



**FPL Energy**  
**Seabrook Station**

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**JAN 14 2004**

Docket No. 50-443

NYN-03099

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

Seabrook Station  
Response to Request for Additional Information for  
License Amendment Request 01-10

References:

1. NYN-02022, License Amendment Request 01-10, "Relocation of Cycle-Specific Parameters to the Core Operating Limits Report," dated April 15, 2002.
2. NRC Facsimile, Seabrook Station, Unit No. 1, "Draft Request for Additional Information (RAI) to be Discussed in an Upcoming Conference Call (TAC No. MB4918)", dated May 8, 2003.

By facsimile dated May 8, 2003 (Reference 2), FPL Energy Seabrook, LLC (FPLE Seabrook) received a draft Request for Additional Information (RAI) to facilitate the technical review being conducted by the Office of Nuclear Reactor Regulation (NRR) and to support a conference call that was held on August 29, 2003. Enclosure 1 provides FPLE Seabrook's response to the questions.

On October 3, 2003, the NRC issued amendment 93 to facility operating license NPF-86, which affected Technical Specification pages associated with License Amendment Request 01-10. Enclosure 2 provides a detailed description of the affected pages. Also included are new retyped Technical Specification pages for the affected pages.

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Should you have any questions concerning this response, please contact Mr. James M. Peschel, Regulatory Programs Manager, at (603) 773-7194.

Very truly yours,

FPL Energy Seabrook, LLC



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Mark E. Warner  
Site Vice President

cc: H. J. Miller, NRC Region I Administrator  
V. Nerses, NRC Project Manager, Project Directorate I-2  
G. T. Dentel, NRC Senior Resident Inspector

Mr. Bruce Cheney, Director  
New Hampshire Office of Emergency Management  
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Oath and Affirmation

I, Mark E. Warner, Site Vice President of FPL Energy Seabrook, LLC, hereby affirm that the information and statements contained within this document are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.

Sworn and Subscribed  
before me this

14 day of January, 2004

Michael O'Keefe  
Notary Public

Mark E. Warner  
Mark E. Warner  
Site Vice President



**Enclosure 1 to NYN-03099**

In License Amendment Request (LAR) 01-10, dated April 15, 2002, FPL Energy Seabrook, LLC (FPLE Seabrook) requested to amend the COLR documents list. The NRC staff found that additional information was needed to complete its review of the request. The following are the FPLE Seabrook responses to those questions:

**NRC RAI Question 1a through 1d narrative:**

In Generic Letter 88-16 entitled, "Removal of Cycle-Specific Parameter Limits from Technical Specifications," the NRC established a generic process that eliminated the need to modify the technical specifications to update cycle-specific parameters. A central element of the process included the addition of a Core Operating Limits Report (COLR) to include cycle-specific parameters and NRC-approved methodologies. A licensee may add approved methodologies to the COLR list using the standard technical specification modification process. When the staff reviews license requests to relocate technical specifications to the COLR, it uses two important conditions to determine acceptability. These two conditions are the following: 1) the parameter is cycle specific; and 2) an NRC approved methodology exists to calculate the parameter in an acceptably conservative manner. An NRC-approved methodology would include equations, approved codes, references to approvals of codes if approved separately, a process to ensure that input is conservative for a plant-specific application, a process to make changes to the parameter, and a demonstration that the calculated parameter is conservative to account for the conditions under which it exists.

In addition to responding to the specific requests below, please provide information that assures the surveillance of the concentration is maintained when the value is moved to the COLR.

**NRC RAI Question 1a)**

Please provide justification for meeting the two conditions above including a methodology that can be approved for relocating the RWST boron concentration to the COLR.

**FPLE Seabrook Response to Question 1a):**

FPLE Seabrook uses a process in which the adequacy of the boration systems is reviewed and verified for each cycle reload design. As part of this review, the Refueling Water Storage Tank (RWST) boron concentration is verified to maintain post-LOCA subcriticality. Should a change be necessary, inclusion of the RWST boron concentration in the COLR would allow the change without an additional Technical Specification License Amendment, which would need NRC approval in a very short time frame.

