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RECIP. NAME      RECIPIENT AFFILIATION

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SUBJECT: Requests use of alternatives to 1980 Edition through Winter  
of 1981 Addenda of ASME Section XI Boiler & Pressure Vessel  
Code.

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102-03242-WLS/SAB/TNW  
February 3, 1995

WILLIAM L. STEWART  
EXECUTIVE VICE PRESIDENT  
NUCLEAR

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
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Washington, DC 20555

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)**  
**Units 1, 2, and 3**  
**Docket Nos. STN 50-528/529/530**  
**Alternatives to the ASME Section XI Code**  
**File: 95-005-419.05; 95-056-026**

Pursuant to 10 CFR 50.55a(a)(3), Arizona Public Service Company (APS) is requesting the use of alternatives to the 1980 Edition through the Winter of 1981 Addenda of the ASME Section XI Boiler and Pressure Vessel Code. Specifically, APS requests approval to use the provisions of Subarticle IWA-4500 of the 1992 Edition of the ASME Code, "Alternate Repair Welding Methods", and requests approval to use the provisions of ASME Code Case N-416-1, "Alternate Pressure Test Requirements for Welded Repairs or Installation of Replacement Items by Welding, Class 1, 2, and 3, Section XI, Division 1."

The enclosures to this letter provide justification for the use of the alternate rules identified above in accordance with the requirements of 10 CFR 50.55a(a)(3).

This request is consistent with the principles of a cost beneficial licensing action (CBLA) i.e., an exemption from a requirement which is economically burdensome to implement and has low safety impact. We, therefore, request your timely and prompt review of this request.

The use of Subarticle IWA-4500 of the 1992 Edition of the ASME Code would result in a significant cost savings if any repairs are required to the Steam Generator instrument nozzles scheduled to be inspected during the upcoming outages in all three Units. We will inform our Project Manager of these inspection results as soon as they are available.

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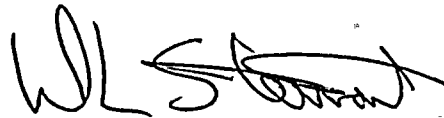
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Should you have any questions, please contact Scott A. Bauer at (602)-393-5978.

Sincerely,

A handwritten signature in black ink, appearing to be 'WLS' followed by a stylized flourish or surname.

WLS/SAB/TNW/rv  
Enclosures

cc: L. J. Callan  
K. E. Perkins  
B. E. Holian  
K. E. Johnston



**ENCLOSURE 1**

**ALTERNATIVES TO 1980 EDITION THROUGH WINTER OF 1981  
ADDENDA OF THE ASME SECTION XI CODE**

## **ENCLOSURE 1**

### **10 CFR 50.55a(a)(3) ALTERNATIVES TO THE ASME CODE**

**Alternative:** 1992 Edition of the ASME Code, Subarticle IWA-4500

**Reference:**

Letter dated October 21, 1987 from E. A. Licitra, Senior Project Manager, Project Directorate V, USNRC, to E. E. Van Brunt, Jr., Executive Vice President, Arizona Nuclear Power Project

**Current Requirements:**

In the above referenced letter, the USNRC approved the use of a single ASME Code Edition, and specified Addenda, for all three Units at PVNGS. This represents a relief from the requirements of 10 CFR 50.55a(g)(4)(i) which requires that "inservice examinations of components and system pressure tests conducted during the initial 120 month inspection interval must comply with the requirements in the latest edition and addenda of the Code incorporated by reference in paragraph (b) of this section on the date 12 months prior to the date of issuance of the operating license, subject to the limitations and modifications listed in paragraph (b) of this section." The USNRC approved this request for relief with the condition that APS establish a common start date for the initial inspection interval for all three Units based upon the average date of commercial service in accordance with ASME Section XI Paragraph IWA-2400(b). The common start date for the initial inspection interval for PVNGS is March, 1987. The ASME Code of record approved for PVNGS in the referenced letter was the 1980 Edition through the Winter of 1981 Addenda.

PVNGS Technical Specification 4.0.5a requires inservice inspection of ASME Code Class 1, 2, and 3 components be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).





