



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

August 29, 2017

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

SUBJECT: TURKEY POINT NUCLEAR GENERATING UNIT NOS. 3 AND 4 – SAFETY EVALUATION FOR RELIEF REQUEST NO. PR-03, FOR THE FIFTH 10-YEAR INSERVICE TESTING INTERVAL REGARDING BORIC ACID TRANSFER PUMP TESTING INSTRUMENTATION (CAC NOS. MF9526 AND MF9527)

Dear Mr. Nazar:

By letter L-2017-047 dated March 23, 2017, Florida Power & Light Company (the licensee) submitted Relief Request No. PR-03 for the fifth 10-year inservice testing intervals of Turkey Point Nuclear Generating Unit Nos. 3 and 4 (Turkey Point 3 and 4). Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Paragraph 55a(z)(1), the licensee requested that the U.S. Nuclear Regulatory Commission (NRC) authorize a proposed alternative to the requirements of paragraph ISTB-3510(b)(1) of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) for the boric acid transfer pump flow testing instrumentation.

The NRC staff reviewed the submittal and, as set forth in the enclosed safety evaluation, concludes that the licensee's proposed alternative to the ASME OM Code provides an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(z)(1), the NRC staff authorizes the licensee's proposed alternative in Relief Request No. PR-03 for the remainder of the fifth 10-year inservice testing intervals at Turkey Point 3 and 4, which expire on February 21, 2025, and April 14, 2025, respectively.

All other 10 CFR 50.55a and ASME OM Code requirements for which the proposed alternative was not specifically requested and authorized remain applicable.

M. Nazar

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If you have any questions regarding this issue, please contact the project manager, Mr. Michael Wentzel, at (301) 415-6459 or by e-mail at [Michael.Wentzel@nrc.gov](mailto:Michael.Wentzel@nrc.gov).

Sincerely,



foi

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

Docket Nos. 50-250 and 50-251

Enclosure:  
Safety Evaluation

cc w/encl.: Distribution via Listserv



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST NO. PR-03

FIFTH 10-YEAR INSERVICE TESTING INTERVAL

FLORIDA POWER & LIGHT COMPANY

TURKEY POINT NUCLEAR GENERATING UNIT NOS. 3 AND 4

DOCKET NOS. 50-250 AND 50-251

1.0 INTRODUCTION

By letter L-2017-047 dated March 23, 2017,<sup>1</sup> Florida Power & Light Company (FPL, or the licensee) submitted Relief Request No. PR-03 for the fifth 10-year inservice testing intervals of Turkey Point Nuclear Generating Unit Nos. 3 and 4 (Turkey Point 3 and 4). Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Paragraph 55a(z)(1), the licensee requested that the U.S. Nuclear Regulatory Commission (NRC) authorize a proposed alternative to the requirements in paragraph ISTB-3510(b)(1) of the American Society of Mechanical Engineers (ASME) Code for the Operation and Maintenance of Nuclear Power Plants (OM Code) for boric acid transfer pump (BATP) flow testing instrumentation.

2.0 REGULATORY EVALUATION

The regulations in 10 CFR 50.55a(f), "Inservice Testing Requirements," state, in part, that inservice testing (IST) of certain ASME Code Class 1, 2, and 3 components must meet the requirements of the applicable ASME OM Code and addenda, except where alternatives have been authorized, pursuant to 10 CFR 50.55a(z)(1) or 10 CFR 50.55a(z)(2).

In proposing alternatives, a licensee must demonstrate that the proposed alternatives provide an acceptable level of quality and safety as outlined in 10 CFR 50.55a(z)(1), or compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety as outlined in 10 CFR 50.55a(z)(2).

Based on the above, the NRC staff finds regulatory authority exists for the licensee to request, and the NRC to authorize, the proposed alternatives to the ASME OM Code, subject to the evaluation given below.

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<sup>1</sup> Agencywide Documents Access and Management System Accession No. ML17089A646.

### 3.0 TECHNICAL EVALUATION

The fifth 10-year IST program intervals began on February 22, 2015, and on April 15, 2015, for Turkey Point 3 and 4, respectively. The applicable ASME OM Code edition and addenda for Turkey Point 3 and 4 fifth 10-year IST program intervals is the 2004 Edition through the 2006 Addenda.

#### 3.1 Licensee's Proposed Alternative

##### Applicable Code Requirements

Per OM Code paragraph ISTB-3510(b)(1), *Range*, the full scale range of each analog instrument shall not be greater than three times the reference value.

##### ASME Code Components Affected

Relief is requested for the flow rate instruments for the following Boric Acid Transfer Pumps (BATP):

3P203A	Boric Acid Transfer Pump
3P203B	Boric Acid Transfer Pump
4P203A	Boric Acid Transfer Pump
4P203B	Boric Acid Transfer Pump

##### Licensee's Reason for Request

The licensee states, in part:

The reason for requesting relief pursuant to 10 CFR 50.55a(z)(1) is that the existing flow rate instrument used for BATP comprehensive testing does not meet the analog instrument range requirement of ASME OM Code-2004, ISTB-3510(b)(1). However, compliance with ISTB- 3510(b)(1) would not yield more accurate readings than obtained by the instrument presently installed.

