

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of )

WASHINGTON PUBLIC POWER )  
SUPPLY SYSTEM )

(WPPSS Nuclear Project No. 2) )

Docket No. 50-397

EXEMPTION

I.

Washington Public Power Supply System (WPPSS or the licensee) is the holder of Facility Operating License No. NPF-21 which authorizes the operation of the WPPSS Nuclear Project No. 2 (WNP-2 or the facility) at steady-state power levels not in excess of 3323 megawatts thermal. The license provides, among other things, that the facility is subject to all rules, regulations and Orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

The facility is a boiling water reactor (BWR) located at the licensee's site in Benton County, Washington.

II.

On February 14, 1973, the Commission published Appendix J to 10 CFR 50, "Reactor Containment Leakage Testing for Water-Cooled Power Reactors" (38 FR 4386). Revisions to Appendix J were published in the Federal Register on September 22, 1980 (45 FR 62789). Paragraph II.G of Appendix J defines "Type B Tests", in part as those intended to detect local leaks and measure leakage across pressure-containing or leakage-limiting boundaries for primary reactor containment whose design incorporates resilient seals, gaskets or sealant compounds. Paragraph III.D.2.(a) of Appendix J states in part, "Type B tests, except tests for air locks, shall be performed during reactor shutdown for refueling, or other convenient intervals, but in no case at intervals greater than two years." Facility

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Technical Specification 4.6.1.2.d also requires Type B tests to be performed at intervals no greater than 24 months (with specified exceptions not applicable to this action).

By letter dated January 17, 1986, the licensee requested an exemption from the 24 month requirement for the type B test of the drywell head "O" ring seals. The licensee also requested amendment of related Technical Specification 4.6.1.2.d, to permit the type B test of these seals to be extended beyond the 24 month limit. The licensee's request is prompted by the requirement the reactor be shutdown and a major shield plug be removed in order to perform this test. Instead of performing the test within the prescribed 24 month period (which expires March 19, 1986), the licensee proposes to perform the test during a refueling outage which is expected to commence within a few weeks following the March 19th date (between April 15 and May 15, 1986).

### III.

In support of this request the licensee states the twenty-four month test interval is based on exposure to service conditions for a period of that duration, and that due to plant outages, and conduct of the power ascension program during this initial fuel cycle, the "O" ring seals have not been exposed to the normal service operating environment for the full two year period. The licensee estimates the cumulative duration of outages and reduced power operation (resulting in a less severe operating environment since the last test in 1984) is approximately six months. Based on this, the licensee states a test concurrent with the Spring 1986 refueling outage would satisfy the intent of the two year interval specified in Appendix J.

As for the timing of the Spring 1986 outage, the licensee states it is difficult to predict exactly when the facility will shutdown for the planned refueling because an effort is made to coordinate operations with those of the Bonneville Power Administration (BPA). BPA operations, however, are affected by hydroelectric capacity - and this in turn is influenced by Spring runoff conditions. Nonetheless, taking into account the uncertainties, the licensee estimates the refueling outage would commence sometime between April 15 and May 15, 1986.

The licensee states that granting the exemption is in the public interest since it would eliminate the need for a special plant outage solely for the leak test, and the attendant loss of power generation capacity during a period of high demand (prior to the Spring runoff). In addition, the licensee states granting the exemption will contribute to the goal of maintaining personnel radiation exposures as low as reasonably achievable.

In reviewing the licensee's basis for this request, it is noted the regulations provide that type B tests "...shall be performed during reactor shutdown for refueling, or other convenient intervals, but in no case at intervals greater than two years." It is thus seen that in addition to prescribing a surveillance interval experience had demonstrated to be appropriate and conservative for these tests, the wording of the regulation was selected based on the typical refueling interval of twelve to eighteen months. The two year limit was included to provide operational flexibility with respect to a nominal 18 month refueling interval, while placing a finite upper limit on that flexibility. The regulations, therefore, are based not only on technical requirements, but also on the normal or typical schedule of an operating facility.

While such a premise is appropriate for plants that have completed one or more operating cycles, it is less appropriate for facilities during the first operating cycle (i.e. prior to the first refueling). This is because such facilities frequently identify problems during the first cycle which require plant shutdown for corrective action; and this, of course, extends the duration of the cycle. Such has been the case for this facility. On December 20, 1983, the facility received an operating license permitting operation at up to 5% of rated thermal power (166 MWt). On March 19, 1984, the licensee completed the type B test of the drywell head "O" ring seals. Amendment No. 1 to the facility license, which permitted full power operation (3323 MWt), was issued on April 13, 1984; and, following completion of the power ascension tests, the facility achieved commercial operation on December 13, 1984. In early 1985, the facility experienced difficulty sustaining full power operation. This was due to vibration problems with one of the reactor recirculation pumps.

Although a refueling outage had originally been planned for the April-May period of 1985, delays experienced during power ascension testing and the power level limit imposed by the problems with one reactor recirculation pump combined to limit the fuel burnup achieved by that date. Therefore, based on the presence of sufficient reactivity in the fuel to permit operation for a substantial additional period without refueling, the licensee postponed the refueling activity. Nonetheless, because significant maintenance was necessary, the licensee initiated a reactor shutdown in early May 1985. This maintenance shutdown continued until June 29, 1985.

