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SUBJECT: Requests use of alternatives to 10CFR50.55a(g) inservice
 insp requirements. Proposed alternatives are related to
 visual exam of bolted connections.

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10CFR50.55a(a)(3)

102-04273-WEI/AKK/TNW/RKB
April 20, 1999

U.S. Nuclear Regulatory Commission
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Dear Sirs:

- References:
1. APS Letter No. 102-04095-WEI/AKK/MLG, dated March 17, 1998, from W. E. Ide, APS, to NRC, "Inservice Inspection Programs for Second 10-Year Interval.
 2. Letter from R. A. Capra (NRC) to Irene Johnson (ComEd), dated July 22, 1996, related to the Safety Evaluation of Byron Station Units 1 & 2 Second 10-Year Interval ISI Program Plan Request for Relief 12R-12.
 3. Letter from F. J. Hebdon (NRC) to T. F. Plunkett (FPL), dated August 17, 1998, related to the Safety Evaluation of Turkey Point Units 3 and 4 Revised Relief Request No. 11.
 4. Letter from S. A. Richards (NRC) to O. D. Kingsley (ComEd) dated October 26, 1998 related to the Safety Evaluation Report of Braidwood Station Units 1 & 2 Second 10-Year Interval ISI Program Plan Request for Relief 12R-12

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
Docket Nos. STN 50-528/529/530
Second Inservice Inspection Interval - (Relief Request Nos. 11 and 12)

Pursuant to 10 CFR 50.55a(a)(3), Arizona Public Service Company (APS) is requesting the use of alternatives to 10 CFR 50.55a(g) Inservice Inspection (ISI) requirements. The provisions of 10 CFR 50.55a(g) specify compliance with the American Society of Mechanical Engineers (ASME) Code, Section XI, and applicable addenda. The proposed alternatives are related to the visual examination of bolted connections. .

Specifically, Relief Request No. 11 requests approval to use an alternative to ASME Section XI, IWA-5242(a) which requires that insulation be removed from pressure retaining bolted connections during the pressure test of systems borated for reactivity control. The proposed alternative would allow insulation removal and visual examination of the bolted connections to be done earlier in the refueling outage while the system is depressurized and a second visual examination after the insulation is replaced and the system is pressurized.

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Second ISI Interval - Relief Request Nos. 11 and 12
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Relief Request No. 12 requests approval to use an alternative to ASME Section XI, IWA-5250(a) which requires that bolting be removed and visually inspected when leakage is detected at a bolted connection during the conduct of the system pressure test. The proposed alternative would allow an evaluation of other factors concerning the leaking joint as a possible alternative to disassembly and visual examination of the bolting.

Arizona Public Service Company submitted the updated ISI Program for the second 10-year interval in reference 1, including a request for relief to use the 1992 Edition including the 1992 Addenda of the ASME Code. Approval of the second 10-year interval and its associated relief requests has not yet been granted. Therefore, the use of the alternatives enclosed with this letter constitute exception to both the 1989 Edition and the 1992 Edition including the 1992 Addenda of the ASME Code. The proposed alternatives and the basis for the requested relief are attached. References 2, 3, & 4 above, pertain to similar requests from other nuclear power plant licensees that have been recently approved by the NRC.

PVNGS Unit 2 is currently in its Cycle 8 refueling outage, the first refueling outage in the second 10-year ISI interval, which is scheduled to be completed on May 1, 1999. To support work associated with this refueling outage, maintain radiation exposures ALARA, minimize safety risks associated with removing and installing insulation on hot piping, and to limit the amount of restricted scaffold material in containment during Mode 3 (currently scheduled for entry on April 28, 1999), APS requests expedited approval of these relief requests. NRC approval is requested by April 26, 1999.

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

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

Sincerely,



WEI/AKK/TNW/RKB/rh

Enclosures

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

ENCLOSURE 1

ASME SECTION XI RELIEF REQUEST NO. 11

TO THE SECOND 10 YEAR ISI INTERVAL

FOR THE PALO VERDE NUCLEAR GENERATING STATION

Relief Request No. 11
Examination of Bolted Connections on Class 1
Borated Systems Used for Reactivity Control

Code Class	1
Code Reference	IWA-5242(a), 1989 Ed. and IWA-5242(a), 1992 Ed, 1992A
Examination Category	B-P, All Pressure Retaining Components
Item Numbers	All
Component Description	Bolted Connections on Borated Systems Used for Reactivity Control
PVNGS Units	All

Requirement Table IWB-2500-1, requires that Category B-P components be VT-2 examined once every refueling outage at a test pressure not less than the nominal operation pressure associated with 100% rated reactor power.

IWA-5242(a) requires that insulation be removed from pressure retaining bolted connections for VT-2 visual examination for systems borated for the purpose of controlling reactivity.

Alternate Testing PVNGS will perform a system pressure test and VT-2 examination each refueling outage without removal of insulation. In addition PVNGS will remove insulation from the bolted connections, and perform a VT-2 visual examination each refueling outage but the connections will not be required to be pressurized for this examination. This alternative is consistent with Code Case N-533.

Basis For Relief Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative would provide an acceptable level of quality and safety. Specifically, relief is requested from the requirement to remove insulation at bolted connections for VT-2 examination coincident with system pressure testing at normal operating pressure.

The proposed alternative would allow insulation removal and visual examination of the bolted connections to be done earlier in the refueling outage while the system is depressurized. A second visual examination will be performed after the insulation is replaced and the system is pressurized. Identified leakage will be evaluated in accordance with IWA-5250(a) and any associated reliefs.

The PVNGS Boric Acid Walkdown program, in conjunction with the proposed alternate testing, provides an acceptable level of quality and safety for bolted connections in systems borated for the purpose of controlling reactivity.

