From:	Jordan, Natreon
To:	Godes, Wyatt
Cc:	Frehafer, Ken; Shoop, Undine
Subject:	RAIs For LAR to Revise Technical Specifications 6.8.4.o, "Reactor Coolant Pump Flywheel Inspection Program"
Date:	Tuesday, March 31, 2020 4:27:00 PM

Dear Mr. Godes,

By letter dated October 9, 2019 (Agencywide Documents Access and Management System Accession No. ML19282D338), Florida Power & Light Company (the licensee) requested an amendment to the Renewed Facility Operating License No. NPF-16 for St. Lucie Plant, Unit 2. The proposed license amendment modifies the Unit 2 Technical Specifications (TS) by revising the Reactor Coolant Pump Flywheel Inspection Program requirements consistent with the conclusions and limitations specified in the U.S. Nuclear Regulatory Commission (NRC) safety evaluation, Acceptance for Referencing of Topical Report SIR-94-080, "Relaxation of Reactor Coolant Pump Flywheel Inspection Requirements", dated May 21, 1997. The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing the application and has identified areas where additional information is needed to support its review. The requests for additional information (RAIs) are provided below. A clarification call between the licensee and NRC staff took place on March 30, 2020, to ensure that the licensee understood the nature of the RAIs. As discussed during the call, the NRC staff request your response to the RAIs within 30 days of the date of this email. If you do not believe that you can meet the response date, please provide an acceptable alternate date and justification for extending the response date.

If you have any questions, please contact me at (301) 415-7410 or Natreon.Jordan@nrc.gov.

-Nate

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REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST

TO REVISE TECHNICAL SPECIFICATION 6.8.4.o, “REACTOR COOLANT

PUMP FLYWHEEL INSPECTION PROGRAM"

FLORIDA POWER & LIGHT COMPANY

ST. LUCIE NUCLEAR PLANT, UNIT NO. 2

DOCKET NO. 50-389

Background

By letter dated October 9, 2019 (ADAMS Accession No. ML19282D338), Florida Power & Light Company (FPL, the licensee), submitted to the United States Nuclear Regulatory Commission (NRC), a license amendment request (LAR) to revise Technical Specification (TS) 6.8.4.o "Reactor Coolant Pump Flywheel Inspection Program" of the St. Lucie Nuclear Plant, Unit 2 (St. Lucie, Unit 2), pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Paragraph 50.90. Specifically, the licensee proposed to modify the St. Lucie, Unit 2 Reactor Coolant Pump (RCP) Flywheel Inspection Program requirements to be consistent with the conclusions and limitations specified in the NRC's safety evaluation (SE) of topical report SIR-94-080, Revision 1 (ADAMS Legacy Accession Nos. 9706230099 and 9706240192).

Regulatory Basis

General design criterion (GDC) 4 of Appendix A to 10 CFR 50 states that structures, systems, or components (SSCs) important to safety be designed to accommodate the effects of and be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. GDC 4 further states that SSCs shall be appropriately protected against dynamic effects, which include the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures. The RCP flywheel is a large solid metallic disk and is part of the RCP motor to provide rotational inertia when the RCP motors are turned off to ensure slow decrease in reactor coolant flow. If the RCP flywheel fails during normal operation, it has sufficient kinetic energy to produce high-energy missiles that could damage SSCs important to safety in the reactor coolant system. Structural integrity of the RCP flywheels thus must be maintained in order to meet the design criterion of GDC 4. Therefore, NRC staff (the staff) determined that the following requests for additional information (RAIs) pertaining to the structural integrity of St. Lucie, Unit 2 RCP flywheels is needed to complete the review of the LAR.

RAI-1

The staff noted that conclusion (1) in Section 4 of the staff's SE of SIR-94-080, Revision 1 specifies that licensees meeting the first condition stated in the SE should either conduct a volumetric examination through a "qualified in-place [ultrasonic testing (UT)] examination" or surface examination. In the markup of St. Lucie, Unit 2 TS 6.8.4.o in the licensee's LAR, however, the licensee stated that the RCP flywheel be inspected "100% volumetric inspection" but did not state the type of volumetric inspection to be a "qualified in-place UT examination," as specified in the staff's SE of SIR-94-080, Revision 1.

Request: State the type of volumetric inspection for the St. Lucie Unit 2 RCP flywheels

proposed in the LAR. If the stated volumetric inspection is not a "qualified in-place UT examination," as specified in the staff's SE of SIR-94-080, Revision 1, justify how the stated volumetric inspection is equivalent to a "qualified in-place UT examination."

RAI-2

In Section 3.5 of the enclosure to the submittal, the licensee calculated fracture toughness (K_{IC}) using empirical formulas and stated that the resulting K_{IC} values "are of greater toughness than the lower bound ASME K_{IC} vs. T-RT_{NDT} curve." The staff noted that this conclusion is inconsistent with the licensee's calculation of K_{IC} in Section 3.4 of the enclosure to the submittal using equation A-4000 of ASME Code, Section XI. This is based on the fact that all the K_{IC} values using the empirical formulas were less than the ASME Code K_{IC} value.

Request: Explain the inconsistency between the statement in Section 3.5 of the enclosure to the submittal that the K_{IC} using the empirical formulas "are of greater toughness than the lower bound ASME K_{IC} vs. T-RT_{NDT} curve" and the ASME Code K_{IC} calculation in Section 3.4 of the enclosure to the submittal.