



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 13, 2014

Mark E. Reddemann
Chief Executive Officer
Energy Northwest
P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION – REQUEST FOR ADDITIONAL
INFORMATION REGARDING LICENSE AMENDMENT REQUEST FOR
CHANGE TO EMERGENCY CORE COOLING SYSTEMS SURVEILLANCE
REQUIREMENTS (TAC NO. MF3055)

Dear Mr. Reddemann:

By letter dated October 31, 2013 (Agencywide Documents Access and Management System (ADAMS) Package Accession No. ML13316A009), as supplemented by letter dated May 29, 2014 (ADAMS Accession No. ML14163A482), Energy Northwest submitted a license amendment request to revise Columbia Generating Station Technical Specification Surveillance Requirements 3.5.1.4 and 3.5.2.5 for the low pressure core spray and residual heat removal/low pressure coolant injection pump flows.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the information provided in your application and determined that additional information is required in order to complete its review. The enclosed requests for additional information (RAIs) were provided to L. Williams of your staff on May 29, 2014, and a clarification call was held on June 12, 2014. Please provide a response to the RAIs within 30 days of the date of this letter.

The NRC staff has determined that the RAIs contain proprietary information pursuant to Title 10 of the *Code of Federal Regulations*, Section 2.390. Proprietary information is indicated in the RAI text enclosed within brackets. Accordingly, the NRC staff has also prepared a non-proprietary, publicly available version of the RAIs, which is provided in Enclosure 1. The proprietary version of the RAIs is provided in Enclosure 2.

Enclosure 2 to this letter contains Proprietary Information. When separated from Enclosure 2, this letter is DECONTROLLED.

M. Reddemann

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If you have any questions regarding these RAIs or will have difficulties meeting the agreed-upon schedule, please contact me at (301) 415-1081 or by email at andrea.george@nrc.gov.

Sincerely,



Andrea E. George, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures:

1. Non-Proprietary RAIs
2. Proprietary RAIs

cc w/encl 1: Distribution via Listserv

ENCLOSURE 1

REQUESTS FOR ADDITIONAL INFORMATION

RELATED TO LICENSE AMENDMENT REQUEST FOR CHANGE TO

EMERGENCY CORE COOLING SYSTEMS SURVEILLANCE REQUIREMENTS

ENERGY NORTHWEST

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

Proprietary information pursuant to Section 2.390 of Title 10 of the *Code of Federal Regulations* has been redacted from this document.

Redacted information is identified by blank space enclosed within double brackets.

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REQUEST FOR ADDITIONAL INFORMATION

CHANGE TO EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS

ENERGY NORTHWEST

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

In a letter dated October 31, 2013 (Reference 1), pursuant to Section 50.90 of Title 10 of the *Code of Federal Regulations* (CFR), Energy Northwest submitted a license amendment request to revise the Columbia Generating Station Technical Specification Surveillance Requirements 3.5.1.4 and 3.5.2.5 for the Low Pressure Core Spray (LPCS) and Low Pressure Coolant Injection (LPCI) pump flows. Energy Northwest is requested to provide a response to the following request for additional information (RAI) questions in order for the U.S. Nuclear Regulatory Commission (NRC) staff to complete its review:

SCVB-RAI-1

Reference 2, Table 1, "Key Inputs for the Long-Term Containment Response":

The service water temperature input parameter is stated as 85 degrees Fahrenheit (°F) for first 10 hours of loss-of-coolant accident (LOCA) and 90 °F thereafter. However, Reference 3 assumes service water temperature of 90 °F. Please provide justification for using a lower value of the service water temperature for the first 10 hours of the LOCA transient.

SCVB-RAI-2

Reference 2, Section 2.1, under heading "Case B: Loss of offsite power - with delayed containment spray" states:

"During this time an operational restriction prohibits the activation of containment spray."

