



Palo Verde Nuclear  
Generating Station

David Mauldin  
Vice President  
Nuclear Engineering  
and Support

10CFR50.55a

TEL (623) 393-5553  
FAX (623) 393-6077

Mail Station 7605  
P.O. Box 52034  
Phoenix, AZ 85072-2034

102-04389-CDM/SAB/RKB

December 22, 1999

U.S. Nuclear Regulatory Commission  
ATTN: 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  
Implementation of American Society of Mechanical Engineers  
(ASME), Subsection IWE of Section XI for Containment Inservice  
Inspection – Relief Request Nos. RR-E1 through RR-E7**

Pursuant to 10 CFR 50.55a(b) and (g), inservice inspection of containment must meet the requirements of the 1992 Edition, 1992 Addenda (or 1995 Edition, 1996 Addenda) of ASME Code, Section XI, Subsection IWE and IWL.

In accordance with the provisions of 10 CFR 50.55a(a)(3)(i) and (ii), Arizona Public Service Company (APS) hereby submits Relief Request Nos. RR-E1 through RR-E7. These requests for relief, provided in the enclosure, seek relief from some of the ASME Code, Section XI, Subsection IWE requirements for PVNGS Units 1, 2 and 3. Where possible, the reference section of the relief requests refers to a previous NRC safety evaluation report for a similar relief request.

In addition, pursuant to 10 CFR 50.55a(g)(6)(ii)(B), the first interval, first period containment examinations are required to be completed by September 9, 2001. To ensure these examinations are completed as required for the 3 PVNGS Units, these examinations must begin during the PVNGS Unit 3, Cycle 8 refueling outage scheduled for the Spring 2000. Therefore, APS requests NRC Staff approval of the enclosed relief requests by March 30, 2000.

A047

RR ADDOC 05000528

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
IWE Containment Inspection – Relief Requests  
Page 2

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

Should you have any questions, please contact Scott A. Bauer at (623) 393-5978.

Sincerely,

A handwritten signature in cursive script that reads "David Mauldin".

CDM/SAB/RKB/kg

Enclosure

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

**ENCLOSURE**

**CONTAINMENT INSERVICE INSPECTION**

**ASME SECTION XI, SUBSECTION IWE**

**RELIEF REQUESTS RR-E1 THROUGH RR-E7**

**FOR THE PALO VERDE NUCLEAR GENERATING STATION**

**UNITS 1, 2 AND 3**

## TABLE OF CONTENTS

RR #	DESCRIPTION
RR-E1	<b>TORQUE/TENSION TESTING OF BOLTED CONNECTIONS</b> Relief from the Code requirement to perform Torque Testing on bolting which would otherwise not be disturbed. Alternative exam is to VT the bolting in-place.
RR-E2	<b>SUCCESSIVE EXAMINATIONS of CONTAINMENT REPAIRS</b> Relief from Code requirement to reexamine repaired areas on the containment for several inspection periods. No alternatives are proposed.
RR-E3	<b>SEALS AND GASKETS</b> Relief from Code requirement to examine Seals and Gaskets. Alternative is to use the results of Appendix J testing.
RR-E4	<b>PERFORMANCE OF VT-3 OTHER THAN AT END-OF-INTERVAL</b> (Code Case N-601) Relief from Code requirement to perform VT-3 of 100% of the containment surface at the end of the inspection interval. Alternative is to allow performance of this exam during the interval.
RR-E5	<b>ULTRASONIC THICKNESS MEASUREMENT OF AUGMENTED EXAMINATION AREAS</b> (Code Case N-605) Substitute different gridding and scanning requirements for ultrasonic examination of augmented examination areas of containment.
RR-E6	<b>PRESERVICE EXAMINATION OF REAPPLIED COATINGS</b> Relief from Code requirement to perform VT following reapplication of coatings. Alternative is to follow PVNGS coating program.
RR-E7	<b>VISUAL EXAMINATION PRIOR TO REMOVAL OF COATINGS</b> Relief from Code requirement to examine coatings prior to their removal. Alternative is to follow PVNGS coating program.