Specifically, the BATP comprehensive test, performed in accordance with ASME OM Code-2004, ISTB-5123, consists of varying the flowrate to an established reference point and comparing the measured pump differential pressure against the requirements of ASME OM Code-2004, Table ISTB-5121-1, *Centrifugal Pump Test Acceptance Criteria*. In establishing the reference value for flowrate, FPL utilizes analog flow instruments FI-3/4-110, Emergency Boration Flow Indicator, (where "3/4" designates FI-3-110 for Unit 3 and FI-4-110 for Unit 4). However, the gauges for FI- 3/4-110 range from zero to 200 gallons per minute (gpm), whereas the BATP flow reference value for the comprehensive test is 60 gpm. Hence, FI-3/4-110 do not satisfy the analog instrumentation range requirements of ISTB-3510(b)(1) since the 200 gpm full-scale range of FI-3/4-110 exceeds three times the pumps' reference value (i.e. 180 gpm).

Proposed Alternative and Basis for Use

The licensee states, in part:

FPL proposes as an alternative to ASME OM Code-2004, ISTB-3510(b)(1), continued use of FI-3/4-110 when conducting the B ATP comprehensive test. The basis for the proposed alternative is that compliance with the instrumentation range requirement of ASME OM Code-2004, ISTB-3510(b)(1), would not result in obtaining information more useful than that currently available using the existing flow instrumentation. FPL's determination is based upon the following:

NUREG-1482, *Guidelines for Inservice Testing at Nuclear Power Plants*, states that when the range of a permanently installed analog instrument is greater than three times the reference value but the accuracy of the instrument is more conservative than required by the Code, the staff may grant relief when the combination of the range and accuracy yields a reading at least equivalent to the reading achieved using instruments meeting the Code requirements. NUREG-1482 further states that the use of any available instrument that meets the intent of the Code for the actual reading yield an acceptable level of quality and safety for testing.

ASME OM Code-2004, ISTB-3510(a) states that the instrument accuracy shall be within the limits of Table ISTB-3510-1, *Required Instrument Accuracy*. For the measured flowrate during comprehensive pump testing, Table ISTB-3510-1 requires an instrument accuracy of +/- 2% of full scale. The accuracy of installed flowrate instruments, FI-3/4-110, is +/- 1.5% and thereby exceeds the requirements of Table ISTB-3510-1 for B ATP comprehensive test flow measurements. Moreover, the overall measured reading using FI-3/4-110, equates to +/- 3.0 gpm (i.e. +/- 1.5% of 200 gpm) whereas the measured reading using a Code compliant flow meter equates to +/- 3.6 gpm (i.e. +/- 2% of 180 gpm). Hence even though the instrument range of FI-3/4-110 is above the limits of ISTB-3510(b)(1), the combination of range and accuracy yield an overall measured reading more accurate than the measured reading for a flow meter compliant with the instrumentation requirements of ISTB-3510(a) and ISTB-3510(b)(1). Accordingly, the installed flow instruments, FI-3/4-110, meet the recommendations in NUREG-1482, Section 5.5.1, *Range and Accuracy of Analog Instruments*, for requesting relief from ISTB-3510(b)(1).

Based upon the foregoing, FPL asserts that continued use of the installed instruments, FI-3/4- 110, yields a measured reading of greater overall accuracy than the reading achieved from a Code compliant instrument, providing thus an acceptable level of quality and safety to the ASME Code ISTB-3510(b)(1) requirements. FPL will use installed flow instruments, FI-3/4-110, when performing B ATP comprehensive inservice testing for the remainder of the Fifth Ten-Year IST Interval as an alternative to ASME Code ISTB-3510(b)(1) requirement.

### 3.2 NRC Staff's Evaluation of Proposed Alternative

The licensee requests relief from the instrument range requirements of ISTB-3510(b)(1) for the BATP flow instruments during the comprehensive test. The Code requires that the full-scale range of each analog instrument shall not be greater than three times the reference value. The licensee proposes to use instruments that do not meet this Code requirement.

For comprehensive tests, the Code requires instrument accuracy to be within 2 percent of full-scale and the full-scale range of each instrument be no greater than three times the reference value. The combination of these two requirements results in an effective maximum inaccuracy limit of plus or minus 6 percent of the reference flowrate. The licensee has demonstrated that by using flow instruments with higher accuracy than required by code yet with ranges that would otherwise exceed what the code allows, the overall accuracy required by the code for the flowrate value can still be met and, in fact, exceeded.

In complying with the Code requirements, the licensee would not obtain information that would be more useful than the information that is currently available. For example, installing a flow instrument with a range of three times the reference value (or less) to comply with Code requirements would not yield more accurate readings than those provided by the flowrate instruments that are presently installed. This justification is consistent with the long held staff position described in NUREG-1482, Revision 2, concerning test instrument ranges and code compliance and therefore provides reasonable assurance that the BATPs are operationally ready. (Reference NUREG-1482 Revision 2, para. 2.5.1.1.)

### 4.0 CONCLUSION

As set forth in this safety evaluation, the NRC staff determines that Relief Request No. PR-03 provides an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1). Therefore, the NRC staff authorizes the use of Relief Request No. PR-03 for the remainder of the fifth 10-year inservice testing intervals for Turkey Point 3 and 4, which expire on February 21, 2025, and April 14, 2025, respectively. All other 10 CFR 50.55a and ASME OM Code requirements for which the proposed alternative was not specifically requested and authorized remain applicable.

Principal Contributor: John G. Billerbeck

Date: August 29, 2017

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