In response to NRC Generic Letter 88-05, PVNGS has established a program to inspect boric acid leaks discovered in the containment building and to evaluate the impact of those leaks on carbon steel or low alloy steel components. Any evidence of leakage, including dry boric acid crystals or residue, is inspected and evaluated regardless of ASME class, location, or whether the leak was discovered at power or during an outage. Issues such as the following are considered in the inspection and evaluation.

1. Evidence of corrosion or metal degradation.
2. Effect the leak may have on the pressure boundary.
3. Possibility of boric acid traveling along the inside of insulation on piping.
4. Possibility of dripping or spraying on other components.

Based on this evaluation PVNGS initiates appropriate corrective actions to prevent recurrence of the leak and to repair, if necessary, any degraded materials or components. These evaluations ensure issues related to leakage of borated systems are addressed, including corrective actions necessary to eliminate the source of leakage.

Additional
Information

Code Class 1 systems borated for the purpose of controlling reactivity are extensive, covering many areas and elevations. Scaffolding is required to access several of the bolted connections. In addition, many of the bolted connections are located in difficult to access areas and in medium to high-level radiation areas. The VT-2 examinations of Class 1 systems, primarily the reactor coolant system (RCS) piping are performed in Mode 3. As required by IWB-5221, the RCS is at normal operating pressure of 2250 psia for this examination. Insulation removal and the construction of scaffolding at the time of system re-pressurization lengthens the refueling outage and increases radwaste, personnel radiation exposure and safety risks.

Approval In accordance with 10 CFR 50.55a(3)(a)(i) PVNGS is requesting permission to use the proposed alternative. PVNGS will not implement this alternative without prior authorization from the NRC.

References 1. ASME Section XI, Rules for Inspection and Testing of Components of Light Water Cooled Plants 1992 Edition and Addenda, Section IWA-5000.
2. ASME Section XI, Rules for Inspection and Testing of Components of Light Water Cooled Plants 1989 Edition, Section IWA-5000.
3. ASME Code Case N-533.

ENCLOSURE 2

ASME SECTION XI RELIEF REQUEST NO. 12

TO THE SECOND 10 YEAR ISI INTERVAL

FOR THE PALO VERDE NUCLEAR GENERATING STATION

Relief Request No. 12
Examination of Bolted Connections

Code Class	1, 2, 3
Code Reference	IWA-5250(a), 1989 Ed. and IWA-5250(a), 1992 Ed, 1992A
Examination Category	B-P, C-H, D-B
Item Numbers	AI
Component Description	Bolted Connections
PVNGS Units	All

Requirement IWA 5250 (a) states: " The sources of leakage detected during the conduct of a system pressure test shall be located and evaluated by the Owner for corrective action as follows.(2) If leakage occurs at a bolted connection, one of the bolts shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100. The bolt selected shall be the one closest to the source of leakage. When the removed bolt has evidence of degradation, all remaining bolting in the connection shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100."

Alternate Testing PVNGS proposes the following alternative methodology to the requirements of IWA-5250(a):

When evidence of leakage is identified at bolted connections by visual, VT-2 examination, an evaluation will be performed to determine the susceptibility of the bolting to corrosion and assess the potential for failure. The evaluation will, at a minimum, consider the following factors:

1. Bolting materials
2. Corrosiveness of process fluid
3. Leakage location
4. Leakage history at connection
5. Visual evidence of corrosion at connection (connection assembled)
6. Industry studies and history of similar bolting in similar environment
7. Condition and leakage history of adjacent components

If evaluation of the above parameters indicates the need for further action, the bolt closest to the source of leakage will be removed, receive a VT-3 examination, and be evaluated in accordance with IWA-3100. If

the leakage is identified when the bolted connection is in service, and the information from the evaluation is supportive, the removal of the bolt for VT-3 examination may be deferred to the next refueling outage. When the removed bolt shows evidence of degradation, all remaining bolting shall be removed, VT-3 examined, evaluated in accordance with IWA-3100, or replaced.

**Basis For
Relief**

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative would provide an acceptable level of quality and safety. Specifically, PVNGS is asking for relief from the requirement to remove bolts without prior analysis to allow for instances where removal may not be warranted.

Removal of pressure retaining bolting at mechanical connections for visual, VT-3 examination and subsequent evaluation in locations where leakage has been identified is not always the most prudent course of action to determine the condition of the bolting and root cause of the leak.

The Code requirement to remove, examine and evaluate bolting in this situation does not allow the Owner to consider other factors that may indicate the condition of the mechanical joint bolting. This requirement is unnecessarily prescriptive and restrictive.

**Additional
Information**

A situation frequently encountered at commercial nuclear plants such as PVNGS is the complete replacement of bolting materials (studs, bolts, nuts, washers, etc.) at mechanical joints during plant outages. When associated system process piping is pressurized during plant start-up, leakage is sometimes identified at these joints. The root cause of this leakage is most often thermal expansion of the piping and bolting materials at the joint, which results in process fluid seepage at the joint gasket. Proper retorquing of the joint bolting, in most cases, stops the leakage. Removal of any of the joint bolting to evaluate for corrosion would be unwarranted in this situation due to the new condition of the bolting materials.

Approval

In accordance with 10 CFR 50.55a(3)(a)(i) PVNGS is requesting permission to use the proposed alternative. PVNGS will not implement this alternative without prior authorization from the NRC.

References

1. ASME Section XI, Rules for Inspection and Testing of Components of Light Water Cooled Plants 1992 Edition and Addenda, Section IWA-5000.
2. ASME Section XI, Rules for Inspection and Testing of Components of Light Water Cooled Plants 1989 Edition, Section IWA-5000.

