May 12, 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 RE: THE ADDITION OF DEPLETED URANIUM TO THE FUEL ASSEMBLY COMPOSITION DESCRIBED IN TECHNICAL SPECIFICATIONS 4.2.1 AND 5.6.5.b (TAC NO. MB6319)

Dear Mr. Parrish:

The Commission has issued the enclosed Amendment No. 185 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 September 3, 2002, as supplemented by letters dated November 27, 2002, and April 17, 2003.

The amendment allows the addition of depleted uranium to the fuel assembly composition described in TS 4.2.1. The amendment also revises TS 5.6.5.b to incorporate the references to the analytical methods to be used to determine the core operating limits and removes those references that will no longer be used. The amendment also allows the format for those document references to be revised as described in the staff-approved Industry/TSTF Standard Technical Specification Change Traveler, TSTF-363, "Revise Topical Report References in ITS 5.6.5, COLR."

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. 185 to NPF-21
2. Safety Evaluation

cc w/encls: See next page

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Columbia Generating Station

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ENERGY NORTHWEST

DOCKET NO. 50-397

COLUMBIA GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 185
License No. NPF-21

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

   A. The application for amendment by Energy Northwest (licensee) dated September 3, 2002, as supplemented by letters dated November 27, 2002, and April 17, 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. 185 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 plant restart after 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: May 12, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 218

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
4.0-1	4.0-1
5.6-3	5.6-3
5.6-4	5.6-4
—	5.6-5

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 218 TO FACILITY OPERATING LICENSE NO. NPF-21

ENERGY NORTHWEST

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

1.0 INTRODUCTION

By application dated September 3, 2002, as supplemented by letters dated November 27, 2002, and April 17, 2003, Energy Northwest (the licensee) requested changes to the Technical Specifications (TSs) for the Columbia Generating Station. The proposed changes would revise TSs 4.2.1 and 5.6.5.b. Specifically, the proposed changes would amend three aspects of the TS. The first would add depleted uranium to the fuel assembly composition described in TS 4.2.1. The second would revise TS 5.6.5.b to incorporate references to the analytical methods to be used to determine core-operating limits and remove those references that no longer would be used. The third would allow the format for those documents referenced to be revised as described in the staff approved Industry/TSTF Standard Technical Specification Change Traveler, TSTF-363, "Revise Topical Report References in ITS 5.6.5, COLR."

The supplemental letters dated November 27, 2002 and April 17, 2003, provided additional clarifying information, did not change the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination published in the *Federal Register* on October 15, 2002 (67 FR 63693).

2.0 REGULATORY EVALUATION

In Section 5.0 of its submittal, the licensee identified the applicable regulatory requirements. Beginning with Cycle 17, the proposed changes would allow the use of depleted uranium as well as natural and enriched uranium in the fuel, include the NRC-approved Framatone ANP (FRA-ANP) methods to be used in determining the Columbia Generating Station core operating limits, and reflect the recommendations of TSTF-363.

In its evaluation of the proposed change, the staff considered the following: (1) the Columbia Generating Station's Final Safety Analyses Report (FSAR), Section 4.2, Fuel System Design; (2) 10 CFR Part 50, Appendix A; and (3) the Standard Review Plan (SRP), Section 4.2, Fuel System Design. The FSAR describes the NRC-approved methodology for the plant's fuel design bases, fuel system damage limits, fatigue limits, fuel rod failure limits, cladding collapse limits, overheating limits, excessive fuel enthalpy limits, fuel coolability limits and other limits

applicable to fuel performance that were used to evaluate the depleted uranium fuel. Criterion 10 (Appendix A, 10 CFR Part 50) was the cornerstone requirement considered during the evaluation.

The methodologies referenced by the licensee were reviewed to see whether the proposal would assure that the specified acceptable fuel design limits will not be exceeded during any condition of normal operation, including the effects of anticipated operational occurrences. The detailed criteria for the staff's review of the proposed change are described in Section 4.2, "Fuel System Design," of the SRP. The SRP design bases can be demonstrated to be met by the licensee through operating experience, prototype testing, and analytical predictions. These methods are found in the topical reports which are incorporated in the reference section of the plant's FSAR. These documents were used in the evaluation of the licensee's request.

