June 2, 2003

Mr. J. V. Parrish
Chief Executive Officer
Energy Northwest
P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION - ISSUANCE OF AMENDMENT (TAC NO. MB7260)

Dear Mr. Parrish:

The Commission has issued the enclosed Amendment No. 186 to Facility Operating License No. NPF-21 for the Columbia Generating Station. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated December 30, 2002, as supplemented by letter dated April 28, 2003.

The amendment revises TS 2.1.1.2, "Minimum Critical Power Ratio Safety Limit (MCPRSL)," to support operation during Cycle 17. Cycle 17 will be the first cycle of operation with a mixed core of ABB/CE/Westinghouse SVEA-96 fuel and Framatome ANP Atrium™-10 reload fuel. The amendment also revises Surveillance Requirement (SR) 3.3.1.3.2 – the local power range monitor (LPRM) calibration frequency specified in the TS for the oscillation power range monitor. This change corrects an inconsistency between the LPRM calibration frequency specified in SR 3.3.1.3.2 and SR 3.3.1.1.7, "Reactor Protection System (RPS) Instrumentation."

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

Sincerely,

/RA/

Brian Benney, Project Manager, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures: 1. Amendment No. 186 to NPF-21
2. Safety Evaluation

cc w/encls: See next page

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ENERGY NORTHWEST

DOCKET NO. 50-397

COLUMBIA GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 186
License No. NPF-21

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

   A. The application for amendment by Energy Northwest (licensee) dated December 30, 2002, as supplemented by letter dated April 28, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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.

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-21 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 186 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented before the plant restarts after completion of Refueling Outage 16.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: June 3, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 186

FACILITY OPERATING LICENSE NO. NPF-21

DOCKET NO. 50-397

Replace the following pages of Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages of the Appendix A Technical Specifications are provided to maintain document completeness.

REMOVE	INSERT
2.0-1	2.0-1
3.3.1.3-3	3.3.1.3-3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 186 TO FACILITY OPERATING LICENSE NO. NPF-21

ENERGY NORTHWEST

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

1.0 INTRODUCTION

By letter dated December 30, 2002, and its supplement dated April 28, 2003, Energy Northwest (the licensee), proposed changes to the Technical Specifications (TS) for the Columbia Generating Station (CGS). The licensee proposed TS changes that would revise the safety limit minimum critical power ratio (SLMCPR) values in TS 2.1.1.2 and the local power range monitor (LPRM) calibration frequency in Surveillance Requirement (SR) 3.3.1.3.2 for CGS Cycle 17 operation. The CGS Cycle 17 core has 764 fuel assemblies, of which there are 280 fresh ATRIUM-10 fuel bundles, 12 fresh SVEA-96 and 472 burned SVEA-96 bundles. The 24 month Cycle 17 design supports operation to an end of full power (EOFP) cycle exposure of about 17,400 MWD/MTU with a licensed rated power of 3486 MWt.

2.0 REGULATORY EVALUATION

The regulatory requirements considered in the staff's review of the application are in 10 CFR 50.36, "Technical Specifications," which provides the regulatory requirements for the content required in a licensee's TS revision of the SLMCPR values. Revision of these SLMCPR values requires analysis using the NRC-approved methodologies in Section 4.4 of the Standard Review Plan (SRP) (NUREG-0800) to ensure compliance with General Design Criterion (GDC) 10 of Appendix A, 10 CFR Part 50. GDC-10 requires that the reactor core and associated coolant, control, and protection systems be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences. The SLMCPR is developed to assure compliance with GDC 10 for fuel cladding integrity. The SLMCPR ensures sufficient margin to the onset of transition boiling (a departure from nucleate boiling, minimum critical power ratio (MCPR) =1.00) so that, during normal operation and in the event of an anticipated operational occurrence, at least 99.9 percent of the fuel rods in the core do not experience transition boiling. At every refueling, the SLMCPR is recalculated due to fuel replacement.

3.0 TECHNICAL EVALUATION

3.1 TS 2.1.1 - Reactor Core Safety Limits

The licensee proposed to change the SLMCPR values in TS 2.1.1.2 with the reactor vessel steam dome pressure greater than or equal to 785 psig and core flow greater than or equal to 10 percent of rated core flow from the current TS, "The MCPR for ATRIUM-9X fuel shall be $\geq$ 1.10 for two recirculation loop operation or $\geq$ 1.11 for single recirculation loop operation and the MCPR for the ABB SVEA-96 fuel shall be $\geq$ 1.10 for two recirculation loop operation or $\geq$ 1.12 for single loop operation," to the proposed TS, "The MCPR shall be $\geq$ 1.09 for two recirculation loop operation or $\geq$ 1.10 for single recirculation loop operation."

