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SUBJECT: Application for amend to license NPF-21, revising TS w/regard to control rod scram insertion testing under emergency circumstances.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352-0968 • (509) 372-5000

July 8, 1994
G02-94-156

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 AMENDMENT TO THE WNP-2 TECHNICAL
SPECIFICATIONS WITH REGARD TO CONTROL ROD SCRAM
INSERTION TESTING UNDER EMERGENCY CIRCUMSTANCES**

In accordance with the Code of Federal Regulations, Title 10, Parts 50.90, 2.101, and 50.91(a)(5), the Supply System hereby submits a request for amendment to the WNP-2 Technical Specifications on an emergency basis as provided for in the regulations. Specifically, the Supply System requests changes to Table 1.2, "Operational Conditions," Surveillance Requirement 4.1.3.2, "Control Rod Maximum Scram Insertion Times," and the applicability requirements of Specification 3.9.1, "Reactor Mode Switch," to facilitate control rod drive scram time testing in accordance with the intent of Surveillance Requirement 4.1.3.2.b. This request is made to correct a recently identified discrepancy in the WNP-2 Technical Specifications and to facilitate control rod scram insertion time testing in order to return to power operation following the completion of the present refueling outage.

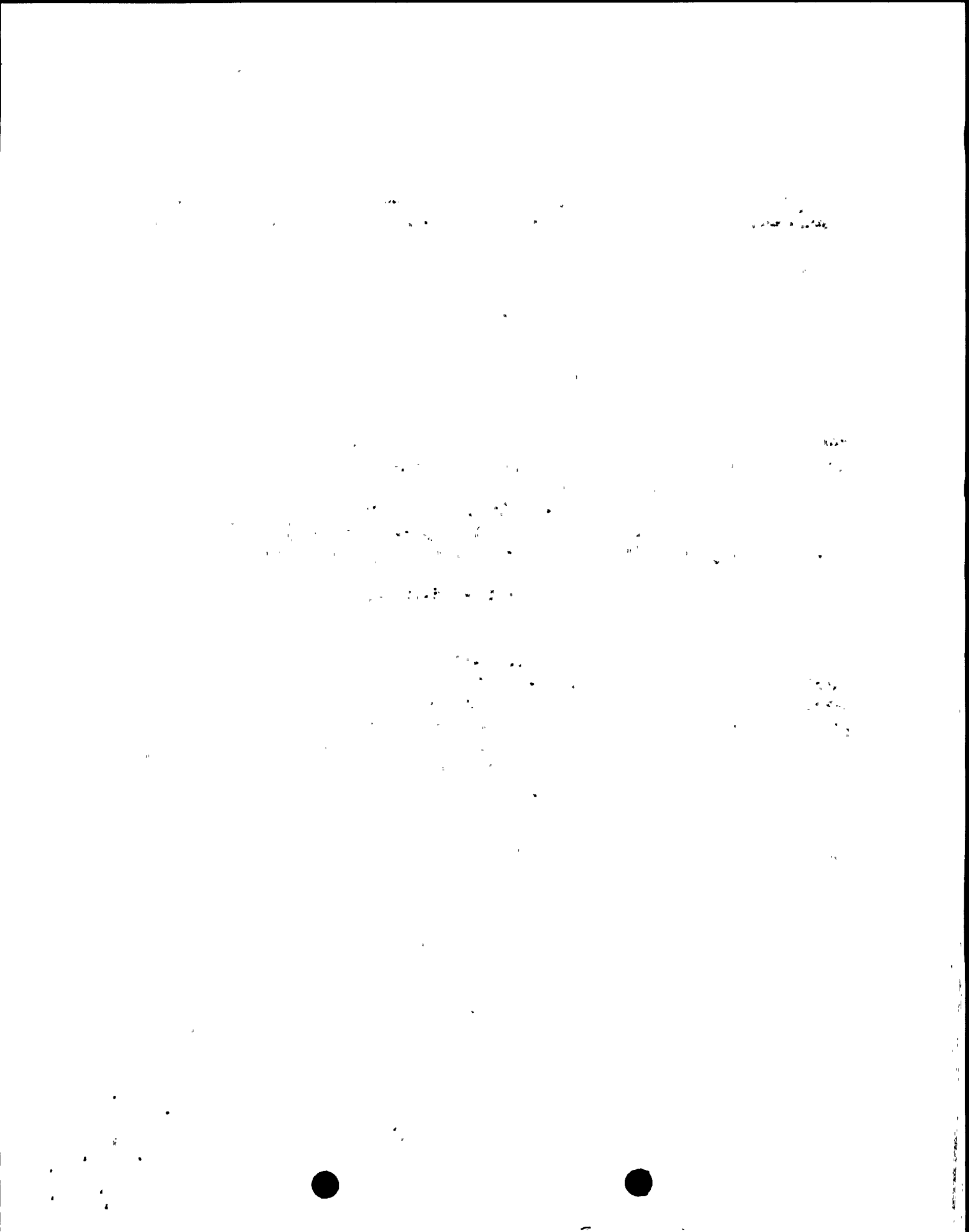
Description of Condition

A significant amount of control rod drive (CRD) scram solenoid pilot valve (SSPV) and CRD maintenance completed during the present outage prompted a reevaluation of 4.1.3.2.b. This reevaluation revealed a discrepancy in the WNP-2 Technical Specifications which must be corrected prior to returning to power from the current refueling outage.

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REQUEST FOR AMENDMENT TO THE WNP-2 TECHNICAL SPECIFICATIONS WITH REGARD TO CONTROL ROD SCRAM INSERTION TESTING UNDER EMERGENCY CIRCUMSTANCES

Surveillance Requirement 4.1.3.2 requires that:

"The maximum scram insertion time of the control rods shall be demonstrated through measurement with reactor coolant pressure greater than or equal to 950 psig..."

(4.1.3.2.b) "For specifically affected individual control rods following maintenance on or modification to the control rod or control rod drive system which could affect the scram insertion time of those specific control rods..."

Technical Specification 4.0.4 is applicable to Surveillance 4.1.3.2.b and precludes operation in Operational Conditions 1 and 2 until CRDs are tested at greater than or equal to 950 psig. Technical Specification Table 1.2 "Operational Conditions," does not permit control rod movement for other than recoupling or removal (per Technical Specification 3.9.10.1) unless the plant is in Operational Conditions 1, 2, or 5. In Operational Condition 5, the reactor head bolts are less than fully tensioned and reactor pressure cannot be increased. The requirements to conduct scram time testing at greater than or equal to 950 psig and yet not be in Operational Condition 1 or 2 to conduct the testing cannot be mutually satisfied. Hence, a change to the Technical Specifications is necessary.

