



Alex L. Javorik
Columbia Generating Station
P.O. Box 968, PE04
Richland, WA 99352-0968
Ph. 509-377-8555 | F. 509-377-2354
aljavorik@energy-northwest.com

January 9, 2017
GO2-17-014

10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION,
COLUMBIA MUR LAR RAIS: HUMAN PERFORMANCE**

- References:
1. Letter GO2-16-096 from A. L. Javorik (Energy Northwest) to NRC: "License Amendment Request to Revise Operating License and Technical Specifications for Measurement Uncertainty Recapture (MUR) Power Uprate," dated June 28, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16183A365)
 2. Letter GO2-16-124 from A. L. Javorik (Energy Northwest) to NRC: "Response to License Amendment Request - Opportunity to Supplement," dated August 18, 2016 (ADAMS ML16231A511)
 3. E-mail from J. Klos (NRC) to R. M. Garcia (Energy Northwest) "Columbia MUR LAR RAIs: Human performance," dated December 7, 2016 (CAC No. MF8060)

Dear Sir or Madam:

By Reference 1, Energy Northwest submitted a license amendment for Columbia Generating Station (Columbia) to recapture certain measurement uncertainty as a power uprate. By Reference 2, Energy Northwest supplemented the original request. In Reference 3, the NRC requested additional information related to Reference 1. The enclosure to this letter contains the information requested in Reference 3. A clarification call was held on December 7, 2016 and during that call Energy Northwest agreed to submit the response to the RAIs by Monday January 9, 2017.

The No Significant Hazards Consideration Determination (NSHCD) provided in the original submittal is not altered by this submittal. This letter contains no regulatory commitments.

If you have any questions or require additional information, please contact Mr. R. M. Garcia at (509) 377-8463.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 9th day of January, 2017.

Respectfully,



A. L. Javorik
Vice President, Engineering

Enclosure: As stated

cc: NRC RIV Regional Administrator
NRC NRR Project Manager
NRC Senior Resident Inspector/988C
EFSECutc.wa.gov-- EFSEC (email)

CD Sonoda – BPA/1399 (email)
WA Horin – Winston & Strawn
RR Cowley -WDOH (email)

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION: HUMAN PERFORMANCE

By letter dated June 28, 2016, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16183A365), as supplemented by letter dated August 18, 2016 (ADAMS Accession No. ML16231A511), Energy Northwest submitted a license amendment for Columbia Generating Station (CGS)[Columbia]. The proposed amendment would revise the operating license and technical specifications (TS) to implement an increase in rated thermal power from the current licensed thermal power of 3486 megawatts thermal (MWt) to a measurement uncertainty recapture (MUR) thermal power of 3544 MWt.

The NRC Regulatory Issue Summary (RIS) 2002-003: Guidance on the Content of Measurement Uncertainty Recapture Power Uprate Applications was developed by the U.S. Nuclear Regulatory Commission (NRC) staff to provide guidance to licensees on the scope and detail of the information that should be provided to the NRC for reviewing measurement uncertainty recapture power uprate applications. Specifically, Attachment 1, Section VII, "Other", of the RIS contains a standard set of questions for human performance reviews.

NRC RAI - 1:

RIS 2002-03, Attachment 1, Section VII.1, states that the licensee should provide a statement confirming that operator actions that are sensitive to the power uprate, including any effects on the time available for operator actions, have been identified and evaluated.

Please describe any changes in timing to the operator actions for the proposed amendment.

ENERGY NORTHWEST RESPONSE TO RAI - 1:

As stated in Section 3.4.6 of the submittal, the operator responses to plant transients or accidents are not sensitive to the proposed power uprate changes. The time-critical operator actions identified by plant procedures were reviewed and are unaffected. Changes to the setpoints proposed to support the power uprate only change the trigger point for an existing action, not the action or it's timing. The only new actions being proposed are those associated with the proposed Licensee Controlled Specification provided in Enclosure 3 of the submittal. Those actions although similar to other existing actions required by the station's technical specifications are only followed when the LEFMs become degraded and are not associated with the Final Safety Analysis Report or TS accident or transient.