# Relief Request No. RR-E1

## Torque/Tension Testing of Bolted Connections

<b>Code Class</b>	MC (IWE)
<b>Code Reference</b>	ASME Section XI, 1992 Edition, 1992 Addenda IWE-2500, Table IWE-2500-1
<b>Examination Category</b>	E-G
<b>Item Numbers</b>	E 8.20
<b>Component Description</b>	Bolted Connections
<b>PVNGS Units</b>	1, 2, 3

**Requirement** IWE-2500, Table IWE-2500-1 requires bolt torque-tension tests to be performed on 100% of the bolts when the connection has not been disassembled and reassembled during the interval.

**Alternate Testing** The following examinations and tests required by Subsection IWE ensure the structural integrity and leak-tightness of Class MC pressure retaining bolting. Therefore no additional alternative examinations are proposed:

- 1) Exposed surface of bolted connections shall be visually examined in accordance with the requirements of Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item E8.10;
- 2) Bolted connections shall meet the pressure test requirements of Table IWE-2500-1, Examination Category E-P, All Pressure Retaining Components, Item E9.40; and
- 3) A general visual examination of the entire containment once each inspection period shall be conducted in accordance with 10CFR50.55a(b)(2)(ix)(E).

**Basis For Relief** 10CFR50.55a was amended in the Federal Register (61FR41303) to require the use of the 1992 Edition, 1992 Addenda of Section XI when performing containment examinations. Bolt torque or tension testing is required on bolted connections that have not been disassembled and reassembled during the inspection interval.

Determination of the torque or tension value would require that the bolting be untorqued and then re-torqued or re-tensioned. The performance of the 10CFR50, Appendix J, Type B test itself proves that the bolt torque or tension remains adequate to provide a leak rate that is within acceptable limits. The torque or tension value of bolting only becomes an issue if the leak rate is excessive. Once a bolt is torqued or tensioned, it is not subject to dynamic loading that could cause it to experience significant change.

## Relief Request No. RR-E1

Basis For Relief (Continued)	<p>An in-situ test of an undisturbed connection would not be meaningful. Paint or corrosion on the bolted connection would result in a higher indicated torque and would not be representative of the pre-load on the connection.</p> <p>Verification of torque or tension values on bolted joints that are proven adequate through Appendix J testing and visual inspection is satisfactory to demonstrate that design function is met. Torque or tension testing is not required on any other ASME Section, Class, 1, 2, or 3 bolted connections or their supports as part of the inservice inspection program.</p>
Additional Information	<p>The requirement for torque testing of containment bolting does not appear in the 1998 Edition of Section XI, Subsection IWE.</p>
Approval	<p>Pursuant to 10CFR50.55a(a)(3)(i), relief is requested from the Code requirements stated above on the basis that the proposed alternative would provide an acceptable level of quality and safety.</p> <p>Testing the bolted penetrations in accordance with 10CFR50, Appendix J provides adequate assurance of the leak-tight integrity of the bolted penetrations.</p>
References	<ol style="list-style-type: none"><li>1. ASME Section XI, 1992 Edition, 1992 Addenda</li><li>2. ASME Section XI, 1998 Edition</li><li>3. 10CFR50.55a</li><li>4. Letter dated 10 August, 1999 from S. R. Peterson, USNRC to J. S. Keenan, Carolina Power and Light, "EVALUATION OF RELIEF REQUESTS CIP-01 TO CIP-18 – IMPLEMENTATION OF SUBSECTIONS IWE AND IWL OF ASME SECTION XI FOR CONTAINMENT INSPECTION FOR CAROLINA POWER AND LIGHT COMPANY'S BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2 (TAC NOS. MA4166 AND MA4167). Refer to CIP-07 on page 7.</li></ol>

## Relief Request No. RR-E2

### Successive Examination of Containment Repairs

<b>Code Class</b>	MC (IWE)
<b>Code Reference</b>	ASME Section XI, 1992 Edition, 1992 Addenda, IWE-2420(b), IWE-2420(c).
<b>Examination Category</b>	N/A
<b>Item Numbers</b>	N/A
<b>Component Description</b>	Metal (Class MC) Portions of the Containment Building, Containment Liner, Penetrations, Hatches, and Attachments
<b>PVNGS Units</b>	1, 2, 3

**Requirement** ASME Section XI, 1992 Edition, 1992 Addenda, IWE-2420 (b) states that when component examination results require evaluation of flaws, areas of degradation, or repairs in accordance with IWE-3000, and the component is found to be acceptable for continued service, the areas containing such flaws, degradation, or repairs shall be reexamined during the next inspection period listed in the schedule of the inspection program of IWE-2411 or IWE-2412, in accordance with Table IWE-2500-1, Examination Category E-C ( Augmented Examination).

