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SUBJECT: Requests exemption from provision of 10CFR50 Appendix J in order to allow Type C testing of containment purge supply & exhaust valves w/metallic seats.

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March 25, 1994
G02-94-070

Docket No. 50-397

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: **WNP-2, OPERATING LICENSE NPF-21
REQUEST FOR EXEMPTION FROM A PROVISION OF
APPENDIX J TO 10 CFR PART 50**

Reference: 1) Letter GO2-93-296, dated December 20, 1993, JV Parrish (SS) to USNRC, "Request for Amendment to Technical Specification 3/4.6.1.8, Drywell and Suppression Chamber Purge System"

2) Letter, dated April 29, 1987, DM Crutchfield (NRR) to GC Sorensen (SS), "Issuance of Exemption to a Provision of Appendix J and Amendment No. 41 to Facility Operating License No. NPF-21 WPPSS Nuclear Project No. 2"

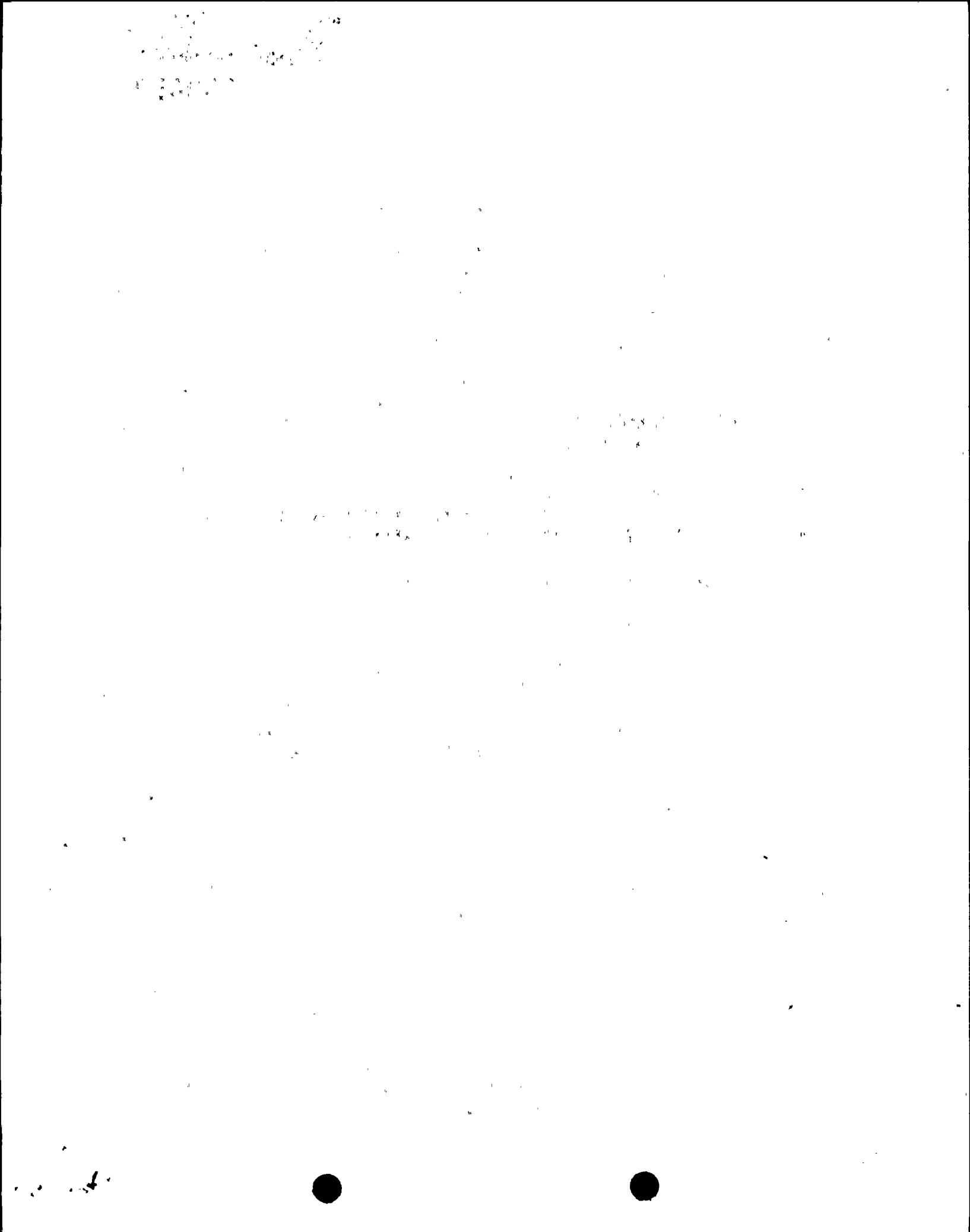
The purpose of this letter is to request an exemption from a provision of 10 CFR Part 50 Appendix J in order to allow more appropriate testing of new metallic-seated valves. Specifically, this exemption is requested to allow Type C leak testing of Containment Purge Supply and Exhaust Valves with metallic seats. No change is requested for valves with resilient seats. This exemption request is made in accordance with the provisions of 10 CFR Part 50.12.