The proposed changes are as follows:

1. Modify Table 1.2 to allow movement of a single control rod in Operational Conditions 3 and 4 for purposes other than recoupling, e.g., for post-maintenance venting, friction testing, or scram time testing,
2. Change Specification 3.9.1 to extend the applicability of the surveillance requirements for operability of the one-rod-out interlock to Operational Conditions 3 and 4, and
3. Modify 4.1.3.2.b to credit testing at pressure less than 950 psig to support confirmation of CRD scram operability. Testing of these rods will also be performed at greater than 950 psig in accordance with 4.1.3.2.a (prior to exceeding 40% of Rated Thermal Power).

These changes will confirm CRD scram operability at pressure less than 950 psig. This satisfies the intent of 4.1.3.2.b that the CRD scram function be operable before entry into Operational Conditions 1 or 2.

Because the need for relief from Surveillance Requirement 4.1.3.2.b was not identified until recently it was not possible to submit this request on a more timely basis.

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REQUEST FOR AMENDMENT TO THE WNP-2 TECHNICAL SPECIFICATIONS WITH REGARD TO CONTROL ROD SCRAM INSERTION TESTING UNDER EMERGENCY CIRCUMSTANCES

Compensatory Measures

With the requirement to maintain the one-rod-out interlock operable in Operational Conditions 3 and 4 combined with the SHUTDOWN MARGIN requirement of Technical Specification 3.1.1, no compensatory measures are necessary. The one-rod-out interlock limits rod movement to one rod. Because of the required shutdown margin with one rod fully withdrawn, the reactor will remain subcritical in that condition.

Summary

In summary, the Supply System requests approval on an emergency basis of an amendment to the WNP-2 Technical Specifications to allow rod movement in Operational Conditions 3 and 4 to confirm CRD scram operability (at reactor pressure less than 950 psig) prior to entering Operational Conditions 1 or 2 as intended by Surveillance 4.1.3.2.b. Presently, operability confirmation at greater than 950 psig is required prior to entry into Operational Conditions 1 and 2. With the limitations imposed by the Technical Specifications, WNP-2 cannot establish 950 psig pressure in an Operational Condition in which rod movement is allowed. The amendment also imposes continued operability of the one-rod-out interlock in Operational Conditions 3 and 4. This amendment is necessary to meet the intent of Surveillance 4.1.3.2.b and is justified in that the proposed amendment will ensure that testing conditions remain within the bounds of the WNP-2 Design Bases Accident analysis. Absent emergency relief WNP-2 will be required to remain shutdown until the amendment is processed.

