May 29, 1987

Docket No. 50-397

Mr. G. C. Sorensen, Manager
Regulatory Programs
Washington Public Power Supply System
P.O. Box 968
3000 George Washington Way
Richland, Washington 99352

Dear Mr. Sorensen:

SUBJECT: ISSUANCE OF AMENDMENT NO. 43 TO FACILITY OPERATING LICENSE NO. NPF-21 - WPPSS NUCLEAR PROJECT NO. 2 (TAC 64358)

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 43 to Facility Operating License NPF-21 to the Washington Public Power Supply System for WPPSS Nuclear Project No. 2, located in Benton County near Richland, Washington. This amendment is in response to your letter dated January 6, 1987, and supplemental letters dated March 3, and 12, 1987.

This amendment revises Section 3/4.1.5, Standby Liquid Control (SLC) System Surveillance Requirements, of the WNP-2 Technical Specifications to permit compliance with the ATWS regulation, 10 CFR 50.62(c)(4) to be achieved with two existing 41.2 gpm SLC pumps by effecting an increase in the sodium pentaborate decahydrate solution concentration in conjunction with simultaneous operation of the two pumps. Related Figures 3.1.5-1 and 3.1.5-2 are also modified.

A copy of the related safety evaluation supporting Amendment No. 43 to Facility Operating License No. NPF-21 is enclosed.

Sincerely,

Original signed by

Robert B. Samworth, Senior Project Manager
Project Directorate V
Division of Reactor Projects - III/IV/V
& Special Projects

Enclosures:
1. Amendment No. 43 to Facility Operating License No. NPF-21
2. Safety Evaluation

cc w/enclosures:
See next page

*See previous concurrence

*DRSP/PDV	*DRSP/PDV	*OGC	DRSP/PDV
JLee	BSamworth		GWKnighton
5/15/87	5/15/87	5/19/87	5/29/87

OFFICIAL RECORD COPY

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Robert B. Samworth, Senior Project Manager
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Mr. G. C. Sorensen, Manager
Washington Public Power Supply System

WPPSS Nuclear Project No. 2
(WNP-2)

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Benton County Board of Commissioners
Prosser, Washington 99350

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

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

DOCKET NO. 50-397

WPPSS NUCLEAR PROJECT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 43
License No. NPF-21

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:

   A. The application for amendment filed by the Washington Public Power Supply System (the Supply System, also the licensee), dated January 6, 1987 as clarified by letters dated March 3, 1987 and March 12, 1987 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;

   C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the enclosure to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-21 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 43, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

H. Rood for GK

George W. Knighton, Director
Project Directorate V
Division of Reactor Projects - III/IV/V
& Special Projects

Enclosure: Changes to the Technical Specifications

Date of Issuance: May 29, 1987

May 29, 1987

ENCLOSURE TO LICENSE AMENDMENT NO. 43

FACILITY OPERATING LICENSE NO. NPF-21

DOCKET NO. 50-397

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contains vertical lines indicating the areas of change.

REMOVE	INSERT
B 3/4 1-4	B 3/4 1-4
3/4 1-21	3/4 1-21
3/4 1-22	3/4 1-22

CONTROL RODS PROGRAM CONTROLS (Continued)

The RBM is designed to automatically prevent fuel damage in the event of erroneous rod withdrawal from locations of high power density during high power operation. Two channels are provided. Tripping one of the channels will block erroneous rod withdrawal soon enough to prevent fuel damage. This system backs up the written sequence used by the operator for withdrawal of control rods.

3/4.1.5 STANDBY LIQUID CONTROL SYSTEM

The standby liquid control system provides a backup capability for bringing the reactor from full power to a cold, Xenon-free shutdown, assuming that none of the withdrawn control rods can be inserted. To meet this objective, it is necessary to inject a quantity of boron which produces a concentration of 660 ppm in the reactor core. To account for imperfect mixing and leakage, an additional margin of 165 ppm boron equivalent is added. For RHR shutdown dilution, an additional quantity of boron equivalent to 275 ppm is added to ensure the final concentration will not be less than 660 ppm in the reactor core. To achieve this shutdown requirement, a minimum solution of 4587 gallons containing a minimum of 5500 pounds of sodium pentaborate decahydrate is required. This quantity of sodium pentaborate decahydrate will provide an undiluted concentration of 1100 ppm of boron in the reactor core.

