



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO.129 TO FACILITY OPERATING LICENSE NO. NPF-21

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

NUCLEAR PROJECT NO. 2

DOCKET NO. 50-397

1.0 INTRODUCTION

By letter dated July 8, 1994, Washington Public Power Supply System (the licensee) requested changes to the Technical Specifications (TS) for the Washington Nuclear Project No. 2 (WNP-2) on an emergency basis. The proposed amendment would allow the licensee to perform post-maintenance control rod scram time testing at lower reactor coolant pressures than currently allowed by TS.

The licensee requested an emergency TS change to add a note to TS Surveillance Requirement 4.1.3.2.b to allow post-maintenance control rod scram time testing to be performed at reactor coolant pressures less than 950 psig. To support this proposed change, the licensee also proposed changes to TS Table 1.2, "Operational Conditions," to expand the circumstances for which movement of a single control rod in Operational Conditions 3 and 4 would be allowed, and to TS 3/4.9.1, "Reactor Mode Switch," to expand the applicability of the surveillance requirements for operability of the one-rod-out interlock.

2.0 DISCUSSION

The scram reactivity used in the design basis accident (DBA) and transient analyses is based on an assumed control rod scram time. Confirmation that the individual control rod scram times are within established limits provides confirmation that specified acceptable fuel design limits will not be exceeded for the transients analyzed in the Final Safety Analysis Report (FSAR). When work that could affect the scram insertion time is performed on a control rod or the control rod drive (CRD) system, testing must be done to demonstrate that each affected control rod retains adequate scram performance to remain within the bounds of the FSAR analyses.

TS 3.1.3.2 requires the control rod scram insertion time of each control rod to be within the specified limit for operation in Operational Conditions 1 and 2. Surveillance Requirement 4.1.3.2.b requires the control rod scram insertion time test to be performed following maintenance or modification to the control rod or the CRD system. As currently written, the surveillance requirement requires this test to be performed with reactor coolant pressure

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greater than or equal to 950 psig. The licensee proposed the addition of a footnote to Surveillance Requirement 4.1.3.2.b which would read:

\*\* Demonstration may be performed at reactor coolant pressure less than 950 psig provided the measured scram insertion times are within established limits based on reactor coolant pressure and provided the test is repeated at greater than 950 psig prior to exceeding 40% of rated thermal power.

The footnote would allow post-maintenance scram time testing to be performed at less than 950 psig. Acceptable scram insertion times would be specified as a function of reactor pressure to account for the sensitivity of the scram insertion times to reactor steam dome pressure (scram insertion times increase with increasing reactor pressure because of the competing effects of reactor steam dome pressure and stored scram accumulator energy).

