June 2, 2015

L-2015-166
10 CFR 50.90

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

RE: St. Lucie Unit 2
Docket No. 50-389
RAI Reply for Application for Technical Specification Change
and Exemption Request Regarding the Transitioning to AREVA Fuel

Reference:

1. FPL letter L-2014-366 dated December 30, 2014, "Application for Technical Specification Change and Exemption Request Regarding the Transitioning to AREVA Fuel," Accession No. ML15002A091
2. FPL letter L-2015-091 dated March 23, 2015, "Supplemental Information for Technical Specification Change and Exemption Request Regarding the Transitioning to AREVA Fuel," Accession No. ML15084A011
3. NRC letter dated May 12, 2015, "St. Lucie Plant, Unit No. 2 - Request for Additional Information Regarding License Amendment Request and Exemption Request Regarding the Transitioning to AREVA Fuel (TAC NOS. MF5494 AND MF5495)," Accession No. ML15127A405

Pursuant to 10 CFR 50.90, Florida Power & Light Company (FPL) submitted via Reference 1 and supplemented via Reference 2 a license amendment to the Technical Specifications (TS) for St. Lucie Unit 2 to allow the use of AREVA fuel.

In Reference 3, the NRC forwarded a request for additional information (RAI). The attachment to this letter provides FPL's response.

If you should have any questions, please contact Mr. Ken Frehafer at (772) 467-7748.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 2, 2015.

Sincerely,

Christopher R Costanzo

Christopher R. Costanzo
Site Vice President
St. Lucie Plant

Attachment

cc: USNRC Regional Administrator, Region II
USNRC Senior Resident Inspector, St. Lucie Nuclear Plant
Ms. Cindy Becker, Florida Department of Health

A001
NRR

RESPONSES TO

REQUEST FOR ADDITIONAL INFORMATION

REGARDING PROPOSED LICENSE AMENDMENT REQUEST AND EXEMPTION REQUEST

TO ALLOW THE TRANSITION TO AREVA FUEL

FLORIDA POWER & LIGHT COMPANY

ST. LUCIE PLANT, UNIT NO. 2

DOCKET NO. 50-389

By letter dated December 30, 2014, as supplemented by letter dated March 23, 2015 (Agencywide Documents Access and Management System Accession Nos. ML15002A091 and ML15084A011, respectively), Florida Power & Light Company (FPL, the licensee) submitted a license amendment request to the U.S. Nuclear Regulatory Commission (NRC) for St. Lucie Plant, Unit No. 2 (SL-2). The proposed amendment would revise the Technical Specifications to allow the use of AREVA fuel at SL-2. Additionally, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.12, FPL requests an exemption from the provisions of 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems [ECCSs] for light-water nuclear power reactors," and Appendix K to 10 CFR Part 50, "ECCS Evaluation Models," to allow the use of M5® fuel rod cladding in future core reload applications for SL-2.

The NRC staff has reviewed the information submitted by the licensee and, based upon this review, determined that the following additional information is required to complete the evaluation.

APHB-Request for Additional Information (RAI)-1

The application does not provide information regarding operator actions. Identify and describe in detail any operator manual actions that will be added, deleted, or changed to support the proposed license amendment.

RESPONSE TO APHB-RAI-1

There will be no operator manual actions that will be added, deleted or changed to support the proposed license amendment.

Table 3.1 of ANP-3347P (Reference 1, Attachment 4) identifies all the events that are re-analyzed to support the proposed license amendment. None of the events re-analyzed, as described in Section 4.0 of ANP-3347P, adds, deletes or changes any operator manual actions to mitigate the consequences and support the conclusions of the respective analyses. For other events that are not reanalyzed, there are no additions, deletions or changes to any operator manual actions.

