



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

March 5, 2014

Mr. Kevin Walsh, Site Vice President
c/o Michael Ossing
Seabrook Station
NextEra Energy Seabrook, LLC
P.O. Box 300
Seabrook, NH 03874

SUBJECT: SEABROOK STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT
REGARDING THE USE OF OPTIMIZED ZIRLO™ FUEL ROD CLADDING
MATERIAL (TAC NO. MF2410)

Dear Mr. Walsh:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 139 to Facility Operating License No. NPF-86 for the Seabrook Station, Unit No. 1 (Seabrook). This amendment consists of changes to the facility technical specifications (TS) in response to your application dated June 25, 2013.

The amendment modifies the Seabrook TS to allow the use of Optimized ZIRLO™ as an approved fuel rod cladding material. This change is consistent with the NRC's allowed use of Optimized ZIRLO™ fuel rod cladding material as documented in the Safety Evaluation (SE) included in Addendum 1-A to Westinghouse topical report, WCAP-12610-P-A and CENPD-404-P-A, "Optimized ZIRLO™." The exemption is addressed under separate correspondence (Agencywide Documents Access and Management System Accession No. ML13213A049).

A copy of our SE is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in black ink, appearing to read "John G. Lamb".

John G. Lamb, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosures:

1. Amendment No. 139 to NPF-86
2. Safety Evaluation

cc w/encls: Distribution via Listserv



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

NEXTERA ENERGY SEABROOK, LLC, ET AL.*

DOCKET NO. 50-443

SEABROOK STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 139
License No. NPF-86

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by NextEra Energy Seabrook, LLC, et al. (the licensee), dated June 25, 2013, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

*NextEra Energy Seabrook, LLC is authorized to act as agent for the: Hudson Light & Power Department, Massachusetts Municipal Wholesale Electric Company, and Taunton Municipal Light Plant and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-86 is hereby amended to read as follows:

- (2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 139, and the Environmental Protection Plan contained in Appendix B are incorporated into the Facility License No. NPF-86.

NextEra Energy Seabrook, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Meena Khanna, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the License and
Technical Specifications

Date of Issuance: March 5, 2014

ATTACHMENT TO LICENSE AMENDMENT NO. 139

FACILITY OPERATING LICENSE NO. NPF-86

DOCKET NO. 50-443

Replace the following page of Facility Operating License No. NPF-86 with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove
3

Insert
3

Replace the following pages of Appendix A, Technical Specifications, with the attached revised pages as indicated. The revised pages are identified by amendment number and contain marginal lines indicating the area of change.

Remove
5-9
6-20

Insert
5-9
6-20

- (4) NextEra Energy Seabrook, LLC, pursuant to the Act and 10 CFR 30, 40, and 70, to receive, possess, and use at any time any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (5) NextEra Energy Seabrook, LLC, pursuant to the Act and 10 CFR 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components;
- (6) NextEra Energy Seabrook, LLC, pursuant to the Act and 10 CFR 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility authorized herein; and
- (7) DELETED

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

NextEra Energy Seabrook, LLC, is authorized to operate the facility at reactor core power levels not in excess of 3648 megawatts thermal (100% of rated power).

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 139*, and the Environmental Protection Plan contained in Appendix B are incorporated into the Facility License No. NPF-86. NextEra Energy Seabrook, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) License Transfer to FPL Energy Seabrook, LLC**

- a. On the closing date(s) of the transfer of any ownership interests in Seabrook Station covered by the Order approving the transfer, FPL Energy Seabrook, LLC**, shall obtain from each respective transferring owner all of the accumulated decommissioning trust funds for the facility, and ensure the deposit of such funds and additional funds, if necessary, into a decommissioning trust or trusts for Seabrook Station established by FPL Energy Seabrook, LLC**, such that the amount of such funds deposited meets or exceeds the amount required under 10 CFR 50.75 with respect to the interest in Seabrook Station FPL Energy Seabrook, LLC**, acquires on such dates(s).

* Implemented

** On April 16, 2009, the name "FPL Energy Seabrook, LLC" was changed to "NextEra Energy Seabrook, LLC".

DESIGN FEATURES

DESIGN PRESSURE AND TEMPERATURE

5.2.2 The containment building is designed and shall be maintained for a maximum internal pressure of 52.0 psig and a temperature of 296°F.