IWE-2420(c) requires that this reexamination continue for at least three consecutive inspection periods.

**Alternate Testing** Relief is sought only from the requirement to reexamine areas that have been repaired. As an alternative PVNGS will perform the repair of degraded areas in accordance with an approved Repair/Replacement Program. For degraded areas that are accepted by engineering evaluation, the applicable successive inspection requirements specified in paragraph IWE-2420 will be met.

**Basis For Relief** Pursuant to 10CFR50.55a(a)(3)(ii), relief is requested from the Code requirements stated above on the basis that compliance with this requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety.

The purpose of a repair is to restore the component to an acceptable condition for continued service in accordance with the acceptance standards of IWE-3000. IWA-4150 requires the Owner to conduct an evaluation of the suitability of the repair including consideration of the cause of failure. This requirement for successive examination presupposes that the repair was not suitable. If the repair has restored the component to an acceptable condition, successive examinations are not warranted. If the repair was not suitable, then the repair does not meet Code requirements and the component is not acceptable

## Relief Request No. RR-E2

Basis For Relief (Continued) for continued service. Neither IWB-2420(b), IWC-2420(b), nor IWD-2420(b) require a repair to be subject to successive examination requirements for ASME Class 1, 2, or 3 components respectively. The successive examination of repairs in accordance with IWE-2420(b) constitutes a burden without a compensating increase in quality or safety.

In SECY 96-080, response to Comment 3.3 regarding IWE-2420, the NRC stated, "The purpose of IWE-2420(b) is to manage components found to be acceptable for continued service (meaning no repair or replacement at this time) as an Examination Category E-C [Containment Surfaces Requiring Augmented Examination] component... If the component had been repaired or replaced, then the more frequent examination would not be needed."

Additional Information The requirement for re-examination of repairs was removed from IWE-2420(b) and (c) in the 1995 Edition, 1995 Addenda to ASME Section XI.

Approval Pursuant to 10CFR50.55a(a)(3)(ii), relief is requested from the Code requirements stated above on the basis that compliance with this requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety.

References

1. ASME Section XI, 1992 Edition, 1992 Addenda
2. ASME Section XI, 1995 Edition, 1995 Addenda
3. SECY 96-080
4. 10CFR50.55a
5. Letter dated 10 August, 1999 from S. R. Peterson, USNRC to J. S. Keenan, Carolina Power and Light, "EVALUATION OF RELIEF REQUESTS CIP-01 TO CIP-18 – IMPLEMENTATION OF SUBSECTIONS IWE AND IWL OF ASME SECTION XI FOR CONTAINMENT INSPECTION FOR CAROLINA POWER AND LIGHT COMPANY'S BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2 (TAC NOS. MA4166 AND MA4167). Refer to CIP-05 on page 5.

# Relief Request No. RR-E3

## Seals and Gaskets

<b>Code Class</b>	MC (IWE)
<b>Code Reference</b>	ASME Section XI, 1992 Edition, 1992 Addenda, IWE-2500, Table IWE-2500-1
<b>Examination Category</b>	E-D, Seals, Gaskets, and Moisture Barriers
<b>Item Numbers</b>	E5.10, Seals and E5.20, Gaskets
<b>Component Description</b>	Seals and Gaskets in the Containment Pressure Boundary
<b>PVNGS Units</b>	1, 2, 3

**Requirement** ASME Section XI, 1992 Edition, 1992 Addenda, IWE-2500 and Table IWE-2500-1 require seals and gaskets on airlocks, hatches, and other devices that are required to assure containment leak-tight integrity to be visually examined (VT-3) once each interval to assure containment leak-tight integrity.

**Alternate Testing** As an alternative, the leak-tightness of seals and gaskets will be verified using 10CFR50, Appendix J, Type B testing. No additional alternatives to the visual examination, VT-3, of the seals and gasket will be performed.

**Basis For Relief** In accordance with 10CFR50.55a(a)(3)(ii), relief is requested from the Code requirements on the basis that compliance with this requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety.

Seals and gaskets receive a 10CFR50, Appendix J, Type B test. As noted in 10CFR50, Appendix J, the purpose is to measure leakage of containment or penetrations whose design incorporates resilient seals, gaskets, sealant compounds, and electrical penetrations fitted with flexible metal seal assemblies. Physical examination of the seals and gaskets requires disassembling joints, that are proven adequate through Appendix J testing.