NRC RAI - 2:

RIS 2002-03, Attachment 1, Section VII.2.B, states that the licensee should provide a statement confirming that they have identified all modifications associated with the proposed power uprate, with respect to the control room controls, displays (including the safety parameter display system) and alarms to ensure that changes in operator actions do not adversely affect defense in depth or safety margins.

The licensee stated in Enclosure 1, Section 3.4.3, "Plant modifications," of the MUR LAR, ADAMS Accession No. ML16183A365 that

"the evaluations performed to support the MUR power uprate identified that no physical modifications are required to plant systems. However, software changes to [Plant Process Computer] PPC are required to support the interface with the [Leading Edge Flow Meter] LEFM system for operation above the [Current License Thermal Power] CLTP limit of 3486 [Megawatts thermal] MWt."

The licensee has identified non-safety related systems affected by the proposed LAR [License Amendment Request], but there is no specific mention of the Safety Parameter Display System (SPDS).

Please describe the effects of the proposed amendment on the SPDS, if any.

ENERGY NORTHWEST RESPONSE TO RAI - 2:

As stated in Enclosure 1, Section 3.4.3, of the submittal, software changes to the PPC are required to support the interface with LEFM. The PPC display is being updated as part of the software changes to support the proposed licensee controlled specifications. However, the installation of MUR at Columbia has no impact on the SPDS and no changes to SPDS are being made.

NRC RAI - 3:

RIS 2002-03, Attachment 1, Section VII.2.C, states that the licensee should provide a statement confirming that they have identified all modifications associated with the proposed power uprate, with respect to the control room plant reference simulator to ensure that changes in operator actions do not adversely affect defense in depth or safety margins.

The licensee stated in the MUR LAR, Enclosure 9, Safety Analysis Report for Columbia Generating Station Thermal Power Optimization, Section 10.5, "Operator Training and Human Factors," ADAMS Accession No. ML16183A365 that;

"Simulator changes and validation for the TPO [Thermal Power Optimization] will be performed in accordance with established CGS [Columbia] plant simulator certification testing procedures."

Please describe the established CGS plant simulator certification testing procedures. In your response, describe whether the simulator certification testing procedures meet the guidance of Regulatory Guide 1.149, "Nuclear Power Plant Simulation Facilities for Use in Operator Training, License Examinations, and Applicant Experience Requirements" Rev. 4, which endorses ANSI/ANS-3.5-1998, "Nuclear Power Plant Simulators for Use in Operator Training and Examination" or describe another method that meets the applicable regulations.

ENERGY NORTHWEST RESPONSE TO RAI - 3:

As part of the Columbia plant modification program, the engineering change associated with the proposed power uprate was reviewed and initiated the required simulator change report to change the control room plant reference simulator. As stated in Commentment 3 of Enclosure 6 of the submittal, the plant simulator will be modified for

the updated conditions and the changes will be validated in accordance with plant configuration control processes prior to use above 3486 MWt.

The Columbia simulator management procedure controls plant simulator certification testing and satisfies the guidelines for simulator testing, performance, fidelity, and configuration control specified by ANSI/ANS-3.5-2009, Nuclear Power Plant Simulators for Use in Operator Training and Examination, and 10 CFR 55.46, Simulation Facilities. This standard is endorsed by the NRC in Regulatory Guide 1.149 Revision 4. The procedure also:

- Defines the formal process used to maintain, correct, and improve the simulator software and hardware configuration.
- Ensures all known simulator discrepancies and differences are formally resolved.
- Ensures user comments and feedback relative to the physical and functional fidelity of the simulator are formally evaluated and changes to the simulator are made when appropriate.
- Ensures the simulator meets the requirements of the site accredited training programs.