Lucie Inop AFW Steam Supply SBPB (L-2017-LLA-0296).pdf			85086

Options

Priority: Standard
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Reply Requested: No
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REQUEST FOR ADDITIONAL INFORMATION
LICENSE AMENDMENT REQUEST RELATED TO MODIFICATION OF THE AUXILIARY
FEEDWATER SYSTEM TECHNICAL SPECIFICATIONS
EPID L-2017-LLA-0296, CAC NOS. MG0237 AND MG0238
ST. LUCIE NUCLEAR PLANT, UNIT NOS. 1 AND 2
FLORIDA POWER AND LIGHT COMPANY
DOCKET NOS. 50-335 AND 50-389

By letter dated September 14, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17257A300), Florida Power and Light Company (the licensee), submitted a license amendment request (LAR) to modify the St. Lucie Unit Nos. 1 and 2 Technical Specifications (TSs) for the auxiliary feedwater (AFW) system. Specifically, the licensee proposed to modify St. Lucie Unit Nos. 1 and 2 TS 3.7.1.2, "Auxiliary Feedwater System," to add a new required action for an inoperable turbine-driven AFW pump steam supply and add a new required action for an inoperable turbine-driven AFW pump steam supply concurrent with an inoperable motor-driven AFW pump.

RAI-LLA0296-SBPB-01

The licensee proposed a new TS ACTION for an inoperable AFW pump steam supply concurrent with an inoperable motor-driven AFW pump. The proposed change would establish a 48-hour Completion Time to restore either the inoperable steam supply or the inoperable motor-driven AFW pump to OPERABLE status. The licensee supported this change with the following statement from Section 3.2 of the Enclosure to the LAR:

A 48-hour completion time for an inoperable AFW pump steam supply concurrent with an inoperable motor-driven AFW pump is reasonable based on the remaining motor-driven AFW pump's capability to provide the requisite AFW flow credited in the respective Feedwater Line Break (FLB) and Main Steam Line Break (MSLB) safety analyses for St. Lucie Unit 1 and St. Lucie Unit [2] without assuming a concurrent single active failure. Hence, the proposed 48-hour completion time to restore either the inoperable steam supply or the inoperable motor-driven pump to OPERABLE status satisfies the condition specified in Technical Specification Task Force (TSTF) Traveler, TSTF-412, Revision 3, ["Provide Actions for One Steam Supply to Turbine Driven AFW /EFW Pump Inoperable (Reference 6.2), ["] for plants with motor-driven AFW trains fully capable of mitigating postulated accidents in accordance with applicable accident analyses.

However, the staff found the ability of the motor-driven pump to provide the required AFW flow to mitigate the FLB or MSLB was not adequately supported, which is necessary to permit a 48-hour rather than a 24-hour completion time, consistent with the discussion in TSTF-412, Rev. 3.

Each St. Lucie Unit has two steam generators (SGs). The turbine-driven AFW pumps automatically supply feedwater to both SGs, but each motor-driven AFW pump automatically supplies feedwater only to its associated SG (e.g., "A" motor-driven AFW pump to "A" SG). The licensee described that normally-isolated cross-connection piping is available to enable either motor-driven pump to discharge flow to either SG, but the staff identified no statement in either the LAR or either units' updated final safety analysis report indicating this cross-connection could satisfy the flow rate and timing requirements of the AFW system for any limiting accident.

Without adequate cross-connect flow and with one turbine-driven pump steam supply and one motor-driven pump inoperable, the remaining operable equipment may not be able to provide adequate AFW flow to mitigate a FLB accident. For example, assuming the following conditions: "B" steam supply to the turbine-driven AFW pump inoperable, "B" motor-driven AFW pump inoperable, and "A" SG experiences a FLB accident; the remaining AFW equipment would not be able to provide AFW flow to the intact "B" SG because the operable "A" steam supply is connected to the faulted SG and the operable "A" motor-driven pump would deliver its flow to the faulted SG until isolated. Without adequate mitigation, assuming no additional single failure, the discussion in TSTF-412, Rev. 3, would call for a 24-hour completion time. Accordingly, either provide analysis indicating that the motor-driven pumps may be cross-connected to deliver adequate AFW flow at an acceptable time to the alternate SG for FLB accident mitigation or reduce the requested completion time for the new proposed action for one inoperable steam-supply to the turbine-driven AFW pump and, concurrently, one inoperable motor-driven AFW pump to 24 hours from the requested 48 hours.