From:	Parks, Benjamin
To:	Dixon-Herrity, Jennifer
Cc:	Lukes, Robert; Smith, Ashley; Chawla, Mahesh; Tsao, John; DSS AA Distribution
Subject:	log id 1977 Concurrence on SE input for Columbia PLTR LAR
Date:	Friday, June 17, 2022 4:23:15 PM
Attachments:	image001.png

Jennifer,

By letter dated October 13, 2021, (Agencywide Documents and Access Management System (ADAMS) Accession No. ML21299A182), Energy Northwest (the licensee) requested to revise Technical Specification (TS) 3.4.11, "Reactor Coolant System Pressure and Temperature (P/T) Limits," at the Columbia Generating Station (CGS). The proposed amendment request will replace the existing P/T curves in TS 3.4.11 with updated/revised P/T curves that are projected to the end of the period of extended operation. In addition, the licensee provided the revised P/T curves to satisfy the license renewal commitment Number 54 in Table A-1 of Appendix A to NUREG-2123 "Safety Evaluation Report Related to the License Renewal of Columbia Generating Station," which the Nuclear Regulatory Commission (NRC) published in May 2012 (ADAMS Accession Nos. ML12139A300 and ML12139A302).

The Nuclear Methods and Fuel Analysis Branch staff reviewed the reactor vessel neutron fluence estimates supporting the proposed change and determined that it is acceptable. The safety evaluation input provides the basis for the Nuclear Methods and Fuel Analysis Branch staff determination, and appears below. I have reviewed the safety evaluation and found that it contains sound regulatory and technical bases. The Nuclear Methods and Fuel Analysis Branch staff provided me concurrence on the safety evaluation and this e-mail constitutes my concurrence on the safety evaluation.

In accordance with U.S. Nuclear Regulatory Commission policy, the Nuclear Methods and Fuel Analysis Branch staff did not identify any sensitive information contained in the below.

Thanks, Ben Parks, Acting Branch Chief



## 3.2 Licensee's Neutron Fluence Calculations

The proposed P-T limits are based on the application of the GE Hitachi Licensing Topical Report, NEDC-33178P-A (Reference 1), a generic methodology that has been approved for use by the NRC staff for generating P-T limits based on the plant-specific adjusted reference temperatures (ARTs). Implementation of the GE Hitachi Licensing Topical

Report, NEDC-33178P-A is documented in the proposed Columbia PTLR, which was included as Enclosures 5 (NEDO-33929, non-proprietary) and 7 (NEC-33929, proprietary) of the licensee's October 13, 2021, submittal. Updated fluence values are provided in Section 3.2 of NEDO-33929, and Section 3.0 of Enclosure 1 to the licensee's submittal states that the fluence projections were performed using the methods described in NEDC-32983P-A, which has also been approved for use by the NRC staff (Reference 2).

In March 2001, the NRC staff issued RG 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence," which provides methods for determining RPV fluence (ML010890301). Fluence calculations are acceptable if they are performed with NRC-approved methods or with methods which are otherwise shown to conform with the guidance in RG 1.190, consistent with the General Design Criteria (GDCs) in Title 10, "Energy," of the U.S. Code of Federal Regulations (10 CFR) Part 50, Appendix A, "General Design Criteria for the Design of Nuclear Power Plants," specifically, GDCs 14, 30 and 31.

## 4.1 Neutron Fluence Evaluation

As noted above, the licensee submitted updated fluence calculations for Columbia in its LAR. The licensee updated the fluence calculations using an NRC-approved methodology documented in the GE Hitachi Licensing Topical Report, NEDC-32983P-A (Reference 2). The NRC staff safety evaluation for NEDC-32983P-A indicates that the method is approved for use for boiling water reactors, such as Columbia, based on its adherence to RG 1.190. The licensee appropriately projected fluence values supporting the proposed P-T limits to 54 EFPY.

Based on its review, the NRC staff concludes that the information provided assures that the proposed P-T limits are based on acceptable fluence inputs because the fluence calculational methodology has been approved for use by the NRC staff for facilities like Columbia, and it adheres to the guidance in RG 1.190. Therefore, the NRC staff finds that the fluence estimates described in Enclosures 5 and 7 of the LAR are acceptable for use with respect to the proposed P-T limits based on the predicted 54 EFPY exposure period.

## <u>References</u>

- 1. GEH Nuclear Energy, NEDC-33178P-A, Revision 1, "GE Hitachi Nuclear Energy Methodology for Development of Reactor Pressure Vessel Pressure-Temperature Curves", dated June 2009 (ADAMS Accession No. ML092370487)
- GE-Hitachi Nuclear Energy Topical Report NEDC-32983P-A, Revision 2, "General Electric Methodology for Reactor Pressure Vessel Fast Neutron Flux Evaluations," dated January 2006 (ADAMS Accession No. ML072480121)"

Docket No.: 50-397

Contact: Ashley Smith, NRR/DSS/SFNB 301-415-3201