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SUBJECT: Application for amend to License NPF-21,revising Tech Spec 3.1.3.5 re actions for inoperable control rod scram accumulators w/lower reactor steam dome pressure.

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March 1, 1991
G02-91-043

Docket No. 50-397

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

Gentlemen:

Subject: NUCLEAR PLANT NO. 2, OPERATING LICENSE NPF-21
REQUEST FOR AMENDMENT TO TECHNICAL SPECIFICATION 3.1.3.5,
CONTROL ROD SCRAM ACCUMULATORS

In accordance with the Code of Federal Regulations, Title 10, Parts 50.90 and 2.101, the Supply System hereby submits a request for amendment to the WNP-2 Technical Specifications. Specifically, the Supply System is requesting that actions for inoperable control rod scram (CRD) accumulators be revised as attached to add ACTION statements that are responsive to the operability condition of the accumulators. Recent review of this specification as a result of efforts to adopt the NRC/NUMARC Improved Technical Specifications has recognized that the operability of the CRD system with an inoperable accumulator is impacted by reactor steam dome pressure. Presently this specification does not consider the impact of reduced reactor steam dome pressure on system operability. Further, it does not provide an ACTION statement that is appropriately responsive to a lower reactor steam dome pressure coupled with inoperable CRD accumulator(s). The proposed revision is intended to address this situation.

The CRD accumulators provide stored energy to assure a reactor scram at low reactor steam dome pressures. As pressure increases the contribution of the accumulators towards the effectiveness of a scram (initial insertion rate and full insertion) decreases. Review of this relationship has shown that 800 psig reactor steam dome pressure is the value above which the CRD accumulators contribution to the effectiveness of the scram is not necessary. Below 800 psig the accumulators are necessary to effect a scram. It is this condition, reactor steam dome pressure less than 800 psig, that is not addressed adequately by the present technical specification 3.1.3.5 and the condition the new ACTION statement 3.1.3.5.a.3 is proposed to address. The present Technical Specification does not address system pressure below 800 psig. With the proposed specification verifying system pressure and taking more conservative actions sooner if system pressure is below 800 psig the proposed specification is an enhancement to the safe operation of WNP-2.

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As stated above control rod scram accumulators store sufficient energy to meet insertion time requirements for the control rods during a scram at lower reactor pressures. At higher reactor pressures, control rod scram accumulator pressure is supplanted by reactor pressure during a scram. As such, the ACTIONS have been specified as a function of reactor pressure.

At reactor pressure $\geq$ 800 psig, the control rod scram accumulators provide a negligible portion of the scram force. With one control rod scram accumulator inoperable under this condition, (ACTION a.2) reactor pressure is adequate to ensure scram of the control rods. However, scram time limits for the associated control rod may not be satisfied. The significance of one control rod exceeding scram time limits is small since safety analyses assume one control rod remains withdrawn. With more than one control rod scram accumulator inoperable, (ACTION a.2) continued operation is justified if at least one control rod drive (CRD) pump is operating and supplying adequate pressure ($\geq$ 940 psig) to the charging water header to maintain accumulators charged. With inadequate charging water pressure, all of the accumulators could become inoperable resulting in a severe degradation of the scram performance. The demonstration of an operating CRD pump has been revised to reflect verifying that the appropriate pressure is being supplied by the CRD pump rather than by inserting one withdrawn rod one notch (ACTION a.2.a). This action was revised since the verification of charging water header pressure is quicker and provides at least an equivalent indication of CRD pump operating status than the movement of one rod. With reactor pressure $\geq$ 800 psig, reactor pressure is adequate to ensure scram of control rods. However, the scram time limits may not be satisfied. Therefore, a limited time (20 minutes) (ACTION a.2.a) has been provided under these conditions to ensure at least one CRD pump is operating. The 20 minute time period was developed considering the time required to verify pressure and potentially place a CRD pump into service to restore charging header pressure and is also based on the ability of reactor pressure to fully insert all control rods.

With more than one inoperable control rod scram accumulator and reactor pressure $\geq$ 800 psig, the associated control rods may not meet specified scram time limits, although reactor pressure will ensure the control rod scrams. Because of the ability of the reactor pressure to scram the control rods and the low probability of a design basis accident or transient occurring, while the accumulators are inoperable, one hour is provided to fully insert and disarm the associated control rods (ACTION a.2.b).

At reactor pressure < 800 psig, control rod scram accumulators provide the primary scram force. Therefore, continued operation is only justified if at least one CRD pump is operating and supplying adequate pressure ($\geq$ 940 psig) to the charging water header to maintain accumulators charged. With inadequate charging water pressure, all of the accumulators could become inoperable, resulting in a potentially severe degradation of the scram performance. With reactor pressure <800 psig, the importance of the accumulators in providing the scram function could become severely degraded during a depressurization event or at low reactor pressures. As such, immediate verification of adequate charging water pressure is required (new ACTION 1.3).

