



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 53 TO FACILITY OPERATING LICENSE NO. NPF-21
WASHINGTON PUBLIC POWER SUPPLY SYSTEM
WPPS NUCLEAR PROJECT NO. 2
DOCKET NO. 50-397

1.0 INTRODUCTION

During normal plant operation, the Boiling Water Reactor (BWR) Control Rod Drive (CRD) system provides high pressure charging water to the CRD mechanism via a Hydraulic Control Unit (HCU) for each CRD mechanism. This in conjunction with reactor pressure provides the necessary driving force (800 psig Technical Specification minimum) required to insert control rods upon a reactor scram. The CRD HCU scram accumulators supplement this capability by supplying additional motive force for control rod insertion with an accumulator pressure (1200-1400 psig). When the plant is not at pressure (1000 psig), the CRD HCU scram accumulators provide the needed motive force for control rod insertion.

To ensure that each accumulator has sufficient stored energy, the accumulator nitrogen gas pressure must be greater than or equal to 940 psig. The accumulator pressure is verified weekly in accordance with the surveillance requirements of Technical Specification No. 3.1.3.5. In addition, pressure switch alarms are provided to monitor the accumulator pressure between weekly surveillances. The pressure switch detectors are set to alarm at 940 + 30, -0 psig on decreasing pressure in accordance with Technical Specification No. 3.1.3.5 surveillance requirements 4.1.3.5.b.1.b. However, the upper setpoint limit of 970 psig has not provided sufficient flexibility to avoid inadvertent alarms.

By letter dated February 9, 1987, the licensee stated that the CRD HCU scram accumulator pressure switches at WNP-2 may experience pressures less than 940 psig because the low pressure alarm setpoint may not always provide sufficient instrument drift margin. According to the licensee, this downward instrument drift trend has been observed since initial plant startup. To allow for this instrument drift the licensee proposed to amend the surveillance requirements (4.1.3.5.b.1.b) of Technical Specification No. 3.1.3.5 to state that the low pressure alarm be set at "equal to or greater than 940 psig" on decreasing pressure with no upper setpoint limit. This would allow for a sufficiently high setpoint value to preclude inadvertent alarms.

The licensee justified the requested revision by stating that the change provides adequate instrument drift allowance so that sufficient nitrogen pressure is maintained for the required scram performance. The licensee

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also stated that increasing the accumulator alarm setpoint will not affect or change the original design basis for the Control Rod Hydraulic System (CRDHS). Furthermore, all equipment associated with the CRDHS will continue to perform its design function.

In their Service Information Letter to their customers, dated August 9, 1985, General Electric (GE) noted that there is a practical upper limit for the setpoint. General Electric advises that the selected setting must not be so high that the alarm lights fail to reset following accumulator repressurization after a scram. The staff does not consider this to warrant inclusion of an upper limit on the allowable setpoint range in the technical specifications since a control rod associated with the alarmed scram accumulator would have to be declared inoperable and prescribed actions taken under Technical Specification 3.1.3.5.

2.0 EVALUATION

On June 23, 1987, the staff visited the site and reviewed the licensee's available trending informing supporting the Technical Specification amendment request. Verification was made that the HCU accumulator pressure switches utilized by the licensee are bourdon tube devices manufactured by Barksdale, Inc. with a proof of pressure at 4800 psig and an adjustable setpoint range of 160-3200 psig. (Model No. BIT-GH3255).

At initial startup, the licensee's calibrated setpoint range for the pressure switches was between 940 and 970 psig (30 psig). The first Technical Specification surveillance of the pressure switch setpoints was performed in November 1984 in accordance with the licensee's surveillance procedure No. PPM 741352. During this surveillance, twenty-six percent of the pressure switches alarmed outside of the calibrated setpoint range specified by the Technical Specification. (Five percent alarmed at 924 psig or below. Eighteen percent alarmed between 925 and 939 psig and three percent alarmed above 970 psig).

Appropriate corrective action was taken by the licensee for the nonconforming alarm set points. In addition, the licensee conservatively narrowed the calibrated setpoint range to 950-970 psig (20 psig).

Technical Specification HCU Accumulator Alarm Pressure Switch surveillances were performed in April 1986 and April 1987. Twenty-seven percent of the alarm setpoints in 1986 actuated outside of the calibrated setpoint range. In 1987, seven percent actuated outside of the calibrated setpoint range. Based on this operating experience, the licensee's position is that available trending information demonstrate that the 30 psig band (940-970 psig) has not provided adequate instrument drift margin for the installed accumulator pressure switches.

The staff has reviewed the licensee's submittal and the associated justification for the requested revision of Technical Specification 4.1.3.5.b.1.b. Based on the review, the staff agrees that the proposed revision is conservative in the sense that, with the revision, the alarm

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setpoint value for the pressure detector could be equal to or greater than the currently existing range of setpoint values and could consequently give the same or earlier warning of a scram accumulator low pressure. The staff also finds that while the proposed revision would allow the licensee greater operational flexibility, it would not compromise the operability of either a scram accumulator or its associated pressure detector. The staff, concludes that the proposed revision of TS 4.1.3.5.b.1.b for WNP-2, relating to the range of alarm set point value for the pressure detectors associated with Control Rod Drive System scram accumulators, is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation and use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The staff has determined that this 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 has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

4.0 CONTACT WITH STATE OFFICIAL

The Commission made a proposed determination that the amendment involves no significant hazards consideration and consulted with the State of Washington. No public comments were received, and the State of Washington did not have any comment.

5.0 CONCLUSION

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Charles Ramsey, Region V

Dated: April 4, 1988

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