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Palo Verde Nuclear
Generating Station

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September 11, 1998

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- References:
1. Letter 102-03904, dated March 28, 1997, from J. M. Levine, APS, to NRC, "Request for Exemption from 10 CFR 70.24, Criticality Accident Requirements"
 2. Letter dated July 29, 1997, from K. M. Thomas, NRC, to J. M. Levine, APS, "Request for Exemption from the Requirements of 10 CFR 70.24 for the Palo Verde Nuclear Generating Station"

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Response to Request for Additional Information Regarding
Request for Exemption from 10 CFR 70.24, Criticality
Accident Requirements**

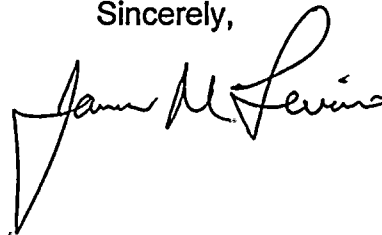
In reference 1, Arizona Public Service Company (APS) requested an exemption from the requirements of 10 CFR 70.24, Criticality Accident Requirements. In response to the APS request, the NRC Staff requested (reference 2) that APS supplement the initial request by addressing seven criteria for granting exemptions to this rule. The Attachment to this letter lists the seven criteria and provides the APS response.

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U. S. Nuclear Regulatory Commission
Response to Request for Additional Information
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Please contact Mr. Scott Bauer at (602) 393-5978 if you have any questions or would like additional information regarding this matter. This letter does not make any commitments to the NRC.

Sincerely,

A handwritten signature in cursive script, appearing to read "James M. Levine". The signature is written in dark ink and is positioned below the word "Sincerely,".

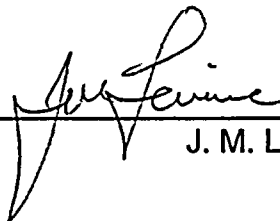
Attachment

JML/SAB/RKR/mah

cc: E. W. Merschoff
M. B. Fields
J. H. Moorman

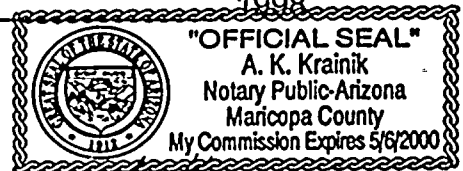
STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)


I, J. M. Levine, represent that I am Senior Vice President - Nuclear, Arizona Public Service Company (APS), that the foregoing document has been signed by me on behalf of APS with full authority to do so, and that to the best of my knowledge and belief, the statements made therein are true and correct.


J. M. Levine

Sworn To Before Me This 11 Day Of Sept.

1998




Notary Public

My Commission Expires

5/6/2000

ATTACHMENT

Response to Request for Additional Information

Response to Request for Additional Information

NRC Criterion 1: Plant procedures do not permit more than one pressurized-water reactor or three boiling-water reactor fuel assemblies to be out of an approved storage configuration at one time.

APS Response: The APS response to NRC Criterion 1 was based on the clarification for this Criterion provided in NRC Information Notice 97-77: "Exemptions from the Requirements of Section 70.24 of Title 10 of the Code of Federal Regulations" which stated that "Plant procedures do not permit more than [1 PWR or 3 BWR] new fuel [assembly/assemblies] to be in transit between their associated shipping cask and dry storage rack at one time."

PVNGS Procedure 78MT-9FH01 (New Fuel Receipt) only allows one new fuel assembly at a time to be moved from the shipping cask to the new fuel storage racks/new fuel elevator.

NRC Criterion 2: The k-effective of the fresh fuel storage racks filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water does not exceed 0.95, at a 95-percent probability, 95-percent confidence level.

APS Response: The k-effective of the new fuel storage racks filled with fuel of the maximum permissible U-235 enrichment (4.30 weight percent) and flooded with unborated water is less than or equal to 0.95 (PVNGS Technical Specification Section 4.3.1.2). The calculation was performed by Combustion Engineering at a 95-percent probability, 95-percent confidence level.

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NRC Criterion 3: If optimum moderation of fuel in the fresh fuel storage racks occurs when the fresh fuel storage racks are filled with low-density hydrogenous fluid, the k-effective corresponding to this optimum moderation does not exceed 0.98, at a 95-percent probability, 95-percent confidence level.

APS Response: The k-effective of the new fuel storage racks if moderated by aqueous foam (optimum moderation of fuel) is less than or equal to 0.98 (PVNGS Technical Specification Section 4.3.1.2). The calculation was performed by Combustion Engineering at a 95-percent probability, 95-percent confidence level.

NRC Criterion 4: The k-effective of spent fuel storage racks filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water does not exceed 0.95, at a 95-percent probability, 95-percent confidence level.

APS Response: The k-effective of the spent fuel storage racks filled with fuel of the maximum permissible U-235 enrichment (4.30 weight percent) and flooded with unborated water is less than or equal to 0.95 (PVNGS Technical Specification Section 4.3.1.1). The calculation was performed by Combustion Engineering at a 95-percent probability, 95-percent confidence level.

During an April 8, 1998 meeting with the NRC staff, we indicated that we would be submitting a request to take credit for soluble boron in the spent fuel pool. This will change the k-effective for the spent fuel storage racks. The k-effective change would use boron credit based on the approved Westinghouse methodology. APS expects to submit this change request in the last quarter of 1998.

NRC Criterion 5: The quantity of SNM other than nuclear fuel stored on site in any given area is less than the quantity necessary for a critical mass.

APS Response: The quantity of SNM other than fuel (e.g., Excore Safety Channel Detector uranium inventory, boronometer detector uranium inventory, and Movable Incore Detector uranium inventory) stored on site in any given area is substantially less than the quantity needed for a critical mass.

NRC Criterion 6: Radiation monitors, as required by GDC 63, are provided in fuel storage and handling areas to detect excessive radiation levels and to initiate appropriate safety actions.

APS Response: PVNGS UFSAR Section 3.1.54, "CRITERION 63 -- MONITORING FUEL AND WASTE STORAGE" states that "The spent fuel storage facility has monitoring equipment that alarms if the water level in the fuel storage pool falls below a predetermined level or if high water temperatures or high radiation levels are experienced. The high radiation level instrumentation also actuates the fuel building essential ventilation system." As discussed in UFSAR Section 11.5, there is an area radiation monitor for the spent fuel pool (RU-31) and a fuel building exhaust radiation monitor (RU-145/146) that alarm and initiate a fuel building essential ventilation actuation when high radiation levels are detected in the fuel building. Plant procedure 74RM-9EF41 "Radiation Monitoring System Alarm Response" specifies the actions to be taken in response to a high radiation alarm.

NRC Criterion 7: The maximum nominal U-235 enrichment does not exceed 5 wt %.

APS Response: The maximum nominal U-235 enrichment for PVNGS does not exceed 5 weight percent. Currently, the maximum allowed radially averaged fuel enrichment for PVNGS is 4.30 weight percent (PVNGS Technical Specification Sections 4.3.1.1 and 4.3.1.2).

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