For electrical penetrations, disassembly would involve a pre-maintenance Appendix J test, de-termination of cables at electrical penetrations if enough cable slack is not available, disassembly of the joint, removal and examination of the seals and gaskets, reassembly of the joint, re-termination of the cables if necessary, post maintenance testing of the cables, and a post maintenance Appendix J test of the penetration.

For containment hatches, blind flanges, and equipment hatches, the work required would be similar except for the de-termination, re-termination, and testing of cables.

## Relief Request No. RR-E3

Basis For  
Relief  
(Continued)

For those penetrations that are routinely disassembled, such as equipment and personnel hatches, a Type B test is required upon reassembly and prior to start-up. Since the Type B test will assure the leak-tight integrity of the connection, the performance of a visual examination would not increase the level of quality or safety.

Seals and gaskets are not included in the definition of the containment pressure-retaining boundary under current Code rules (NE-2110(b)). When the airlocks and hatches containing these materials are tested in accordance with 10CFR50, Appendix J, degradation of the seal or gasket material is revealed by an increase in the leakage rate. In this case, corrective measures would be applied and the component retested. Furthermore, seals and gaskets are specifically excluded from Code rules for Repair and Replacement in IWA-4111(b)(5) (1992 Edition, 1992 Addenda, and 1998 Edition).

Additional  
Information

The 1995 Edition, 1996 Addenda of Section XI recognizes that disassembly of joints to perform these examinations is not warranted. Note 1 in Table IWE-2500-1, Examination Category E-D has been modified to state that sealed or gasketed connections need not be disassembled solely for performance of examinations. However, without disassembly, most of the surface of the seals and gaskets would be inaccessible. The requirement to examine seals and gaskets does not appear in the 1998 Edition of ASME Section XI.

Approval

In accordance with 10CFR50.55a(a)(3)(ii), relief is requested from the Code requirements on the basis that compliance with this requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety.

References

1. ASME Section XI, 1992 Edition, 1992 Addenda
2. ASME Section XI, 1995 Edition, 1996 Addenda
3. 10CFR50.55a
4. ASME Section XI, 1998 Edition
5. Letter dated 10 August, 1999 from S. R. Peterson, USNRC to J. S. Keenan, Carolina Power and Light, "EVALUATION OF RELIEF REQUESTS CIP-01 TO CIP-18 – IMPLEMENTATION OF SUBSECTIONS IWE AND IWL OF ASME SECTION XI FOR CONTAINMENT INSPECTION FOR CAROLINA POWER AND LIGHT COMPANY'S BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2 (TAC NOS. MA4166 AND MA4167). Refer to CIP-04 on page 4.

## Relief Request No. RR-E4

### Performance of VT-3 Other Than at End-of-Interval

<b>Code Class</b>	MC (IWE)
<b>Code Reference</b>	ASME Section XI, 1992 Edition, 1992 Addenda Table IWE-2500-1.
<b>Examination Category</b>	E-A
<b>Item Numbers</b>	E 1.12
<b>Component Description</b>	Metal Surfaces of the Containment Building
<b>PVNGS Units</b>	1, 2, 3

**Requirement** ASME Boiler and Pressure Vessel Code, Section XI, 1992 Edition, 1992 Addenda, Table IWE-2500-1 requires that a VT-3 visual examination be performed on 100% of the accessible containment surface at the end of the inspection interval.

**Alternate Testing** The VT-3 examination will be performed on accessible surfaces of the containment structure in accordance with Code Case N-601. This Code Case allows the visual examinations to be performed at any time during the interval provided that the requirements for successive inspections stated in IWE-2420 are met.

**Basis For Relief** Pursuant to 10CFR50.55a(a)(3)(i), relief is requested from the Code requirements stated above on the basis that the proposed alternative would provide an acceptable level of quality and safety.

Code Case N-601, "Extent and Frequency of VT-3 Visual Examination for Inservice Inspection of Metal Containments" provides an alternative to the Code requirement to perform 100% of the VT-3 examinations on Item E1.12 at the end of the interval. It recognizes that it is more important to perform visual examinations on the accessible surfaces of the containment structure during the course of the interval rather than at the end. In this way, the integrity of the containment can be better monitored between the 10CFR50, Appendix J testing and the visual examinations required by Table IWE-2500-1. The successive inspection requirements of IWE-2420 will be maintained.