This request is necessary to support the Supply System's request for amendment to Technical Specification 3/4.6.1.8 (Reference 1) and is related to the Appendix J exemption previously provided (Reference 2). The previous Appendix J exemption extended the maximum interval between performances of Type C tests from 24 to 27 months. The previous exemption specifically excluded the Containment Purge Supply and Exhaust Valves since the valve seats are composed of a resilient material and are subject to leakage problems. A reduced surveillance interval of six months continues to be prudent for valves with resilient seats.

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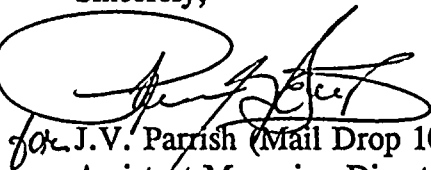
**REQUEST FOR EXEMPTION FROM A PROVISION OF
APPENDIX J TO 10 CFR PART 50**

The Supply System intends to replace the Containment Purge Supply and Exhaust Valves with new metallic-seated valves. The replacement of half of these valves is scheduled for the 1994 Refueling Outage. Replacement of the remaining valves is planned for a later date. Reference 1 has previously requested relief from the six month testing requirement for the new metallic-seated valves. The metallic-seated valves are higher reliability and provide the "essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment" required by Appendix J.

However, the existing Appendix J exemption does not differentiate between resilient and metal seated valves. Absent the change requested by this exemption, the six month test interval would remain in effect. Accordingly, this Appendix J exemption request is necessary to allow the Supply System to differentiate between the resilient and metal seated valves and specify six and 27 month surveillance test intervals, respectively, for these valves. Attachment 1 to this letter provides additional details regarding this request. For information, Attachment 2 is a copy of the appropriate sections of the previous Appendix J exemption, modified to identify the requested exemption.

Should you have any questions or desire additional information regarding this matter, please call me or Herbert E. Kook at (509) 377-4278.

Sincerely,



J.V. Parrish (Mail Drop 1023)

Assistant Managing Director, Operations

HEK/bk

Attachments

cc: KE Perkins, Jr. - NRC RV
NS Reynolds - Winston & Strawn
JW Clifford - NRC
DL Williams - BPA/399
NRC Site Inspector 927N

Attachment 1
Request for Exemption From a Provision of
10 CFR 50, Appendix J "Primary Reactor
Containment Leakage Testing For Water-Cooled
Power Reactors"

STATEMENT OF ISSUE

The Commission previously provided an exemption from the provisions of 10 CFR Part 50 Appendix J. The maximum interval for Type B and C testing of Containment isolation valve leakage rate testing was extended from 24 to 27 months.

The previous Appendix J exemption established a six month testing frequency for the Containment Purge Supply and Exhaust Valves. No differentiation is made between resilient- and metallic-seated valves.

The Supply System requests this Appendix J exemption to allow Type C leak testing of Containment Purge Supply and Exhaust Valves with metallic seats. This will permit testing these valves at intervals not to exceed 27 months. No change is requested to the six month test interval for Containment Purge Supply and Exhaust Valves with resilient seats.

BACKGROUND

The Containment Purge Supply and Exhaust Valves are normally closed during power operation with the containment atmosphere inerted. However, the valves can be open during certain low power operating modes and are required to automatically close for containment integrity. WNP-2 has experienced persistent problems in obtaining acceptable leak test results following repositioning of the valves during outages. Significant effort has been dedicated to improve the existing valves. These efforts included improvements in both the design of the resilient seals and maintenance practices for the installation of the seals. An additional issue was identified in May of 1993. A newly demonstrated lack of valve body rigidity resulted in the abandonment of further efforts to improve the existing equipment. Procurement of higher reliability replacement valves, with cast valve bodies and metallic seats, was initiated. Although these valves were problematic and maintenance intensive, they performed the required function and Appendix J leakage requirements were met.

The six month testing interval is prudent for resilient seated valves. However, the metallic-seated valves are higher reliability valves, designed to provide the "essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment" required by Appendix J. A nominal 24 month surveillance interval, not to exceed 27 months is reasonable and prudent for these metallic seated valves.