### **Regulatory Basis For Use of Alternatives to the ASME Code:**

Section 50.55a(a)(3) of Title 10 of the Code of Federal Regulations states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if "(i) The proposed alternatives would provide an acceptable level of quality and safety, or (ii) Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety."

### **Description of the Proposed Alternative to the ASME Code:**

APS is requesting approval to utilize the 1992 Edition of the ASME Code, Subarticle IWA-4500, "Alternate Repair Welding Methods" for the purposes of performing temper bead repair of P3 material. This alternate method would result in considerable cost savings if repair of the Steam Generator instrument nozzles is necessary following non-destructive examination performed during the upcoming refueling outages in all three of the PVNGS Units.

### **Justification for the Use of Subarticle IWA-4500 of the 1992 ASME Code**

The temper bead welding procedure requirements in the 1980 Edition through the Winter of 1981 Addenda of the ASME Code are given in Subarticle IWB-4300. Paragraph IWB-4322.1(b) requires that the test assembly thickness shall be at least five times the depth of the repair. In addition, it requires the depth of the cavity to be at least one inch. Therefore, the 1980 Edition through Winter of 1981 Addenda of the ASME Code requires a minimum of 5 inch thick material to be used for the qualification of this welding procedure. In the 1992 Edition of the ASME Code, Subarticle IWA-4500 requires the test assembly thickness to be a minimum of twice the depth of the cavity in the test assembly. In addition, it requires the depth of the cavity to be at least one half the depth of the actual repair, but not less than 1 inch. Therefore, the 1992 Edition of the ASME Code requires a minimum of 2 inch thick material to be used for the qualification of this welding procedure. APS considers the welding repair requirements identified in Subarticle IWA-4500 of the 1992 Edition of the ASME Code to constitute a reasonable, safe alternative to the existing welding repair requirements contained in the 1980 Edition, Winter 1981 Addenda, of the ASME Code.

The 5 inch thick P3 material, required by the PVNGS ASME Code of record, is not readily available. Procuring this size material for the sole purposes of qualifying the welding procedure would result in substantial material costs. The use of external contractors to perform this weld has been pursued and is estimated to cost in excess of \$200,000. The use of the material thickness allowed by the 1992 Edition of the ASME Code, for the purposes of qualifying the welding procedure, would allow PVNGS to utilize readily available material with minimal reliance on costly external contractors. Requiring the use of

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the 5 inch thick P3 material would result in a substantial hardship to the Plant without a compensating increase in the level of safety or quality.

Therefore, since compliance with the specified requirements of the 1980 Edition, Winter 1981 Addenda, of the ASME Code would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, the use of the 1992 Edition of the ASME Code Subarticle IWA-4500 is justified.

The 1992 Edition of the ASME Section XI Code has not as yet been incorporated into 10 CFR 50.55a(b)(2). The 1989 Edition of the ASME Section XI Code is the latest edition incorporated by reference into 10 CFR 50.55a(b)(2). The requirements for the material thickness for test assemblies contained in the 1989 Edition of the ASME Code are similar to the requirements contained in the 1980 Edition through the Winter of 1981 Addenda of the ASME Code.

**ENCLOSURE 2**

**ALTERNATIVES TO 1980 EDITION THROUGH WINTER OF 1981  
ADDENDA OF THE ASME SECTION XI CODE**



## **ENCLOSURE 2**

### **10 CFR 50.55a(a)(3) ALTERNATIVES TO THE ASME CODE**

**Alternative:** ASME Code Case N-416-1, "Alternate Pressure Test Requirement for Welded Repairs or Installation of Replacement Items by Welding Class 1, 2, and 3, Section XI, Division 1"

**Reference:**

Letter dated October 21, 1987 from E. A. Licitra, Senior Project Manager, Project Directorate V, USNRC, to E. E. Van Brunt, Jr., Executive Vice President, Arizona Nuclear Power Project

