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SUBJECT: Requests schedular exemption from 10CFR50 App J. I

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WILLIAM L. STEWART
EXECUTIVE VICE PRESIDENT
NUCLEAR

102-03398-WLS/SAB/TNW
June 21, 1995

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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Reference: Letter dated October 21, 1987, from USNRC E. A. Licitra, Senior Project Manager, Project Directorate V, to Mr. E. E. Van Brunt, Jr., ANPP/APS

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. STN 50-530
Request for Scheduler Exemption from 10 CFR 50 Appendix J**

Pursuant to 10 CFR 50.12, "Specific Exemptions," Arizona Public Service Company (APS) is requesting a one-time scheduler exemption for PVNGS Unit 3 from the requirement of 10 CFR 50, Appendix J, Section III.D.1.(a). That section of Appendix J requires PVNGS Unit 3 to perform three overall Integrated Containment Leakage Rate Tests (ILRT) (also known as Type A tests) during each 10-year service period, at approximately equal intervals, with the third test of each set to be conducted during the Unit 3 shutdown for the 10-year plant inservice inspection (ISI).

The second Type A test for Unit 3 during the first 10-year ISI interval is currently scheduled to be performed in November of 1995, during the upcoming fifth refueling outage (3R5). This exemption request proposes that this Type A test be performed in April of 1997, during the sixth refueling outage (3R6). This would delay the performance for one outage and would correspond to an interval of 71 months between the first and second Type A test which would exceed the "approximately equal interval" clause of the aforementioned regulation. The visual inspection of the containment is not included in this exemption request and will be performed as originally scheduled during the fifth refueling outage (3R5).

This exemption request is consistent with the principles of a cost beneficial licensing action (CBLA) (i.e., an exemption from a requirement which is economically burdensome

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[approximately \$1.9 million] to implement and has low safety impact). APS, therefore, requests that this exemption request be approved by October 1, 1995, in order to eliminate the performance of the Type A test during the upcoming Unit 3 refueling outage.

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

Sincerely,

A handwritten signature in black ink, appearing to read "WLS", is written over a horizontal line.

WLS/SAB/TNW/rv
Enclosure

cc: L. J. Callan
K. E. Perkins
K. E. Johnston
B. E. Holian
A. V. Godwin (ARRA)

ENCLOSURE

10 CFR 50 Appendix J

Exemption Request

Unit 3

Second Periodic Type A Test

Requirements:

10 CFR 50.54(o), requires primary reactor containments for PWRs to be tested as set forth in 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors." The Palo Verde Nuclear Generating Station (PVNGS) Unit 3 Technical Specification (TS) Section 4.6.1.2a, "Containment Leakage Surveillance Requirements," also requires that Type A tests be conducted in accordance with the requirements specified in Appendix J to 10 CFR 50, as modified by approved exemptions. The periodic retest schedule for performance of Type A testing is specified in Section III.D.1.(a) of 10 CFR 50, Appendix J, and states, "After the preoperational leakage rate tests, a set of three Type A tests shall be performed, at approximately equal intervals during each 10-year service period. The third test of each set shall be conducted when the plant is shutdown for the 10-year plant inservice inspections."

Regulatory Basis For Specific Exemption:

This exemption request is in compliance with sections (a)(1) and (a)(2)(ii) of 10 CFR 50.12, "Specific Exemptions." This exemption request demonstrates that the exemption will not present an undue risk to the public health and safety [(a)(1)], and, the application of the regulation is not necessary to achieve the underlying purpose of the rule [(a)(2)(ii)].

Background:

In the referenced letter the USNRC approved the use of a single ASME Code Edition, with 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 examination of components 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 10 CFR 50.55a(b) 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 based upon the average date of commercial service in accordance with ASME Section XI subparagraph IWA-2400(b). The common start date for the initial inspection interval for PVNGS is March 1987.

The Unit 3 pre-operational Type A test was performed in September of 1986. Commercial operation in Unit 3 was achieved in January of 1988. The first periodic Type A test was performed in May of 1991 during the second refueling outage in Unit 3 (3R2), 40 months from the date of Unit 3 commercial operation. The second periodic test is currently scheduled to be performed in November of 1995 during the fifth refueling outage (3R5), corresponding to an interval of 54 months. The third Type A test is currently

planned to be performed during the seventh refueling outage (3R7) which would coincide with the completion of the first 10-year ISI interval.

