



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

September 1, 2015

Mr. Mano Nazar
President and Chief Nuclear Officer
Nuclear Division
NextEra Energy
P. O. Box 14000
Juno Beach, FL 33408-0420

**SUBJECT: ST. LUCIE PLANT, UNIT NO. 1 - REQUEST FOR ADDITIONAL INFORMATION
ON LICENSE RENEWAL CONDENSATE STORAGE TANK CROSS-CONNECT
BURIED PIPING INSPECTION COMMITMENT (TAC NO. MF6518)**

Dear Mr. Nazar:

By letter dated May 12, 2015 (Agencywide Documents Access and Management System Accession No. ML15146A055), Florida Power and Light Company (FP&L or the licensee) provided information regarding the license renewal commitment for St. Lucie Plant, Unit No. 1 to perform a one-time inspection of the Condensate Storage Tank cross-connect buried piping, prior to the end of the initial operating license term.

The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the information provided by the licensee and determined that it needs more information to complete the review of the subject license amendment request. The request for additional information (RAI) is enclosed.

A draft of these questions was previously sent by email to Mr. Lyle Berry of your staff on August 21, 2015, with an opportunity to have a teleconference to ensure that FP&L understood the questions and their regulatory basis, as well as to verify that the information was not previously docketed.

By email dated August 24, 2015, Mr. Berry of your staff said that FP&L did not need a teleconference to clarify the questions. By telephone on August 25, 2015, Mr. Berry agreed that FP&L would respond to the RAI within 45 days from the date of this letter.

M. Nazar

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If you have any questions, please contact me at (301) 415-1447 or farideh.saba@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Farideh E. Saba", with a stylized flourish at the end.

Farideh E. Saba, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-335

Enclosure:
Request for Additional Information

cc w/enclosure: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION
LICENSE RENEWAL CONDENSATE STORAGE TANK
CROSS-CONNECT BURIED PIPING INSPECTION COMMITMENT
FLORIDA POWER AND LIGHT COMPANY
ST. LUCIE PLANT, UNIT NO. 1
DOCKET NO. 50-335

1.0 INTRODUCTION

By letter dated May 12, 2015 (Agencywide Documents Access and Management System Accession No. ML15146A055), Florida Power and Light Company provided information regarding the license renewal commitment for St. Lucie Plant, Unit No. 1 (St. Lucie) to perform a one-time inspection of the Condensate Storage Tank (CST) cross-connect buried piping, prior to the end of the initial operating license term.

The U.S. Nuclear Regulatory Commission (NRC) staff has determined that additional information is required to complete its review.

2.0 BACKGROUND

NUREG-1779, "Safety Evaluation Report Related to the License Renewal of St. Lucie Nuclear Plant, Units 1 and 2," Appendix D, "Commitments Listing," Commitment No. 1 states, "[p]erform a visual inspection to determine the extent of loss of material due to pitting and microbiologically induced corrosion on the external surfaces of the buried pipe that connects the St. Lucie Units 1 and 2 Condensate Storage Tanks." By letter dated May 12, 2015, license renewal Commitment No. 1 stated, "[t]he subject pipe for Condensate Storage Tank Cross-Connect Buried Piping Inspection was found encased in a concrete duct and is inaccessible. Corrosion/degradation of embedded metals is not an applicable aging effect. No further inspections are required during the extended period of operation. The Condensate Storage Tank Cross-Connect Buried Piping Inspection (Unit 1 only) is a One Time Inspection Program only."

An excavation at the location with the expected worst case for corrosion was performed and it was determined that the pipe is encased in a concrete duct and the visual inspection could not be performed. As stated in the letter, the basis for this is Electric Power Research Institute (EPRI) Technical Report (TR) 1010639, "Non-Class 1 Mechanical Implementation Guideline and Mechanical Tools," which states that, "corrosion/degradation of embedded metals is not an applicable aging effect."

3.0 ISSUE

EPRI TR 1010639 states that corrosion/degradation of embedded metals is not an applicable aging effect only if, "good design and construction practices" are used (i.e., water cannot penetrate to the surface of the stainless steel). No basis was provided for how the concrete

Enclosure

design and/or construction practices would prevent the intrusion of water through the concrete, which could lead to aging effects for the stainless steel buried pipe. Examples of good design and construction practices would include but are not limited to attributes of the concrete consistent with American Concrete Institute (ACI) 318 or ACI 349 (low water-to-cement ratio, low permeability, and adequate air entrainment) as cited in NUREG-1557.

License Renewal Application Table 3.4-3, "Auxiliary Feedwater and Condensate," footnote 1 states, "[c]ondensate storage tank cross-connect piping is susceptible to wetting." Given the susceptibility to wetting for the stainless steel cross connect piping, the NRC staff lacks sufficient information to conclude that the inspections for Commitment No. 1 are acceptable. Regardless of the design and construction practices associated with the concrete in which the cross connect piping is embedded, LR-ISG-2011-03, "Changes to the Generic Aging Lessons Learned (GALL) Report Revision 2 Aging Management Program (AMP) XI.M41, 'Buried and Underground Piping and Tanks'," AMP XI.M41, "Buried and Underground Piping and Tanks," Table 4a, "Inspections of Buried Pipe," recommends that buried pipe (i.e., soil or concrete) be inspected. AMP XI.M41 addresses piping that has been encased in controlled low strength material; however, these provisions could be equally utilized for piping buried in concrete.

Table 4a, footnote 5 states, "[i]nspections may be reduced to one-half (when 2 or more inspections are listed) the level indicated in the table when performing the indicated inspections necessitates excavation of piping that has been fully backfilled using controlled low strength material. In conducting these inspections, the backfill may be excavated and the pipe examined, or the soil around the backfill may be excavated and the controlled low strength material backfill examined. The backfill inspection should include excavation of the top surfaces and at least 50 percent of the side surface to visually inspect for cracks in the backfill that could admit groundwater to the external surfaces of the piping components." It is not clear to the NRC staff whether the excavation exposed sufficient surface area of the concrete to be able to conclude that there is reasonable assurance that cracks are not allowing groundwater to reach the surface of the piping. AMP XI.M41 also recommends that an inspection consists of 10 feet.

4.0 REQUEST FOR ADDITIONAL INFORMATION

1. For the concrete that encases the CST piping, state the extent (i.e., length and depth) of concrete that was exposed and the condition of the concrete.
2. State the basis for why water intrusion is not expected through the concrete to the surface of the stainless steel CST cross-connect piping, or if the potential for water intrusion exists, why loss of material or cracking of the stainless steel piping is not expected.

M. Nazar

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If you have any questions, please contact me at (301) 415-1447 or farideh.saba@nrc.gov.

Sincerely,

/RA by JLamb for/

Farideh E. Saba, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-335

Enclosure:
Request for Additional Information

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***via email**

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