APS

Palo Verde Nuclear
Generating Station

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EA-03-009

102-04918-CDM/SAB/RJR
April 4, 2003

Secretary
Office of Secretary of the Commission
U.S. Nuclear Regulatory Commission
ATTN: Rulemakings and Adjudications Staff
Washington, DC 20555-0001

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. STN 50-530
Request for Relaxation of Order EA-03-009 Requirement IV.C(2)

On March 25, 2003, members of the NRC staff and Arizona Public Service Company (APS) discussed APS' current plan for performing reactor pressure vessel (RPV) head nozzle inspections required by NRC Order EA-03-009. Based on this discussion, APS is requesting relaxation of the Order requirement IV.C(2). APS is requesting, for the Unit 3 tenth refueling outage (U3R10) only, relaxation from the requirements of Order Section IV.C(2). The relaxation would allow APS to satisfy the requirements of the Order by performing a bare metal visual examination 360 degrees around the Reactor Pressure Vessel (RPV) head vent line nozzle [reference Order IV.C(2)(a)] and by performing an Order Section IV.C(2)(b)(i) examination of each of the 97 CEDM nozzles.

APS has provided, as an attachment to this letter, the proposed request for relaxation to implement the requirements of Order Section IV.C(2).

No new commitments are being made to the NRC by this letter. If you have any questions concerning this matter, please contact Thomas N. Weber at (623) 393-5764.

Sincerely,

David D Mauldin

GRO/SAB/RJR/kg

Attachment: Request for Relaxation of Order EA-03-009 Requirement IV.C(2)

cc:

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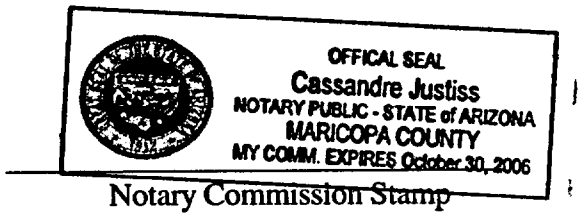
STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

I, David Mauldin, represent that I am Vice President Nuclear Engineering and Support, 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.

David Mauldin

Sworn To Before Me This 4th Day Of April, 2003.

Cassandra Justiss
Notary Public



Notary Commission Stamp

ATTACHMENT

Request for Relaxation of Order EA-03-009 Requirement IV.C(2)

Request for Relaxation of Order EA-03-009 Requirement IV.C(2)

I. ASME Code Component(s) Affected

Affected Unit: 3
Component number: B4.11
Description: Reactor head vent nozzle penetration
Code Class: 1

Component number: B4.12
Description: Control element drive mechanism (CEDM) nozzle penetrations
Code Class: 1

Expected Unit Susceptibility Categories

Unit 3 Refueling Outage 10 – spring 2003 – Moderate
Unit 3 Refueling Outage 11 – fall 2004 – High (expected)

II. Applicable Code Addition and Addenda

Second 10-year inservice inspection interval code for Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2, and 3: The American Society of Mechanical Engineers (ASME) Code, Section XI, 1992 Edition, 1992 Addenda.

Construction code for PVNGS Units 1, 2, and 3: ASME Section III, 1971 Edition, and 1973 Winter Addenda.

Installation code for PVNGS Units 1, 2, and 3: ASME Section III, 1974 Edition, and 1975 Winter Addenda.

III. Applicable Order Inspection Program

Order Section IV.C(2) states that for plants in the Moderate category, reactor pressure vessel (RPV) head and head penetration inspections shall be performed such that at least the requirements of 2(a) or 2(b) are performed each refueling outage. In addition the requirements of 2(a) and 2(b) shall be performed at least once over the course of every two (2) refueling outages.

IV. Proposed Alternative Inspection Program

APS proposes that, for Unit 3 tenth refueling outage (U3R10), the requirements of Order Section IV.C.(2) be met with 1 nozzle being

examined in accordance with the requirements of 2(a) and the remaining 97 nozzles being examined in accordance with the requirements of 2(b).

Specifically, APS is requesting, for U3R10, relaxation that would allow APS to satisfy the requirements of Order Section IV.C.(2) by performing a bare metal visual examination 360 degrees around the Reactor Pressure Vessel (RPV) head vent line nozzle [reference Order Section IV.C(2)(a)] and by performing an Order Section IV.C(2)(b)(i) examination of each of the 97 CEDM nozzles.

NOTE: APS has requested relaxation of the requirements in Order Section IV.C(2)(b) for the CEDM nozzles (letter 102-04916-CDM/SAB/RJR, dated April 2, 2003).

V. Basis for Demonstrating the Proposed Alternative Inspection Program will provide an Acceptable Level of Quality and Safety

PVNGS Unit 3 is currently in the first refueling outage subsequent to the issuance of Order EA-03-009 on February 11, 2003 (U3R10). Unit 3 is currently in the Moderate susceptibility category using the guidance in the Order for determining Effective Degradation Years (EDY) using best estimate values for each parameter at the end of the tenth operating cycle.

Order Section IV.C(2) states that for plants in the Moderate category, RPV head and head penetration inspections shall be performed such that at least the requirements of 2(a) or 2(b) are performed each refueling outage. In addition the requirements of 2(a) and 2(b) shall be performed at least once over the course of every two (2) refueling outages.