3.0 TECHNICAL EVALUATION

The staff has reviewed the licensee's regulatory and technical analyses in support of its proposed license amendment which were described in Sections 4.0 and 5.0 of the licensee's September 3, 2002, submittal. The licensee requested that depleted uranium be added to the list of fuel materials for the Columbia Generating Station. In its review, the staff considered the fuel's physical properties and behavior inside the core during normal operation, shutdown or during an accident. This type of fuel (depleted uranium) is physically the same as the currently manufactured fuel (uranium oxide) used in their reactor. The difference between them is that the Uranium-235 concentration in the depleted uranium pellets will be lower than in the normal uranium oxide pellets.

The methods for the manufacture and modeling of depleted uranium have already been reviewed by the staff and were found to be acceptable. These methods were reviewed in detail in the Boiling Water Reactor Licensing Methodology Compendium (EMF-2157, Revision 0) and documented in the staff's safety evaluation (SE), dated December 30, 1999, related to Amendment 186 to Facility Operating License No. NPF-21. This boiling water reactor methodology provides acceptable fuel methodologies needed to conform to the plant's licensing bases and to meet the cycle specific parameter limits that have been established using an NRC-approved methodology. The SE for Amendment 186 treats the use of depleted uranium fuel like a mixed core (for this amendment the fuel is mixed with Siemens Power Corporation (SPC) 9x9-2 fuel) to develop the minimum critical power ratio safety limits. As set forth in the staff's SE on EMF-2157, Rev. 0, the staff accepted the use of a mixed core using depleted uranium as long as the fuel safety limits are determined using the NRC approved methodologies. As stated in that SE, use of depleted uranium in the fuel rods does not affect the mechanical performance of the rods. The flux profile measurements performed by the licensee on the core designs used with this type of fuel will be verified to agree with the predicted values.

The methods used by the licensee to ensure that fuel design limits are not exceeded during normal operation or during an anticipated operational occurrence have been reviewed and found acceptable to the staff. These methods are listed in TS Section 5.6.5.b. The licensee also requested a change to this section to include the FRA-ANP methods in the list of approved methods applicable to their plant. In order for the staff to determine the acceptability of these methods it was necessary to review each methodology to verify its applicability to the request.

The staff determined that the licensee proposed to apply these methods for the purposes for which the staff evaluated them in its review of EMF-2157, Rev. 0, and the proposed use is bounded by the range of conditions for which the staff accepted the methodologies referenced in inserts 2 and 3 of the licensee's application (located in Attachment 1). Accordingly, these methods are valid and apply for the use of a core containing depleted uranium fuel. These methods will continue to ensure that acceptable operating limits are established to protect the fuel cladding integrity during the operation of the plant as stated by the plant's safety analysis report.

The licensee has also proposed editorial changes to the TS. Because these editorial changes do not change the substance of the TS, they are acceptable. In addition, the licensee proposed to delete the specific dates of topical reports and revision numbers from TS 5.6.5. Because the staff will generically review any further revisions to the methodologies described in the topicals, and plant-specific safety limits reasonably protect the integrity of the fuel cladding, these changes are acceptable.

A review of the analysis done when the fuel methodology was first accepted by the staff revealed that no new behavior is expected that has not already been seen by the currently manufactured fuel. Review of the methodologies and the licensee's application confirms the licensee's claim that these changes do not involve any new modes of operation, any changes to setpoints, or any plant modifications. The changes are satisfactory as long as the licensee continues to develop the core operating limits using the NRC-approved methods that account for the mixed fuel core design.

The staff review determined that the fuel assembly and core designs employing depleted uranium proposed by the licensee were within the capability of the methods presented and referenced in their application. The licensee reported that depleted uranium fuel has been used in other operating reactors that were modeled using the NRC-approved CASMO-MICROBURN-B2 code. Given that the only difference between the fuels is the U-235 concentration and that the use of depleted uranium is within the models' design capabilities, the staff agrees that the modeling of the fuel with these approved methodologies provides an acceptable representation of fuel behavior in the reactor. Therefore, the staff has determined that the proposed changes are acceptable.

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. 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

(67 FR 63693). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). This amendment also involves changes in recordkeeping, reporting or administrative procedures or requirements. Accordingly, with respect to these items, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(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) 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 Contributor: J. Jimenez

Date: May 12, 2003