References:

1. *Letter L-2014-366, J. Jensen (FPL) to U.S. NRC Document Control Desk, "St. Lucie Unit 2 Docket No. 50-389, Application for Technical Specification Change and Exemption Request Regarding the Transitioning to AREVA Fuel," dated December 30,2014*

ARCB-RAI-1

In the application dated December 30, 2014, the following was stated:

> The radiological consequences analyses, approved as part of EPU [extended power uprate] in Amendment No. 163 (Reference 5), remain unaffected for the following reasons:
>
> The key parameters related to the core design used in the radiological consequences analyses include the reactor power level, Core Operating Limits Report (COLR) limit for radial peaking factor, core average/assembly average burnup, fuel enrichment limits, fuel rod density and event specific fuel failure limits. None of these parameters change for the proposed fuel transition. Additionally, the plant operating parameters and system configurations including actuation setpoints important to the dose analysis, such as the containment spray system, emergency core cooling systems, control room ventilation and filtration system and control room isolation, remain unchanged. Other parameters, such as the atmospheric dispersion factors, iodine flashing fraction, minimum sump pH, etc. are not affected by the fuel transition. There are no changes to the steam releases assumed in the dose analyses due to the fuel design change. Therefore, the radiological consequences analyses in the [Updated Final Safety Analysis Report] UFSAR will continue to remain applicable for the operation of St. Lucie Unit 2 with the transition to AREVA [Combustion Engineering] CE 16x16 [high thermal performance] HTP^{TM} fuel as proposed in this license amendment request.

A modification to the licensing basis fuel type can have the potential to change the core isotopic distribution assumed in post-accident conditions. Based upon this, provide additional information regarding the effect the proposed fuel type change has on the current radiological consequence design-basis analyses. Provide any changes to the assumptions or methodologies in the radiological design-basis accident (DBA) analyses as a result of the proposed fuel type change and justifications for those changes. If there are changes to the radiological DBA analyses, provide the resulting change to the calculated radiological consequence of the DBAs.

RESPONSE TO ARCB-RAI-1

The fuel type change supporting the proposed license amendment does not change the fuel rod dimensions, rod configuration and core design parameters as compared to the fuel currently used in the St. Lucie Unit 2 core and analyzed for the radiological consequences.

The following fuel parameters remain unchanged:

Pellet diameter
Cladding outside diameter
Cladding thickness
Active fuel height
Rod configuration (16x16)
Total number of fuel assemblies in the core

The following core design parameters used in the isotopic calculations remain unchanged:

Core power level
Maximum radial peaking factor
Maximum assembly power level
Peak assembly average burnup
Core average burnup
Fuel enrichment (minimum and maximum)
Maximum mass of uranium per assembly

The proposed fuel design change, therefore, does not impact the current radiological consequences design basis analyses and no new radiological consequences analyses are performed to support the proposed license amendment.

ARCB-RAI-2

Previously, in Amendment No. 163, an analysis was done to develop a bounding source term that is used for the radiological DBAs. This analysis was performed using the ORIGEN-2.1 computer code and was based on Westinghouse fuel and Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," release fractions.

Provide a detailed explanation regarding whether any additional analysis has been performed to demonstrate that the source term previously developed remains bounding for AREVA CE 16x16 HTP™ fuel. Include in the response any computer codes used and explain how the AREVA fuel source term compares to the Westinghouse fuel source term.

RESPONSE TO ARCB-RAI-2

There are no additional analyses done related to the source term used in the radiological consequences analyses. The fuel parameters and the core design parameters, as listed in the response to ARCB-RAI-1, used in developing a bounding source term for radiological design basis accidents, remain unchanged for the fuel design change proposed in the Reference 1 license amendment request. Thus no additional source term analyses have been performed in support of the proposed fuel transition license amendment.

References:

1. *Letter L-2014-366, J. Jensen (FPL) to U.S. NRC Document Control Desk, "St. Lucie Unit 2 Docket No. 50-389, Application for Technical Specification Change and Exemption Request Regarding the Transitioning to AREVA Fuel," dated December 30,2014*