



David A. Swank
Columbia Generating Station
P.O. Box 968, PE23
Richland, WA 99352-0968
Ph. 509-377-2309 | F. 509-377-2354
daswank@energy-northwest.com

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GO2-14-016

10 CFR 50.54(f)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397
UPDATE TO RESPONSE TO NRC 10 CFR 50.54(F) REQUEST FOR
INFORMATION REGARDING NEAR-TERM TASK FORCE
RECOMMENDATION 2.3, FLOODING - REVIEW OF AVAILABLE PHYSICAL
MARGIN (APM) ASSESSMENTS**

- References: 1) Letter dated March 12, 2012, from E. J. Leeds, U. S. Nuclear Regulatory Commission (NRC), to all power reactor licensees and holders of construction permits in active or deferred status, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3 and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident."
- 2) Letter dated May 31, 2012, from D. L. Skeen (NRC) to A. P. Heymer, Nuclear Energy Institute (NEI), "Endorsement of Nuclear Energy Institute (NEI) 12-07, 'Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features.' "
- 3) Letter, GO2-12-164, dated November 12, 2012, from D. A. Swank (Energy Northwest) to NRC, "Columbia Generating Station, Docket No. 50-397, Flooding Walkdown Report."
- 4) Letter dated December 23, 2013, from R. J. Pascarelli (NRC) to Energy Northwest, et al., "Request for Additional Information Associated with Near-Term Task Force Recommendation 2.3, Flooding Walkdowns."

Dear Sir or Madam:

On March 12, 2012, the NRC staff issued Reference 1 requesting information pursuant to 10 CFR 50.54(f). In Enclosure 4 of Reference 1, the NRC staff requested that licensees perform flood protection walkdowns associated with Near-Term Task Force Recommendation 2.3 for Flooding, and report the results to the NRC. By Reference 2, the NRC endorsed NEI 12-07 as providing acceptable guidelines for performing walkdowns of plant flood protection features. By Reference 3, Energy Northwest submitted a final walkdown report for Columbia Generating Station in response to the Reference 1 request for information.

ADD
NRC

**UPDATE TO RESPONSE TO NRC 10 CFR 50.54(F) REQUEST FOR INFORMATION
REGARDING NEAR-TERM TASK FORCE RECOMMENDATION 2.3, FLOODING -
REVIEW OF AVAILABLE PHYSICAL MARGIN (APM) ASSESSMENTS**

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Following the NRC staff's initial review of reports documenting the results of licensee flood protection walkdowns, regulatory site audits were conducted at a sample of plants. Based on the walkdown report reviews and site audits, the staff identified additional information necessary to allow the staff to complete its assessments. The NRC observed that several licensees did not always determine and document available physical margin (APM) in a consistent manner that met the expected interpretation of NEI 12-07. Reference 4 transmitted an NRC request for additional information (RAI) regarding the determination and documentation of APM. The enclosure to this letter provides Energy Northwest's response to the Reference 4 RAI for Columbia Generating Station.

This letter contains no new or revised regulatory commitments. If you have any questions or require additional information, please contact Ms. L. L. Williams at (509) 377-8148.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the date of this letter.

Respectfully,



D. A. Swank
Assistant Vice President, Engineering

Enclosure: Response to Request for Additional Information Regarding Flooding
Walkdown APM Assessments

cc: NRC Region IV Administrator
NRC NRR Project Manager
NRC Senior Resident Inspector/988C
AJ Rapacz – BPA/1399

UPDATE TO RESPONSE TO NRC 10 CFR 50.54(F) REQUEST FOR INFORMATION REGARDING NEAR-TERM TASK FORCE RECOMMENDATION 2.3, FLOODING - REVIEW OF AVAILABLE PHYSICAL MARGIN (APM) ASSESSMENTS

Enclosure

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**Response to Request for Additional Information
Regarding
Flooding Walkdown APM Assessments**

Documents referenced in Energy Northwest response are identified at the end of this enclosure.

On March 12, 2012, the U. S. Nuclear Regulatory Commission (NRC) staff issued Reference 1 requesting information pursuant to 10 CFR 50.54(f). In Enclosure 4 of Reference 1, the NRC staff requested that licensees perform flood protection walkdowns associated with Near-Term Task Force Recommendation 2.3 for Flooding, and report the results to the NRC. By Reference 2, the NRC endorsed Nuclear Energy Institute (NEI) 12-07 as providing acceptable guidelines for performing walkdowns of plant flood protection features. By Reference 3, Energy Northwest submitted a final walkdown report for Columbia Generating Station in response to the Reference 1 request for information.

Following the NRC staff's initial review of reports documenting the results of licensee flood protection walkdowns, regulatory site audits were conducted at a sample of plants. Based on the walkdown report reviews and site audits, the staff identified additional information necessary to allow the staff to complete its assessments. The NRC observed that several licensees did not always determine and document available physical margin (APM) in a consistent manner that met the expected interpretation of NEI 12-07. Reference 4 transmitted an NRC request for additional information (RAI) regarding the determination and documentation of APM. This enclosure provides Energy Northwest's response to the Reference 4 RAI for Columbia Generating Station.

Response to RAI

The specific information requests as stated in the Reference 4 RAI are presented in italics below, followed by the corresponding Energy Northwest response.

Please provide the following:

- 1. Confirmation that the process for evaluating APM was reviewed;*

Response - Energy Northwest confirms that it has reviewed the process for evaluating APM.

- 2. Confirmation that the APM process is now or was always consistent with the guidance in NEI 12-07 and discussed in this RAI;*

Response - Energy Northwest confirms that the APM evaluation process was, and remains, consistent with the guidance in NEI 12-07 and discussion in the Reference 4 RAI.