5.3 REACTOR CORE

FUEL ASSEMBLIES

5.3.1 The reactor shall contain 193 fuel assemblies. Each assembly shall consist of a matrix of cylindrical Zircaloy-4, ZIRLO[®], or Optimized ZIRLO[™] clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO₂) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with NRC-approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff-approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum enrichment of 5.0 weight percent U-235.

CONTROL ROD ASSEMBLIES

5.3.2 The core shall contain 57 full-length control rod assemblies. The full-length control rod assemblies shall contain a nominal 142 inches of absorber material. The nominal values of absorber material shall be 80% silver, 15% indium, and 5% cadmium. All control rods shall be clad with stainless steel tubing.

5.4 REACTOR COOLANT SYSTEM

DESIGN PRESSURE AND TEMPERATURE

5.4.1 The Reactor Coolant System is designed and shall be maintained:

- a. In accordance with the Code requirements specified in Section 5.2 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,
- b. For a pressure of 2485 psig, and
- c. For a temperature of 650°F, except for the pressurizer which is 680°F.

VOLUME

5.4.2 The total water and steam volume of the Reactor Coolant System is 12,255 cubic feet at a nominal T_{avg} of 588.5°F.

5.5 (THIS SPECIFICATION NUMBER IS NOT USED)

ADMINISTRATIVE CONTROLS

6.8.1.6.b (Continued)

12. NYN-95048, Letter from T. C. Feigenbaum (NAESCo) to NRC, "License Amendment Request 95-05: Positive Moderator Temperature Coefficient", May 30, 1995.

Methodology for Specification:

3.1.1.3 - Moderator Temperature Coefficient

13. WCAP-12610-P-A, "VANTAGE + Fuel Assembly Reference Core Report". April, 1995, (Westinghouse Proprietary).

WCAP-12610-P-A & CENPD-404-P-A, Addendum 1-A, "Optimized ZIRLO™", July 2006.

Methodology for Specification:

3.2.2 - Heat Flux Hot Channel Factor

14. WCAP-10216-P-A, Revision 1A (Proprietary), "Relaxation of Constant Axial Offset Control F_Q Surveillance Technical Specification", February, 1994.

Methodology for Specification:

3.2.1 - AXIAL FLUX DIFFERENCE

3.2.2 - Heat Flux Hot Channel Factor

15. WCAP-9272-P-A, (Proprietary), "Westinghouse Reload Safety Evaluation Methodology", July, 1985.

Methodology for Specifications:

2.1 - Safety Limits

3.1.1.1 - SHUTDOWN MARGIN for MODES 1,2,3, and 4

3.1.1.2 - SHUTDOWN MARGIN for MODE 5

3.1.1.3 - Moderator Temperature Coefficient

3.1.2.7 - Isolation of Unborated Water Sources - Shutdown

3.1.3.5 - Shutdown Rod Insertion Limit

3.1.3.6 - Control Rod Insertion Limits

3.2.1 - AXIAL FLUX DIFFERENCE

3.2.2 - Heat Flux Hot Channel Factor

3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor

3.2.5 - DNB Parameters

3.5.1.1 - Accumulators for MODES 1, 2, and 3

3.5.4 - Refueling Water Storage Tank for MODES 1, 2, 3, and 4

3.9.1 - Boron Concentration

16. WCAP-13749-P-A, (Proprietary) "Safety Evaluation Supporting the Conditional Exemption of the Most Negative Moderator Temperature Coefficient Measurement," March, 1997.

