

December 14, 2005

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

SUBJECT: ISSUANCE OF AMENDMENT - COLUMBIA GENERATING STATION
(TAC NO. MC4742)

Dear Mr. Parrish:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 196 to Facility Operating License No. NPF-21 for the Columbia Generating Station in response to your application dated October 12, 2004, as supplemented by letters dated March 4 and August 4, 2005.

This amendment revises the Columbia Generating Station Final Safety Analysis Report (FSAR) by updating the licensing and design basis of the reactor core isolation cooling (RCIC) system. Energy Northwest (licensee) submitted FSAR changes to reflect the new bases. The updated FSAR indicates that RCIC is not required to mitigate the consequences of Control Rod Drop Accident.

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 J. Benney, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures: 1. Amendment No. 196 to NPF-21
2. Safety Evaluation

cc w/encls: See next page

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| OFFICE | NRR/LPL4/PM | NRR/LPL4/LA | SRXB/SC | OGC | NRR/LPL4/BC |
| NAME | BBenney:sp | LFeizollahi | FAkstulewicz | SUttal | DTerao |
| DATE | 12/13/05 | 12/13/05 | 11/7/05 | 11/22/05 | 12/13/05 |

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ENERGY NORTHWEST

DOCKET NO. 50-397

COLUMBIA GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 196

License No. NPF-21

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Energy Northwest (licensee) dated October 12, 2004, as supplemented by letters dated March 4 and August 4, 2005, 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, by Amendment No. 196, changes to the Final Safety Analysis Report to reflect the licensing and design bases of the RCIC system which is used for mitigating transients such as loss of feedwater event as set forth in the application for amendment by the licensee, dated October 12, 2004, as supplemented by letters dated March 4 and August 4, 2005, are authorized.
3. This license amendment is effective as of the date of its issuance, and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Date of Issuance: September 14, 2005

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 196 TO FACILITY OPERATING LICENSE NO. NPF-21
ENERGY NORTHWEST
COLUMBIA GENERATING STATION
DOCKET NO. 50-397

1.0 INTRODUCTION

By letter dated October 12, 2004 (Agencywide Documents Access and Management System (ADAMS) accession no. ML043000097), as supplemented by letters dated March 4 and August 4, 2005 (ADAMS accession nos. ML050770349 and ML052280259, respectively), Energy Northwest, the licensee for Columbia Generating Station, submitted a request for clarification of the licensing and design basis of the reactor core isolation cooling (RCIC) system. At present, the final safety analysis report (FSAR) indicates that credit is taken for RCIC in the control rod drop accident (CRDA) analysis. Energy Northwest submitted FSAR changes to indicate that credit is not taken for RCIC in the CRDA analyses and to reflect the new bases. The updated FSAR indicates that RCIC is not required to mitigate the consequences of CRDA.

The March 4 and August 4, 2005, supplements provided information that clarified the application and did not expand the scope of the application as originally noticed, or change the staff's original proposed no significant hazards consideration determination.

2.0 BACKGROUND

General Electric (GE) fuel was used during the first cycle at Columbia Generating Station, and it appears that for the CRDA analysis in Chapter 15, the GE topical report NEDO-10527, "Rod Drop Accident Analysis for Large BWRs [Boiling-Water Reactors], March 1972," was applied. In this GE topical report, RCIC was shown as the back up to high-pressure core spray (HPCS) (Figure 2-2 of NEDO-10527) for reactor core cooling. Therefore, statements were included in the original safety analysis report (SAR) to reflect the back-up role of the RCIC to HPCS. In the original Columbia Generating Station licensing bases, RCIC was considered safety grade, since RCIC was used to mitigate the CRDA. Credit is also taken for RCIC in the loss-of-feedwater transient analysis and is required to be safety grade irrespective of its credit for the CRDA. The original SAR correctly reflected the licensing bases as explained above.

In 1985, the licensee downgraded the RCIC system from a safety-related to a non-safety related status, which changed the seismic qualification of the system from seismic category 1 to non-seismic. The licensee stated that this downgrading was the result of a modification to the automatic depressurization system (ADS) that allowed the safety function of RCIC system to be enveloped by the ADS. In Inspection Report (IR) 50-397/96-11, the NRC noted that FSAR

Chapters 3, 5, and 7 specified that the RCIC components were seismic category 1. The inspection team referred this issue to the Office of Nuclear Reactor Regulation (NRR) to determine whether approval was given to the licensee to downgrade the RCIC system to non-safety related status via a task force agreement.

