



Palo Verde Nuclear  
Generating Station

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102-04206-JML/AKK/MLG  
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U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Mail Station P1-37  
Washington, DC 20555-0001

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)  
Units 1, 2, and 3  
Docket Nos. STN 50 – 528/529/530  
Response to Generic Letter 98-04**

This letter provides Arizona Public Service Company's (APS), 120 day response to NRC Generic Letter 98-04, Potential for Degradation of the Emergency Core Cooling System and the Containment Spray System After a Loss-of-Coolant Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment." Items 1 and 2(i) of the Required Information section of the Generic Letter are addressed in the enclosure to this letter.

APS is participating in the NEI Emergency Core Cooling System Performance Task Force and the Combustion Engineering Owners Group (CEOG) in addressing the issues associated with the referenced Generic Letter.

No commitments are being made to the NRC by this letter.

Should you have any questions or concerns, please contact Scott A. Bauer at (602) 393-5978.

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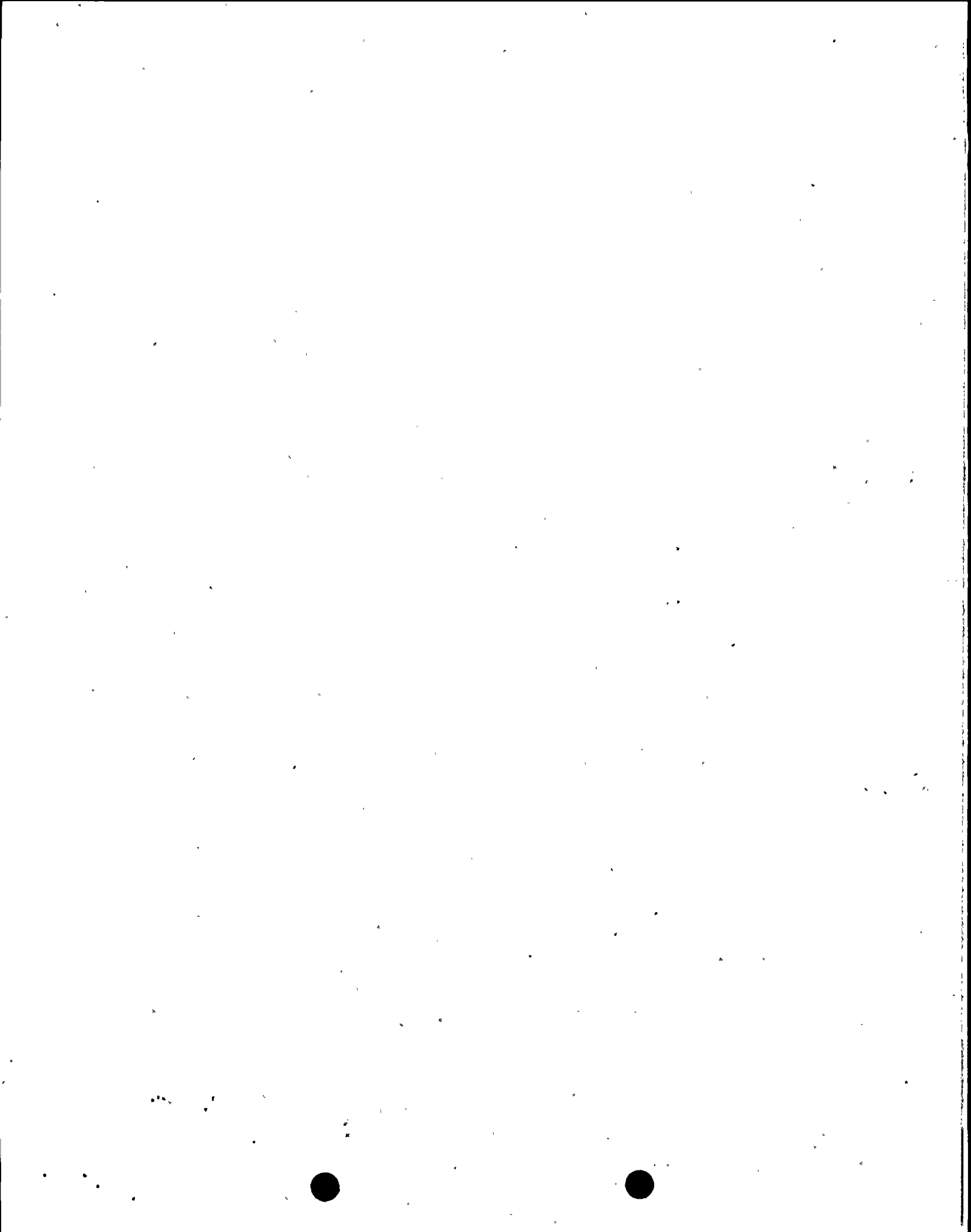
Sincerely

