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SUBJECT: Requests scheduler exemption for Unit 1 from requirement of 10CFR50, App J, Section III.D.1.a. Licensee requests exemption be approved by 950401, in order to eliminate performance of Type A test during upcoming Unit 1 refueling outage.

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102-03213-WLS/SAB/TNW
December 28, 1994

WILLIAM L. STEWART
EXECUTIVE VICE PRESIDENT
NUCLEAR

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

- References: 1) Letter No. 102-02877 dated March 24, 1994, "Request for Temporary Exemption from 10 CFR 50, Appendix J," from W. F. Conway, Executive Vice President, Nuclear, APS, to the USNRC
- 2) 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

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528
Request for Schedular Exemption from 10 CFR 50, Appendix J
File: 94-056-026

Pursuant to 10 CFR 50.12, "Specific Exemptions," Arizona Public Service Company (APS) is requesting a one time schedular exemption for PVNGS Unit 1 from the requirement of 10 CFR 50, Appendix J, Section III.D.1.a. That section of Appendix J requires PVNGS Unit 1 to perform three Primary Reactor Containment Overall Integrated 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 1 shutdown for the 10-year plant inservice inspection (ISI).

Reference 1 submitted a request for temporary exemption to allow the third Unit 1 Type A test to be conducted during the Unit 1 fifth refueling outage (1R5) which is planned for April of 1995, and proposed that a fourth Type A test be performed to coincide with the 10-year ISI outage planned for the Spring of 1998 (1R7). The exemption was requested since the interval between the second and the third Type A test would be 61 months and would exceed the "approximately equal intervals" clause of the aforementioned regulation.

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ADM

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Request for Scheduler Exemption from
10 CFR 50, Appendix J
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By copy of this letter we are withdrawing the exemption request submitted in Reference 1 and replacing it with the exemption request enclosed herewith.

This exemption request proposes that the third Unit 1 Type A test be conducted during the Unit 1 sixth refueling outage (1R6) which is planned for September of 1996 and be performed independent from the 10-year ISI outage planned for the Spring of 1998 (1R7).

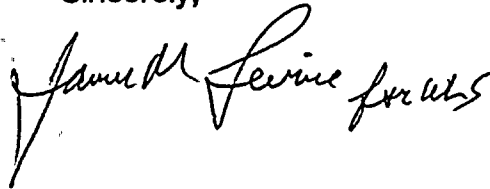
The enclosure to this letter provides justification for this exemption in accordance with the requirements of 10 CFR 50.12.

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 (approximately \$1.9 million) to implement and has low safety impact. We, therefore, request your timely and prompt review of this exemption request.

We request that this exemption request be approved by April 1, 1995, in order to eliminate the performance of the Type A test during the upcoming Unit 1 refueling outage.

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

Sincerely,

A handwritten signature in cursive script, reading "James M. Levine for NRC". The signature is written in dark ink and is positioned below the word "Sincerely,".

WLS/SAB/TNW/rv

Enclosure

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

ENCLOSURE

10 CFR 50

APPENDIX J

EXEMPTION REQUEST

UNIT 1

THIRD PERIODIC TYPE A TEST

ENCLOSURE

10 CFR 50, Appendix J Exemption Request Unit 1 Third Periodic Type A Test

References:

- 1) Letter No. 102-02877 dated March 24, 1994, "Request for Temporary Exemption from 10 CFR 50, Appendix J," from W. F. Conway, Executive Vice President, Nuclear, APS, to the USNRC
- 2) 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

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 1 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 pre-operational 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 shut down for the 10-year plant inservice inspections."

Regulatory Basis For Specific Exemption

This exemption request is in compliance with sections (a)(2)(ii) and (a)(2)(iii) of 10 CFR 50.12, "Specific Exemptions." This exemption request demonstrates that: the underlying purpose of the regulation is achieved [(a)(2)(ii)], and, compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted [(a)(2)(iii)].

Background:

In Reference 2, 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 18, 1987.

The Unit 1 pre-operational Type A test was performed in December 1982. The plant TS required an interval between Type A tests of 40 +/- 10 months. Conservatively, this interval was applied to the pre-operational test resulting in the first of the required set of three periodic Type A tests being performed in May 1986, 41 months from the date of the pre-operational Type A test. The second periodic Type A test in Unit 1 was performed in February 1990, corresponding to an interval of 45 months. The third Type A test in Unit 1 has not as yet been performed. The third Type A test is currently planned for April 1995, during the Unit 1 fifth refueling outage (1R5) corresponding to an interval of 61 months. A fourth Type A test is currently planned for the Unit 1 seventh refueling outage (1R7) in the Spring of 1998 in order to coincide with the completion of the first 10-year ISI interval (a 16-month extension has been added to the Unit 1 initial 10-year ISI interval in accordance with the provisions of the ASME Code Section IWA-2400 to account for a lengthy outage in Unit 1 during 1989 and 1990). Rather than perform 4 Type A tests in an extended 10-year ISI interval, this exemption request proposes to perform 3 Type A tests in a 10-year period, irrespective of the ISI interval extension.

