



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

February 17, 2021

Mr. Don Moul  
Executive Vice President, Nuclear Division  
and Chief Nuclear Officer  
Florida Power & Light Company  
Mail Stop: EX/JB  
700 Universe Blvd.  
Juno Beach, FL 33408

SUBJECT: ST. LUCIE PLANT, UNIT NOS. 1 AND 2 - APPROVAL OF ALTERNATIVE TO ASME CODE, SECTION XI TO USE AN ALTERNATIVE INSERVICE INSPECTION SCHEDULE FOR THE REACTOR VESSEL CLOSURE HEAD BOLTING (EPID L-2020-LLR-0020)

Dear Mr. Moul:

By letter dated January 27, 2020, Florida Power & Light Company (FPL) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for the use of an alternative to certain requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section XI, at St. Lucie Plant, Unit Nos. 1 and 2 (St. Lucie).

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), FPL requested to use an alternative schedule for the inservice inspection (ISI) of the reactor vessel closure head (RVCH) bolting on the basis that the alternative provides an acceptable level of quality and safety. The NRC staff has reviewed the subject request and concludes, as set forth in the enclosed safety evaluation, that FPL has adequately addressed all the regulatory requirements set forth in 10 CFR 50.55a(z)(1).

The NRC authorizes the use of Relief Request RR 2 for the remainder of the fifth 10-year ISI interval of St. Lucie, Unit 1, which started on February 11, 2018, and is scheduled to end on February 10, 2028, and Relief Request RR 5 for the remainder of the fourth 10-year ISI interval of St. Lucie, Unit 2, which started on August 8, 2013, and is scheduled to end on August 7, 2023. All other requirements in ASME BPV Code, Section XI, requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

D. Moul

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If you have any questions, please contact St. Lucie Project Manager, Natreon Jordan, at (301) 415-7410 or by e-mail to [Natreon.Jordan@nrc.gov](mailto:Natreon.Jordan@nrc.gov).

Sincerely,

Undine S. Shoop, Chief  
Plant Licensing Branch II-2  
Division of Operator Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-335  
50-389

Enclosure: As stated

cc: Listserv



UNITED STATES  
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SAFETY EVALUATION BY THE OFFICE NUCLEAR REACTOR REGULATION

RELIEF REQUESTS RR 2 AND RR 5 REGARDING INSERVICE INSPECTION

OF REACTOR VESSEL CLOSURE HEAD BOLTING

FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS 50-335 AND 50-389

1.0 INTRODUCTION

By letter dated January 27, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession ML20027B419), Florida Power and Light Company (the licensee) requested an alternative to certain requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI. In Relief Requests RR 2 and RR 5, the licensee proposed an alternative inservice inspection (ISI) schedule for the reactor vessel closure head (RVCH) bolting at the St. Lucie Nuclear Plant (St. Lucie), Units 1 and 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), the licensee proposed an alternative schedule for the ISI of the RVCH bolting on the basis that the alternative provides an acceptable level of quality and safety.

2.0 REGULATORY EVALUATION

Pursuant to 10 CFR 50.55a(g)(4)(ii), ISI of components and system pressure tests conducted during successive 120-month inspection intervals must comply with the requirements of the latest edition and addenda of the ASME Code incorporated by reference in paragraph (a) of Section 50.55a. This compliance must take place 12 months before the start of the 120-month inspection interval subject to the conditions listed in paragraph (b) of Section 50.55a. When using ASME Code, Section XI, as incorporated by reference in paragraph (a)(3)(ii) of Section 50.55a, the optional ASME Code Cases listed in U.S. Nuclear Regulatory Commission (NRC) Regulatory Guide (RG) 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," may be used.

Pursuant to 10 CFR 50.55a(z), alternatives to the requirements of paragraph (b) through (h) of Section 50.55a or portions thereof may be used when authorized by the Director, Office of Nuclear Reactor Regulation. A proposed alternative must be submitted and authorized prior to implementation. The licensee must demonstrate that: (1) the proposed alternative would provide an acceptable level of quality and safety; or (2) compliance with the specified requirements of Section 50.55a would result in hardship or unusual difficulty without a

compensating increase in the level of quality and safety.

Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request and the NRC to authorize the alternative requested by the licensee.

### 3.0 TECHNICAL EVALUATION

#### 3.1 Background

By letter dated June 23, 2011 (ADAMS Accession ML11136A138), the NRC approved similar Relief Requests RR 4 and RR 11 (ADAMS Accession ML083440420) for the fourth 10-year ISI interval of St. Lucie, Unit 1, and the third 10-year ISI interval of St. Lucie, Unit 2, respectively.

#### 3.2 Component Affected

ASME Code Class 1, RVCH bolting (i.e., nuts, studs, washers and bushings) are affected. In accordance with ASME Code, Section XI, Table IWB-2500-1, Examination Category B-G-1, the licensee classified the RVCH nuts as Item No. B6.10, RVCH studs as Item No. B6.20, and RVCH washers, and bushings as Item No. B6.50.