JML/AKK/MLG/rh

Enclosure

100020

cc: E. W. Merschhoff  
P. H. Harrell  
M. B. Fields  
J. H. Moorman



**ENCLOSURE**

GENERIC LETTER 98-04 REQUIRED INFORMATION



## GENERIC LETTER 98-04 REQUIRED INFORMATION

### PVNGS Responses to Applicable Questions

The PVNGS licensing basis requires that the amounts of unqualified coatings be tracked. PVNGS UFSAR, Section 1.8, describes commitments to NRC Regulatory Guide 1.54, "Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants." Consequently, the following responses address NRC Generic Letter 98-04 Questions 1 and 2(i) only.

#### Generic Letter 98-04, Question 1:

Include a summary description of the plant-specific program or programs implemented to ensure that Service Level 1 protective coatings used inside the containment are procured, applied, and maintained in compliance with applicable regulatory requirements and the plant-specific licensing basis for the facility. Include a discussion of how the plant-specific program meets the applicable criteria of 10 CFR Part 50, Appendix B, as well as information regarding any applicable standards, plant-specific procedures, or other guidance used for: (a) controlling the procurement of coatings and paints used at the facility, (b) the qualification testing of protective coatings, and (c) surface preparation, application, surveillance, and maintenance activities for protective coatings. Maintenance activities involve reworking degraded coatings, removing degraded coatings to sound coatings, correctly preparing the surfaces, applying new coatings, and verifying the quality of the coatings.

#### *PVNGS Response:*

PVNGS has implemented controls for the procurement, application, and maintenance of Service Level 1 protective coatings used inside the containment in a manner that is consistent with the licensing basis and regulatory requirements applicable to PVNGS. The requirements of 10 CFR Part 50, Appendix B are implemented through specification of appropriate technical and quality requirements for the Service Level 1 coatings program which includes ongoing maintenance activities.

For PVNGS, Service Level 1<sup>1</sup> coatings are subject to the requirements and guidance of ANSI N 101.2, "Protective Coatings (Paints) for Light Water Nuclear Reactor Containment Facilities", ANSI N 101.4, "Quality Assurance for Protective Coatings Applied to Nuclear Facilities", ANSI N 5.9, "Protective Coatings (Paints) for the Nuclear Industry" (later reissued as ANSI Standard N 5.12, and Regulatory Guide 1.54, "Quality Assurance Requirements For Protective Coatings Applied To Water-Cooled Nuclear Power Plants". Assurance that the applicable requirements for the procurement, application, inspection, and maintenance are adequately implemented, is provided by

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<sup>1</sup> Our response applies to Service Level 1 coatings used in primary containment that are procured, applied and maintained by Arizona Public Service or their contractor



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procedures and programmatic controls approved under the PVNGS Quality Assurance program

- (a) Service Level 1 coatings used for new applications or repair/replacement activities are procured from a vendor(s) with a quality assurance program meeting the applicable requirements of 10 CFR Part 50, Appendix B. The applicable technical and quality requirements that the vendor is required to meet are specified by PVNGS in procurement documents. Acceptance activities are conducted in accordance with procedures that are consistent with ANSI N 45.2, "Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants," requirements (e.g., receipt inspection, source surveillance, etc.). This specification of required technical and quality requirements combined with appropriate acceptance activities provides adequate assurance that the coatings received meet Service Level 1 requirements.
- (b) The qualification testing of Service Level 1 coatings used for new applications or repair/replacement activities inside containment meets the applicable standards and regulatory guidance referenced above. These coatings, including any substitute coatings, have been evaluated to meet the applicable standards and regulatory guidance previously referenced. However, when a new qualified coating is applied over an existing qualified coating, but the coatings have not been qualified together, care is taken to measure and record the surface area of the new installation over the existing qualified coated surface. The measured area is entered in the unqualified coating log.
- (c) Surface preparation, application and surveillance activities during installation of Service Level 1 coatings used for new applications or repair/replacement activities inside containment meet the applicable standards and regulatory guidance referenced above. Documentation of completion of these activities is performed consistent with the applicable requirements. Where the standards and regulatory guidance did not address or were not applicable to repair/replacement activities, these activities were performed in a manner consistent with the generally accepted practices for coatings repair/replacement. These practices are described in various ASTM standards and industry coating guidelines issued subsequent to those that constitute the plant-specific licensing basis for PVNGS.

