

**Samuel L. Belcher**  
Senior Vice President and Chief Operating Officer

January 30, 2014  
L-14-001

10 CFR 50.54(f)

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

**SUBJECT:**

Beaver Valley Power Station, Unit Nos. 1 and 2  
Docket No. 50-334, License No. DPR-66  
Docket No. 50-412, License No. NPF-73  
Davis-Besse Nuclear Power Station  
Docket No. 50-346, License No. NPF-3  
Perry Nuclear Power Plant  
Docket No. 50-440, License No. NPF-58

Response to Request for Additional Information Associated with Near-Term Task Force  
Recommendation 2.3, Flooding Walkdowns

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued a letter titled, "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," to all power reactor licensees and holders of construction permits in active or deferred status [Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340]. Enclosure 4 of the 10 CFR 50.54(f) letter contains specific requested actions, requested information, and required response associated with Recommendation 2.3 for flooding walkdowns. By letter dated June 11, 2012 (ADAMS Accession No. ML12163A318), FirstEnergy Nuclear Operating Company (FENOC) confirmed its intent to use Nuclear Energy Institute (NEI) 12-07, *Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features*, as the basis for the flooding walkdowns at Beaver Valley Power Station (BVPS), Unit Nos. 1 and 2; Davis-Besse Nuclear Power Station (DBNPS); and Perry Nuclear Power Plant (PNPP). FENOC submitted the required flooding walkdown reports for BVPS, Unit Nos. 1 and 2; DBNPS; and PNPP by letter dated November 27, 2012 (ADAMS Accession No. ML12335A341).

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One of the requirements of NEI 12-07 is to identify the available physical margin (APM) associated with each applicable flood protection feature, determine if the margin provided is small, and evaluate any small margins that have potentially significant consequences through the corrective action process. The results of this effort are to be maintained on site for future NRC audits.

Following the NRC staff's initial review of the walkdown reports, regulatory site audits were conducted at a sampling of plants. Based on walkdown report reviews and site audits, the NRC staff identified additional information necessary to allow the staff to complete its assessments. By letter dated December 23, 2013 (ADAMS Accession No. ML13325A891), the NRC staff requested this additional information. The response to the requested additional information for BVPS, Unit Nos. 1 and 2; DBNPS; and PNPP is attached.

There are no regulatory commitments contained in this letter. If there are any questions or if additional information is required, please contact Mr. Thomas A. Lentz, Manager – Fleet Licensing, at 330-315-6810.

I declare under penalty of perjury that the foregoing is true and correct. Executed on January 30, 2014.

Sincerely,



Samuel L. Belcher

Attachment:  
Response to Request for Additional Information

cc: Director, Office of Nuclear Reactor Regulation (NRR)  
NRC Region I Administrator  
NRC Region III Administrator  
NRC Resident Inspector (BVPS)  
NRC Resident Inspector (DBNPS)  
NRC Resident Inspector (PNPP)  
NRR Project Manager (BVPS)  
NRR Project Manager (DBNPS)  
NRR Project Manager (PNPP)  
Director BRP/DEP  
Site BRP/DEP Representative  
Utility Radiological Safety Board

Response to Request for Additional Information  
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By letter dated November 27, 2012 [Agencywide Documents Access and Management System (ADAMS) Accession No. ML12335A341], FirstEnergy Nuclear Operating Company (FENOC) submitted flooding walkdown reports for Beaver Valley Power Station (BVPS), Unit Nos. 1 and 2, Davis-Besse Nuclear Power Station (DBNPS), and Perry Nuclear Power Plant (PNPP). By letter dated December 23, 2013 (ADAMS Accession No. ML13325A891), the Nuclear Regulatory Commission (NRC) staff requested additional information necessary to allow the staff to complete its assessments. The response to the request for additional information (RAI) is provided below. The NRC staff question is presented in bold type, followed by the FENOC response.

