



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
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June 26, 2012

Mr. Randall K. Edington  
Executive Vice President Nuclear/  
Chief Nuclear Officer  
Mail Station 7602  
Arizona Public Service Company  
P.O. Box 52034  
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 -  
CLOSEOUT OF NRC BULLETIN 2011-01, "MITIGATING STRATEGIES" (TAC  
NOS. ME6462, ME6463, AND ME6464)

Dear Mr. Edington:

On May 11, 2011, the U.S. Nuclear Regulatory Commission (NRC) issued Bulletin 2011-01, "Mitigating Strategies" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111250360), to all holders of operating licenses for nuclear power reactors, except those that have permanently ceased operation and have certified that fuel has been removed from the reactor vessel. The purpose of the bulletin was to obtain a comprehensive verification that licensees' mitigating strategies to maintain or restore core cooling, spent fuel cooling, and containment following a large explosion or fire were compliant with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.54(hh)(2).

The bulletin required two sets of responses pursuant to the provisions of 10 CFR 50.54(f). By letters dated June 10 and July 11, 2011 (ADAMS Accession Nos. ML11173A060 and ML11200A313, respectively), Arizona Public Service (APS), the licensee, provided its responses to the bulletin for Palo Verde Nuclear Generating Station, Units 1, 2, and 3. Portions of the letter dated July 11, 2011, contain sensitive unclassified non-safeguards information, and accordingly, those portions have been withheld from public disclosure. APS responded to an NRC staff request for additional information by letter dated December 29, 2011 (ADAMS Accession No. ML12010A028).

The NRC has reviewed the information submitted by the licensee and concludes that the response to the bulletin is acceptable. As summarized in the enclosure, the NRC staff verified that the licensee provided the information requested in the bulletin. No further information or actions under the bulletin are requested.

R. Edington

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If you have any questions, please contact me at (301) 415-1056 or via e-mail at [Lauren.Gibson@nrc.gov](mailto:Lauren.Gibson@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "for Lauren K. Gibson". The signature is written in a cursive style with a horizontal line under the last name.

Lauren K. Gibson, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-528, STN 50-529,  
and STN 50-530

Enclosure:  
As stated

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SUMMARY OF NRC REVIEW OF LICENSEE'S RESPONSES  
TO NRC BULLETIN 2011-01, "MITIGATING STRATEGIES"  
ARIZONA PUBLIC SERVICE COMPANY, ET AL.  
PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3  
DOCKET NOS. STN-50-528, STN-50-529, AND STN-50-530

1.0 INTRODUCTION

On May 11, 2011, the U.S. Nuclear Regulatory Commission (NRC) issued Bulletin 2011-01, "Mitigating Strategies" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111250360), to all holders of operating licenses for nuclear power reactors, except those that have permanently ceased operation and have certified that fuel has been removed from the reactor vessel. The bulletin required two sets of responses pursuant to the provisions of with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.54(f). The first responses were due 30 days after issuance of the bulletin. By letter dated June 10, 2011 (ADAMS Accession No. ML11173A060), Arizona Public Service Company (APS), the licensee for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3, provided its response to this first set of questions (first response). The second responses were due 60 days after issuance of the bulletin. By letter dated July 11, 2011 (ADAMS Accession No. ML11200A313), APS provided its response to this second set of questions (second response). Portions of the letter dated July 11, 2011, contain sensitive unclassified non-safeguards information, and, accordingly, those portions have been withheld from public disclosure. By letter dated November 30, 2011 (ADAMS Accession No. ML113110205), the NRC issued a request for additional information (RAI) on the licensee's second response. APS responded to the RAI by letter dated December 29, 2011 (ADAMS Accession No. ML12010A028). As summarized below, the NRC staff has verified that APS provided the information requested in the bulletin.

2.0 BACKGROUND

On February 25, 2002, the NRC issued EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures" (ICM Order) (ADAMS Accession No. ML020510635). Section B.5.b of the ICM Order required licensees to develop specific guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities using readily available resources (equipment and personnel) that can be effectively implemented under the circumstances associated with the loss of large areas of the plant due to explosions or fire.