The review of the boration systems is conducted in accordance with WCAP-9272-P-A, (Proprietary), "Westinghouse Reload Safety Evaluation Methodology", July, 1985.

The surveillance of the RWST boron concentration will be maintained, when the value is moved to the COLR, by Technical Specification 4.5.4a.2) which states:

“The RWST shall be demonstrated OPERABLE at least once per 7 days by verifying the boron concentration of the water.”

**NRC RAI Question 1b)**

Please provide justification for meeting the two conditions above including a methodology that can be approved for relocating accumulator boron concentration to the COLR.

**FPLE Seabrook Response to Question 1b):**

FPLE Seabrook uses a process in which the adequacy of the boration systems is reviewed and verified for each cycle reload design. As part of this review, the accumulator boron concentration is verified to maintain post-LOCA subcriticality. Should a change be necessary, inclusion of the accumulator boron concentration in the COLR would allow the change to be made without an additional Technical Specification License Amendment, which would need NRC approval in a very short time frame.

The review of the boration systems is conducted in accordance with WCAP-9272-P-A, (Proprietary), “Westinghouse Reload Safety Evaluation Methodology”, July, 1985.

The surveillance of the accumulator boron concentration will be maintained, when the value is moved to the COLR, by Technical Specification 4.5.1.1b which states:

“Each accumulator shall be demonstrated OPERABLE by verifying the boron concentration of the accumulator solution under the following conditions:

- 1) At least once per 31 days,
- 2) Within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume. This surveillance is not required when the volume increase makeup source is the RWST and the RWST has not been diluted since verifying that the RWST boron concentration is equal to or greater than the accumulator boron concentration limit.”

**NRC RAI Question 1c)**

Please provide reference to the two conditions above or meet the conditions above including a methodology that can be approved for relocating refueling boron concentration to the COLR.

**FPLE Seabrook Response to Question 1c):**

FPLE Seabrook uses a process in which the refueling boron concentration is determined for each cycle reload design. As part of this review, the refueling boron concentration is verified to maintain shutdown margin ( $K_{eff} < 0.95$ ) during refueling operations. Should a change be necessary, inclusion of the refueling boron concentration in the COLR would allow the change to be made without an additional Technical Specification License Amendment, which would need NRC approval in a

very short time frame.

The determination of the refueling boron concentration is conducted in accordance with WCAP-9272-P-A, (Proprietary), "Westinghouse Reload Safety Evaluation Methodology", July 1985.

The surveillance of the refueling boron concentration will be maintained, when the value is moved to the COLR, by Technical Specification 4.9.1.2, which states:

"The boron concentration of the Reactor Coolant System and the refueling canal shall be determined by chemical analysis at least once per 72 hours."

#### **NRC RAI Question 1d)**

Please provide reference to the two conditions above or meet the conditions above including a methodology that can be approved for relocating the boric acid storage tank concentration.

#### **FPLE Seabrook Response to Question 1d):**

Since submittal of this RAI, the boric acid storage tank boron concentration has been moved to the Seabrook Station Technical Requirements manual as authorized by License Amendment 93 to Facility Operating License No. NPF-86 on October 3, 2003. The review of the boration systems is conducted in accordance with WCAP-9272-P-A, (Proprietary), "Westinghouse Reload Safety Evaluation Methodology", July, 1985. Should a change be necessary, the boric acid storage tank boron concentration would be changed using the guidance provided in 10CFR50.59.

The surveillance of the boric acid storage tank boron concentration is currently maintained by Seabrook Station Technical Requirements manual TR29-4.1.2.5a.1)<sup>1</sup> and TR29-4.1.2.6a.1)<sup>2</sup> which state:

"Each borated water source shall be demonstrated OPERABLE at least once per 7 days by verifying the boron concentration in the water."

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<sup>1</sup> Prior to October 3, 2003, TR29-4.1.2.5a.1) was Technical Specification 4.1.2.5a.1). License Amendment 93 to Facility Operating License No. NPF-86 relocated Technical Specification 4.1.2.5a.1) to the Seabrook Station Technical Requirements Manual.