Methodology for Specifications:

3.1.1.3 - Moderator Temperature Coefficient



UNITED STATES
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SAFETY EVALUATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 139

TO FACILITY OPERATING LICENSE NO. NPF-86

SEABROOK STATION, UNIT NO. 1

DOCKET NO. 50-443

1.0 INTRODUCTION

By letter dated June 25, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13183A056), NextEra Energy Seabrook, LLC (NextEra or the licensee) submitted a License Amendment Request (LAR) for the technical specification (TS) revisions and an exemption for Seabrook Station, Unit 1 (Seabrook). The proposed changes to TS 5.3.1, "Reactor Core, Fuel Assemblies," and TS 6.8.1.6.b, "Core Operating Limits Report," will add Optimized ZIRLO™ as an acceptable fuel rod cladding material. The licensee also requested an exemption from the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.46, "Acceptance Criteria for Emergency Core Cooling Systems [ECCS] for Light-Water Nuclear Power Reactors," and Appendix K to 10 CFR Part 50, "ECCS Evaluation Models," to allow the use of fuel rod cladding material of Optimized ZIRLO™ alloy for future reload applications. The U.S. Nuclear Regulatory Commission (NRC) staff addresses this exemption request in a separate document, with work performed under TAC MF2411 (ADAMS Accession No. ML13213A049).

The Optimized ZIRLO™ cladding, manufactured by Westinghouse Electric Company (Westinghouse) is a new version of the ZIRLO™ material and was approved in a topical report (TR) Addendum 1-A to WCAP-12610-P-A and CENPD-404-P-A, entitled "Optimized ZIRLO™," for Westinghouse and Combustion Engineering (CE) fuel designs (ADAMS Accession Nos. ML051670403 and ML062080569). The fuel rod burnup limits were approved to a peak rod average of 62,000 megawatt-days per metric ton of uranium (MWd/MTU) for Westinghouse fuel, and 60,000 MWd/MTU for CE fuel. However, the NRC staff requires that licensees using Optimized ZIRLO™ comply with the conditions and limitations listed in the NRC staff safety evaluation (SE) regarding the topical report, dated June 10, 2005 (ADAMS Accession No. ML051670408).

2.0 REGULATORY EVALUATION

The regulations in 10 CFR 50.90, "Application for Amendment of License or Construction Permit," allow a licensee to amend or change the original license applications. The regulations in 10 CFR 50.92, "Issuance of Amendment," specify that the NRC staff will be guided by the considerations which govern the issuance of initial licenses to the extent applicable and appropriate in determining whether an amendment will be issued to the applicant. The licensee

requested a license amendment to add Optimized ZIRLO™ as an acceptable fuel rod cladding material in the TS.

By letter dated June 10, 2005, the NRC staff issued an SE approving Addendum 1 to Westinghouse TR, WCAP-12610-P-A and CENPD-404-P-A, "Optimized ZIRLO™," wherein the NRC staff approved the use of Optimized ZIRLO™ as an acceptable fuel rod cladding material. This approval of Optimized ZIRLO™ is based on:

- 1) similarities to standard ZIRLO™,
- 2) demonstrated material performance,
- 3) a commitment to provide irradiated data and validate fuel performance models ahead of burnups achieved in batch application.

The NRC staff's SE for Optimized ZIRLO™ includes 10 conditions and limitations for its use.

3.0 TECHNICAL EVALUATION

3.1 Conditions and Limitations

In the letter dated June 10, 2005, the SE approving the use of Optimized ZIRLO™, the NRC staff concluded that:

Based upon demonstrated material performance in Addendum 1 and in response to [request for additional information . . .] and the irradiated database, the NRC staff has approved Optimized ZIRLO™ for full batch implementation.

In the SE conclusion, the NRC staff stated:

The NRC staff reviewed the effects of Optimized ZIRLO™ using the appropriate fuel design requirements of [Standard Review Plan] SRP 4.2 and 10 CFR Part 50, Appendix A, General Design Criteria and found that the TR provided reasonable assurance that under both normal and accident conditions, Westinghouse and CE fuel assembly designs implementing Optimized ZIRLO™ fuel cladding would be able to safely operate and comply with NRC regulations.

The NRC staff's SE also stated that licensees referencing Addendum 1 to the TR to implement Optimized ZIRLO™ must ensure compliance with 10 conditions, as specified in the SE. The licensee has documented its compliance with these 10 conditions and limitations in its LAR dated June 25, 2013 (ADAMS Accession No. ML13183A056), and has committed to ensuring compliance with them for future fuel reloads.

Condition 1

Until rulemaking to 10 CFR Part 50 addressing Optimized ZIRLO™ has been completed, implementation of Optimized ZIRLO™ fuel clad requires an exemption from 10 CFR 50.46 and 10 CFR Part 50 Appendix K.