By letter dated August 2, 2007 (ADAMS Accession No. ML072110440), the NRC staff issued its safety evaluation (SE) to document the final disposition of information submitted by the licensee regarding Section B.5.b of the ICM Order. Along with the SE, the staff issued a conforming license condition to incorporate the B.5.b mitigating strategies into the licensing basis.

On March 27, 2009, the NRC issued 10 CFR 50.54(hh)(2) as a new rule, in order to capture the B.5.b mitigating strategies and related license conditions as regulatory requirements for both current and future licensees. At that time, licensee compliance with the conforming license

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conditions was sufficient to demonstrate compliance with 10 CFR 50.54(hh)(2) (74 FR 13926; March 27, 2009), so no further actions were required on the part of current licensees.

### 3.0 30-DAY REQUEST

In order to confirm continued compliance with 10 CFR 50.54(hh)(2), the bulletin requested that licensees address the following two questions within 30 days of issuing the bulletin:

1. Is the equipment necessary to execute the mitigating strategies, as described in your submittals to the NRC, available and capable of performing its intended function?
2. Are the guidance and strategies implemented capable of being executed considering the current configuration of your facility and current staffing and skill levels of the staff?

The NRC staff reviewed the licensee's first response to determine if it had adequately addressed these questions.

#### 3.1 Question 1: Availability and Capability of Equipment

In its first response, APS confirmed that the equipment it needs to execute the 10 CFR 50.54(hh)(2) mitigating strategies is available and capable of performing its intended function. The NRC staff verified that this confirmation covered equipment needed for each of the three phases of B.5.b mitigation strategies. Therefore, the NRC staff concludes that the licensee has adequately responded to Question 1.

#### 3.2 Question 2: Guidance and Strategies Can Be Executed

In its first response, the licensee confirmed that the guidance and strategies it has implemented for 10 CFR 50.54(hh)(2) are capable of being executed considering the current facility configuration, staffing levels, and staff skills. Since the licensee has considered its current facility configuration, staffing levels, and staff skills, and confirmed that it can execute its implemented guidance and strategies, the NRC staff concludes that the licensee has adequately responded to Question 2.

### 4.0 60-DAY REQUEST

The bulletin required a response to the following five questions within 60 days of issuing the bulletin:

1. Describe in detail the maintenance of equipment procured to support the strategies and guidance required by 10 CFR 50.54(hh)(2) in order to ensure that it is functional when needed.
2. Describe in detail the testing of equipment procured to support the strategies and guidance required by 10 CFR 50.54(hh)(2) in order to ensure that it will function when needed.

3. Describe in detail the controls for assuring that the equipment is available when needed.
4. Describe in detail how configuration and guidance management is assured so that strategies remain feasible.
5. Describe in detail how you assure availability of offsite support.

The NRC staff reviewed APS's submittals to determine if it had adequately addressed these questions. This was accomplished by verifying that the submittals listed equipment, training, and offsite resources which were relied upon to make conclusions in the August 2, 2007, SE or are commonly needed to implement the mitigating strategies.

#### 4.1 Questions 1 and 2: Maintenance and Testing of Equipment

Questions 1 and 2 of the 60-day request required licensees to describe in detail the maintenance and testing of equipment procured to support the strategies and guidance required by 10 CFR 50.54(hh)(2) in order to ensure that it is functional when needed. In its second response, the licensee listed the equipment used to support the 10 CFR 50.54(hh)(2) mitigating strategies which receives maintenance or testing. For each item, the licensee described the maintenance and testing performed, including the frequency and basis for the maintenance or testing activity.

The NRC staff verified that the licensee listed equipment that typically requires maintenance or testing which was relied upon to make conclusions in the SE or commonly needed to implement the mitigating strategies. In its second response, APS stated that the fire pumper engine, hoses, oscillating monitors, and communications equipment receive maintenance or testing. In its RAI response, APS described how it ensures sufficient fuel for its fire pumper engine. APS also identified other items that support the mitigating strategies that receive maintenance or testing.

The NRC staff verified that APS described the process used for corrective actions and listed the testing performed to ensure that the strategies were initially feasible. APS stated in its second response that its 10 CFR Part 50, Appendix B, corrective action program is used to document equipment failure, establish priorities, and perform trending.

Based on the information above, the NRC staff concludes that PVNGS has provided the information requested by Questions 1 and 2.

