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SUBJECT: Application for amend to License NPF-21, amending Tech Spec
 4.3.6-1, "Source Range Monitor/Intermediate Range Monitor
 (SRM/IRM) Detector Not-Full-In Functional Test" such that
 required weekly channel test surveillance met as stated.

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Figure 1 consists of two line graphs, (a) and (b), plotting the rate of reaction against temperature.

Graph (a) shows a bell-shaped curve. The rate of reaction increases from 0 at 0°C to a peak of 10 at 30°C, and then decreases to 0 at 40°C. The x-axis is labeled 'Temperature / °C' with values 0, 10, 20, 30, 40. The y-axis is labeled 'Rate of reaction' with values 0, 10.

Graph (b) shows a curve that rises sharply from 0 at 0°C and levels off at a rate of 10. A dashed line indicates the theoretical maximum rate of 10. The x-axis is labeled 'Temperature / °C' with values 0, 10, 20, 30, 40. The y-axis is labeled 'Rate of reaction' with values 0, 10.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

November 29, 1989
G02-89-214

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
TABLE 4.3.6-1, SRM/IRM DETECTOR NOT-FULL-IN
FUNCTIONAL TEST

Reference: 1) WNP-2 FSAR Section 15.4
2) NEDC-30851P, Supplement 1 "Technical Specification
Improvement Analysis for BWR Control Rod Block
Instrumentation", dated October 1988

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 weekly channel functional test surveillance required for the SRMs and IRMs be met for MODE 5 if the detectors are verified to remain full-in at least once per 24 hours and the SRM/IRM drive control system administratively controlled in the fully inserted position to preclude withdrawal by inadvertent operator action. This will preclude the need to withdraw the detectors to verify the rod block function, provided this verification is performed within the past 92 days.

There are 4 SRM and 8 IRM channels. Each includes a fission chamber detector and associated cable which can be positioned in the reactor vessel from above the fuel centerline to 30 inches below the fuel region. The detector is designed and installed to be inserted from under the vessel into a dry tube sealed against reactor vessel pressure. Each detector has a drive system which positions the detector within the dry tube.

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REQUEST FOR AMENDMENT TO TS TABLE 4.3.6-1
SRM/IRM DETECTOR NOT-FULL-IN FUNCTIONAL TEST

In Mode 5 the SRM/IRM detectors can provide two signals to prohibit rod movement: a detector not-full-in signal or an upscale scram/rod block signal. These provide backup to the non-safety related refueling interlocks described in Section 7.7.1.13 of the WNP-2 FSAR. As discussed in that section refueling interlocks are provided from logic combinations of all-rods-in signals, refueling platform position signals, rod selection signals, mode switch in "refuel" signal, and fuel-loaded signals from either the refueling or service platform hoists. These refueling interlocks are surveyed weekly during refueling to confirm operability. The SRM/IRM signals are provided so that in the event of an initial equipment failure followed by any other single equipment failure or operator error, one or both of the SRM/IRM Rod Block functions actuate to provide a rod movement block signal (WNP-2 FSAR 15.4.1.1.2.6). Removing the requirement to perform the weekly channel functional test of the detector not-full-in signal creates a potential for this backup function to fail and not be detected and also allow the detector to be moved out of position so that it would not provide a scram/rod block signal in the event of the above equipment failures and/or operator errors. The Supply System recognizes this potential loss of reliability when viewed by itself but considers it to be more than offset by the compensatory measures that will be implemented with the proposed change. Further with respect to the hardships and challenges to system reliability described below the proposed change is an improvement to overall plant safety and reliability.