In its submittal, the licensee described the approved methodologies used to calculate the proposed SLMCPR values. The Cycle 17 SLMCPR analysis was performed by FRA-ANP using plant- and cycle-specific fuel and core parameters from two different vendors, and the NRC-approved methodologies, including Topical Report (TR) EMF-2245(P)(A), "Application of Siemens Power Corporation's Critical Power Correlation to Co-Resident Fuel" (Reference 1), TR EMF-2209(P)(A), "SPCB Critical Power Correlation," (Reference 2), ANF-524(P)(A) Revision 2 and Supplements 1 and 2, "ANF Critical Power Methodology for Boiling Water Reactors," and those listed in the licensee's submittals dated December 30, 2002.

The staff reviewed: (1) the applicability of the NRC-approved methodologies to this mixed core SLMCPR calculation including the quality assurance relating to the technology transfer for the SLMCPR calculation from the vendor; and (2) the justification for the changes to the SLMCPR from 1.10 to 1.09 for two recirculation loop operation and from 1.11 for ATRIUM-9X and 1.12 for SVEA-96 to 1.10 for single recirculation loop operation.

In the response to the staff's request for additional information (RAI), the licensee provided a description of the processes used to ensure the information that is transmitted between the interfaces is accurate and correctly applied, and the results are consistent and reasonable. The response also stated that the licensee used the direct process described in TR EMF-2245(P)(A) to develop the SPCB critical power correlation additive constants and additive constant uncertainty for the SVEA-96 fuel assemblies. The licensee also concluded that the direct process was applicable because (1) sufficient experimental data were available, (2) a rigorous statistical evaluation of the SPCB critical power correlation for SVEA-96 fuel was performed to determine the standard deviation of the experimental critical power ratio (ECPR) data and additive constants, (3) there were no unexpected trends in the correlation, and (4) the SVEA-96 critical power experimental data ranges are adequate for the intended use of the correlation and are comparable to those used to develop the SPCB correlation. The SVEA-96 additive constants and additive constant uncertainty results of the critical power correlation evaluation, determined by the licensee's consultants, were used in the CGS Cycle 17 mixed core SLMCPR calculation. The staff has reviewed the licensee's response to its RAI and found that the justification for the applicability of the approved methodologies to the mixed core SLMCPR calculation is acceptable since the calculation process is in accordance with the NRC-approved licensing TRs (References 1 and 2) and with sufficient experimental data for SVEA-96 fuel.

The staff has also found that the justification for the proposed TS changes to TS 2.1.1.2 SLMCPR values are acceptable because: (1) the licensee used approved methodologies in conjunction with the plant- and cycle-specific parameters; (2) the assumptions used to support the analysis for SLMCPR are reasonable (Enclosure 4 of the licensee's December 30, 2002, submittal); and (3) the procedures stated in the approved methodologies for the mixed core application are implemented to transmit accurate data and to obtain consistent and reasonable results. The proposed CGS Cycle 17 SLMCPR values will ensure that 99.9 percent of the fuel rods in the core will not experience boiling transition, which satisfies the requirements of GDC-10 regarding acceptable fuel design limits. Therefore, the staff concludes that the licensee's proposed change of SLMCPR value to 1.09 for two recirculation loop operation and 1.10 for single recirculation loop operation is acceptable for CGS Cycle 17.

3.2 SR 3.3.1.3.2 LPRM Calibration Frequency

The licensee proposed to revise the oscillation power range monitor (OPRM)/LPRM calibration frequency from 1000 MWD/T to 1130 MWD/T due to the inconsistency in two different surveillance frequencies for calibration of the LPRMs identified in SR 3.3.1.1.7 (1130 MWD/T) and in SR 3.3.1.3.2 (1000 MWD/T).

The staff has reviewed the proposed TS change and found it acceptable since the change will correct an inconsistency between the LPRM calibration frequency specified in SR 3.3.1.3.2 and SR 3.3.1.1.7, "Reactor Protection System (RPS) Instrumentation." In addition, it will provide more flexibility in scheduling the surveillance during the work week when the surveillance comes due.

3.3 Conclusion

The staff concludes that the proposed TS changes and their associated Bases are acceptable for: (1) SLMCPR values – because the licensee used approved methodologies to ensure accurate data is transmitted for mixed core SLMCPR calculation, and assumptions and calculation procedures are implemented to obtain reasonable results; and (2) OPRM/LPRM surveillance frequencies – because it corrects an inconsistency for LPRM surveillance frequencies.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Washington State official was notified of the proposed issuance of the amendment. The State official had 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 and changes a surveillance requirement. 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 (68 FR 7815). 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 consideration 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, and (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 to the public.

7.0 REFERENCES

1. EMF-2245(P)(A) Revision 0, "Application of Siemens Power Corporation's Critical Power Correlation to Co-Resident Fuel," Siemens Power Corporation, August 2000.

2. EMF-2209(P)(A) Revision 1, "SPCB Critical Power Correlation," Siemens Power Corporation, July 2000.

Principal Contributor: T. Huang

Date: June 3, 2003