**Additional Information** The proposed alternative examination scheduling is in accordance with Code Case N-601 that has been approved and published by ASME.

The requirements of Code Case N-601 have been incorporated into the 1998 Edition of ASME Section XI, Table IWE-2500-1.

**Approval** Pursuant to 10CFR50.55a(a)(3)(i), relief is requested from the Code requirements stated above on the basis that the proposed alternative would provide an acceptable level of quality and safety.

## Relief Request No. RR-E4

### References

1. ASME Section XI, 1992 Edition, 1992 Addenda, Table IWE-2500-1
2. ASME Code Case N-601
3. ASME Section XI, 1998 Edition, Table IWE-2500-1

## Relief Request No. RR-E5

### UT Thickness Measurement of Augmented Exam Areas

<b>Code Class</b>	MC (IWE)
<b>Code Reference</b>	ASME Section XI, 1992 Edition, 1992 Addenda, IWE-2500(c)(3) and IWE-2500(c)(4).
<b>Examination Category</b>	E-C, Containment Surfaces Requiring Augmented Examination
<b>Item Numbers</b>	E4.12
<b>Component Description</b>	Containment Building
<b>PVNGS Units</b>	1, 2, 3

**Requirement** ASME Section XI, 1992 Edition, 1992 Addenda, Subsection IWE-2500(c)(3) requires that one-foot square grids be used when ultrasonic thickness measurements are performed on surfaces requiring augmented examination. IWE-2500(c)(4) requires that the minimum wall thickness within each grid be determined.

**Alternate Testing** The alternative requirements approved by ASME in Code Case N-605 and in the 1998 Edition of ASME Section XI, Subsection IWE will be used when performing UT thickness examinations on areas requiring augmented examination.

**Basis For Relief** Pursuant to 10CFR50.55a(a)(3)(i), relief is requested from the Code requirements stated above on the basis that the proposed alternative would provide an acceptable level of quality and safety.

IWE-2500 (c)(3) and (4) in the 1992 Edition, 1992 Addenda of Section XI require that for surfaces requiring augmented ultrasonic thickness measurement, the surface to be examined is to be marked off into a one-foot square grid and that the minimum thickness in each grid square be marked, recorded, and periodically re-measured. It may be that the area being re-measured is not the area most susceptible to accelerated degradation.

Code Case N-605 and the 1998 Edition of Section XI, Subsection IWE provide an alternative to the one-foot square grid required by IWE-2500(c)(3) in the 1992 Edition with 1992 Addenda of Section XI. The Code Case and 1998 Edition call for setting up a grid system of between 2 and 12 inches and taking measurements at the intersections. The grid size is to be determined by the Owner. At least 100 intersections must be measured if the augmented examination area is equal to or less than 100 square feet unless the required grid spacing is less than 2 inches. For augmented examination areas greater than 100 square feet, the Code Case and 1998 Edition of Subsection IWE detail a statistical sampling plan for determining the number of intersections to be measured.

## Relief Request No. RR-E5

Basis For Relief (Continued)	<p>If the measurement at an intersection is found to be reduced by more than 10% of the nominal plate thickness, the location of the minimum wall thickness shall be determined and located in each adjoining grid, as required by IWE-2500(c)(4) in the 1992 Edition, 1992 Addenda.</p> <p>This is similar to the requirements of IWE-2500(c)(4) in the 1992 Edition with 1992 Addenda of Section XI except that under the Code Case and the 1998 Edition, the focus is on areas that exhibit degradation, rather than repeatedly reexamining areas that have not exhibited degradation.</p>
Additional Information	<p>The proposed alternative examination is in accordance with Code Case N-605 that has been approved and published by ASME.</p> <p>The requirements of Code Case N-605 have been incorporated into the 1998 Edition of ASME Section XI as IWE-2500(b)(3) and (4).</p>
Approval	<p>In accordance with 10CFR50.55a(a)(3)(i), relief is requested from the Code requirements on the basis that the proposed alternative would provide an acceptable level of quality and safety.</p>
References	<ol style="list-style-type: none"><li>1. ASME Section XI, 1992 Edition, 1992 Addenda.</li><li>2. ASME Code Case N-605</li><li>3. ASME Section XI, 1998 Edition</li></ol>

# Relief Request No. RR-E6

## Preservice Examination of Reapplied Coatings

<b>Code Class</b>	MC (IWE)
<b>Code Reference</b>	ASME Section XI, 1992 Edition, 1992 Addenda IWE-2200(g)
<b>Examination Category</b>	N/A
<b>Item Numbers</b>	N/A
<b>Component Description</b>	Containment Building
<b>PVNGS Units</b>	1, 2, 3

**Requirement** ASME Section XI, 1992 Edition, 1992 Addenda, IWE-2200(g) requires that when paint or coatings are reapplied, the condition of the new paint or coating shall be documented in the pre-service examination records.