The weekly surveillance test in MODE 5 creates an undue hardship for the plant staff and impacts the operability and reliability of the SRM/IRM equipment for no appreciable assurance of safety over that of the proposed change. During each refueling outage Control Rod Drive maintenance and other work in the under core region requires that the SRM/IRM cables be rolled up and tied out of the way so that the work area is free of interferences and the cables themselves are not damaged indirectly by the work in progress. To conduct the test the cables must be unrolled, laid out and personnel locked out of the area for the duration of the test (16 hours/week). Upon test completion the cables are rolled back up and again tied out of the way. The roll up and down requires 8 man hours/week and flexes the cables causing wear points and in turn breaks in the cable/connector protector tube. In addition to this mode of damage they can be inadvertently damaged during control rod drive (CRD) maintenance. During each outage approximately 20% of all CRDs are removed for maintenance and during removal, in the confined workspace, cables can be impacted by the removal tools. The allowance to tie the cables up once each 92 day period would avoid the first method of damage. Because the tie ups would not be repeated on a weekly basis during the CRD repair effort the potential for an inadequate tie up and



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REQUEST FOR AMENDMENT TO TS TABLE 4.3.6-1
SRM/IRM DETECTOR NOT-FULL-IN FUNCTIONAL TEST

subsequent impact damage would be reduced. Some amount of cable damage in this confined work space occurs each outage. There are many cables routed through this area that can become damaged and the SRM/IRM cables are a significant portion of this group. Cable repair during the last outage required approximately 300 man hours and incurred approximately 3 man rem. Working conditions in this area are extreme: double anti-contamination clothing with either respirator or bubble hoods are required. Health Physics supervision of this area and personnel is required but not included in the above figures.

As discussed in the remainder of this request the proposed change provides no significant hazards increase over the existing technical specification yet avoids manpower expenditure, radiation exposure, exposure of personnel to extreme work conditions, and challenges to SRM/IRM operability. Approval of the requested amendment relieves the above hardships yet maintains the safety of the plant.

As described above the SRM/IRM Detector not-full-in Channel Functional Tests verify that plant circuits prohibit rod movement in the REFUEL mode whenever an IRM/SRM detector is not in the full-in position. This is to assure that the detectors are in an optimum position for monitoring the core in the event of rod movement and will be able to generate an upscale reading should equipment failures and/or inadvertent operator error occur. Administrative controls on the SRM/IRM control system and daily verification of position full-in, as proposed, provide assurance that should the rod block instrumentation be inoperable and remain so the detectors will be positioned correctly. It is the intent that the daily verification of position full-in will consist of viewing the detector mechanism in the under-vessel region to confirm correct positioning. Failure to confirm correct positioning would imply failure of the channel functional test and the operability of the not-full-in instrumentation would have to be verified by performance of the functional test requiring movement of the detectors. Hence, with administrative controls and the daily SRM/IRM position verification a Rod Block function based on detectors not-full-in is not necessary. Detector position will be assured.

The 92-day interval allowed for the channel functional test in the REFUEL mode is consistent with channel functional test extensions recently approved by the Staff in Reference 2. In the Reference 2 Topical Report channel functional tests for Rod Block monitor, APRM, Scram Discharge Volume and Reactor Coolant System Recirculation Flow signals were extended from monthly to quarterly for the Control Rod Block Instrumentation Surveillance requirements. The 92 day interval proposed herein is consistent with the extension approved in Reference 2 and allows similar conclusions to be drawn, i.e., the benefit of avoiding the above hardships offset any potential negative impact of extending the channel functional test. The detector not-full-in rod block signal will remain in service and even should it fail the upscale SRM/IRM rod block signal will be operational. It should also be noted that the upscale Rod Block Instrumentation will continue to be surveyed weekly assuring the operability of that portion of the Rod Block function.



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The requested revision will add a footnote to the required weekly (W) channel functional test for both the IRM and SRM function. This footnote will state, "This CHANNEL FUNCTIONAL TEST may be satisfied while in MODE 5 provided the detector is administratively controlled in the full in position and is visually verified to be full in once per 24 hours, unless the CHANNEL FUNCTIONAL TEST has not been performed within the past 92 days." By verifying the detector is not retracted, the rod block provided by this function is not necessary, and the 24 hour frequency with administrative controls will assure the detector remains full in. Verifying within the past 92 days that the function performs as designed to produce a rod block if not full in, gives assurance that system reliability is adequate and any inadvertent withdrawal of a detector will still result in a rod block.

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

- 1) Involve a significant increase in the probability or consequences of an accident previously evaluated.