#### 3.3 Applicable Code Edition and Addenda

The code of record for the fifth 10-year ISI interval of St. Lucie, Unit 1, and the fourth 10-year ISI interval of St. Lucie, Unit 2, is the 2007 Edition with 2008 Addenda of the ASME Code.

#### 3.4 Duration of Relief Request

The licensee submitted RR 2 for the remainder of the fifth 10-year ISI interval of St. Lucie, Unit 1, which commenced on February 11, 2018, and is scheduled to end on February 10, 2028, and RR 5 for the remainder of the fourth 10-year ISI interval of St. Lucie, Unit 2, which commenced on August 8, 2013, and is scheduled to end on August 7, 2023.

#### 3.5 ASME Code Requirement

The ASME Code requirements applicable to this request originate in Section XI, Table IWB-2500-1. Examination Category B-G-1, Item Nos. B6.10, B6.20, and B6.50 require that the scheduling of the ISI of RVCH bolting established in the first inspection interval shall be repeated in the successive intervals. The ASME Code also permits deferral of the examinations to the end of each inspection interval.

#### 3.6 Proposed Alternative

The licensee proposed alternative scheduling for the ISI of RVCH bolting. The proposed alternative is to have a spare set of RVCH bolting designated as set "C" in addition to the current sets of RVCH bolting for Units 1 and 2 which are designated as sets "A" and "B," respectively. While a set is kept in storage between the refueling outages, it is inspected according to the ASME Code requirement, and prepared for service. In a scheduled refueling outage in a specific unit, one complete set of RVCH bolting is removed from service and placed into storage for the inspection in accordance with the ASME Code requirement. The set that had been in storage is then placed into service. During the next scheduled refueling outage on

the opposite unit, this same process is repeated with the set of RVCH bolting that had been previously in one unit being placed into service in the sister unit. This swapping of the RVCH bolting has resulted in the ASME Code-required examinations, which is being performed in one unit, now being credited for the other.

### 3.7 Basis for Use of Alternative

The licensee stated that because it maintains three sets of RVCH bolting that are rotated and used in two units, it is not feasible to maintain an inspection cycle that meets the ASME Code-required successive examinations. Simplifying the ISI schedule for the three sets of RVCH bolting will ensure that the intent of the ASME Code, which is used to examine the RVCH bolting for flaws and degradation, is met. No RVCH bolting will be installed or used that has not been examined at least once during an ISI interval.

### 3.8 NRC Staff Evaluation

The NRC staff has evaluated relief requests RR 2 and RR 5 pursuant to 10 CFR 50.55a(z)(1). The NRC staff focused on whether the alternative provides an acceptable level of quality and safety. In its assessment of the licensee's proposed alternative, the NRC staff verified that,

- Each RVCH stud installed in Unit 1 and Unit 2, receives the ASME Code-required volumetric examination at least once during every 10-year ISI interval.
- Each RVCH nut, washer, or bushing installed in Unit 1 and Unit 2, receives the ASME Code-required visual examination (VT-1) at least once during every 10-year ISI interval.
- The licensee confirmed that it will have three complete sets of RVCH bolting with designations of set "A," "B," and "C" to avoid intermixing. While two of the sets are in service at Units 1 and 2, the licensee will keep the third set in storage and subject to the ASME Code-required examinations between refueling outages. In a scheduled refueling outage of a unit, the licensee removes the unit's complete set of RVCH bolting from service and replaces it with the complete set of storage-kept RVCH bolting that had already been ASME Code-examined. The complete set of RVCH bolting that is removed from service will be placed into storage and subjected to ASME Code-examinations between refueling outages. During the next scheduled refueling outage on the opposite unit, this same process is repeated with the set of RVCH bolting that had previously been in one unit being placed into service in the sister unit.
- The licensee confirmed that it will not install or use the RVCH bolting that has not been ASME Code-examined at least once during an ISI interval.

Based on the above assessments, the NRC staff concludes that there is reasonable assurance that the licensee's proposed alternative provides an acceptable level of quality and safety.

### 4.0 CONCLUSION

As set forth above, the NRC staff determined that the proposed alternative provides an acceptable level of quality and safety for the RVCH bolting by providing reasonable assurance that the bolting structural integrity will be maintained. Accordingly, the NRC staff concludes that the licensee has adequately addressed all regulatory requirements set forth in

10 CFR 50.55a(z)(1). Therefore, the NRC staff authorizes the use of RR 2 for the remainder of the fifth 10-year ISI interval of St. Lucie, Unit 1, which started on February 11, 2018, and is scheduled to end on February 10, 2028, and RR 5 for the remainder of the fourth 10-year ISI interval of St. Lucie, Unit 2, which started on August 8, 2013, and is scheduled to end on August 7, 2023.

All other ASME Code, Section XI, requirements for which relief was not specifically requested and authorized herein by the staff remain applicable, including the third-party review by the Authorized Nuclear In-service Inspector.

Principal Contributor: Ali Rezai

Date: February 17, 2021

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\*via email

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