- (a) Please describe the possible operational restrictions that would prevent the initiation of containment sprays.
- (b) Ten minutes from the initiation of the reactor scram is the normally allowed operator action time for the activation of sprays. Please explain what time was used for the spray initiation for case B.

SCVB-RAI-3

Reference 2, Section 2.1, under heading "Case D: All ECCS equipment operating - RHR [residual heat removal] heat exchanger failure". [[

]]

SCVB-RAI-4

Reference 2, Section 4.1.2; please describe the event “Inadvertent RHR Shutdown Cooling.” Please provide a further discussion of why it is not adversely affected by a reduction in the RHR flow rate.

SCVB-RAI-5

Reference 2, Section 4.1.3; the Final Safety Analysis Report (FSAR) K-value of the two RHR heat exchangers of 578 BTU/s-°F is based on service water temperature of 90°F, and [[]] Please explain what are the parameters and their FSAR values and new values that resulted in the reduction of the heat exchanger K-value from 578 BTU/s-°F to [[]]

SCVB-RAI-6

Reference 2, Section 4.1.3; please describe the [[]] from the FSAR ATWS [anticipated transient without scram] event analysis.

SCVB-RAI-7

Please describe the impact of the changes in the LPCS and LPCI flows on the containment wall temperature response analysis under LOCA and main steam line break (MSLB) accident.

SCVB-RAI-8

Please provide the following information for the NRC staff review:

- (a) The value of the required net positive suction head (NPSH) (NPSHR) for the RHR and LPCS pumps while drawing water from the suppression pool.
- (b) The basis for the NPSHR including the standard on which it is based. As an example, commonly for ECCS and residual heat removal system pumps it is based on the Hydraulic Institute (HI) standard according to which the NPSHR is equal to the available NPSH determined in a factory test at the pump design flow with a 3-percent drop in the total dynamic head.
- (c) The uncertainty in the factory tested value of NPSHR based on the actual site conditions.
- (d) The minimum NPSH available (NPSHA) in the proposed analysis at each pump inlet without crediting containment accident pressure, based on maximizing the suppression pool water temperature together with maximizing the suction strainer head loss and maximizing piping head loss.

- (e) The minimum NPSH margin for each pump and its percentage based on NPSHR with uncertainty added.

REFERENCES

1. Javorik, Alex L., Energy Northwest letter to U.S. Nuclear Regulatory Commission, "Columbia Generating station. Docket no. 50-397 License Amendment Request for Change to Emergency Core Cooling Systems Surveillance Requirements," dated October 31, 2013 (ADAMS Accession No. ML13316A009).
2. GE Hitachi Nuclear Energy, NEDC-33813P, Technical Specification Change Support for RHR/LPCI and LPCS Flow Rate Long-Term LOCA Containment Response and ECCS/Non-LOCA Evaluations, Revision 2, September 2013 (Non-Proprietary version available at ADAMS Accession No. ML13316A010).
3. GE Nuclear Energy, NEDC-32141P, Power Uprate with Extended Load Line Limit Safety Analysis for WNP-2, June 1993.

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M. Reddemann

- 2 -

If you have any questions regarding these RAIs or will have difficulties meeting the agreed-upon schedule, please contact me at (301) 415-1081 or by email at andrea.george@nrc.gov.

Sincerely,

/RA/

Andrea E. George, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures:

1. Non-Proprietary RAIs
2. Proprietary RAIs

cc w/encl 1: Distribution via Listserv

DISTRIBUTION:

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LPL4-1 r/f

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ADAMS Accession No.: Proprietary ML14192B026

Non-Proprietary ML14192B031

OFFICE	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/LA	NRR/DSS/SCVB/BC	NRR/DORL/LPL4-1/BC	NRR/DORL/LPL4-1/PM
NAME	AGeorge	JBurkhardt	RDennig (JBettle for)	MMarkley	AGeorge
DATE	7/14/14	7/11/14	7/16/14	8/13/14	8/13/14

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