February 17, 2006

Mr. Gene St. Pierre, Site Vice President
c/o James M. Peschel
Seabrook Station
FPL Energy Seabrook, LLC
PO Box 300
Seabrook, NH 03874

SUBJECT: SEABROOK STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT RE: REMOVAL OF REQUIREMENT TO PERFORM END-OF-LIFE MODERATOR TEMPERATURE COEFFICIENT MEASUREMENT (TAC NO. MC6566)

Dear Mr. St. Pierre:

The Commission has issued the enclosed Amendment No. 107 to Facility Operating License (FOL) No. NPF-86 for Seabrook Station, Unit No. 1. The amendment consists of a change to the FOL in response to your application dated March 28, 2005.

The amendment revises the Seabrook Station, Unit No. 1, Technical Specifications Surveillance Requirement 4.1.1.3, "Moderator Temperature Coefficient," to allow the option of not measuring the moderator temperature coefficient within 7 effective full-power days of reaching an equilibrium boron concentration of 300 parts per million. This option is available only if the conditions described in WCAP-13749-P-A, "Safety Evaluation Supporting the Conditional Exemption of the Most Negative Moderator Temperature Coefficient Measurement," have been met.

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

Sincerely,

/RA/

G. Edward Miller, 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. 107 to FOL No. NPF-86
2. Safety Evaluation

cc w/encls: See next page

Seabrook Station, Unit No. 1

cc:

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Sincerely,
/RA/

G. Edward Miller, Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
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cc w/encls: See next page

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FPL ENERGY SEABROOK, LLC, ET AL.*

DOCKET NO. 50-443

SEABROOK STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 107
License No. NPF-86

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment filed by FPL Energy Seabrook, LLC, et al. (the licensee), dated March 28, 2005, 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.

*FPL Energy Seabrook, LLC (FPLE Seabrook) is authorized to act as agent for the following: Hudson Light & Power Department, Massachusetts Municipal Wholesale Electric Company, and Taunton Municipal Light Plant. FPLE Seabrook 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. 107, are hereby incorporated in the license. The licensee 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 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Darrell J. Roberts, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: February 17, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 107

FACILITY OPERATING LICENSE NO. NPF-86

DOCKET NO. 50-443

Replace the following pages of the 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	Insert
3/4 1-5	3/4 1-5
6-18E	6-18E

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 107 TO FACILITY OPERATING LICENSE NO. NPF-86

FPL ENERGY SEABROOK, LLC

SEABROOK STATION, UNIT NO. 1

DOCKET NO. 50-443

1.0 INTRODUCTION

By letter dated March 28, 2005, FPL Energy Seabrook, LLC (FPLE or the licensee) submitted a request for a change to the Seabrook Station, Unit No. 1 (Seabrook) Technical Specifications (TSs) Surveillance Requirement (SR) 4.1.1.3, "Moderator Temperature Coefficient," to allow the option of not measuring the moderator temperature coefficient (MTC) within 7 effective full-power days (EFPDs) of reaching an equilibrium boron concentration of 300 parts per million (ppm). This option would be available only if the conditions described in WCAP-13749-P-A, "Safety Evaluation Supporting the Conditional Exemption of the Most Negative Moderator Temperature Coefficient Measurement," have been met.

The Nuclear Regulatory Commission (NRC or the Commission) staff's original proposed no significant hazards consideration determination was published in the *Federal Register* on May 10, 2005 (70 FR 24652).

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR), Subpart 50.36(c)(2)(ii) states:

> A technical specification limiting condition for operation of a nuclear reactor must be established for each item meeting one or more of the following criteria:

Criterion 2 of this subpart states:

> A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The limitations on MTC contained in TS 3.1.1.3 and verified by SR 4.1.1.3 provide assurance that the value of the coefficient remains within the limiting condition assumed in the final safety analysis report accident and transient analyses. This, in turn, provides assurance that the reactor will be operated in a safe manner.

Given that the Topical Report WCAP-13749-P-A has been approved by the NRC staff, the focus of this review will be verification that the conditions and limitations of the generic approval are satisfied for the Seabrook-specific application.

3.0 TECHNICAL EVALUATION

3.1 Description of Change

Currently, the TSs require measurements of the MTC at beginning of core life (BOL) to verify the most positive MTC limit and near end of core life (EOL) to verify the most negative MTC limit. To implement the requested amendment, FPLE proposed to modify the Seabrook TS SR 4.1.1.3.b to add the following footnote:

> Measurement of the MTC in accordance with Surveillance Requirement 4.1.1.3.b may be suspended provided that the benchmark criteria in WCAP-13749-P-A and the revised Prediction specified in the COLR [Core Operating Limits Report] are satisfied

Additionally TS 6.8.1.6.b, "Core Operating Limits Report," analytical methods used to calculate the COLR, would be revised to include the referenced topical report as follows:

> 16. WCAP-13749-P-A, (Proprietary) "Safety Evaluation Supporting the Conditional Exemption of the Most Negative Moderator Temperature Coefficient Measurement," March 1997
>
> Methodology for Specification:
>
> 3.1.1.3 - Moderator Temperature Coefficient

3.2 Basis for TS SR 4.1.1.3.b

TS 3.1.1.3 requires that the MTC be less negative than the specified limit for all the control rods withdrawn, near EOL, at 100% rated thermal power (RTP). To demonstrate compliance with this limiting condition for operation, SR 4.1.1.3.b requires verification of the MTC near EOL at an equilibrium boron concentration of 300 ppm. Because the MTC becomes more negative with burnup, the 300 ppm MTC value should be less negative than the value at the EOL.