<sup>2</sup> Prior to October 3, 2003, TR29-4.1.2.6a.1) was Technical Specification 4.1.2.6a.1). License Amendment 93 to Facility Operating License No. NPF-86 relocated Technical Specification 4.1.2.6a.1) to the Seabrook Station Technical Requirements Manual.

**NRC RAI Question 2:**

How are procedures updated and communicated to the operators when cycle specific boron concentrations are moved to the COLR?

**FPLE Seabrook Response to Question 2:**

For the initial relocation, upon approval of the License Amendment Request and issuance of a License Amendment, FPLE Seabrook's licensing department provides a copy of the license amendment to the department's that reviewed the initial License Amendment Request. The Department's identify any additional procedures and documents which require updating prior to the implementation date. A meeting is held with the affected departments to share the information and schedule the necessary changes to procedures and programs. Training for Licensed Operators is provided prior to the implementation date by either classroom instruction or required reading, depending on the complexity and detail of the change.

For future changes to boron concentrations, FPLE Seabrook will use the Design Change Record program (DCR) to ensure the information and required changes for a reload design are properly routed and reviewed. The DCR process identifies and tracks necessary procedure and program changes. The COLR is developed as part of the reload DCR. Operator training for each reload DCR is performed for each crew prior to refueling. This training covers any changes that are needed, e.g. boron concentration changes, to support the core design.

**NRC RAI Question 3:**

Is the licensee requesting to add WCAP 15025-P-A to the COLR list of documents? If so please address the limitations delineated in the staff safety evaluation of the WCAP.

**FPLE Seabrook Response to Question 3:**

No. FPLE Seabrook is withdrawing the request to add WCAP 15025-P-A to the COLR list of documents. This WCAP will be added in a future amendment. A corrected typed page is being provided in Enclosure 2.

**Enclosure 2 to NYN-03099**

On October 3, 2003, License Amendment 93 was issued to Facility Operating License NPF-86. As part of this amendment, Technical Specifications 3.1.2.5 and 3.1.2.6 were relocated to the Seabrook Station Technical Requirements manual. Because of this relocation, changes are required to this License Amendment Request. The required changes and reasons are delineated in the following Table. Retyped pages are enclosed.

Tech Spec Page	Affect of Approval of License Amendment 93	Retyped Page Provided
3/4 1-11	License Amendment 93 relocated this page to the Seabrook Station Technical Requirements Manual (TRM). An information copy of the current page is being provided.	No, do not issue this page.
3/4 1-12	License Amendment 93 relocated this page to the Seabrook Station Technical Requirements manual. An information copy of the current page is being provided.	No, do not issue this page.
3/4 1-14	Due to the relocation of Technical Specification 3.1.2.1 through 3.1.2.6 in License Amendment 93, the header from page 3/4 1-7 moved to the top of page 3/4 1-14. Also, the surveillance requirement changes associated with license amendment 93 need to be included.	Yes
6-18B	The addition of WCAP-115025P under item 5 is being removed from this License Amendment Request. Its addition will be addressed in a future License Amendment Request.	Yes
6-18E	Technical Specifications 3.1.2.5 and 3.1.2.6 were relocated in Amendment 93 to the TRM. Updates of these values will be addressed and coordinated by the reload Design Change Record process. Reference to Technical Specifications 3.1.2.5 and 3.1.2.6 needs to be deleted since they no longer exist.	Yes
B3/4 1-3	License amendment 93 deleted a significant portion of this Bases due to the relocation of the associated Technical Specifications. Applicable LAR 01-10 changes are being added to the current Amendment 93 page. Bases changes to material that was removed are not included.	Yes

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## REACTIVITY CONTROL SYSTEMS

### 3/4.1.2 BORATION SYSTEMS

#### ISOLATION OF UNBORATED WATER SOURCES - SHUTDOWN

##### LIMITING CONDITION FOR OPERATION

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3.1.2.7 Provisions to isolate the Reactor Coolant System from unborated water sources shall be OPERABLE with:

- a. The Boron Thermal Regeneration System (BTRS) isolated from the Reactor Coolant System, and
- b. The Reactor Makeup Systems inoperable except for the capability of delivering up to the capacity of one Reactor Makeup Water pump to the Reactor Coolant System.