This relaxation request is needed since all of the RPV nozzles are not being inspected by the same method during U3R10. This relaxation request would allow APS, in U3R10, to perform an inspection of one nozzle in accordance with the requirements of 2(a) and perform an inspection of the 97 CEDM nozzles in accordance with the requirements of 2(b). This relaxation does not change the criteria of the inspection requirements of 2(a) or 2(b) for the nozzles being inspected. This relaxation would allow an administrative change to the Order to allow one nozzle to be inspected by a different method than the remaining 97 nozzles. All of the RPV nozzles would receive an inspection by an approved method described in the Order. One nozzle would be inspected visually in accordance with the requirements of 2(a) and the remaining 97 nozzles would be inspected by UT with an assessment of the interference fit zone in accordance with the requirements of 2(b). The requirement to perform a bare metal visual examination of 100% of the RPV head surface described in 2(a) will be performed at the next refueling outage in unit 3 (U3R11).

Since all of the RPV head penetration nozzles would receive an inspection during U3R10 by an approved method described in the Order, and that over the course of 2 refueling outages both 2(a) and 2(b) will have been performed (unless further relaxations are pursued), this relaxation request provides an acceptable level of quality and safety.

VI. Assessment of Order Inspection Options

APS is seeking relaxation of Order inspection program IV.C(2) for the following reasons:

1. The internal volumetric or surface examination of the RPV head vent line would be unusually difficult requiring the removal of the welded orifice.

2. APS is currently unable to perform a visual examination of 100% of the RPV head surface due to reflective contoured vessel head insulation.

Inspection Options IV.C(2)(b)(i) and IV.C(2)(b)(ii) for the Head Vent Nozzle

Unlike the CEDM nozzle penetrations that have an interference fit with the reactor vessel head, the RPV head vent line nozzle has a slip fit arrangement. Through wall cracks in either the nozzle or the J-groove weld would produce leakage that can be detected by a 360º top-of-the-head bare metal visual examination.

The RPV head vent line nozzles at PVNGS each contain a .19 inch orifice plug welded inside the nozzle in-line with the RPV head and adjacent to the J-groove weld attaching the vent line nozzle. Any volumetric or surface examination of the nozzle's inside diameter base material performed in accordance with (2)(b)(i) or (2)(b)(ii) would require either mechanical grinding or electrical discharge machining (EDM) to remove the orifice. These removal processes would inherently cause distortion or obliteration of any indications of surface cracking of the nozzle base material. Additionally, Order Section IV.C(2)(b)(i) requires an assessment to determine if leakage has occurred into the interference fit zone. Since the RPV vent line nozzle does not have an interference fit zone, this option can not be performed. The Unit 3 refueling outage started on March 29, 2003, and there is not sufficient time for planning of inspection option IV.C(2)(b). Therefore, it is not practical to perform volumetric or surface examinations in accordance with (2)(b)(i) or (2)(b)(ii).

Inspection Option IV.C(2)(a) for the 97 CEDM Nozzles

Order inspection option IV.C(2)(a) specifies that a bare metal visual examination of 100% of the RPV head surface (including 360° around each

RPV head penetration nozzle) may be performed to satisfy the requirements for a moderate susceptibility plant. The PVNGS Units are provided with reflective contoured vessel head insulation. Vendor drawings, DR-4338A-9 through 12, were provided in Attachment 1 to APS letter 102-04603-CDM/SAB/RJR, dated September 4, 2001 (Reference 1). This attachment shows that this type of insulation configuration cannot be readily removed without significant modification to allow complete inspection access.

An extensive insulation modification is currently being planned for Unit 2 refueling outage 11, scheduled for the fall of 2003. The modification is being performed to allow complete access for the top-of-the-head visual examinations. The modification is very complex, requiring a re-design of the insulation, taking as-built measurements for access and clearances, development of specific tooling and mock-ups, and detailed training to implement the modification. Dose estimate for the planned modification is approximately 30 man-rem. The modification project has a lead-time of a minimum of 20 weeks. The insulation modification is planned to be implemented for Units 1 and 3 in 2004. Therefore, it is not practical to perform a bare metal visual examination of all RPV head nozzles during 3R10 since the necessary plant modification will not be in place at that time. For this reason, APS proposes to perform under-the-head volumetric or surface examination of the remaining 97 CEDM nozzles.

VII. Duration of Proposed Alternative

APS requests relaxation for the current Unit 3 10th refueling outage.

VIII. Conclusion

Section IV.F of the Order states that conditions may be relaxed or rescinded upon demonstration by the Licensee of good cause. A request for relaxation regarding inspection of specific nozzles shall also address the following criteria:

1. The proposed alternative(s) for inspection of specific nozzles will provide an acceptable level of quality and safety, or

2. Compliance with this Order for specific nozzles would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

APS believes that the proposed inspection of Order Sections IV.C.(2)(a) and (2)(b) which uses previously accepted/approved methods will provide an acceptable level of quality and safety and meet the underlying objective of this Order. Therefore, we request that the proposed alternative be authorized pursuant to Order Section IV.F.1.