#### 4.2 Question 3: Controls on Equipment

Question 3 of the 60-day request required licensees to describe in detail the controls on equipment, such as inventory requirements, to ensure that the equipment is available when needed. A list of inventory deficiencies and associated corrective actions to prevent loss was also requested.

The NRC staff verified that APS described its process for ensuring that B.5.b equipment will be available when needed. In its second response, APS identified equipment included in its inventory, the inventory frequency, storage requirements, and items verified. Items verified include proper quantity, location, and accessibility of equipment; calibrations; equipment shelf lives; and controls on storage locations. APS stated that at the time of its second response there were no outstanding inventory deficiencies that would render the strategies not viable.

The NRC staff verified that APS inventoried equipment which was relied upon to make conclusions in the SE or commonly needed to implement the mitigating strategies. In its second response, APS stated that procured non-permanently installed B.5.b equipment is inventoried in accordance with station procedures. APS did not specify a minimum inventory frequency, but the NRC staff noted that most items were inventoried at least monthly. The second response specifically states that the following items are included in the inventory: tow vehicles; hoses; communications equipment; spray nozzles; tools, instruments, and connectors. The fire pumper engine was not listed as being inventoried, but it receives periodic maintenance and testing which would ensure its availability. In its RAI response, APS described its inventory of firefighter turnout gear. APS also identified other items that support the mitigating strategies that are inventoried.

Based on the above, the NRC staff concludes that the licensee has provided the information requested by Question 3.

#### 4.3 Question 4: Configuration and Guidance Management

Question 4 of the 60-day request required licensees to describe in detail how configuration and guidance management is assured so that the strategies remain feasible.

The NRC staff verified that APS described its measures to evaluate plant configuration changes for their effects on the mitigating strategies and to ensure its procedures are current. In its second response, APS stated that plant configuration changes are required to be reviewed to determine the design input requirements. As part of this review, the affect of the change on the Severe Accident Management Guidelines (SAMGs), which includes the mitigating strategies, must be determined. Any change to the SAMGs must be justified and incorporated into the modification.

The NRC staff verified that APS described measures it has taken to validate the procedures or guidelines developed to support the mitigating strategies. In its second response, APS identified testing in response to Question 2 that demonstrated the ability to execute some strategies. APS also stated that "initially, mitigating strategies were validated by walk downs, engineering evaluations and/or table top reviews" and they were revalidated by walk downs in 2011.

The NRC staff verified that APS described the training program implemented in support of the mitigating strategies and how its effectiveness is evaluated. In its second response, APS identified the training provided to its operations personnel, emergency response organization key decision makers, security personnel, and fire brigade. APS also identified the frequency with which each type of training is provided and the methods for training evaluating.

Based on the information above, the NRC staff concludes that APS has provided the information requested by Question 4.

#### 4.4 Question 5: Offsite Support

Question 5 of the 60-day request required licensees to describe in detail how offsite support availability is assured.

The NRC staff verified that APS listed the offsite organizations it relies upon for emergency response, including a description of agreements and related training. The NRC staff compared the list of offsite organizations that APS provided in its second response with the information relied upon to make conclusions in the SE. APS stated that it maintains letters of agreement or other types of agreements with these offsite organizations, which are reviewed annually, and that these agreements were current at the time of its second response. APS also described the training and site familiarization it provides to these offsite organizations. APS stated that it reviewed its corrective action program back to 2008 and found no issues involving lapsed agreements related to offsite support for B.5.b events.

Based on the information above, the NRC staff concludes that APS has provided the information requested by Question 5.

#### 5.0 CONCLUSION

As described above, the NRC staff has verified that the licensee has provided the information requested in Bulletin 2011-01. Specifically, the licensee responded to each of the questions in the bulletin, as requested. The NRC staff concludes that APS has completed all of the requirements of the bulletin and no further information or actions under the bulletin are needed.

R. Edington

- 2 -

If you have any questions, please contact me at (301) 415-1056 or via e-mail at [Lauren.Gibson@nrc.gov](mailto:Lauren.Gibson@nrc.gov).

Sincerely,

/RA by N. Kalyanam for/

Lauren K. Gibson, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-528, STN 50-529,  
and STN 50-530

Enclosure:  
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**ADAMS Accession No. ML12171A419**

**\*by memo dated**

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