APPLICABILITY: MODES 4, 5, and 6

##### ACTION:

With the requirements of the above specification not satisfied immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and, if within 1 hour the required SHUTDOWN MARGIN is not verified, initiate and continue boration equivalent to 30 gpm greater than or equal to the limit specified in the COLR for the Boric Acid Storage System until the required SHUTDOWN MARGIN is restored and the isolation provisions are restored to OPERABLE.

##### SURVEILLANCE REQUIREMENTS

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4.1.2.7 The provisions to isolate the Reactor Coolant System from unborated water sources shall be determined to be OPERABLE at least once per 31 days by:

- a. Verifying that at least the BTRS outlet valve, CS-V-302, or the BTRS moderating heat exchanger outlet valve, CS-V-305, or the manual outlet isolation valve for each demineralizer\* not saturated with boron, CS-V-284, CS-V-295, CS-V-288, CS-V-290, CS-V-291, is closed and locked closed, and
- b. Verifying that power is removed from at least one of the Reactor Makeup Water pumps, RMW-P-16A or RMW-P-16B.

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\*A demineralizer may be unisolated to saturate a bed with boron provided the effluent is not directed back to the Reactor Coolant System.

## ADMINISTRATIVE CONTROLS

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### 6.8.1.6.b. (Continued)

#### Methodology for Specifications:

- 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
- 3.1.3.5 - 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

4. Seabrook Station Updated Final Safety Analysis Report, Section 15.4.6, "Chemical and Volume Control System Malfunction That Results in a Decrease in the Boron Concentration in the Reactor Coolant System".

#### Methodology for Specifications:

- 3.1.1.1 - SHUTDOWN MARGIN for MODES 1, 2, 3, and 4
- 3.1.1.2 - SHUTDOWN MARGIN for MODE 5

5. YAEC-1241, "Thermal-Hydraulic Analysis of PWR Fuel Elements Using the CHIC-KIN Code", R. E. Helfrich, March, 1981.

WCAP-14565-P, (Proprietary), "VIPRE-01 Modeling and Qualification for Pressurized Water Reactor Non-LOCA Thermal-Hydraulic Safety Analysis", April, 1997.

Letter from T. H. Essig (NRC) to H. Sepp (Westinghouse), "Acceptance for Referencing of Licensing Topical Report WCAP-14565-P, (Proprietary), "VIPRE-01 Modeling and Qualification for Pressurized Water Reactor Non-LOCA Thermal-Hydraulic Safety Analysis", January, 1999.

#### Methodology for Specification:

- 2.1 - Safety 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

6. YAEC-1849P, "Thermal-Hydraulic Analysis Methodology Using VIPRE-01 For PWR Applications," October, 1992.

WCAP-11397-P-A, (Proprietary), "Revised Thermal Design Procedure", April, 1989.

## ADMINISTRATIVE CONTROLS

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### 6.8.1.6.b. (Continued)

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

- 6.8.1.6.c. The core operating limits shall be determined so that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as SHUTDOWN MARGIN, and transient and accident analysis limits) of the safety analysis are met. The CORE OPERATING LIMITS REPORT for each reload cycle, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, to the NRC Document Control Desk with copies to the Regional Administrator and the Resident Inspector.

## REACTIVITY CONTROL SYSTEMS

### BASES

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#### 3/4.1.2 BORATION SYSTEMS

The limitations on OPERABILITY of isolation provisions for the Boron Thermal Regeneration System and the Reactor Water Makeup System in Modes 4, 5, and 6 ensure that the boron dilution flow rates cannot exceed the value assumed in the transient analysis.

The "equivalent to" statement in the Action for LCO 3.1.2.7 is a provision providing an alternate method of emergency boration via the RWST at an increased flow rate to account for the lower boron concentration within the RWST.

A resin bed is considered saturated with boron when the effluent boron concentration is within 5% or 5 ppm, whichever is greater, of the Reactor Coolant System boron concentration at the time the resin bed was saturated. Saturation ensures that no further boron may be removed by the resin bed regardless of the current boron concentration.