The difference of the MTC values at 300 ppm and 0 ppm is specified in the COLR and is calculated as part of the plant accident analysis. Currently, the most positive MTC value is measured at hot zero power (HZP) at BOL and the most negative value is verified near EOL. While the HZP MTC measurement is relatively easy to perform, measurement of the MTC near EOL at 300 ppm and 100% RTP is complicated by concurrent small changes in fuel temperature, boron concentration, xenon distribution, and moderator temperature. Inaccuracies introduced by these changes could result in erroneous results.

3.3 Evaluation of Proposed Alternative

FPLE has proposed to compare an alternate predicted MTC to the EOL MTC. If the predicted value is less negative than the EOL MTC, then an EOL MTC measurement would not be required. The proposed calculational method is consistent with the method described and

approved in WCAP-13749-P-A. It should be noted that the NRC staff approved the calculational method with the following two conditions:

- Only PHOENIX/ANC calculation methods should be used for the plant-specific analyses for the determination of the EOL MTC, and

- The predictive correction will be reexamined if changes in core fuel designs or continued MTC calculation/measurement data show significant effect on the predictive correction.

In its March 28, 2005, letter, FPLE stated that the PHOENIX-P/ANC core design methods are used for Seabrook. Additionally, prior to each use of the conditional MTC measurement elimination, FPLE will confirm that the core design, MTC calculation, and design data do not show a significant effect on the predictive correction. If a significant effect is found, the predictive correction will be reexamined. The NRC staff finds that FPLE will meet the two conditions, consistent with the approval of WCAP-13749-P-A, making the proposed TS revision acceptable.

3.4 Section 3.2.1 of WCAP 13749-P-A

Section 3.2.1 of WCAP 13749-P-A states, “As part of determining the applicability of a conditional exemption from the near-EOL MTC measurement, a cycle-specific figure similar to Figure 3-1 will be provided as part of that cycle’s TS or COLR,” however, the COLR changes contained in Appendix B, “COLR Revision,” do not include a reference to a figure similar to Figure 3-1. Therefore, FPLE proposes to include a cycle-specific figure of predicted hot full power, 300 ppm boron concentration, MTC versus cycle burn-up and the benchmark criteria in the surveillance procedure for the EOL MTC measurement. The staff finds that, in the absence of Figure 3-1, the predicted cycle-specific MTC versus cycle burn-up is appropriate, therefore, its inclusion is acceptable.

3.5 Appendix A to WCAP-13749-P-A

Although FPLE did propose to incorporate the recommended TS 4.1.1.3 into the Seabrook TSs, as described in Appendix A to WCAP-13749-P-A, the licensee proposed to exclude TS 6.9.1.7, contained in Appendix A to the Topical Report, which states:

> 6.9.1.7 The most negative MTC limits shall be provided to the NRC Regional Administrator with a copy to the Director of Nuclear Reactor Regulation, Attention: Chief, Core Performance Branch, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, at least 60 days prior to the date the limit would become effective unless otherwise approved by the Commission by letter. This report will include the data required for the determination of the Revised Prediction of the 300 ppm/ARO/RTP MTC per WCAP-13749, “Safety Evaluation Supporting the Conditional Elimination of the Most Negative EOL Moderator Temperature Coefficient Measurement,” May 1993 (Westinghouse Proprietary).

FPLE stated that the inclusion of this TS was both inconsistent and unnecessarily burdensome. To support this justification, FPLE showed in its March 28, 2005, letter that the information required to be submitted by this TS, 60 days prior to reaching 300 ppm boron concentration, would require input data gathered at a 300 ppm boron concentration. Therefore, the reporting

requirement requires submission of data before it would be available. Additionally, FPLE stated that given the applicability restrictions and data required for determining the revised prediction, notifying the NRC prior to performing the surveillance procedure was not necessary. FPLE also noted that in Amendment No. 144 to South Texas Project, Unit No. 1, which utilized WCAP-13749, TS 6.9.1.7 was not included for similar reasons.

Considering the inconsistency that the method used is incorporated into station procedures, the existing precedent, and that TS 4.1.1.3.b provides additional MTC measurements every 14 EFPDs through the end of the cycle when appropriate, the NRC staff finds that the omission of TS 6.9.1.7 does not countermand the conditional elimination of the EOL MTC measurement.

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 had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes SRs. 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 Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (70 FR 24652). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). 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) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: L. Lois
E. Miller

Date: February 17, 2006