**Current Requirements:**

In the above referenced letter, the USNRC approved the use of a single ASME Code Edition, and specified Addenda, for all three Units at PVNGS. This represents a relief from the requirements of 10 CFR 50.55a(g)(4)(i) which requires that "inservice examinations of components and system pressure tests conducted during the initial 120 month inspection interval must comply with the requirements in the latest edition and addenda of the Code incorporated by reference in paragraph (b) of this section on the date 12 months prior to the date of issuance of the operating license, subject to the limitations and modifications listed in paragraph (b) of this section." The USNRC approved this request for relief with the condition that APS establish a common start date for the initial inspection interval for all three Units based upon the average date of commercial service in accordance with ASME Section XI Paragraph IWA-2400(b). The common start date for the initial inspection interval for PVNGS is March, 1987. The ASME Code of record approved for PVNGS in the referenced letter was the 1980 Edition through the Winter of 1981 Addenda.

PVNGS Technical Specification 4.0.5a requires inservice inspection of ASME Code Class 1, 2, and 3 components be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).



Subarticle IWA-4700(a) in the 1980 Edition, Winter 1981 Addenda, of the ASME Code requires that a system hydrostatic test be performed in accordance with IWA-5000 after repairs by welding on the pressure retaining boundary.

#### **Regulatory Basis For Use of Alternatives to the ASME Code:**

Footnote 6 to 10 CFR 50.55a states that ASME Code Cases that have been determined suitable for use by the Commission staff are listed in NRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability - ASME Section XI Division 1". It also states that the use of other Code Cases may be authorized by the Director of the Office of Nuclear Reactor Regulation upon request pursuant to 10 CFR 50.55a(a)(3). Code Case N-416-1 has not as yet been incorporated into Regulatory Guide 1.147.

Section 50.55a(a)(3) of 10 CFR states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if "(i) The proposed alternatives would provide an acceptable level of quality and safety, or (ii) Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety."

#### **Description of the Proposed Alternative to the ASME Code:**

APS is requesting approval to utilize the alternate rules identified in ASME Code Case N-416-1. This ASME Code Case allows a system leakage test in conjunction with a visual examination at nominal operating pressures and temperatures to be performed in lieu of a hydrostatic pressure test, for ASME Class 1, 2, and 3 welded repairs or installation of replacement items by welding. It also states that non-destructive examination shall be performed in accordance with the methods and acceptance criteria of the applicable Subsection of the 1992 Edition of Section III of the ASME Code. Code Case N-416-1 states that if a previous version of Code Case N-416 was used to defer a Class 2 hydrostatic test, the deferred test may be eliminated when the requirements of N-416-1 are met.

#### **Justification for the Use of ASME Code Case N-416-1:**

Paragraph IWA-4700(a) in the 1980 Edition, Winter 1981 Addenda, of the ASME Code requires that a system hydrostatic test be performed in accordance with IWA-5000 after repairs by welding on the pressure retaining boundary. Since hydrostatic testing involves test pressures higher than nominal operating pressures there can be significant efforts associated with the setup and performance of the test. Special system hydrostatic tests represent significant costs with respect to the labor associated with the performance of the test. In addition, the need to use special equipment, such as the temporary attachment of





test pumps and gauges as well as the need for individual valve lineups can cause the testing to be on critical path during an outage incurring even further costs. The costs and effort needed to perform the hydrostatic testing represent a substantial hardship to the Plant without a compensating increase in the level of safety or quality.

Based upon industry experience, hydrostatic pressure testing is primarily regarded as a means to enhance leakage detection during the examination of components under pressure, rather than a means to determine structural integrity of the components. Therefore, APS considers the requirements of ASME Code Case N-416-1 to constitute a reasonable, safe alternative to the existing requirements contained in the 1980 Edition, Winter 1981 Addenda, of the ASME Code.

Therefore, since compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, the use of ASME Code Case N-416-1 is justified.

Use of ASME Code Case N-416-1, with provisions provided by the NRC, is requested until such time as the code case is published in a future revision of Regulatory Guide 1.147. At that time, APS will follow all provisions of Code Case N-416-1, with limitations issued in Regulatory Guide 1.147, if any.