With one or more inoperable control rod scram accumulators and reactor pressure < 800 psig, the scram function could become severely degraded during a depressurization event or at low reactor pressures. Because of the low probability of a design basis accident or transient occurring during the time the accumulators are inoperable, one hour is provided to fully insert and disarm the associated control rods (ACTION a.3).

Additionally, the requirement to place the plant in at least HOT SHUTDOWN if the ACTIONS are not met has been replaced with the requirement to immediately place the reactor mode switch in the shutdown position for ACTIONS a.1, a.2 and a.3. This ensures all insertable control rods are inserted and the reactor is in a condition that does not require the active function (scram and insertion) of the control rods. The requirement is modified by a Note which clarifies that the action is not applicable if all inoperable control rod scram accumulators are associated with fully inserted rods since with the associated control rods inserted, their intended function is fulfilled. As such, no other action is necessary to assure operation within the bounds of the design basis transient and accident analysis.

There are no requirements that the accumulator check valves maintain accumulator pressure for a specified time period should no CRD pump be operating. The Technical Specifications maintain adequate Surveillance Requirements to assure the accumulators remain OPERABLE. Additionally, in the event of an inoperable accumulator, CRD operation is required by the revised ACTIONS to be checked to ensure the accumulators are being maintained in a charged state. With no operating CRD pump, the reactor must be placed in a nonapplicable mode. Therefore, the accumulator check valve requirements have been relocated to plant procedures.

ACTION A.2.a) of Technical Specification 3.1.3.5 verifies that the CRD pump is operating. The demonstration of an operating CRD pump has been revised to reflect verifying that the appropriate pressure is being supplied to the CRD charging water header rather than by inserting one withdrawn rod one notch. This revised action provides a quicker and at least an equivalent indication of CRD pump operating status than movement of one rod. The Completion Time of "immediately" remains unchanged when reactor pressure is < 800 psig but has been revised when reactor pressure is $\geq$ 800 psig. With the reactor pressure $\geq$ 800 psig, 20 minutes are allowed to restore a CRD pump, since reactor pressure is adequate to ensure scram of the control rods during this limited time period. It also allows some time to restore or start a pump, if necessary. If the pump is not restored in 20 minutes, a scram is required.

The Supply System has evaluated this amendment request per 10 CFR 50.92 and determined that it does not represent a significant hazards consideration because it does not:

1) Involve a significant increase in the probability or consequences of an accident previously evaluated. This requested amendment does not result in any hardware or operating procedure changes. The control rod scram accumulators are not assumed to be initiators of any analyzed event. Their role is in ensuring adequate scram insertion capability exists when needed over the entire range of reactor pressures. As such, they function to mitigate and thereby limit the consequences of accidents. The proposed change to the actions will not allow continuous operation such that adequate pressure is not available to ensure a scram of control rods. The change of the method used to verify an operating CRD pump is quicker and at least equivalent to the current method and still assures the accumulators remain charged. The increase of the Completion Time for verifying the CRD pump is operating from immediately to 20 minutes does not affect any accident consequences since operation for the proposed Completion Time will have the same consequences should an accident occur with control rod scram accumulators inoperable and the CRD pump not operating for the existing Completion Time. Therefore, no significant increase in the probability or consequences of an accident previously evaluated is involved with this change.

2) Create the possibility of a new or different kind of accident from any accident previously evaluated because the proposed change introduces no new mode of plant operation nor does it require physical modification to the plant.

3) Involve a significant reduction in a margin of safety. No reduction in a margin of safety is involved with the change in the method of verifying an operating CRD pump since it is equivalent to the current method. The increased time allowed to continue operation with inoperable control rod scram accumulators allowed prior to verifying CRD pump operation is acceptable based on the small probability of an event occurring while the accumulators are inoperable and the CRD pump is not operating and the desire to minimize unnecessary plant transients. The requested time period (20 minutes) will provide sufficient time to restore or start a CRD pump without placing the plant in a shutdown transient. The exposure of the plant to the small probability of an event requiring the control rod scram accumulators during the increased time is insignificant and offset by the benefit of avoiding an unnecessary plant transient.

At reactor pressure $\geq$ 800 psig, the accumulators provide a negligible portion of the scram force. If the accumulator is inoperable, the associated control rod is considered inoperable. The affected control rod would scram but not necessarily at the required time limits of Technical Specification 3.1.3.4. Once a control rod is declared inoperable, the ACTIONS require the control rod to be inserted and disarmed. A Completion Time for inserting and disarming the rod (1 hour) has been added. This allows a reasonable time to complete the action.