The licensee stated that the request for exemption from 10 CFR 50.46 and 10 CFR Part 50 Appendix K was included as an attachment to the LAR. The NRC staff considers this approach acceptable. As stated above, the exemption request is addressed by separate correspondence (ADAMS Accession No. ML13213A049).

Condition 2

The fuel rod burnup limit for this approval remains at currently established limits: 62 GWd/MTU for Westinghouse fuel designs and 60 GWd/MTU for CE fuel designs.

The licensee stated that the maximum fuel rod burnup limit for Westinghouse fuel designs, including Optimized ZIRLO™, continues to be 62 GWd/MTU. The NRC staff considers this acceptable.

Condition 3

The maximum fuel rod waterside corrosion, as predicted by the best-estimate model, will [satisfy proprietary limits included in TR and proprietary version of SE] of hydrides for all locations of the fuel rod.

The maximum fuel rod corrosion for fuel using the Optimized ZIRLO™ fuel rod cladding will be confirmed by the licensee to be less than the specified proprietary limits for all locations of the fuel rod. Evaluations are performed by the licensee to confirm that the appropriate corrosion limits are satisfied as part of the normal reload design process. The NRC staff agrees that this condition is met by the licensee's stated action and no additional requirement needs to be imposed.

Condition 4

All the conditions listed in previous NRC SE approvals for methodologies used for standard ZIRLO™ and Zircaloy-4 fuel analysis will continue to be met, except that the use of Optimized ZIRLO™ cladding in addition to standard ZIRLO™ and Zircaloy-4 cladding is now approved.

The fuel analysis performed by the licensee of Optimized ZIRLO™ fuel rod cladding will continue to meet all conditions associated with approved methods. For Seabrook, this is a current requirement, and confirmation of these conditions is required as part of the normal reload design process. The NRC staff agrees that this condition is met by the licensee's stated action and no additional requirement needs to be imposed.

Condition 5

All methodologies will be used only within the range for which ZIRLO™ and Optimized ZIRLO™ data were acceptable and for which the verifications discussed in Addendum 1 and responses to RAIs were performed.

The licensee stated that the application of ZIRLO™ and Optimized ZIRLO™ in approved methodologies will be made consistent with the approach accepted in WCAP-12610-P-A and CENPD-404-P-A, Addendum 1-A, dated July 2006, as is required by the current core reload process. For Seabrook, this is a current requirement, and confirmation of these conditions is required as part of the normal reload design process. The NRC staff agrees that this condition is met by the licensee's stated action and no additional requirement needs to be imposed.

Condition 6

The licensee is required to ensure that Westinghouse has fulfilled the following commitment: Westinghouse shall provide the NRC staff with a letter(s) containing the following information (Based on the schedule described in response to RAI #3):

- a. Optimized ZIRLO™ LTA [Lead Test Assembly] data from Byron, Calvert Cliffs Catawba, and Millstone
 - i. Visual
 - ii. Oxidation of fuel rods
 - iii. Profilometry
 - iv. Fuel rod length
 - v. Fuel assembly length
- b. Using the standard and Optimized ZIRLO™ database including the most recent LTA data, confirm applicability with currently approved fuel performance models (e.g., measured vs. predicted).

The licensee indicated that Westinghouse has provided the NRC staff a number of LTA data and models (ADAMS Accession Nos. ML073130560, ML080390452, ML090080381, and ML102140214). The data, which were provided included, but were not limited to, the information described in Condition 6a.

Westinghouse will continue to evaluate the applicability and adequacy of the fuel performance models for the Optimized ZIRLO™ fuel design. Confirmation of the approved models' applicability up through the projected end-of-cycle burnup for the Optimized ZIRLO™ fuel rods must be completed prior to its initial batch loading and prior to the startup of subsequent cycles. The licensee will confirm that, as higher burnups/fluences are achieved for Optimized ZIRLO™ clad fuel rods, the requirements of this condition are met as it applies to Seabrook.

Based on the review of Westinghouse's LTA references cited by the licensee, and the fact that the core reload process is part of the current licensing basis, the NRC staff considers this condition to be met by the licensee.