The changes to Table 1.2 and Technical Specification 3.9.1 are similar to those presently provided for Nine Mile Point - Unit 2 and Grand Gulf. The change to Surveillance 4.1.3.2.b makes the WNP-2 Surveillance Requirements similar to the Surveillance Requirements in NUREG-1433, "Standard Technical Specifications General Electric Plants, BWR/4."

Safety Basis for the Request

1. Control Rod Movement in Operational Conditions 3 and 4

Currently, since the mode switch in the Shutdown position (presently required by Technical Specification Table 1.2) blocks rod movement, the movement of the mode switch to Refuel (or to Startup or Run) is necessary to move a rod for recoupling (e.g., after repairs on the drive). Rod movement with the mode switch in the Refuel position is limited to one rod by the logic of the one-rod-out interlock. Because of the required Technical Specification 3.1.1 shutdown margin and the one-rod-out interlock, reasonable assurance is provided that the reactor will remain subcritical with one rod withdrawn for testing.

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REQUEST FOR AMENDMENT TO THE WNP-2 TECHNICAL SPECIFICATIONS WITH REGARD TO CONTROL ROD SCRAM INSERTION TESTING UNDER EMERGENCY CIRCUMSTANCES

The proposed change to Technical Specification Table 1.2 does not change the current allowance to withdraw a single rod in Operational Conditions 3 and 4 in that a recoupling of a rod, as currently allowed, involves moving the rod through full travel. Scram time testing also results in full withdrawal of the control rod. The proposed change expands the permitted testing and maintenance activities in Operational Conditions 3 and 4 (e.g., scram time testing). While this will increase the frequency of withdrawals in Operational Conditions 3 and 4, it does not increase the probability of withdrawal errors since the withdrawals would otherwise occur in Operational Condition 1, 2 or 5 to complete the required testing.

Maintenance and testing on the control rod drive system are currently allowed (in all BWRs) in Operational Conditions 1 and 2 where they are not under the control of the one-rod-out interlock. In Operational Condition 5 the one-rod-out interlock is applicable. This change imposes the one-rod-out interlock in Operational Conditions 3 and 4 to support testing.

The change to Technical Specification 3/4.9.1 ensures appropriate surveillances for the one-rod-out interlock in Operational Conditions 3 and 4 are performed. This is consistent with the proposed Technical Specification Table 1.2 requirements.

The change to Technical Specifications Table 1.2, to permit single rod withdrawal in Operational Conditions 3 and 4, provides for needed operations of maintenance and testing of rods. Single rod withdrawal for scram time testing in Operational Conditions 3 and 4 is not different from currently permitted operations of rod withdrawal at WNP-2 (and similar BWRs) for recoupling and does not increase the probability of a rod withdrawal error. The change to Technical Specification 3/4.9.1 provides additional and appropriate surveillance requirements for rod withdrawal blocks in Operational Conditions 3 and 4. Single rod withdrawal with the one-rod-out interlock is presently permitted in Mode 5. The requested change to permit single rod withdrawal in Operational Conditions 3 and 4 with the one-rod-out interlock is not a significant change from the conditions for rod withdrawal in Operational Condition 5. Therefore, the Supply System concludes that these changes to the WNP-2 Technical Specifications are acceptable.

2. Changes to Allow Operability Confirmation at Pressure Less than 950 psig.

With approval of the change to Table 1.2 and Specification 3.9.1 discussed above, scram time testing could be conducted during the forthcoming hydrostatic test. However, in requesting Technical Specification changes in support of the hydrostatic test, the Supply System committed that all rods would remain inserted during the hydrostatic test. This commitment has not changed.



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REQUEST FOR AMENDMENT TO THE WNP-2 TECHNICAL SPECIFICATIONS WITH REGARD TO CONTROL ROD SCRAM INSERTION TESTING UNDER EMERGENCY CIRCUMSTANCES

The proposed changes will accept CRD scram operability confirmation testing (after CRD scram component or CRD system maintenance or modification) at pressure less than 950 psig for purposes of proceeding to Operational Conditions 1 and 2. Presently, Specification 4.1.3.2.b requires that the operability confirmation test must be done at pressure greater than or equal to 950 psig. CRD scram time testing will also be performed at greater than or equal to 950 psig prior to exceeding 40% of Rated Thermal Power.