**Alternate Testing** The paint or coatings in the containment will be examined in accordance with established controls per the PVNGS coatings program. If degradation of the coating is identified, additional measures will be applied to determine if the containment pressure boundary is affected.

**Basis For Relief** Paint and coatings are not part of the containment pressure boundary under current Code rules. Because they are not associated with the pressure retaining function of the component, neither paint nor coatings contribute to the structural integrity or leak tightness of the containment (Ref. ASME Section III, NE-2110(b), 1998). Furthermore, the paint and coatings on the containment pressure boundary were not subject to Code rules when they were originally applied and are not subject to ASME XI rules for repair or replacement in accordance with IWA-4111(b)(5). The adequacy of applied coatings is verified through the PVNGS coatings program. Recording the condition of reapplied coatings in the preservice record does not contribute to the containment structural integrity. Should deterioration of the coating in the reapplied area occur, the area would require additional evaluation regardless of the preservice record.

Recording the condition of new paint or coating in the preservice records does not increase the level of quality and safety of the containment.

SECY 96-080, response to Comment 3.2 about IWE-2200(g) states, "In the NRC's opinion, this does not mean that a visual examination must be performed with every application of paint or coating. A visual examination of the topcoat to determine the soundness and the condition of the topcoat should be sufficient." This is currently accomplished through the PVNGS coatings program.

## Relief Request No. RR-E6

### Additional Information

The requirement to perform a preservice examination when paint or coatings are reapplied was removed from the Code in the 1997 Addenda to ASME Section XI. A summary of the PVNGS coatings program is provided below.

### **PVNGS Coatings Program Summary Description**

The coatings on the interior surface of the containment vessel are considered safety-related and are classified as Quality Class Q. They are applied and inspected in accordance with the NRC approved Palo Verde 10CFR50 Appendix B Quality Assurance Program. This program is described in Chapter 17.2 of the Palo Verde Updated Final Safety Analysis Report (UFSAR). UFSAR Chapter 1, Section 1.8, Conformance to NRC Regulatory Guides, endorses Regulatory Guide 1.54, Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants (Revision 0, June 1973) and referenced standard ANSI N-101.4-1972, Quality Assurance for Protective Coatings Applied to Nuclear Facilities.

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 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 procedures and programmatic controls approved under the PVNGS Quality Assurance program. 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. Activities are conducted in accordance with procedures that

## Relief Request No. RR-E6

Additional  
Information  
Cont'd

are consistent with ANSI N 45.2, "Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants," (e.g., receipt inspection, source surveillance, etc.).

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.

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.

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. 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 addition to the above controls, the condition of the liner plate is examined every outage for each PVNGS unit (once every 18 months) as part of the Appendix J walkdown. The general visual examination required by IWE will be performed each period to specific acceptance criteria to identify evidence of flaking, blistering, peeling, discoloration and other signs of coating distress.

### **Summary**

The following requirements are applicable for coatings applied to the interior liner of the containment:

- All paint applied in the containment is procured as Quality Class Q.
- The quality assurance requirements of ANSI N-101.4 are imposed on the coating manufacturer throughout the procurement process.
- Coatings applied to the liner plate of the containment vessel are applied in accordance with tested configurations complying with ANSI N-101.2 and ANSI N-101.4, testing and application requirements, respectively and meet PVNGS Design Basis Accident (DBA) test requirements.
- Coating application procedures are developed based on the manufacturer's recommendations for the application of the coating.