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3. *If changes are necessary, a general description of any process changes to establish this consistency;*

Response – No changes are necessary to establish consistency with the guidance in NEI 12-07 and discussion in the Reference 4 RAI.

4. *[First Part] As a result of the audits and subsequent interactions with industry during public meetings, NRC staff recognized that evaluation of APM for seals (e.g., flood doors, penetrations, flood gates, etc.) was challenging for some licensees. Generally, licensees were expected to use either Approach A or Approach B (described below) to determine the APM for seals:*
- a) *If seal pressure ratings were known, the seal ratings were used to determine APM (similar to example 2 in Section 3.13 of NEI 12-07). A numerical value for APM was documented. No further action was performed if the APM value was greater than the pre-established small-margin threshold value. If the APM value was small, an assessment of "significant consequences" was performed and the guidance in NEI 12-07 Section 5.8 was followed.*
- b) *If the seal pressure rating was not known, the APM for seals in a flood barrier is assumed to be greater than the pre-established small-margin threshold value if the following conditions were met: (1) the APM for the barrier in which the seal is located is greater than the small-margin threshold value and there is evidence that the seals were designed/procured, installed, and controlled as flooding seals in accordance with the flooding licensing basis. Note that in order to determine that the seal has been controlled as a flooding seal, it was only necessary to determine that the seal configuration has been governed by the plant's design control process since installation. In this case, the APM for the seal could have been documented as "not small".*

As part of the RAI response, state if either Approach A or Approach B was used as part of the initial walkdowns or as part of actions taken in response to this RAI. No additional actions are necessary if either Approach A or B was used.

Response – As detailed below, determination of APM is not required for Columbia by NEI 12-07. Although not required, Energy Northwest voluntarily elected to inspect penetrations in below-grade exterior walls of safety related buildings as part of the flood protection walkdowns.

Details - The flood protection features that are within the scope of the NEI 12-07 walkdowns are those features credited for protection and mitigation from external flood events in a plant's current licensing basis (CLB). This is explicitly stated in several sections of NEI 12-07 (e.g. Section 4.1.1). As stated in NEI 12-07 Section 3.13, APM describes the flood margin available for applicable flood

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protection features. Based on the stated scope of NEI 12-07, the “applicable flood protection features” for which APM determinations are required are those credited in the plant’s CLB.

The CLB for Columbia is that the plant is a “Dry Site” as defined in Regulatory Guide 1.102 (Reference 5). This is documented in Columbia FSAR Section 1.8 regarding conformance to NRC Regulatory Guides. As stated in FSAR Section 3.4.1.4.1.1 regarding external flood events, plant elevations are sufficient to protect Seismic Category I structures and the safety related systems and components housed therein against the design basis flood. Exterior and access openings to all Seismic Category I structures are located above the design basis flood level. Flood protection measures are not provided for Columbia since they are not required.

The Flooding Walkdown Report transmitted by Reference 3 noted the CLB position that Columbia is a “Dry Site” as defined in Regulatory Guide 1.102. The Reference 3 report also noted that, although not credited in the CLB as flood barriers, Energy Northwest voluntarily elected to inspect penetrations in below-grade exterior walls for the Reactor Building and the Standby Service Water Pumphouses as part of the flood protection walkdowns.

Energy Northwest has subsequently evaluated the APM for these penetrations even though they are not credited in the Columbia CLB and APM values are not required by NEI 12-07. The evaluation determined APM values based on the penetration height above the design basis ground water elevation, and based on potential soil saturation from above the seal due to precipitation. No credit was taken for the seals’ pressure retaining capability. The approach used was consistent with the definition of APM in NEI 12-07 section 3.13 which states:

“The APM for each applicable flood protection feature is the difference between licensing basis flood height and the flood height at which water could affect an SSC important to safety.”

The APM values for the penetration seals were determined to be “not small.” Because no credit was taken for the seals’ pressure retaining capability, the approach used for these penetrations was more conservative than Approach A and Approach B above.

4. *[Second Part] If neither Approach A or B was used to determine the APM values for seals (either as part of the walkdowns or as part of actions taken in response to this RAI), then perform the following two actions:*
 - *Enter the condition into the CAP (note: it is acceptable to utilize a single CAP entry to capture this issue for multiple seals). CAP disposition of “undetermined” APM values for seals should consider the guidance provided in NEI 12-07, Section 5.8. The CAP disposition should confirm all*

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seals can perform their intended safety function against floods up to the current licensing basis flood height. Disposition may occur as part of the Integrated Assessment. If an Integrated Assessment is not performed, determine whether there are significant consequences associated with exceeding the capacity of the seals and take interim action(s), if necessary, via the CAP processes. These actions do not need to be complete prior to the RAI response.

- *Report the APM as "undetermined" and provide the CAP reference in the RAI response.*

Response – As described above, determination of APM values for Columbia is not required by NEI 12-07. Additionally, the APM evaluations that Energy Northwest voluntarily elected to perform for below-grade exterior wall penetrations for the Reactor Building and the Standby Service Water Pumphouses were consistent with the definition of APM in NEI 12-07, and were more conservative than those described above in Approach A and Approach B. Energy Northwest therefore considers that no condition adverse to quality exists with respect to the processes used to determine and document APM values for plant flood protection features, and that a Corrective Action Program entry is not required.

References

- 1) Letter dated March 12, 2012, from E.J. Leeds (NRC) to all power reactor licensees and holders of construction permits in active or deferred status, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3 and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident."
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- 5) NRC Regulatory Guide 1.102, "Flood Protection for Nuclear Power Plants," Revision 1, September 1976.