The Supply System has concluded that testing at pressure less than 950 psig, combined with post maintenance testing and control of the maintenance or modification effort, provides adequate assurance of CRD scram operability and all maintenance or modification to the CRD system is controlled and maintained to high standards assuring that the system is returned or restored to a condition having an equivalent or higher degree of performance as it did prior to commencing the work. Work instructions, quality assurance requirements, qualified replacement parts and skilled craft all combine to provide this assurance. Post maintenance testing of the CRD system includes friction testing of the rods during full insert and withdrawal. This test monitors the drive piston water pressure to ensure that control rod movement is not impeded by obstruction or excessive friction. Drive piston pressure profiles indicate that no obstructions are present that might impede rod movement during a scram. The traces recorded during friction testing are evaluated against standard traces and quantitative criteria to determine acceptability. This assures the scram water path is available and that the mechanical ability to scram has not been affected by maintenance. CRD SSPV post maintenance testing includes testing the valves to ensure a scram signal vents the valves as required. Functional testing of the CRD scram accumulators ensures that the accumulators can be charged with water and nitrogen and are free to actuate as required to release the pressure necessary to scram at low reactor pressure conditions. The above described testing provides reasonable assurance that the CRD system is operable prior to being confirmed operable by scram time testing at greater than or equal to 950 psig.

Further, because maintenance or modification of the CRD system is typically performed when the reactor is shutdown, confirming CRD scram operability prior to entering the Operational Conditions in which a scram could be needed is prudent. The change to Surveillance 4.1.3.2 requires a comparison of the scram times obtained at pressure less than 950 psig to established acceptance criteria. Experience has shown that if the acceptance criteria are satisfied the scram time testing performed at greater than or equal to 950 psig will also be satisfactory.

For these reasons, the Supply System has concluded that CRD scram time testing at a pressure less than 950 psig provides reasonable assurance that the CRD system is operable prior to entry into Operational Conditions 1 and 2.

In summary, the proposed amendment to permit and accept CRD scram insertion time testing at a pressure less than 950 psig as confirmation of system operability does not represent a hazard to the health and welfare of the public nor to plant operators for the following reasons:



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REQUEST FOR AMENDMENT TO THE WNP-2 TECHNICAL SPECIFICATIONS WITH REGARD TO CONTROL ROD SCRAM INSERTION TESTING UNDER EMERGENCY CIRCUMSTANCES

1. The shutdown margin requirement assures continued subcriticality in Operational Conditions 3 and 4 during the withdrawal of one rod for testing;
2. Requiring the one-rod-out interlock to be operable during Operational Conditions 3 and 4 restricts rod movement to one rod; and
3. Controlled work practices combined with post maintenance testing and scram time testing to established acceptance criteria for pressure less than 950 psig assures the operability of the CRD scram system.

Safety Significance

The Supply System has evaluated this amendment request and determined it does not represent a significant hazards consideration because it will not:

- 1) Involve a significant increase in the probability or consequences of an accident previously evaluated. The CRD scram function is passive during plant operation. The proposed changes will not contribute to increasing the frequency of an accident previously evaluated. The movement of a single rod for scram time testing in Operational Conditions 3 and 4 is the same as the movement presently allowed in these conditions to recouple a rod. The CRD scram time testing is also the same as that currently allowed in Operational Condition 5. As such, the probability of an accident occurring with this change is not an increase over the probability of an accident that could occur without the change.

The CRD scram function is to mitigate the consequences of an accident. The requested amendment will not involve any physical changes to plant systems, structures, or components. The amendment will not alter operation of process variables or plant systems, structures, or components as described in the safety analysis. By requiring the one-rod-out interlock to be operable during CRD testing, combined with the shutdown margin requirement, the proposed amendment assures that plant variables are maintained within limits necessary to satisfy the assumptions for initial conditions in the safety analysis. The proposed amendment establishes adequate assurance that the CRD system will be operable prior to the Operational Condition in which the system is necessary to mitigate the consequences of an accident. For these reasons, the proposed amendment does not affect the capability of the plant to mitigate the consequences of previously evaluated accidents. Therefore, approval of the request will not result in a significant increase in the probability or consequences of an accident previously evaluated.