PVNGS periodically conducts condition assessments of Service Level 1 coatings inside containment. Coating condition assessments are conducted as part of the PVNGS Component Monitoring Program, Procedure 81DP-0ZZ01. Inspections of coatings systems are scheduled every outage on a pre-established basis to verify containment liner coating thickness. General visual surveillance of other coatings in containment is also conducted in conjunction with the coatings program. In accordance with the program, a total surface area equivalent to one unit will be inspected among the three units over a period of approximately ten (10) years.



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When localized areas of coating defects are identified during the inspections, those areas are evaluated and scheduled for touch-up, repair or replacement, as necessary. The periodic condition assessments, and the resulting repair/replacement activities, assure that the amount of Service Level 1 coatings which may be susceptible to detachment from the substrate during a LOCA event is minimized.

Generic Letter 98-04, Question 2(i):

Information demonstrating compliance with item (i):

- (i) For plants with licensing-basis requirements for tracking the amount of unqualified coatings inside the containment and for assessing the impact of potential coating debris on the operation of safety-related SSCs during a postulated design basis LOCA, the following information shall be provided to demonstrate compliance:
  - (a) The date and findings of the last assessment of coatings, and the planned date of the next assessment of coatings.
  - (b) The limit for the amount of unqualified protective coatings allowed in the containment and how this limit is determined. Discuss any conservatism in the method used to determine this limit.
  - (c) If a commercial-grade dedication program is being used at your facility for dedicating commercial-grade coatings for Service Level 1 applications inside the containment, discuss how the program adequately qualifies such a coating for Service Level 1 service. Identify which standards or other guidance is currently being used to dedicate containment coatings at your facility.

PVNGS Response, Question 2(i):

- (a) The date of the latest condition assessment at PVNGS was October 15, 1998 during the scheduled Unit 3R7 outage. The pre-established areas were visually inspected and coating thickness were measured and verified. It was concluded that all surveilled coatings were in satisfactory condition with the exception of two minor defects noted on the containment liner plate. Two minor blisters were identified on an unqualified coating application totaling an approximate surface area of 2 in<sup>2</sup>. The identified degraded coatings were evaluated and noted. The evaluation determined that the surface area of the blisters were sufficiently small that it was acceptable to postpone rework of the areas until other coating work is performed in the same area. A component monitoring report for coatings is used to track the identified areas.

Similar walk downs have been completed for PVNGS Units 1 and 2. Defects found have likewise been identified. The total quantity of unqualified coatings for each unit is well within the limits prescribed by PVNGS specification AO-AN-331A and PVNGS study 13-MS-A41.

As noted previously, coating condition assessments are conducted as part of the PVNGS Component Monitoring Program, Procedure 81DP-0ZZ01. Visual inspections of containment coating systems, if accessible, are performed at the frequency set forth in the monitoring program. The planned date for the next assessment of coating condition is during the Unit Two outage, which is currently scheduled to begin in March, 1999.

- (b) The limit for unqualified coatings has been conservatively established at 12,500 ft<sup>2</sup>. This limit is documented in PVNGS specification AO-AN-331A, PVNGS study 13-MS-A41, "Evaluation of Fiberfrax and Unqualified Paints/Coatings" and in PVNGS calculation 13-MC-SI-309, "Emergency Sump Screen Blockage." As an additional conservatism a limit is in place that not more than 150 ft<sup>2</sup> of the total allowable unqualified coatings be located below the 100 ft. containment elevation due to the determination in PVNGS Calculation 13-MC-SI-309 that unqualified coatings in the lower regions of containment are more likely to result in sump blockage.

Although the commitment to track unqualified coatings was established during initial plant licensing, the basis for the allowable amount of unqualified coatings was established in conjunction with the requirements of Regulatory Guide 1.82, Sumps for Emergency Core Cooling and Containment Spray Systems. The above listed analyses concluded an allowable quantity of unqualified coatings (i.e., 12,500 ft<sup>2</sup>) based on an assessment of ECCS sump performance and the consequential affect on ECCS pump net positive suction head availability.

- (c) APS does not currently employ commercial grade dedication for Service Level 1 coatings used inside containment at the Palo Verde Nuclear Generating Station.