Description of the Proposed Exemption Request:

APS proposes a schedular exemption from 10 CFR 50, Appendix J, Section III.D.1.(a) regarding "approximately equal time intervals." Specifically, the proposed exemption would allow APS to delay the Unit 3 second Type A test until the sixth refueling outage (3R6). The Type A test would tentatively be scheduled for April of 1997, and would increase the interval between the first and second Type A test from 54 months to 71 months. The third Type A test is not being altered by this exemption request and will remain scheduled for the seventh refueling outage (3R7). This exemption request proposes an increase to the interval between the first and second Type A test but does not alter the frequency of testing (three Type A tests performed in a ten year period) during the first 10 year ISI interval.

Justification for the Proposed Exemption Request:

Type A testing is performed to determine that the total leakage from primary containment does not exceed the maximum allowable leakage rate, L_a , as specified in the PVNGS TS. The primary containment maximum allowable leakage rate provides an input assumption to the calculation required to ensure that the maximum potential offsite dose during a design basis accident does not result in a dose in excess of that specified in 10 CFR 100. The allowable L_a for PVNGS is 0.10 percent by weight of the containment air per 24 hours at P_a , where P_a is defined as the calculated peak internal containment pressure related to the design basis accident, specified in the PVNGS TS as 49.5 psig. The acceptance criteria for the Type A test is 75 percent of L_a or 0.075 percent by weight of the containment air per 24 hours at P_a .

Mechanisms that could cause degradation of the containment can be categorized into two types: 1) degradation due to work which is performed as part of a modification or maintenance activity on a component or system (activity based); or 2) degradation resulting from a time based failure mechanism (i.e., deterioration of the containment structure due to pressure, temperature, radiation, chemical or other such effects). To address the potential degradation due to an activity based mechanism, all modifications performed since the last Type A test were reviewed. There were no modifications performed that impact the boundaries tested during a Type A test, or the modifications have been, or will be, tested adequately to ensure that there is no degradation from an activity based mechanism. In addition, there are PVNGS administrative controls which ensure that an appropriate retest, including local leak rate testing, if applicable, is specified for maintenance activities which affect primary containment integrity.

Regarding time based failure mechanisms, the risk of a non-detectable increase in the primary containment leakage is considered negligible due to the 10 CFR 50 Appendix J Type B and C testing program. The existing Type B and C testing program is not affected by this exemption request and will continue to effectively detect containment leakage caused by time based failure mechanisms. Without actual accident conditions, structural deterioration is a gradual phenomenon which requires periods of time well in excess of the proposed 71-month test interval which would result by performing the second periodic Type A test during 3R6. Other than accident conditions, the only external mechanism inducing stress of the containment structure is the test itself. The longer test interval would, therefore, lessen the frequency of stressing the containment. 10 CFR 50, Appendix J, Section V.A. requires a general inspection of the accessible interior and exterior surfaces of the containment structures and components to be performed prior to any Type A test to uncover any evidence of structural deterioration which may affect either the containment structural integrity or leak tightness. At PVNGS Unit 3, there has been no evidence of structural deterioration that would impact structural integrity or leak tightness. Although the containment inspections required by Appendix J are limited in scope, they provide an important added level of confidence. Therefore, APS commits to perform the general containment inspection as originally scheduled, during the upcoming 3R5.

The preoperational and first periodic Type A tests performed in Unit 3 both passed the acceptance criteria with adequate margin. The test results were 0.0521 and 0.062 percent by weight of the containment air per 24 hours at Pa, respectively. The Type A test results were confirmatory of the Type B and C tests, and demonstrate that PVNGS Unit 3 is a low-leakage containment. A test report for each of the Type A tests was submitted to the NRC in accordance with the reporting requirements of 10 CFR 50, Appendix J, Section V.B.