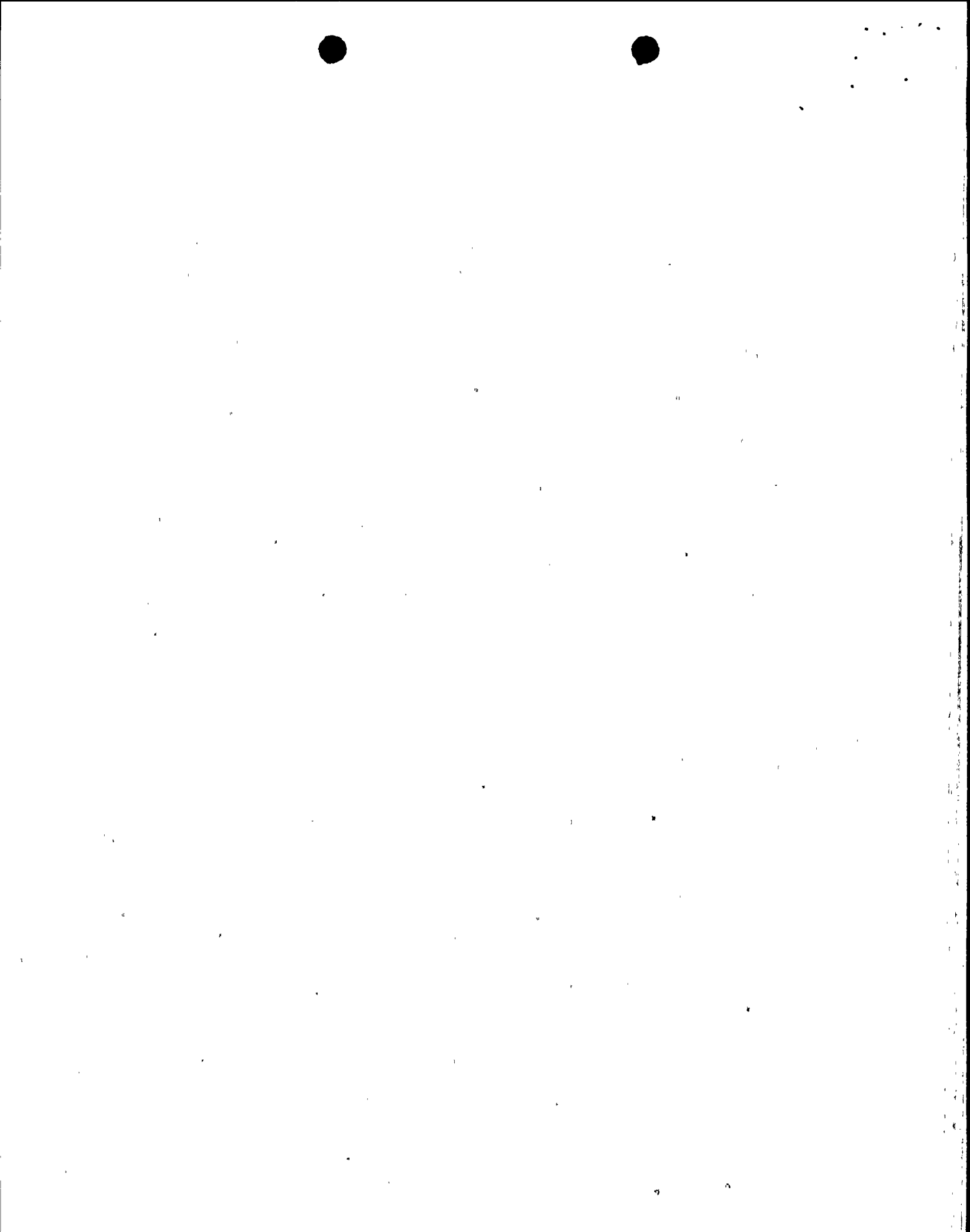
The staff finds that verification of acceptable scram insertion times, specified as a function of reactor pressure, combined with additional existing surveillance requirements which verify other aspects of control rod operability, provide reasonable assurance that the control rods are capable of performing their design function prior to entering Operational Conditions 1 and 2. Furthermore, confirmatory testing at greater than 950 psig ensures that the control rod scram performance is acceptable for operating reactor pressure conditions at higher power levels. Therefore, the staff finds the proposed change to Surveillance Requirement 4.1.3.2 to be acceptable.

To support the proposed testing, the licensee also proposed changes to TS Table 1.2 and TS 3/4.9.1 to revise requirements related to single control rod movement in Operational Conditions 3 and 4. These changes are similar to existing approved specifications in other boiling water reactors (e.g., Grand Gulf, LaSalle, and Nine Mile Point 2). These were either in the initial TS for these plants or the result of approved changes similar to those proposed by the licensee.

The licensee proposed to modify TS Table 1.2 to allow movement of a single control rod in Operational Conditions 3 and 4 for purposes other than recoupling by replacing "recoupled" in footnote "\*\*\*" with "moved."

Control rod movement is blocked when the mode switch is in the Shutdown position, as is normally required in Operational Conditions 3 and 4. Movement of the switch to Refuel (or to Startup or Run) is necessary to move a rod for recoupling (e.g., after repairs on the CRD) or for any other purpose. When the mode switch is in the Refuel position, the redundant logic of the one-rod-out interlock limits rod movement to one rod. Because of the requirement for adequate shutdown margin with one control rod fully withdrawn, there is reasonable assurance that the reactor will remain subcritical with the mode switch in the Refuel position.

The proposed change to TS Table 1.2 does not change the current permission to withdraw a single control rod in Operational Conditions 3 and 4, but it does expand the testing and maintenance activities for which withdrawal is



permitted (e.g., scram time testing). This will increase the frequency of single control rod withdrawals in Operational Conditions 3 and 4. However, the probability of inadvertent criticality due to rod withdrawal events is not significantly affected since there is no postulated set of circumstances which results in an additional rod withdrawal with the mode switch in the Refuel position.