In IR 50-397/97-13, a notice of violation with regard to RCIC was reported. The licensee submitted SAR Change Notice SCN-85-195 dated October 4, 1985, to the NRC to revise the FSAR and technical specifications to reflect the RCIC system downgrade from safety related to non-safety related. The submittal stated that the ADS combined with the low-pressure core injection provided the same function previously accomplished by the RCIC system. The inspectors noted that the plan was to delete the RCIC from the TS and Chapter 15 of the FSAR, where it was specified as a backup system to the HPCS. A May 2, 1989, letter from the NRC to the licensee denied the application for a TS amendment submitted in Change Notice SCN-85-195.

On January 31, 1997, in response to Task Interface Agreement 96-TIA-005, the NRR concluded that downgrading of RCIC was unacceptable. This response stated that the RCIC is a replacement for the HPCS during limited times when the HPCS is inoperable. Therefore, during this limiting condition for operation, as specified in the TS, RCIC is considered as part of the emergency core cooling system (ECCS) replacing the HPCS. In addition, RCIC was originally assumed to mitigate the consequences of the loss-of-feedwater in Section 15.2.7 of the FSAR and is considered to be a coping system for a station blackout event. Finally, the NRC staff concluded that the safety related function of the RCIC system is not enveloped by the ADS, since the ADS is considered a last resort system because of the transient effects associated with its actuation.

Based on the NRC determination that the RCIC is safety related, the licensee re-categorized the system as safety related.

3.0 TECHNICAL EVALUATION

The licensee's amendment request is limited to clarifying in the Columbia Generating Station license and design bases that the methodologies used to calculate the potential fuel damage, and the resultant dose consequences of the CRDA, do not include a model for the RCIC system initiation or injection. Columbia Generating Station is currently loaded with ATRIUM-10 fuel supplied by Framatome. In the analyses of record for the CRDA, the injection of water into the reactor pressure vessel is not modeled. The accident scenario in the evaluation model is terminated assuming a scram. The licensee stated that the plant design provides several pathways that can be taken to reach and maintain safe shutdown, following a scram.

The details of the codes to perform the CRDA analyses are included in the references, Section 15.4.10, of the Columbia Generating Station FSAR and they are the following:

- (a) Siemens Power Corporation, Siemens Power Corporation Methodology for Boiling Water Reactors: Evaluation and Validation of CASMO-4/MICROBURN-B2, EMF-2158(P)(A), Revision 0, October 1999.
- (b) Exxon Nuclear Company, Application to the ENC methodology to BWR Reloads, XN-NF-80-10(P)(A), Volume 4, Revision 1, June 1986.

Since the current CRDA analyses of record does not take credit for RCIC system injection, the RCIC reference in the FSAR, as the back up to HPCS, is incorrect. Therefore, the reference to RCIC for CRDA can be deleted from the FSAR.

However, the RCIC or HPCS system is capable of responding to transient events that cause reactor water level to drop, such as the loss of feedwater. The original GE-design specifications for the RCIC system discuss that the system design bases are to respond to a loss of feedwater. RCIC is credited for the loss-of-feedwater transient. Since only safety grade systems are allowed to be credited in the transient analyses, the RCIC system is required to be maintained as a safety system. The licensee is in agreement, and the proposed FSAR changes reflect this position.

The licensee stated in the August 4, 2005, letter that the NRC-approved licensing basis for Columbia establishes the use of the safety/relief valves (ADS function) with the low pressure ECCS as a back-up to HPCS for more than Appendix R scenarios. The NRC staff maintains the position taken in the TIA referred to above. In that TIA, the NRC staff concluded that the safety-related function of the RCIC system was not enveloped by the ADS, since ADS was considered as a last resort system because of the transient effects associated with its actuation.

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 (69 FR 64987). 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. The RCIC system will be maintained as a safety system and the system is included in the plant TS. Energy

Northwest is not requesting relief from reporting requirements. The proposed changes for the following pages of final safety analysis report (FSAR) are acceptable, since the analyses of record for CRDA and the FSAR will be in agreement.

| FSAR Section | Page No. |
|--------------|------------|
| 5.4.6.1 | 5.4-15 |
| 5.4.6.2.4 | 5.4-27, 28 |
| 5.4.6.2.5.1 | 5.4-29 |
| 5.4.6.2.5.4 | 5.4-30 |
| 6.3.2.2.1 | 6.3-6,7 |
| 7.1.1.9 | 7.1-3 |
| 7.3.1.1.1.1 | 7.3-2 |
| 7.4.1.1.1 | 7.4-2 |
| 7.4.1.1.2 | 7.4-3 |
| 15.4.9.2 | 15.4-16 |
| II.K.1.22 | B.2-28 |

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Date: September 14, 2005

Columbia Generating Station

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