The subject rod block function does not significantly enhance protection against inadvertent criticality. In MODE 5 the analyzed events of concern are discussed in the FSAR Section 15.4, Reactivity and Power Distribution Anomalies, specifically the Rod Withdrawal Error at Low Power. The Neutron Monitoring System, including SRMs and IRMs does not function to preclude initiation of any aspect of this event. The probability of this MODE 5 event is precluded by procedural controls and refueling equipment interlocks including the Reactor Mode Switch. Since the probability of inadvertent criticality during refueling is precluded, without reliance on the SRMs or IRMs, and because no other credit is taken for the SRM/IRM feature in Mode 5 this change can not increase the probability or consequences of an accident previously evaluated.

In addition to the above, the compensatory actions described ensure that there is no significant change in the level of protection provided by this change. Movement is precluded by the administrative controls and confirmation that no movement has occurred provides a defense-in-depth assurance that the level of protection is not compromised.

- 2) Create the possibility of a new or different kind of accident from any accident previously evaluated.

The SRM and IRM systems provide for monitoring of neutron flux levels. Maintaining the detectors in the required full in position is necessary for proper monitoring during operation with control rods withdrawn. During MODE 5, refueling interlocks preclude the withdrawal of more than one rod and any one rod withdrawn will not result in criticality. Should the rod block for the IRM/SRM detectors not-full-in function fail, the other refueling interlocks would still preclude withdrawing more than one rod. To assure



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the detectors remain full in, administrative controls and a daily surveillance is being added. This will ensure proper neutron monitoring, and in conjunction with other unaffected refueling interlocks, will not allow this change to create the possibility of a new or different kind of accident from any previously evaluated.

3) Involve a significant reduction in a margin of safety.

The Rod block for the IRM/SRM detectors not-full-in function remains unaffected by this change. The surveillance performed to verify the function is operable will be performed at the beginning of a refueling outage. During the outage the detectors will be required to be administratively controlled and visually verified to be full in at least once per 24 hours. Maintaining the detectors in the full in position precludes the need for a detector not-full-in automatic rod block. If the detector is to be withdrawn, or this situation exists for more than 92 days, the original channel functional test would have to be performed or the channel declared inoperable. The 92 day allowance places a reasonable restriction on this allowance and ensures a high degree of reliability without imposing undue hardship, and is generally consistent with other functional test frequencies justified by the BWROG and approved by the Staff in Reference 2.

Since the detectors will be maintained in their required position for monitoring, and the automatic rod block function is still verified to be operable in the event of an inadvertent detector withdrawal, there will not be a significant reduction in the margin of safety.

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. In fact, the change will result in a decrease in individual and 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.

Page Six

REQUEST FOR AMENDMENT TO TS TABLE 4.3.6-1

SRM/IRM DETECTOR NOT-IN FUNCTIONAL TEST

The next refueling outage for WNP-2 will be Spring 1990, tentatively scheduled to start on April 15, 1990. Accordingly, to avoid the impact on plant safety, system reliability and manpower resources described above it would be beneficial if this proposal was approved at that time.

Very truly yours,



G. C. Sorensen, Manager
Regulatory Programs

PLP/bk
Attachments


cc: JB Martin - NRC RV
NS Reynolds - BCP&R
RB Samworth - NRC
DL Williams - BPA/399
NRC Site Inspector - 901A
C Eschels - EFSEC

STATE OF WASHINGTON)
)
COUNTY OF BENTON)

Subject: Req. for Amend. to TS T 4.3.6-1
SRM/IRM Detector not-full-in Func. Test

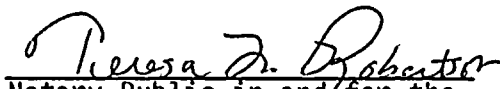
I, G. C. Sorensen, being duly sworn, subscribe to and say that I am the Manager, Regulatory Programs, for the WASHINGTON PUBLIC POWER SUPPLY SYSTEM, the applicant herein; that I have full authority to execute this oath; that I have reviewed the foregoing; and that to the best of my knowledge, information, and belief the statements made in it are true.

DATE 29 NOV, 1989


G. C. Sorensen, Manager
Regulatory Programs

On this day 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 29th day of November 1989.


Notary Public in and for the
STATE OF WASHINGTON

Residing at Richland, WA
My commission expires 7/14/91