Condition 7

The licensee is required to ensure that Westinghouse has fulfilled the following commitment: Westinghouse shall provide the NRC staff with a letter containing the following information (based on the schedule described in response to RAI #11):

- a. Vogtle growth and creep data summary reports
- b. Using the standard ZIRLO™ and Optimized ZIRLO™ database including the most recent Vogtle data, confirm applicability with currently approved fuel performance models (e.g., level of conservatism in W rod pressure analysis, measured vs. predicted, predicted minus measured vs. tensile and compressive stress).

Westinghouse has provided the NRC staff a number of LTA data and models including the Vogtle results (ADAMS Accession Nos. ML073130560, ML080390452, ML090080381, and ML102140214). The data, which were provided included, but were not limited to, the information described in Condition 7a.

The licensee indicated that the data from previous cycles of operation had been evaluated and that the updated creep model has been used to predict the growth and creep in fuel rod performance. The licensee provided the favorable results to the NRC staff (ADAMS Accession No. ML102140214). Confirmation of the approved models' applicability up through the projected end-of-cycle burnup for the Optimized ZIRLO™ fuel rods must be completed prior to its initial batch loading and prior to the startup of subsequent cycles. The licensee will confirm that the requirements of this condition are met as it applies to Seabrook.

Based on the review of Westinghouse's LTA references cited by the licensee, and the fact that the core reload process is part of the current licensing basis, the NRC staff considers this condition to be met by the licensee.

Condition 8

The licensee shall account for the relative differences in unirradiated strength (YS [yield strength] and UTS [ultimate tensile strength]) between Optimized ZIRLO™ and standard ZIRLO™ in cladding and structural analyses until irradiated data for Optimized ZIRLO™ have been collected and provided to the NRC staff.

- a. For the Westinghouse fuel design analyses:
 - i. The measured, unirradiated Optimized ZIRLO™ strengths shall be used for BOL [beginning-of-life] analyses.
 - ii. Between BOL up to a radiation fluence of 3.0×10^{21} n/cm² (E > 1MeV), pseudo-irradiated Optimized ZIRLO™ strength set equal to linear interpolation between the following two strength level points: At zero

fluence, strength of Optimized ZIRLO™ equal to measured strength of Optimized ZIRLO™ and at a fluence of 3.0×10^{21} n/cm² (E > 1MeV), irradiated strength of standard ZIRLO™ at the fluence of 3.0×10^{21} n/cm² (E > 1MeV) minus 3 ksi.

- iii. During subsequent irradiation from 3.0×10^{21} n/cm² up to 12×10^{21} n/cm², the differences in strength (the difference at a fluence of 3×10^{21} n/cm² due to tin content) shall be decreased linearly such that the pseudo-irradiated Optimized ZIRLO™ strengths will saturate at the same properties as standard ZIRLO™ at 12×10^{21} n/cm².
- b. For the CE fuel design analyses, the measured, unirradiated Optimized ZIRLO™ strengths shall be used for all fluence levels (consistent with previously approved methods).

The licensee stated that the relative differences in unirradiated strength between Optimized ZIRLO™ and standard ZIRLO™ in cladding and structural analyses will be accounted for until irradiation data for Optimized ZIRLO™ is accepted by the NRC staff. Analysis of Optimized ZIRLO™ clad fuel rods will use the yield strength (YS) and ultimate tensile strength (UTS) as modified per Conditions 8.a.i, 8.a.ii, and 8.a.iii until such time that irradiation data for Optimized ZIRLO™ strengths are collected and provided to the NRC staff. Until the values are accepted by the NRC staff, the licensee will confirm that the requirements of this condition are met as it applies to Seabrook. The licensee stated that Condition 8.b is not applicable because Seabrook is a Westinghouse fuel design plant.

Based on the licensee's statement, the NRC staff considers this condition to be met by the licensee.

Condition 9

As discussed in response to RAI #21, for plants introducing Optimized ZIRLO™ that are licensed with LOCBART or STRIKIN-II and have a limiting PCT [peak cladding temperature] that occurs during blowdown or early reflood, the limiting LOCBART or STRIKIN-II calculation will be rerun using the specified Optimized ZIRLO™ material properties. Although not a condition of approval, the NRC staff strongly recommends that, for future evaluations, Westinghouse update all computer models with Optimized ZIRLO™ specific material properties.