The licensee proposed to modify TS 3/4.9.1 to extend the applicability of the surveillance requirements for the one-rod-out interlock to Operational Conditions 3 and 4.

The staff finds that the proposed change to TS Table 1.2 provides for necessary maintenance and testing of control rods, is not significantly different from currently permitted rod withdrawal operations, does not increase the probability of a rod withdrawal event, and is consistent with previous NRC staff approvals and existing TS for other BWR plants. The proposed change to TS 3/4.9.1 provides additional appropriate surveillance requirements for rod withdrawal in Operational Conditions 3 and 4. Therefore, the staff concludes that the proposed changes to TS Table 1.2 and TS 3/4.9.1 are acceptable.

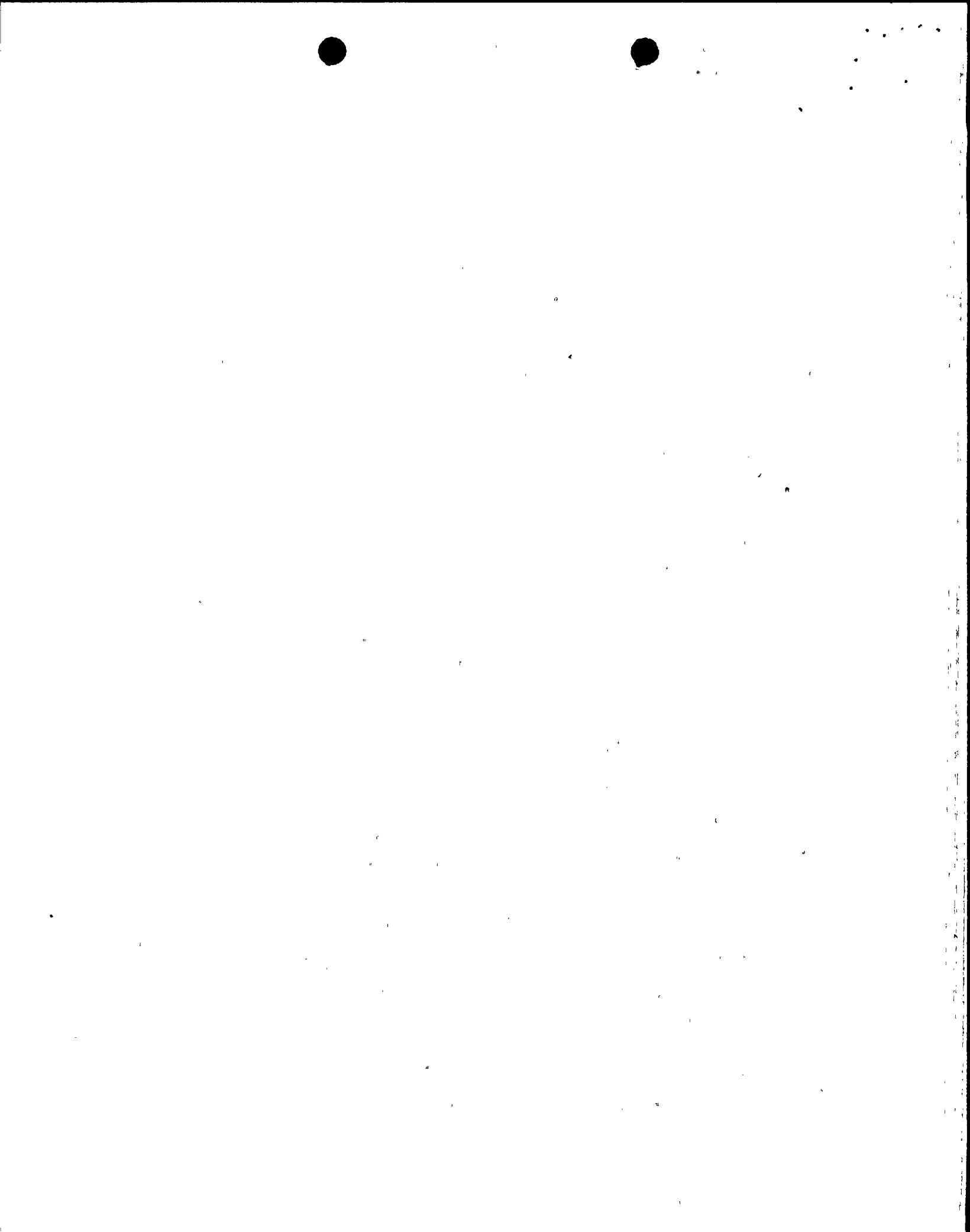
### 3.0 EMERGENCY CIRCUMSTANCES

During a reevaluation of Surveillance Requirement 4.1.3.2, the licensee determined that, under certain circumstances, the specification as currently written does not permit verification of control rod operability as required prior to entry into Operational Condition 2. The surveillance requirement requires that scram insertion times be measured with reactor coolant pressure equal to or greater than 950 psig. Surveillance Requirement 4.1.3.2.b requires verification of scram times to be performed following maintenance on or modification to a control rod or the CRD system. The licensee determined that the requirements to conduct scram time testing at greater than or equal to 950 psig and yet not be in Operational Conditions 1 or 2 could not be simultaneously satisfied and required a change to the TS.