The Supply System has evaluated this amendment request per 10 CFR 50.92 and determined that it does not represent a significant hazards consideration because it does not:

1) Involve a significant increase in the probability or consequences of an accident previously evaluated. This requested amendment does not result in any hardware or operating procedure changes. The control rod scram accumulators are not assumed to be initiators of any analyzed event. Their role is in ensuring adequate scram insertion capability exists when needed over the entire range of reactor pressure. As such, they function to mitigate and thereby limit the consequences of accidents. If the accumulator is inoperable, the associated control rod is considered inoperable and the control rod is required to be inserted and disarmed. The proposed change to the actions will not allow continuous operation such that shutdown and scram capabilities are adversely affected. The increase in the Completion Time does not affect any accident or consequences since operation for the proposed Completion time will have the same consequences should an accident occur with an inoperable control rod not inserted and disarmed for the existing Completion Time. Therefore, no significant increase in the probability or consequences of an accident previously evaluated is involved with this change.

2) Create the possibility of a new or different kind of accident from any accident previously evaluated because the proposed change introduces no new mode of plant operation nor does it require physical modification to the plant.

3) Involve a significant reduction in margin of safety. The increased time allowed to continue operation with inoperable control rods prior to inserting and disarming them is acceptable based on the small probability of an event occurring while control rods are inoperable and not inserted and disarmed and the desire to minimize plant transients. The requested time period (1 hour) will provide sufficient time to insert and disarm inoperable control rods without placing the plant in a shutdown transient. The exposure of the plant to the small probability of an event requiring the control rod scram capability during the increased time is insignificant and offset by the benefit of avoiding an unnecessary plant transient.

Control rods associated with inoperable accumulators are also required to be declared inoperable when the reactor pressure is less than 800 psig. At low reactor pressures, the accumulator provides the main scram force, and typically fewer control rods are withdrawn than at power conditions. Under these conditions, the failure of a control rod to scram is more significant than when operating at high power with most of the control rods withdrawn. Therefore, the importance of the accumulators at low pressure is amplified and the associated control rod should be declared inoperable. Only 1 hour (instead of 8) is given to restore the accumulator to OPERABLE status when below 800 psig because of the added importance of a single control rod under these conditions. As such, this change represents an additional restriction on plant operations.

The Supply System has evaluated this amendment request in accordance with 10 CFR 50.92 and determined that it does not represent a significant hazards consideration because it does not:

1) Involve a significant increase in the probability or consequences of an accident previously evaluated. This requested amendment does not result in any hardware or operating procedure changes. The control rod scram accumulators are not assumed to be initiators of any analyzed event. Their role is in ensuring adequate scram insertion capability exists when needed over the entire range of reactor pressures. As such, they function to mitigate and thereby limit the consequences of accidents. The decrease in Completion Time from 8 hours to 1 hour for declaring the control rods inoperable does not affect any accident consequences since operation for the proposed Completion Time will have the same consequences should an accident occur with control rods inoperable and not inserted and disarmed for the existing Completion Time. Therefore, no increase in the probability or consequences of an accident previously evaluated is involved with this change.

2) Create the possibility of a new or different kind of accident from any accident previously evaluated because the proposed change introduces no new mode of plant operation nor does it require physical modification to the plant.

3) Involve a significant reduction in a margin of safety. No reduction in a margin of safety is involved with the change since the time allowed to operate with inoperable control rods prior to inserting and disarming them is reduced. As such, adequate scram insertion capability will continue to be assured. Additionally, the exposure of the plant to the small probability of an event requiring control rod scram capability during the proposed time period is reduced due to this change.

When the Actions have not been satisfied the "shutdown" requirements have been modified to immediately place the reactor mode switch in the shutdown position. This ensures all insertable control rods are immediately inserted and the reactor is in a condition that does not require the active function (scram and insertion) of the control rods. As such, the plant has been effectively placed in a nonapplicable condition.

A note has also been added to these actions which clarifies that the actions are not applicable if all inoperable control rod scram accumulators are associated with fully inserted rods since with the associated control rods inserted, their intended function is fulfilled. As such, no other action is necessary to assure operation within the bounds of the design basis transient and accident analyses.

