



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 9 TO FACILITY OPERATING LICENSE NO. NPF-86

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

SEABROOK STATION, UNIT NO. 1

DOCKET NO. 50-443

1.0 INTRODUCTION

By letter dated September 4, 1991, New Hampshire Yankee (NHY) (the licensee) proposed changes to the Technical Specifications (TS) for the Seabrook Nuclear Station. The proposed changes would modify specifications having cycle-specific parameter limits by replacing the values of those limits with a reference to a Core Operating Limits Report (COLR) for the values of those limits. The proposed changes also include the addition of the COLR to the Definitions section and to the reporting requirements of the Administrative Controls section of TS. Guidance on the proposed changes was developed by NRC on the basis of the review of a lead-plant proposal submitted on the Oconee plant docket by Duke Power Company. This guidance was provided to all power reactor licensees and applicants by Generic Letter 88-16, dated October 4, 1988.

2.0 EVALUATION

The licensee's proposed changes to the TS are in accordance with the guidance provided by Generic Letter 88-16 and are addressed below:

- (1) The Definition section of the TS was modified to include a definition of the Core Operating Limits Report that requires cycle/reload-specific parameter limits to be established on a unit-specific basis in accordance with approved methodologies that maintain the limits of the safety analysis. The definition notes that plant operation within these limits is addressed by individual specifications.
- (2) The following specifications were revised to replace the values of cycle-specific parameter limits with a reference to the COLR that provides these limits.

- (a) Specifications 3.1.1.1., 3.1.2.2, 3.1.2.4 and 3.1.2.6

The shutdown margin limit for Modes 1, 2, 3 and 4 for this specification is specified in the COLR.

- (b) Specification 3.1.1.2 and Surveillance Requirement 4.1.1.2

The shutdown margin limit for Mode 5 for this specification and for this surveillance requirement is specified in the COLR.

- (c) Specification 3.1.1.3 and Surveillance Requirement 4.1.1.3

The moderator temperature coefficient (MTC) limits for this specification and for this surveillance requirement are specified in the COLR.

The technical specification 3.1.1.3 should state that the maximum upper limit shall not be more positive than  $0 \Delta k/k/^\circ F$ .

- (d) Specification 3.1.3.5 and Surveillance Requirement 4.1.3.5

The shutdown rod insertion limit for this specification and for this surveillance requirement is specified in the COLR.

- (e) Specification 3.1.3.6

The control rod insertion limits for this specification are specified in the COLR.

- (f) Specification 3.2.1

The axial flux difference limits and target band for this specification are specified in the COLR.

- (g) Specification 3.2.2 and Surveillance Requirement 4.2.2.2

The total peaking factor ( $F_Q$ ) limit at rated thermal power, the normalized  $F_Q$  limit as a function of core height and the power factor multiplier  $PF_{xy}$  for this specification and for this surveillance requirement are specified in the COLR.

- (h) Specification 3.2.3

The nuclear enthalpy rise hot channel factor ( $F_{\Delta H}^N$ ) limit at rated thermal power and the power factor multiplier  $PF_{\Delta H}$  for this specification are specified in the COLR.

The bases of affected specifications have been modified by the licensee to include appropriate reference to the COLR. Based on our review, we conclude that the changes to these bases are acceptable.

- (3) Specification 6.8.1.6 is revised to delete a previous reporting requirement on Peaking Factor Limit Report and to add the Core Operating Limits Report to the reporting requirements of the Administrative Controls section of the TS. This specification requires that the COLR be submitted, upon issuance, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector. The report provides the values of cycle-specific parameter limits that are applicable for the current fuel cycle. Furthermore, these specifications require that the values of these limits be established using NRC approved methodologies and be consistent with all applicable limits of the safety analysis. The approved methodologies are the following:

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

Methodology for Specifications:

- 3.1.1.1 - SHUTDOWN MARGIN limit for MODES 1, 2, 3 and 4
  - 3.1.1.2 - SHUTDOWN MARGIN limit for MODE 5
  - 3.1.1.3 - Moderator Temperature Coefficient
  - 3.1.3.5 - Shutdown Rod Bank Insertion Limit
  - 3.1.3.6 - Control Rod Bank Insertion Limits
  - 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor
- (b) WCAP-11596-P-A, "Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores" June 1988 (W Proprietary)

Methodology for Specifications:

- 3.1.1.1 - SHUTDOWN MARGIN limit for MODES 1, 2, 3 and 4
  - 3.1.1.2 - SHUTDOWN MARGIN limit for MODE 5
  - 3.1.1.3 - Moderator Temperature Coefficient
- (c) WCAP-8385-P-A, "Power Distribution Control and Load Following Procedures Topical Report," September 1974 (W Proprietary)

Methodology for Specifications:

- 3.1.3.5 - Shutdown Rod Bank Insertion Limit
  - 3.1.3.6 - Control Rod Bank Insertion Limits
  - 3.2.1 - AXIAL FLUX DIFFERENCE
- (d) WCAP-7811, "Power Distribution Control of Westinghouse Pressurized Water Reactors," December 1971 (W Proprietary)

Methodology for Specifications:

- 3.1.3.5 - Shutdown Rod Bank Insertion Limit
- 3.1.3.6 - Control Rod Bank Insertion Limits

- (e) Letter, T.M. Anderson to K. Kneil (Chief of Core Performance Branch, NRC), January 31, 1980, Attachment: Operation and Safety Analysis Aspects of an Improved Load Follow Package

Methodology for Specification:

3.2.1 - AXIAL FLUX DIFFERENCE

- (f) NUREG-0800, Standard Review Plan, U.S. Nuclear Regulatory Commission, Section 4.3, Nuclear Design, July 1981, Branch Technical Position CPB 4.3.-1, Westinghouse Constant Axial Offset Control (CAOC), Rev. 2, July 1981.

Methodology for Specification:

3.2.1 - AXIAL FLUX DIFFERENCE

- (g) WCAP-7308-L, "Evaluation of Nuclear Hot Channel Factor Uncertainties," December 1971 (W Proprietary)

Methodology for Specification:

3.2.2 - Heat Flux Hot Channel Factor

- (h) WCAP-8622, "Westinghouse ECCS Evaluation Model, October 1975 Version," November 1975 (W Proprietary)

Methodology for Specification:

3.2.2 - Heat Flux Hot Channel Factor

- (i) WCAP-9220, "Westinghouse ECCS Evaluation Model, February 1978 Version," February 1978 (W Proprietary)

Methodology for Specification:

3.2.2 - Heat Flux Hot Channel Factor

- (j) WCAP-7912-P-A, "Power Peaking Factors," January 1975 (W Proprietary)

Methodology for Specification:

3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor

- (k) YAEC-1363-A, "CASMO-3G Validation," April 1988.

YAEC-1659-A, "SIMULATE-3 Validation and Verification," September 1988.



Methodology for Specifications:

- 3.1.1.1 - SHUTDOWN MARGIN limit for MODES 1, 2, 3 and 4
- 3.1.1.2 - SHUTDOWN MARGIN limit for MODE 5
- 3.1.1.3 - Moderator Temperature Coefficient
- 3.1.3.5 - Shutdown Rod Bank Insertion Limit
- 3.1.3.6 - Control Rod Bank 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

- (1) 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

Items (d), (g), (h) and (i) were approved by the staff.

Finally, the specification requires that all changes in cycle-specific parameter limits be documented in the COLR before each reload cycle or remaining part of a reload cycle and submitted upon issuance to NRC, prior to operation with the new parameter limits.

On the basis of the review of the above items, the NRC staff concludes that the licensee provided an acceptable response to those items as addressed in the NRC guidance in Generic Letter 88-16 on modifying cycle-specific parameter limits in TS. Because plant operation continues to be limited in accordance with the values of cycle-specific parameter limits that are established using NRC approved methodologies, the NRC staff concludes that this change is administrative in nature and there is no impact on plant safety as a consequence. Accordingly, the staff finds that the proposed changes are acceptable.

As part of the implementation of Generic Letter 88-16, the staff has also reviewed a sample COLR that was provided by the licensee. On the basis of this review, the staff concludes that the format and content of the sample COLR are acceptable.

A change was also made to the Action Statement of Specification 3.1.3.1. Actions b2 and c1 were changed to reference Specification 3.1.3.6 instead of Figure 3.1.1. This change was necessary because the figure has been relocated to the COLR. Consequently, this change is administrative and, therefore, acceptable.

### 3.0 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.

### 4.0 ENVIRONMENTAL CONSIDERATION

This 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. 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 (56 FR 57701). The amendment also involves changes to recordkeeping or reporting requirements. 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.

### 5.0 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.

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