Discussions with the licensee indicate consideration was given to performing the type B test of the drywell head "O" ring seals at the time of this maintenance

shutdown. This option, however, was rejected because no other tasks scheduled to be performed during the outage required removal of the shield plug, and because removal of the shield plug and performance of the test at times other than during refueling outages would not be consistent with "as low as reasonably achievable" radiation exposure considerations. Accordingly, the licensee decided to postpone the test until the next refueling outage.

The two month maintenance outage in mid-1985, combined with reduced fuel burnup due to operation at a reduced power level (not exceeding 72%) since that time, however, has now served to extend the possible operating cycle beyond the two year limit. This, of course, has led to the situation which prompts the present exemption request.

The licensee justifies the extension of the test interval by stating:

(1) the two year criterion is based upon expected exposure of components to service conditions for such a period, and (2) that due to extended outages the "O" ring seals have not been exposed to service conditions for this full period. By "service conditions", the licensee is referring to the environmental conditions to which the seal material is exposed during operation of the reactor at power, which may cause the seal material to degrade. These include temperature, pressure, humidity, ionizing radiation, age, etc.

As indicated earlier, the required test interval stated in Appendix J is primarily established based on accumulated operating experience. Further, experience to date has shown such an interval, based on typical refueling outage frequencies, or two years, to be acceptable. In addition, however, it is noted this experience typically involves exposure of the sealing components and materials to full service conditions over the full duration of an operating

cycle. The licensee's request, therefore, is in essence a request that the two year limit be waived and the facility be allowed to perform the leak test following exposure of the seal to full or near-full service conditions for a cumulative duration not exceeding that of a full operating cycle.

Regarding exposure of the seal to service conditions for the full operating cycle, we have examined the monthly operating reports issued by the facility for the period from initial criticality through November, 1985. This examination indicates the reactor generated 20,581 GWh of thermal energy during this 20-month period. This is approximately 47% of the 43,694 GWh of thermal energy that theoretically could have been generated if the reactor had operated at full power for 18 months, or 56% of the energy that could have been generated at full power in fifteen months. From the fact the reactor has generated less than half the thermal energy possible under existing regulatory limits (based on 18-months of full power operation), it is clear the seals theoretically could be exposed to full service conditions for an additional nine months of full power operation without exceeding the exposure permitted by the regulations. More realistically, even allowing for fifteen months of full power operation in an 18-month operating cycle, 6.6 months of full power operation would remain before reaching the service conditions possible with 15 months of operation. It is noted that this additional 6.6 months of operation (measured from December 1985) would allow operation until mid-May, 1986. Based on the present limit on reactor power (72% - a value which is unlikely to be changed prior to refueling), the plant could actually operate through July, 1986 before equalling the exposure to service conditions associated with fifteen months of full power operation.

Based on the above considerations, the Commission concludes permitting the licensee to postpone the type B test of the drywell head "O" ring seals beyond the normal twenty-four month limit specified in Appendix J until a refueling outage scheduled to commence no later than May 15, 1986, will not subject the drywell head "O" ring to service conditions more severe than those already permitted by the regulations.

Because requiring literal conformance with the two year test requirement of Appendix J in this instance would cause a loss of electrical power generating capacity during a period of high demand (prior to the spring runoff), we also conclude granting the requested exemption is in the public interest.

Finally, because requiring literal conformance with the two year test requirement would cause personnel radiation exposure not required by technical considerations of safety, we conclude granting the requested exemption conforms to the Commission's policy of maintaining radiation exposures as low as reasonably achievable.

#### IV.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, this exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. The Commission further determines that special circumstances, as provided in 10 CFR 50.12(a)(2)(iii), are present justifying the exemption, namely that application of the regulation in the particular circumstances would result in undue hardship and other costs that are significantly in excess of those contemplated when the regulation was adopted and that are significantly in excess of those incurred by others similarly situated. If the plant were forced to shut-

down by March 19, 1986, solely to comply with the Appendix J regulation, an undue hardship and financial burden would result from the loss of power generation during a period of high demand (prior to the spring runoff) that would be significantly in excess of that contemplated when the regulation was adopted. When the regulation was adopted, it was contemplated that the testing would be accomplished during the normally anticipated and scheduled refueling outages. Since the Commission has previously granted similar exemptions, e.g. Browns Ferry Unit 2, Brunswick Unit 1, and TMI Unit 1 under similar circumstances, the cost and hardship imposed on WNP-2 by failing to grant the exemption would be considerably in excess of that incurred by others similarly situated. Therefore the Commission hereby approves the following exemption request:

With respect to the type B test of the drywell head "O" ring seals at the subject facility, which, pursuant to the regulations, is due to be performed no later than March 19, 1986, exemption is granted from the provision of Section III.D.2 of Appendix J to 10 CFR 50 requiring such tests to be performed at intervals not greater than two years. The exemption is granted subject to the following conditions:

- (1) The licensee is to commence shutdown for the first refueling outage no later than May 15, 1986, and
- (2) The licensee is to perform this test prior to startup following the first refueling outage.

It is further determined the 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. In light of this determination and as reflected in the Environmental Assessment and Finding of No Significant




Impact prepared pursuant to 10 CFR 51.2 and 51.30 through 51.32, it is concluded the instant action is insignificant from the standpoint of environmental impact and an environmental impact statement need not be prepared.

For further details with respect to this action, see the licensee's request dated January 17, 1986, which is available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the Richland Public Library, Swift and Northgate, Richland, Washington 99352. Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this Exemption will have no significant impact on the environment (51 FR 8258 dated March 10, 1986).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert M. Bernero, Director  
Division of BWR Licensing  
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland  
this 18 day of March , 1986.