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" and "the third test of each set shall be conducted when the plant is shutdown for the 10-year plant inservice inspection." Specifically, the proposed exemption would allow APS to delay the Unit 1 third Type A test until the September 1996 refueling outage (1R6) and allow APS to only perform the 3 tests required by 10 CFR 50, Appendix J. As such, the third Type A test would be performed within 10 calendar years from the common start date of the initial ISI interval and 10 years and 8 months from the date of Unit 1 commercial operation. With this proposed exemption the interval between the second and third Type A test would be 81 months. Subsequent Type A testing will be performed in accordance with the requirements of 10 CFR 50, Appendix J (3 Type A tests every 10 years at approximately

equal intervals), commencing from the completion of the Unit 1 sixth refueling outage (1R6) and be performed independent from the 10-year ISI outage planned for the Spring of 1998 (1R7).

Justifications 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% 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% of L_a or 0.075% 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, containment system related modifications performed since the last Type A test were reviewed. The modifications performed did not impact containment integrity, or the modifications have, 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 81-month test interval which would result by performing the third periodic Type A test during the sixth refueling outage in Unit 1. 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 1, there has been no evidence of structural deterioration that would impact structural integrity or leak tightness.

The Type A test results obtained in the first and second periodic tests in Unit 1 were well below the test acceptance criteria for PVNGS. The results were 0.066% and 0.067% by weight of the containment air per 24 hours at Pa, respectively. 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 reactor system primary containment isolation valve leakage rates. The frequency and scope of Type B and C testing is not being altered by this proposed exemption request. The acceptance criteria for Type B and C testing is 0.6 La. This acceptance criteria 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 results of the as-left combined Type B and C leakage measured since the last Unit 1 Type A test are 0.054 La, 0.06 La and 0.13 La, during the February of 1991, May of 1992 and November of 1993 outages, respectively. These test results are substantially below the acceptance criteria of 0.60 La and demonstrate a good historic performance of the Containment Integrity system.

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, indicate 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."

The proposed schedular exemption would allow the third Type A leakage rate test in Unit 1 to be performed during the Fall 1996 (1R6) refueling outage, which meets the intent of the 10 CFR 50, Appendix J, requirement of performing three tests in a 10-year time period. The performance of a fourth Type A test during the Unit 1 seventh refueling outage, in order to coincide with the outage at the completion of the extended 10-year ISI interval, is not deemed to be appropriate, as it would result in additional radiation

exposure to personnel, increased length of the refueling outage and significant additional cost. Omitting the test will result in dose savings by eliminating contamination and by reducing radiation exposure from the venting and draining of piping penetrations necessary to establish the appropriate test conditions. There would also be dose savings from eliminating the need to install and remove the temporary instrumentation necessary to perform the Type A test. Performing a fourth Type A test would also increase the duration of the affected outage by approximately 3 days and result in unnecessary costs associated with this increase.

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 10 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 second and third Type A tests would be 81 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 1 third Type A test until the September 1996 refueling outage (1R6) and allow APS to only perform the 3 tests required by 10 CFR 50, Appendix J.

In accordance with 10 CFR 50.12, the NRC may, upon application, grant exemptions from the requirements of 10 CFR 50, where special circumstances are present. 10 CFR 50.12(a)(2)(ii) defines such a circumstance 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 that any primary containment leakage, during a hypothetical design basis accident, will remain less than or equal to the maximum allowable value, L_a , by performing periodic Type A testing. Compliance with the "approximately equal intervals" clause of Appendix J would require PVNGS to perform four Type A tests during an extended ISI interval. This is not necessary to achieve the underlying purpose of the rule, as explained in the above technical justification.

10 CFR 50.12 (a)(2)(iii) states the NRC may grant exemptions from requirements of 10 CFR 50, where, "Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated...." The current PVNGS Type A test schedule would require that four Type A tests be performed in an extended ISI interval. This current schedule would result in unnecessary additional radiation exposure in order to perform the test and unnecessary costs associated with the performance of the test and the costs associated with the increase in the length of the refueling outage.

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 1, in accordance with the proposed exemption request, does not involve an unreviewed environmental safety question.