WNP-2 is currently completing a refueling outage and will be ready to startup on July 18, 1994. The licensee completed a significant amount of CRD scram solenoid pilot valve and CRD maintenance during the present outage, requiring verification of control rod scram times in accordance with Surveillance Requirement 4.1.3.2.b. As noted above, a TS change is required to enable this testing to be performed correctly. This condition was identified on July 1, 1994. The licensee submitted a request for an emergency amendment to the TS on July 8, 1994. Processing the licensee's request on an emergency basis would enable the licensee to verify control rod operability, preventing an unnecessary extended plant shutdown. The staff has concluded that these circumstances warrant issuance of an emergency amendment.

### 4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission has made a determination that the amendment involves no significant hazards consideration. Under the Commission's regulations in 10



CFR 50.92(c), this means that operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The staff has evaluated the proposed changes against the standards as required by 10 CFR 50.91(a) and has concluded that:

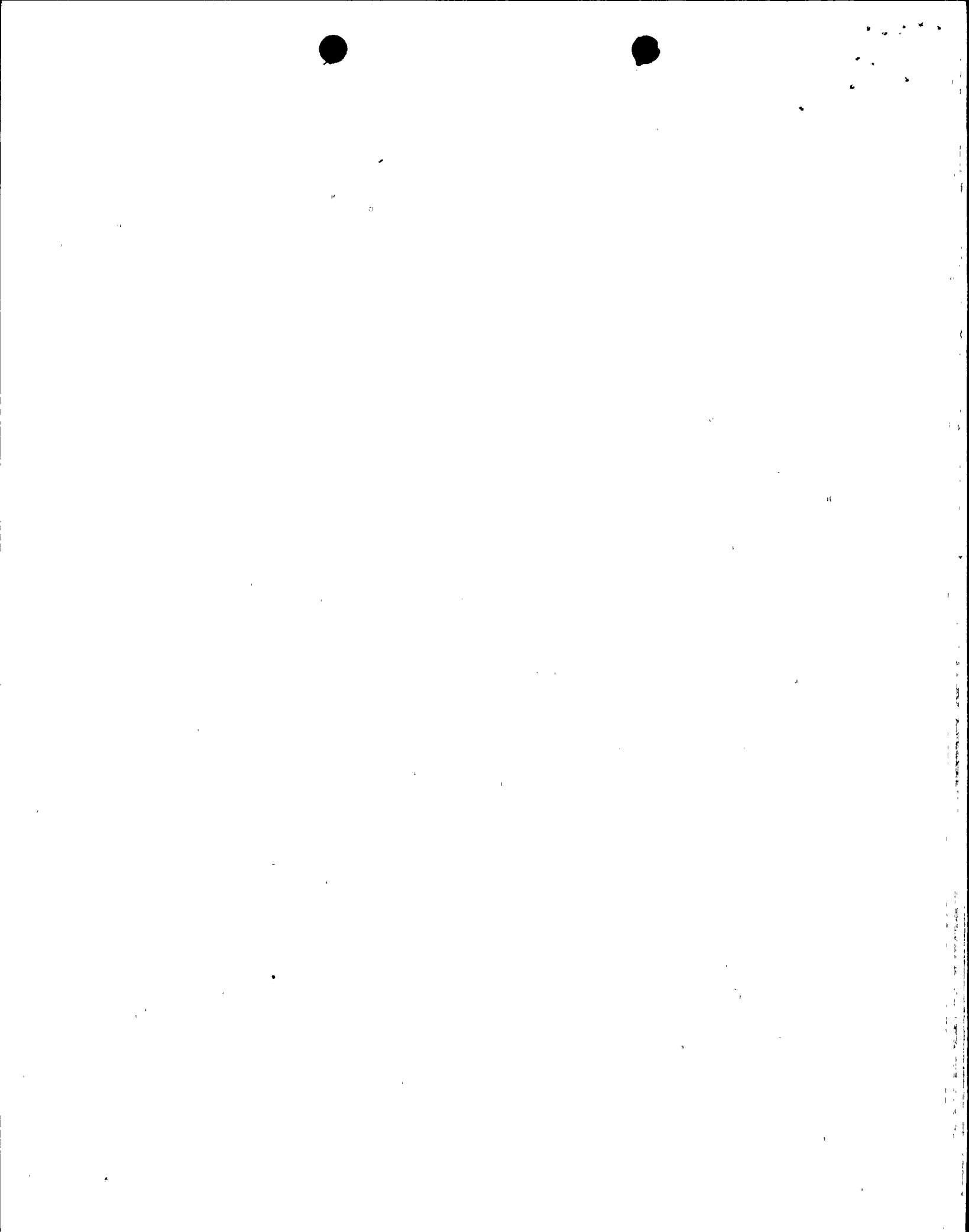
- a. The change does not involve a significant increase in the probability or consequences of an accident previously evaluated:

The amendment revises the TS to provide a means of verifying control rod operability prior to entering an Operational Condition in which the control rods are required to be operable. The movement of a single rod for scram time testing in Operational Conditions 3 and 4 is the same as the movement of a single rod presently allowed in these operational conditions to recouple a control rod to its CRD. The amendment does not involve any physical changes to plant systems, structures, or components; and does not alter operation of plant systems, structures, or components as described in the safety analysis. The amendment assures that plant variables are maintained within the limits necessary to satisfy the initial conditions assumed in the safety analysis. The amendment establishes adequate assurance that the control rods will be operable prior to the operational conditions in which they are necessary to mitigate the consequences of an accident. This change will increase the frequency of single control rod withdrawals in Operational Conditions 3 and 4. However, the probability of inadvertent criticality due to rod withdrawal events is not significantly affected since there is no postulated set of circumstances which results in an additional rod withdrawal with the mode switch in the Refuel position. Therefore, the amendment does not result in a significant increase in the probability or consequences of an accident previously evaluated.

- b. The change does not create the possibility of a new or different kind of accident from any accident previously evaluated:

The amendment does not create any new configurations or physical modification of the plant. The amendment does not alter the method used by any system to perform its design function. The plant conditions for scram time testing following maintenance (in Operational Conditions 3 and 4 at pressure less than 950 psig with the one-rod-out interlock operable and the shutdown margin requirement of TS 3.1.1 satisfied) have been previously analyzed for control rod recoupling. The movement of the control rod remains unchanged. Therefore, this amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

- c. The change does not involve a significant reduction in a margin of safety:



Withdrawal of a single control rod in Operational Conditions 3 and 4 is currently permitted to facilitate recoupling a control rod to its CRD. The amendment expands the activities for which single control rod withdrawal is permitted in these operational conditions. Single control rod withdrawal in Operational Conditions 3 and 4 is evaluated in the safety analysis. The shutdown margin requirement of TS 3.1.1 provides assurance that the reactor remains subcritical with the highest worth control rod withdrawn, and the mode switch refuel position one-rod-out interlock prevents withdrawal of a second control rod with any single control rod withdrawn. The withdrawal of a single control rod for scram time testing is no different from the withdrawal of a single control rod presently allowed to facilitate recoupling a control rod to its CRD. Therefore, the amendment does not involve a significant reduction in a margin of safety.

#### 5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Washington State official was notified of the proposed issuance of the amendment. The State official had no comments.

#### 6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission made a final no significant hazards consideration finding with respect to this amendment. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

#### 7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. Schaaf

Date: July 14, 1994