Attachment 1
Request for Exemption From a Provision of
10 CFR 50, Appendix J "Primary Reactor
Containment Leakage Testing For Water-Cooled
Power Reactors"

The Supply System plans to replace the remaining valves at a later date and will at that time revise Technical Specification 3/4.6.1.8 to remove reference to purge supply and exhaust isolation valves with resilient seats.

The safety evaluations provided in Reference 1 support this request for Appendix J exemption. This request does not modify the safety evaluations performed by Reference 1.

PURSUANT TO 10 CFR 50.12:

This exemption will not present an undue risk to the public health and safety and is consistent with the common defense and security.

This exemption allows differentiation between metallic- and resilient-seated valves and the application of appropriate leak testing surveillance interval requirements. Replacement of the resilient-seated valves with metallic-seated valves has been identified in USNRC Inspection Report No. 50-397/94-02 as an indication of improved performance. In particular, this plant modification represents a substantial resource commitment to improve the safety-related performance of the valves and the overall reliability of the unit. In this manner, public health and safety will be maintained or increased.

Special circumstances, as provided in 10 CFR 50.12(a)(2)(iii), are present in justifying this exemption. Specifically, the application of the Appendix J regulation, as modified by the previous, related exemption (Reference 2), will result in undue hardship and costs that are significantly in excess of those contemplated when the regulation was adopted and are significantly in excess of those incurred by others similarly situated.

Application of the resilient-seated valve leak test requirements to metallic-seated valves would increase surveillance and maintenance costs for no increased safety benefit. The vendor certifies that NRC Branch Technical Position CSB6-4 and 1979 "Guidelines for Demonstration of Operability of Purge and Vent Valves" guidelines have been addressed, as applicable. The valve design, specifications, and qualification documentation for these valves verify that Type C leak testing intervals are appropriate.

As provided in 10 CFR 50.12(a)(2)(iv), this exemption will result in benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption.

Attachment 1
Request for Exemption From a Provision of
10 CFR 50, Appendix J "Primary Reactor
Containment Leakage Testing For Water-Cooled
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Replacement of containment purge and exhaust valves with a recognized history of leakage problems would provide additional assurance of control of a potential leakage path and thereby enhance public health and safety. The resilient seated valves have been problematic and maintenance intensive although they performed the required function and Appendix J leakage requirements were met. The increase in the surveillance interval from six to 27 months is appropriate and supported by existing valve design, specifications and qualification documentation.

As provided in 10 CFR 50.12(a)(2)(vi), there is present a material circumstance not considered when the regulation was adopted.

When the previous Appendix J exemption was provided, a leak test interval was defined for the containment purge and exhaust valves which was reflective of historical leakage concerns for valves with resilient seats. This exemption did not anticipate replacement of these valves with a state-of-the-art technology which would result in significantly lower leak rates. Type C leak testing at a 27 month interval is appropriate for the containment purge and exhaust valves with metallic seats.

Finally, this exemption does not authorize a change in effluent types or total amounts nor an increase in power level, and will not result in any significant environmental impact. Accordingly, as reflected in 10 CFR 51.30 through 51.32, an environmental impact statement need not be prepared.

Reduction of leakage will enhance system operation and provide additional assurance that radioactive materials will not be released via the purge system. Accordingly, this exemption will not result in any significant environmental impact.

Excerpted from NRC to SS letter dated 29 APR 1987, "Issuance of Exemption to a Provision of Appendix J..." TAC NO. 60740
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two consecutive refueling outages. Testing will be done in the "as found" condition prior to any maintenance or repair of the barrier.

2. All containment barriers tested under Appendix J will be at intervals not to exceed 27 months. Nominally, the maximum testing interval will be 24 months. [^]including Containment Purge Supply and Exhaust Valves with metallic seats
3. The testing frequency of the following valves/penetrations will not be affected by this exemption or amendment.

- (a) Main Steam Isolation Valves (tested at an interval not to exceed 18 months);

with resilient seats

- (b) Containment Purge Supply and Exhaust Valves (6 months);

- (c) Personnel Airlock (6 months); and

- (d) Reactor Feedwater Check Valves used for Containment Isolation (each refueling).

4. For valves/penetrations which are to be tested every other refueling outage, the licensee will apply acceptance leakage criteria to the test results in addition to the requirements of Appendix J. The licensee's criteria are described below.

For valves, the leakage criterion is based on permissible leakage rates established by the ASME Code, Section XI, Article 3426. The methodology determines the leakage limit as a function of valve diameter using the following relationship for valves 10 inches in diameter or less:

$$L = 7.5 D$$

where:

L = maximum permissible leakage rate, standard cubic feet per day. (scf/day); and

D = valve diameter (inches).



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