## Relief Request No. RR-E6

### Additional Information Cont'd

- Documentation and inspection for liner plate applications meets the requirements of ANSI N-101.4 and are maintained onsite. These include:
  1. Painter qualification records
  2. Inspector/Second Party Verifier qualification records
  3. Maintenance work documentation
- Coatings whether classified as qualified or unqualified are applied in accordance with Q class controls and are verified to meet established acceptance criteria. Coating applications are verified for conformance to coating applications procedures in accordance with the PVNGS approved Quality Assurance Program which uses worker verifications, second party verifications and Quality Control inspections to ensure requirements are met. The following critical parameters are verified for each application:
  1. Coater Qualification
  2. Correct Material
  3. Surface Preparation
  4. Cleanliness
  5. Anchor profile
  6. Environmental Conditions
  7. Batching/Mixing
  8. Application Thickness
  9. Final Visual

### Approval

Relief is requested in accordance with 10CFR50.55a(a)(3)(i). The PVNGS coating inspection program currently provides an acceptable level of quality and safety.

### References

1. ASME Section XI, 1992 Edition, 1992 Addenda
2. ASME Section XI, 1995 Edition, 1996 Addenda
3. Palo Verde Specification. AO-AN 331A, Application and Maintenance of Coatings Inside Containment Building
4. SECY 96-080
5. ASME Code Inquiry Section XI 97-22
6. ASME Section III, Subsection NE, 1998
7. Letter dated 10 August, 1999 from S. R. Peterson, USNRC to J. S. Keenan, Carolina Power and Light, "EVALUATION OF RELIEF REQUESTS CIP-01 TO CIP-18 – IMPLEMENTATION OF SUBSECTIONS IWE AND IWL OF ASME SECTION XI FOR CONTAINMENT INSPECTION FOR CAROLINA POWER AND LIGHT COMPANY'S BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2 (TAC NOS. MA4166 AND MA4167). Refer to CIP-12 on page 14.

# Relief Request No. RR-E7

## VT Prior to Removal of Coatings

<b>Code Class</b>	MC (IWE)
<b>Code Reference</b>	ASME Section XI, 1992 Edition, 1992 Addenda IWE-2200(b)
<b>Examination Category</b>	N/A
<b>Item Numbers</b>	N/A
<b>Component Description</b>	Containment Building
<b>PVNGS Units</b>	1, 2, 3

**Requirement** ASME Section XI, 1992 Edition, 1992 Addenda, IWE-2500(b) requires that when paint or coatings are to be removed, the paint or coatings shall be visually examined in accordance with Table IWE-2500-1 prior to removal.

**Alternate Testing** The condition of the containment vessel base material will be verified prior to the application of new paint or coating as required by PVNGS coating program. If degradation is identified, additional measures will be applied to determine if the containment pressure boundary is affected. Repairs to the primary containment boundary, if required, will be conducted in accordance with ASME Section XI Code rules.

**Basis For Relief** Pursuant to 10CFR50.55a(a)(3)(i), relief is requested from the Code requirements stated above on the basis that the proposed alternative would provide an acceptable level of quality and safety.

Paint and coatings are not part of the containment pressure boundary under current Code rules as they are not associated with the pressure retaining function of the component (ASME Section III, Paragraph NE-2110(b), 1998). The interiors of containments are painted to prevent rusting and to facilitate decontamination. Neither paint nor coatings contribute to the structural integrity or leak tightness of the containment.

Furthermore, the paint and coating on the containment pressure boundary were not subject to ASME Code rules when they were originally applied and are not subject to ASME Section XI rules for repair or replacement in accordance with IWA-4111(b)(5).

**Additional Information** The 1998 Edition of ASME Section XI does not contain this requirement to inspect coatings prior to their removal.

**Approval** In accordance with 10CFR50.55a(a)(3)(i), relief is requested from the Code requirements on the basis that the proposed alternative would provide an acceptable level of quality and safety.

## Relief Request No. RR-E7

### References

1. ASME Section XI, 1992 Edition, 1992 Addenda
2. ASME Section III, Paragraph NE-2110(b), 1998 Edition
3. Palo Verde Spec. AO-AN 331A, Application and Maintenance of Coatings Inside Containment Building
4. Letter dated 10 August, 1999 from S. R. Peterson, USNRC to J. S. Keenan, Carolina Power and Light, "EVALUATION OF RELIEF REQUESTS CIP-01 TO CIP-18 – IMPLEMENTATION OF SUBSECTIONS IWE AND IWL OF ASME SECTION XI FOR CONTAINMENT INSPECTION FOR CAROLINA POWER AND LIGHT COMPANY'S BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2 (TAC NOS. MA4166 AND MA4167). Refer to CIP-13 on page 14.