The licensee stated that Seabrook is not licensed with LOCBART or STRIKIN-II loss-of-coolant accident methodology, and therefore this condition does not apply to Seabrook. Based on the licensee's statement, the NRC staff considers this condition to be met by the licensee.

Condition 10

Due to the absence of high temperature oxidation data for Optimized ZIRLO™, the Westinghouse coolability limit on PCT during the locked rotor even shall be [proprietary limits included in topical report and proprietary version of safety evaluation].

The licensee stated that the locked rotor event will be assessed against this coolability limit for the Optimized ZIRLO™ fuel design as part of the core reload design process. Since the core reload process is part of the current licensing basis, the NRC staff therefore agrees that this condition is met by the licensee's stated action and no additional requirement needs to be imposed.

Based on the information provided, the NRC staff finds that the licensee response, as discussed above, meets the requirements of all SE conditions and limitations for Seabrook. Therefore, the NRC staff concludes that the Optimized ZIRLO™ fuel design is acceptable for use in Seabrook to a peak rod average burnup limit of 62 GWd/MTU.

3.2 TS Revisions

3.2.1 TS Section 5.3.1, "Reactor Core, Fuel Assemblies"

The licensee proposes to add Optimized ZIRLO™ as an acceptable fuel rod cladding material. The new sentence is stated as follows:

Each assembly shall consist of a matrix of cylindrical Zircaloy-4, ZIRLO®, or Optimized ZIRLO™ clad fuel rods ...

Based on the approval of Optimized ZIRLO™ fuel cladding by the NRC staff, along with the licensee's documented compliance with the 10 conditions and limitations on Optimized ZIRLO™ in the SE approving its use, the NRC staff concludes that this revision is acceptable for Seabrook.

3.2.2 Section 6.8.1.6, "Core Operating Limits Report [COLR]"

The licensee proposes to add the approved Westinghouse TR, Addendum 1-A to WCAP-12610-P-A and CENPD-404-P-A, "Optimized ZIRLO™," to the list of references in the COLR. Based on the approval of the report, the NRC staff concludes that this revision is acceptable for Seabrook.

3.3 Exemption to Regulations

As explained in Section 2.0 above, the regulations in 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors," and 10 CFR Part 50, Appendix K, "ECCS Evaluation Models," make no provisions for use of fuel rod cladding material other than Zircaloy or ZIRLO™. Since the material specifications of Optimized ZIRLO™ differ from the specification for Zircaloy or ZIRLO™, a plant-specific exemption is needed to permit an amendment, which this SE supports, to be effective. The exemption (ADAMS Accession No. ML13213A049) is issued separately from, but with support from this SE and amendment.

3.4 Summary of Technical Evaluation

The NRC staff has reviewed the licensee's LAR for the TS revisions. Based on the evaluation discussed above, the NRC staff concludes that the Optimized ZIRLO™ fuel design is acceptable to a peak rod average burnup limit of 62 GWd/MTU and the TS revisions are acceptable for Seabrook.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Hampshire and Massachusetts State officials were notified of the proposed issuance of the amendment. The State officials provided no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The NRC has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding published August 20, 2013 (78 FR 51228). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and c(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. Anzalone

Date: March 5, 2014

March 5, 2014

Mr. Kevin Walsh, Site Vice President
c/o Michael Ossing
Seabrook Station
NextEra Energy Seabrook, LLC
P.O. Box 300
Seabrook, NH 03874

SUBJECT: SEABROOK STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT
REGARDING THE USE OF OPTIMIZED ZIRLO™ FUEL ROD CLADDING
MATERIAL (TAC NO. MF2410)

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A copy of our SE is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

John G. Lamb, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosures:

1. Amendment No. 139 to NPF-86
2. Safety Evaluation

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NAME	JLamb	KBeckford	ABaxter	JDean	RElliott	BHarris	MKhanna	JLamb
DATE	01/06/2014	01/15/2014	01/17/2014	12/03/2013	01/29/2014	02/04/2014	02/11/2014	03/05/2014

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