The Supply System has evaluated this amendment request in accordance with 10 CFR 50.92 and determined that it does not represent a significant hazards consideration because it does not:

1) Involve a significant increase in the probability or consequences of an accident previously evaluated. This requested amendment does not result in any hardware or operating procedure changes. The requirement to place the plant in a nonapplicable MODE when the requirements of the Actions have not been satisfied is not assumed to be an initiator of any analyzed event. The role of these requirements is to assure the plant is placed in a MODE or condition where compliance with the LCO is not required to maintain the plant consistent with safety analysis assumptions. The proposed actions still provide assurance the plant is placed in a non-applicable MODE when operation cannot be maintained consistent with safety analysis assumptions. The change also provides for taking this action in a more expedient manner than the current action requirements. In the condition in which the note applies, the affected control rod scram accumulators function has already been accomplished. As a result, the scram capability is assured. No other action is necessary to assure operation within the bounds of the design basis transient and accident analyses. Therefore, no increase in the probability or consequences of an accident previously evaluated is involved with this change.

2) Create the possibility of a new or different kind of accident from any accident previously evaluated because the proposed change introduces no new mode of plant operation nor does it require physical modification to the plant.

3) Involve a significant reduction in a margin of safety. No significant reduction in a margin of safety is involved with this change since it assures that the plant is placed in a non-applicable MODE when operation cannot be maintained consistent with safety analysis assumptions. Additionally, if the scram reactivity assumptions of the design basis transient and accident analyses are still maintained (the affected control rod scram accumulators' function is already accomplished) no other action is necessary since scram capability is assured to be within the bounds of the design basis transient and accident analysis. Additionally, any reduction in a margin of safety will be offset by the benefit of avoiding an unnecessary plant transient when adequate scram reactivity is available.

There are no requirements that the accumulator check valves maintain accumulator pressure for a specified time period should no CRD pump be operating. The Technical Specifications maintain adequate Surveillance Requirements to assure the accumulators remain OPERABLE. Additionally, in the event of an inoperable accumulator, CRD operation is required by the revised ACTIONS to be checked to ensure the accumulators are being maintained in a charged/pressurized state. With no operating CRD pump, the reactor must be placed in a non-applicable MODE. Therefore, the accumulator check valve Surveillance Requirements have been relocated to plant procedures.

The Supply System has evaluated this amendment request per 10 CFR 50.92 and determined that it does not represent a significant hazards consideration because it does not:

1) Involve a significant increase in the probability or consequences of an accident previously evaluated. No significant increase in the probability or consequences of an accident is involved with this change since the revised Technical Specifications maintain adequate Surveillance Requirements to ensure the accumulators remain OPERABLE. In the event of an inoperable accumulator, the revised Technical Specifications require verification that a CRD pump is operating. Additionally, the relocation of requirements from the Technical Specifications to plant procedures controlled by 10 CFR 50.59 review will not increase the probability or consequences of a previously evaluated accident, since the scope of a 10 CFR 50.59 review is more stringent than a 10 CFR 50.92 review. The 10 CFR 50.59 process approved by NUMARC and the NRC will be employed as the basis for the 10 CFR 50.59.

2) Create the possibility of a new or different kind of accident from any accident previously evaluated because the proposed change introduces no new mode of plant operation nor does it require physical modification to the plant. The proposed change will not impose any different requirements, and adequate control of the information will be maintained. Relocation of requirements is the only change.

3) Involve a significant reduction in a margin of safety. The proposed change will not impose different requirements. For any future changes to the accumulator check valve Surveillance Requirements, the provisions of 10 CFR 50.59 will be upheld. The 10 CFR 50.59 process is more stringent in that more conservative questions than those asked by the 10 CFR 50.92 process must be addressed.

As discussed above, the Supply System considers that this change does not involve a significant hazards consideration, nor is there a potential for significant change in the types or significant increase in the amount of any effluents that may be released offsite, nor does it involve a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10CFR 51.22(c)(9) and therefore, per 10CFR 51.22(b), an environmental assessment of the change is not required.

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

Very truly yours,

GC Sorensen

G. C. Sorensen, Manager
Regulatory Programs

PLP/bk
Attachments

cc: JB Martin - NRC RV
NS Reynolds - Winston & Strawn
PL Eng - NRC
DL Williams - BPA/399
NRC Site Inspector - 901A
RG Waldo - EFSEC

Request for Amend to TS 3.3.3.5

STATE OF WASHINGTON)
)
COUNTY OF BENTON)

Subject: Control Rod Scram Accumulators

I, G. C. SORENSEN, being duly sworn, subscribe to and say that I am the Manager, Regulatory Programs, for the WASHINGTON PUBLIC POWER SUPPLY SYSTEM, the applicant herein; that I have 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: 1 MARCH, 1991

GC Sorensen

G. C. Sorensen, Manager
Regulatory Programs

On this date personally appeared before me G. C. SORENSEN, 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 1ST day of March 1991.

Teresa L Robertson

Notary Public in and for the
STATE OF WASHINGTON

Residing at Richland, WA

My Commission Expires 7/4/91