The 10 CFR 50, Appendix J, Type B tests are intended to detect local leaks and to measure leakage across pressure containing or leakage limiting-boundaries other than valves, such as, containment penetrations incorporating resilient seals, gaskets, doors, hatches, etc. The 10 CFR 50, Appendix J, Type C tests are intended to measure primary containment isolation valve leakage rates. The frequency and scope of Type B and C testing are not being altered by this proposed exemption request. The acceptance criteria for Type B and C testing is 0.6 La, or 0.06 percent by weight of the containment air per 24 hours at Pa. This acceptance criteria (0.6 La) is for the sum of all valves and penetrations subject to Type B and C testing and represents a considerable portion of the Type A test allowable leakage. The test results of the combined Type B and C leakage rates for Unit 3 are as shown in the following table:

PVNGS Unit 3 Appendix J Type B & C Test Result History

<u>Outage</u>	<u>Date</u>	<u>Test Results</u> (%/day)	<u>Percent of La</u>
Pre-Operational	Sep 1986	0.0004	0.4
Pre-Operational	Nov 1987	0.0021	2.1
U3R1	Nov 1989	0.0038	3.8
U3R2	May 1991	0.0051	5.1
U3R3	Nov 1992	0.0048	4.8
U3R4	May 1994	0.0045	4.5

The Unit 3 test results are substantially below the allowable acceptance criteria for the combined Type B and C leakage rates. These test results demonstrate a good historic performance of the Containment Integrity system. The Type B and C testing program is not being altered by this exemption request and will continue to effectively detect containment leakage caused by activity based or time based failure mechanisms.

Nuclear industry experience gathered for the preparation of the draft version of NUREG 1493, "Performance-Based Containment Leak-Test Program," Revision 2, dated March 31, 1994, page 7-3, indicates that "...only a small percentage (3 percent) of leakages that exceed current requirements (referred to as Type A test failures) are actually detectable only by Type A testing. Further, the leak rates observed in these few Type A test failures were only marginally above currently prescribed limits."

A PVNGS plant specific analysis was performed to evaluate the potential for extending the Type A test frequency. The PVNGS plant specific analysis considered the extension of the interval to as much as 240 months. The conclusion of the analysis was that the extension of the Type A test interval has a negligible impact on overall risk. Although the exemption request submitted by this letter does not alter the frequency for performance of Type A testing (i.e., it still maintains a frequency of 3 tests per ten years), it is reasonable to conclude that the analysis supports the requested exemption from the requirement of 10 CFR 50, Appendix J, regarding "approximately equal intervals." With this exemption request the interval between the first and second Type A tests would be 71 months, whereas, the PVNGS plant specific analysis supports the use of a 240 month interval with a negligible impact on overall risk.

Based upon the above technical justification, we request a one-time schedular exemption of the requirements of 10 CFR 50, Appendix J, Section III.D.1.(a), in accordance with the criteria of 10 CFR 50.12. Specifically, the proposed exemption would allow APS to delay the Unit 3 second Type A test until 3R6 which is scheduled for April 1997.

In accordance with 10 CFR 50.12, the NRC may, upon application, grant exemptions from the requirements of 10 CFR 50, which will not present an undue risk to the public health and safety, and where special circumstances are present. The PVNGS plant specific analysis supports the conclusion that the one-time schedular exemption will not present an undue risk to the public health and safety and is consistent with the common defense and security as required by 10 CFR 50.12(a)(1). Additionally, special circumstances are present. 10 CFR 50.12(a)(2)(ii) defines that special circumstances are present where, "Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule...." The underlying purpose of 10 CFR 50, Appendix J, Section III.D.1.(a) is to establish and maintain a level of confidence through testing that any primary containment leakage, during a hypothetical design basis accident, will remain less than or equal to the maximum allowable value, La. Compliance with the "approximately equal intervals" clause of Appendix J, with regard to Type A testing, is not necessary to achieve the underlying purpose of the rule, as explained in the above technical justification.

Environmental Impact of Proposed Exemption Request

APS has determined that the proposed exemption request involves no changes in the amount or type of effluent that may be released offsite, and that there is no increase in individual or cumulative occupational radiation exposure. As such, operation of PVNGS Unit 3, in accordance with the proposed exemption request, does not involve an unreviewed environmental safety question.