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REQUEST FOR AMENDMENT TO THE WNP-2 TECHNICAL SPECIFICATIONS WITH REGARD TO CONTROL ROD SCRAM INSERTION TESTING UNDER EMERGENCY CIRCUMSTANCES

- 2) Create the possibility of a new or different kind of accident from any accident previously evaluated. No new configurations or physical modification of the plant are represented by this change. The amendment will not alter the method used by any system to perform its design function. The plant conditions proposed for scram time testing (in Operational Conditions 3 and 4 at pressure less than 950 psig with the one-rod-out interlock operable and the shutdown margin requirement satisfied) following maintenance have been previously accepted for rod recoupling. The movement of the control rod remains unchanged. Hence, this amendment does not present any new condition that might create a new or different kind of accident. Therefore granting the request will not affect initial conditions or introduce new system configurations and thus will not create the possibility of a new or different kind of accident.

- 3) Involve a significant reduction in a margin of safety. The margin of safety provided by the scram system and adequate scram times ensures the capability of the plant to mitigate the consequences of accidents when the reactor is critical. The proposed amendment requires that the one-rod-out interlock be operable during CRD scram time testing. This, combined with the shutdown margin requirement of Technical Specification 3.1.1, will assure that the reactor remains subcritical during CRD scram time testing in Operational Conditions 3 and 4. With the reactor subcritical, the scram function is not required and provides no margin of safety. Therefore, this change has no impact on the margin of safety as provided by the scram system under the proposed conditions.

The scram system is required to be operable in Operational Conditions 1 and 2. This change proposes that testing at pressure less than 950 psig is adequate to declare the CRD system operable prior to entering Operational Conditions 1 and 2. Typically, system operability should be confirmed prior to entering the Operational Condition in which the system is needed. At present, with the limitations imposed by the Technical Specifications and licensing commitments associated with hydrostatic testing, WNP-2 can not establish 950 psig pressure in an Operational Condition in which rod movement is allowed. However, the combination of post maintenance testing and the proposed scram time testing at pressure less than 950 psig provide reasonable assurance that the system is operable prior to entry into Operational Conditions 1 and 2.

The comparison of scram times, when tested at less than 950 psig, to established limits provides additional assurance that the CRD system is operable.

For these reasons, the proposed amendment will not involve a significant reduction in a margin of safety.

For the above reasons, granting this request will not represent a significant hazards consideration.



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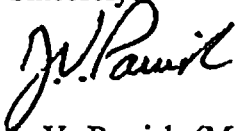
**REQUEST FOR AMENDMENT TO THE WNP-2 TECHNICAL
SPECIFICATIONS WITH REGARD TO CONTROL ROD SCRAM INSERTION
TESTING UNDER EMERGENCY CIRCUMSTANCES**

Environmental Considerations

As previously discussed, the Supply System concludes that this request does not involve a significant hazards consideration. Additionally there is neither a potential for a significant change in the types or significant increase in the amount of any effluent that may be released offsite, nor a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and, therefore, per 10 CFR 51.22(b), an environmental assessment of this change is not required.

This change has been approved by the WNP-2 Plant Operations Committee and the Supply System Corporate Nuclear Safety Review Board. In accordance with 10 CFR 50.91, the State of Washington has been provided a copy of this letter.

Sincerely,



J. V. Parrish (Mail Drop 1023)
Assistant Managing Director, Operations

PLP/bk
Attachments

cc: LJ Callan - NRC RIV
NRC Sr. Resident Inspector - 927N
NS Reynolds - Winston & Strawn
JW Clifford - NRC
DL Williams - BPA/399
KE Perkins - NRC RIV, Walnut Creek Field Office
FS Adair - EFSEC

STATE OF WASHINGTON)
)
COUNTY OF BENTON)

Subject: Request for Amendment to TS
Control Rod Scram Insertion Testing

I, J. V. PARRISH, being duly sworn, subscribe to and say that I am the Assistant Managing Director, Operations for the WASHINGTON PUBLIC POWER SUPPLY SYSTEM, the applicant herein; that I have the full authority to execute this oath; that I have reviewed the foregoing; and that to the best of my knowledge, information, and belief the statements made in it are true.

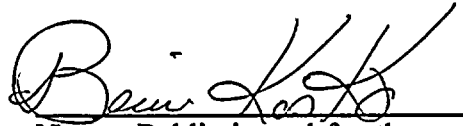
DATE 8 July, 1994



J. V. Parrish, Assistant Managing Director
Operations

On this date personally appeared before me J. V. PARRISH, to me known to be the individual who executed the foregoing instrument, and acknowledged that he signed the same as his free act and deed for the uses and purposes herein mentioned.

GIVEN under my hand and seal this 8th day of July 1994.



Notary Public in and for the
STATE OF WASHINGTON

Residing at Kennecook, WA

My Commission Expires 4/22/98



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