



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

January 19, 2016

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 – REVIEW OF THE LICENSE RENEWAL  
CONDENSATE STORAGE TANK CROSS-CONNECT BURIED PIPING  
INSPECTION COMMITMENT (CAC NO. MF6518)

Dear Mr. Nazar:

By letter dated May 12, 2015, as supplemented by letter dated October 6, 2015, Florida Power & Light Company (FPL or the licensee) submitted information summarizing the results of the license renewal condensate storage tank cross-connect buried piping inspection at the St. Lucie Plant, Unit No. 1.

This inspection was performed prior to the end of the initial operating license term. The U.S. Nuclear Regulatory Commission (NRC) staff provided a request for additional information dated September 1, 2015. By letter dated October 6, 2015, the licensee provided additional information.

The NRC staff has completed its review of FPL's submittals and concludes that the licensee has provided the information required by the St. Lucie Plant, Unit No. 1, Commitment 1 of Table 1 of Appendix D of NUREG-1779, "Safety Evaluation Report Related to the License Renewal of St. Lucie Nuclear Plant, Units 1 and 2," dated September 2003.

The NRC staff has determined that no additional follow-up is required at this time.

The NRC staff's review of the report is set forth in the enclosed staff evaluation.

M. Nazar

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If you have any questions, please contact me at 301-415-1447 or [Perry.Buckberg@nrc.gov](mailto:Perry.Buckberg@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Perry H. Buckberg". The signature is fluid and cursive, with a large initial "P" and "B".

Perry H. Buckberg, Senior Project Manager  
Plant/Licensing Branch II-2  
Division of Operator Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-335

Enclosure:  
Staff Evaluation

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STAFF EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
REVIEW OF THE LICENSE RENEWAL CONDENSATE STORAGE TANK CROSS-CONNECT  
BURIED PIPING INSPECTION COMMITMENT  
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 (ADAMS) Accession No. ML15146A055), as supplemented by letter dated October 6, 2015 (ADAMS Accession No. ML15301A252), Florida Power & Light Company (FPL or the licensee) submitted information summarizing the results of the license renewal condensate storage tank (CST) cross-connect buried piping inspection at the St. Lucie Plant (St. Lucie), Unit No. 1. This inspection was performed prior to the end of the initial operating license term. The U.S. Nuclear Regulatory Commission (NRC) staff provided a request for additional information dated September 1, 2015 (ADAMS Accession No. ML15237A418). By letter dated October 6, 2015, the licensee provided additional information.

2.0 BACKGROUND

On October 2, 2003 (ADAMS Accession No. ML032870081), NRC issued Renewed Facility Operating License No. DPR-67 for the St. Lucie Unit No. 1. The technical basis for issuing the renewed license was set forth in NUREG-1779, "Safety Evaluation Report Related to the License Renewal of St. Lucie Nuclear Plant, Units 1 and 2," dated September 2003 (ADAMS Accession No. ML032940205).

The storage capacity of the CST is 250,000 gallons, a sufficient quantity to meet the requirements for decay heat removal and cooldown of the nuclear steam supply system. After a loss of normal feedwater, approximately 130,500 gallons of water are required to permit cooldown to 325 degrees Fahrenheit following a reactor trip. A crosstie is provided between the St. Lucie, Unit No. 1 auxiliary feedwater pumps and the St. Lucie, Unit No. 2 CST solely for the unlikely event that a vertical tornado missile disables the St. Lucie, Unit No. 1 CST.

Enclosure

### 3.0 TECHNICAL EVALUATION

On March 29, 2015, the licensee performed excavation activities and uncovered a concrete structure at the CST cross-connect. The licensee exposed a section of concrete approximately 11 feet long, the width was 18 inches, and the depth of the concrete was determined to be 18 inches by partial (semi-circle) excavation at two locations approximately 6 feet apart on the East side. The West side was not disturbed by the licensee because the design drawings indicated a fire protection pipe was in close proximity on the West side. The drawings identified the lowest section of the pipe run to be at the 13 feet elevation; the nominal site grade elevation is at the 18 feet elevation.

The licensee stated that there were no indications of any degradation of the concrete, such as cracking, spalling, scaling, pitting, leaching, erosion, settlement, cavitation or abrasion areas, voids, pop outs or exposed reinforcing steel.

The licensee observed that the excavation site was dry, which was consistent with the design. The CST cross-connect pipe is approximately 10 feet above the normal water table. The licensee concluded that the concrete encased CST cross-connect pipe is not likely to be submerged for extended periods of time.

St. Lucie has implemented a buried piping inspection program in accordance with Nuclear Energy Institute (NEI) 09-14, "Guideline for the Management of Underground Piping and Tank Integrity," Revision 3 (ADAMS Accession No. ML13130A302). Since the St. Lucie, Unit No. 1 design documents did not specifically require concrete encasement of the CST cross-connect pipe, the licensee performed exploratory digs. In each of the licensee's inspections, the CST cross-connect piping was found to be encased in concrete, and the concrete was solid with no delamination.

St. Lucie conducted soil sampling as part of the buried piping inspection program. In general, the soil pH was approximately 9.0, indicating the soil was alkaline based on the licensee's testing. According to the licensee, a soil pH greater than 8.5 indicates dissolved salts, low resistivity, and corrosive to cast iron. The CST cross-connect piping at St. Lucie is stainless steel and loss of material or cracking are not expected to occur with the tested soil condition, due to any migration of water through the concrete to the surface of the piping according to the licensee.

In its letter dated May 12, 2015, the licensee states, in part, that "the applicable aging effect/mechanism for stainless steel piping in soil or concrete is 'loss of material due to pitting and crevice corrosion.'"

The NRC staff concludes that the CST cross-connect piping was exempt from piping surface inspection as part of the buried piping inspection program, since it was determined to be encased in concrete.

In its letter dated May 12, 2015, the licensee proposed the following revised commitment:

The 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.

The NRC staff finds that the revised commitment is acceptable.

#### 4.0 CONCLUSION

The NRC staff has completed its review of FPL's submittals and concludes that the licensee has provided the information required by the St. Lucie, Unit No. 1, Commitment 1 of Table 1 of Appendix D of NUREG-1779. The NRC staff has determined that no additional followup is required at this time.

Principal Contributor: Brian Allik

Date: January 19, 2016

M. Nazar

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If you have any questions, please contact me at 301-415-1447 or [Perry.Buckberg@nrc.gov](mailto:Perry.Buckberg@nrc.gov).

Sincerely,

*/RA JLamb for/*

Perry H. Buckberg, Senior Project Manager  
Plant Licensing Branch II-2  
Division of Operator Reactor Licensing

Docket No. 50-335

Enclosure:  
Staff Evaluation

cc w/encl: Distribution via Listerv

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**ADAMS Accession No.: ML15356A650**

*\*by email*

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DATE	1/08/2016	1/19/2016	

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