



**DWIGHT C. MIMS**  
Senior Vice President, Nuclear  
Regulatory & Oversight

**Palo Verde**  
**Nuclear Generating Station**  
P.O. Box 52034  
Phoenix, AZ 85072  
Mail Station 7605  
Tel 623 393 5403

102-06829-DCM/PJH  
January 31, 2014

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

- References:
1. APS Letter 102-06627, *Flooding Walkdown Report Requested by NRC Letter, 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*, dated November 27, 2012 (ADAMS Accession No.: ML12334A416)
  2. NRC Letter, *Request for Additional Information Associated with Near-Term Task Force Recommendation 2.3, Flooding Walkdowns*, dated December 23, 2013 (ADAMS Accession No.: ML13325A891)

Dear Sirs:

Subject: **Palo Verde Nuclear Generating Station (PVNGS)**  
**Units 1, 2, and 3**  
**Docket Nos. STN 50-528, 50-529, and 50-530**  
**Response to Request for Additional Information (RAI)**  
**Associated with Near-Term Task Force Recommendation 2.3,**  
***Flooding Walkdowns***

On November 27, 2012, Arizona Public Service (APS) submitted Reference 1 which provided the APS flooding walkdown submittal report in response to Near-Term Task Force Recommendation 2.3, Flooding Walkdowns, for PVNGS. This report is consistent with the flooding walkdown guidance described in NEI 12-07, *Guidelines For Performing Verification Walkdowns Of Plant Flood Protection Features*.

On December 23, 2013, the U. S. Nuclear Regulatory Commission (NRC) provided a request for additional information (RAI) (Reference 2) associated with the APS flooding walkdown submittal report. The NRC requested that APS provide a response by January 31, 2014. The enclosure to this letter provides the APS response to the RAI.

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


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No commitments are being made to the NRC by this letter. Should you need further information regarding this response, please contact Mark McGhee, Department Leader Nuclear Regulatory Affairs, at (623) 393-4972.

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

Executed on 1/31/14  
(Date)

Sincerely,



DCM/PJH/hsc

Enclosure: Response to NRC RAI Associated with Flooding Walkdowns - Review of Available Physical Margin (APM) Assessments

cc: E. J. Leeds NRC Director Office of Nuclear Reactor Regulation  
M. L. Dapas NRC Region IV Regional Administrator  
J. K. Rankin NRC NRR Project Manager  
A. E. George NRC NRR Project Manager  
M. A. Brown NRC Senior Resident Inspector PVNGS  
L. M. Regner NRC NRR/JLD/JPMB Project Manager

**ENCLOSURE**

**Response to NRC RAI Associated with Flooding  
Walkdowns - Review of Available Physical  
Margin (APM) Assessments**

## **INTRODUCTION**

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) staff issued a letter (Agencywide Documents Access and Management System (ADAMS) Accession No. ML 12053A340) requesting additional information per Title 10 of the *Code of Federal Regulations*, Section 50.54(f) (hereafter called the 50.54(f) letter). The 50.54(f) letter requested that licensees conduct flooding hazard walkdowns to identify and address plant-specific degraded, nonconforming, or unanalyzed conditions through the corrective action program (CAP). All licensees stated by letter that the flooding walkdowns would be performed in accordance with Nuclear Energy Institute (NEI) 12-07, *Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features*, May 2012 (ADAMS Accession No. ML 12172A038). Following the NRC staff's initial review of the reports documenting the results of the licensees' walkdowns, regulatory site audits were conducted at a sample of plants. During the site audits 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 NEI 12-07. Based on the walkdown report reviews and site audits, the NRC staff identified additional information necessary to allow the NRC staff to complete its assessments. By letter dated December 23, 2013, the NRC staff provided a request for additional information (RAI) to Arizona Public Service Company (APS).

This enclosure is the APS response to the RAI regarding flooding walkdowns. The NRC information requests, provided in the December 23, 2013 letter, are restated then followed by the APS response.

### **RAI Number 1 - Confirmation that the process for evaluating APM was reviewed**

#### **APS Response**

APS confirms that the process used at Palo Verde Nuclear Generating Station (PVNGS) for evaluating available physical margin (APM) was reviewed as requested. The APS review was to ensure the process for APM determination and evaluation was consistent with the guidance in NEI 12-07.

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

#### **APS Response**

APS confirms that the APM process is now consistent with the guidance described in NEI 12-07. During the original flooding walkdown effort (under the NTTTF Recommendation 2.3) it was the intention of APS to follow the guidance provided in NEI 12-07 including defining the term "small margin" in the original flooding walkdown report. Although the definition of "small margin" was not included in the original flooding walkdown report the definition was agreed to in advance and contained in a proprietary vendor procedure. This definition of "small margin" has now been added to the flooding walkdown report. The flooding walkdown report has now been supplemented with a detailed spreadsheet that identifies the APM values for flooding protection features. As part of the original walkdown process APS entered into the PVNGS corrective action process those flooding protection features with

small APMs and significant consequences. The flooding walkdown report is maintained on site for future audits and inspections.

**RAI Number 3 - If changes are necessary, a general description of any process changes to establish this consistency**

**APS Response**

As stated above, the original walkdown effort followed the guidance provided in NEI 12-07, including a definition for a "small margin." Although no process changes were necessary, APS did supplement the flooding walkdown report as described in the response to RAI Number 2 above.

**RAI Number 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.**

### **APS Response**

During the original flooding walkdowns inspections were performed on plant flooding protection features (roof and wall penetrations, piping penetrations, hatches and plugs, etc.) and non-design basis features. If those features did not meet the pre-established small-margin threshold value for APM, the condition was entered into the PVNGS corrective action program. At PVNGS, neither Approach A or B, as described in RAI number 4, were used to determine the APM values for seals. Of the flooding protection features inspected in the original flooding walkdowns, there is only one penetration seal that was identified during the RAI review that was documented as "undetermined."

This penetration seal is located in an exterior wall that is exposed to ground water. It is an abandoned original construction aid conduit in the west wall of the Unit 3 Auxiliary Building at the 54'-0" elevation. The penetration seal for this conduit was inspected as part of the original flooding walkdowns for signs of degradation. It was discovered that the seal was weeping water into the Unit 3 Auxiliary Building. The degraded penetration seal was entered into the PVNGS corrective action program and the repair was completed (Work Order number 4241431).

During the RAI review, the APM for this seal was documented as "undetermined" (Palo Verde Action Request [PVAR] number 4494502, dated January 16, 2014) and was recorded as such in the amended walkdown record forms.