**Determination and documentation of available physical margin (APM)**

**Background:**

The NRC staff observed that several licensees did not consistently determine and/or document available physical margin (APM) in a manner that met the expected interpretation of [Nuclear Energy Institute] NEI 12-07 during audits associated with review of the [Near-Term Task Force] NTTF Recommendation 2.3 report submittals. APM is defined in Section 3.13 of NEI 12-07 and the process for obtaining and evaluating APM values is described in Section 5.8 of NEI 12-07. Consistent with NEI 12-07, a numerical value for APM should be determined and documented for every applicable flood protection feature (e.g., wall, penetration, berm, door, etc.). This would normally be a numerical value reflecting the difference between the licensing basis flood height at the location of the feature and the point at which the function of the flood protection feature is compromised (e.g., the top of a barrier or the height of the first unsealed penetration in a barrier) such that the resulting flood can affect a structures, systems, and components important to safety. Next, in accordance with Section 5.8 of NEI 12-07, if the APM appears to be small and the consequences of flooding appear to be significant, the licensee should enter the condition into the [corrective action program] CAP and appropriate action be taken. While NEI 12-07 does not require that a specific numerical threshold value for "small" APM be defined for each site, doing so establishes a consistent basis for determining what instances need to be entered into the CAP. If a numerical APM value cannot be determined for any flood protection feature, the licensee should perform an assessment of the ability of the barrier to withstand the licensing basis flood plus the contribution of the additional water corresponding to the pre-established small-margin threshold

value. If the barrier can withstand this flood, the APM for the feature is "not small" and further evaluation in accordance with Section 5.8 of NEI 12-07 is not required. It is further noted that conclusions regarding "large" values of APM should be based on engineering evaluations or existing design documents.

Licensees should ensure that the process for APM determination and evaluation used during their flooding walkdowns is consistent with the guidance in NEI 12-07. The intent of this RAI is not to repeat the flooding walkdowns or perform an extensive revision of the walkdown record forms and other paperwork. Instead the purpose is to verify or modify the process used to determine APM such that every site is aware of the margin at each of its flood protection features and take appropriate interim actions when the APM is small and the consequences are significant. Instances where numerical values for APM were not determined, or where the basis for the APM was found to be questionable, should be rectified by either the documentation of a specific value or an explanation of why a non-numerical value is appropriate.

**Request:**

Please provide the following:

1. Confirmation that the process for evaluating APM was reviewed;
2. Confirmation that the APM process is now or was always consistent with the guidance in NEI 12-07 and discussed in this RAI;
3. If changes are necessary, a general description of any process changes to establish this consistency;
4. 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.**

**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 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:

BVPS, Unit Nos. 1 and 2

FENOC has completed a review of the flooding design basis walkdown APM process for BVPS, Unit Nos. 1 and 2. The original walkdown effort followed the guidance provided in NEI 12-07; however, a small margin had not been defined. This small margin for the site has now been defined within the guidance of NEI 12-07. Features that fall within the small margin have been documented within the CAP for further evaluation. A number of features had the APM indicated as not applicable during the

original walkdowns. These features have been reviewed and the APMs have been updated consistent with the guidance provided in NEI 12-07.

The flood seals at BVPS, Unit Nos. 1 and 2, were included in the walkdowns of the specific walls that contained these seals. The approach to the walkdowns was to treat the wall as a feature, not the individual seal. However, seal pressure ratings and respective technical basis were known. These ratings were used to determine APM of the walls containing the seals. A numerical APM value for the walls was documented. Since this was based on documented pressure ratings for the seals, Approach A was followed.

### DBNPS

FENOC has completed a review of the flooding design basis walkdown APM process for DBNPS. The original walkdown effort followed the guidance provided in NEI 12-07; however, a small margin had not been defined. This small margin for the site has now been defined within the guidance of NEI 12-07. A number of features had the APM indicated as not applicable during the original walkdowns. These features require review so that the APMs will be consistent with the guidance provided in NEI 12-07 and dispositioned as "not small." This has been captured in the CAP.

The flood seals at DBNPS were included in the walkdowns of the specific walls that contained these seals. The approach to the walkdowns was to treat the wall as a feature, not the individual seal. APM was not determined for the individual seals. As part of the actions taken in response to this RAI, this has been captured in the CAP (Condition Report No. 2014-00373) for the seals having undetermined APM. Seal pressure ratings and respective technical basis are known. These ratings will be used to determine APM of the walls containing the seals.

### PNPP

FENOC has completed a review of the flooding design basis walkdown APM process for PNPP. The original walkdown effort followed the guidance provided in NEI 12-07; however, a small margin had not been defined. This small margin for the site has now been defined within the guidance of NEI 12-07. Features had been assigned numeric values for APM during the original walkdowns. Features that fall within the small margin have been documented within the CAP for further evaluation.

The flood seals at PNPP were included in the walkdowns of the specific walls that contained these seals. The approach to the walkdowns was to treat the wall as a feature, not the individual seal. Approach A was used for the majority of seals, but in instances where seal pressure ratings were not known, Approach B was used.