A minimum 41.2 gpm per pump injection rate has been selected to override the reactivity insertion rate due to cool down and zenon decay.

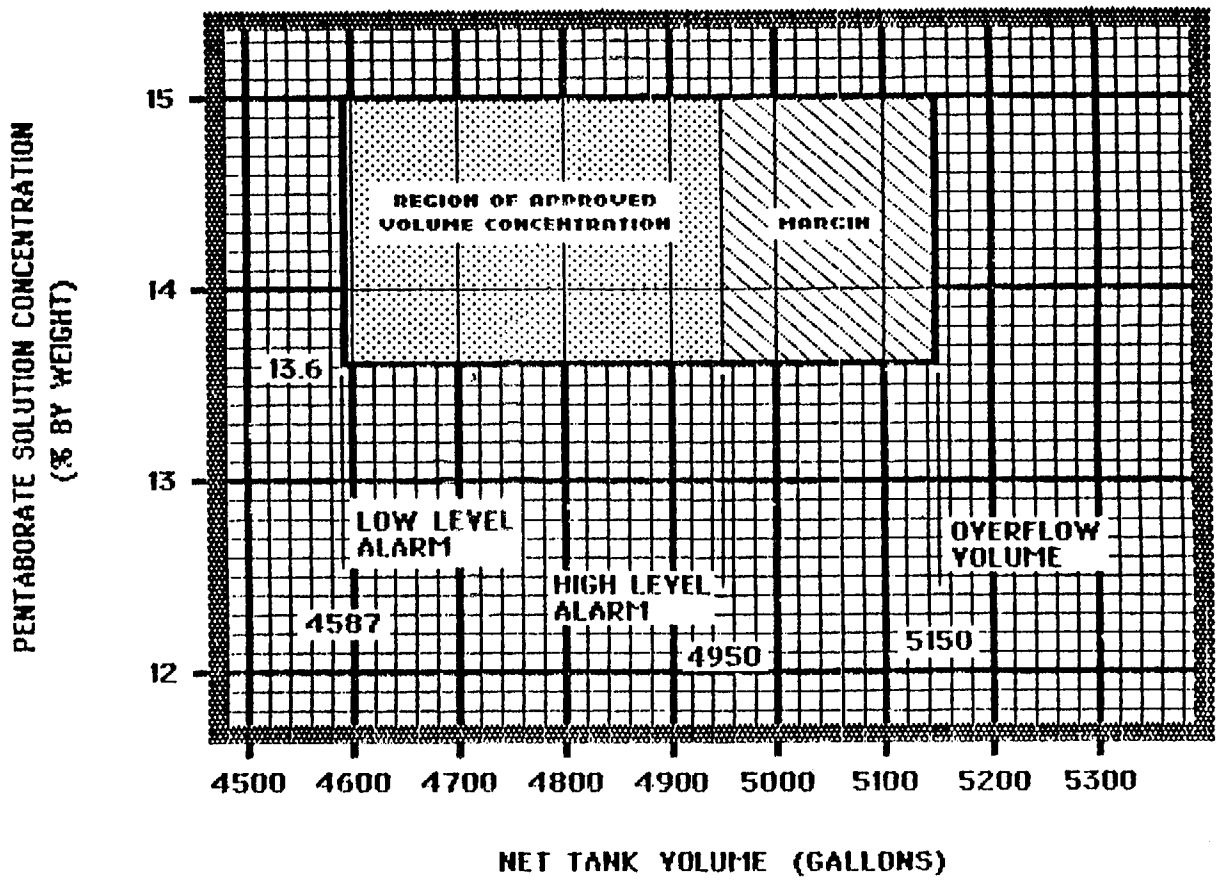
The minimum storage volume of the solution is established to allow for the portion below the pump suction that cannot be inserted and the filling of other piping systems connected to the reactor vessel. The temperature requirement on the sodium pentaborate solution is necessary to ensure that the sodium pentaborate remains in solution.

With two pumps and explosive injection valves and with a highly reliable control rod scram system, operation of the reactor is permitted to continue for short periods of time with the system inoperable or for longer periods of time with one of the redundant components inoperable.

Surveillance requirements are established on a frequency that assures a high reliability of the system. Once the solution is established, boron concentration will not vary unless more boron or water is added, thus a check on the temperature and volume once each 24 hours assures that the solution is available for use.

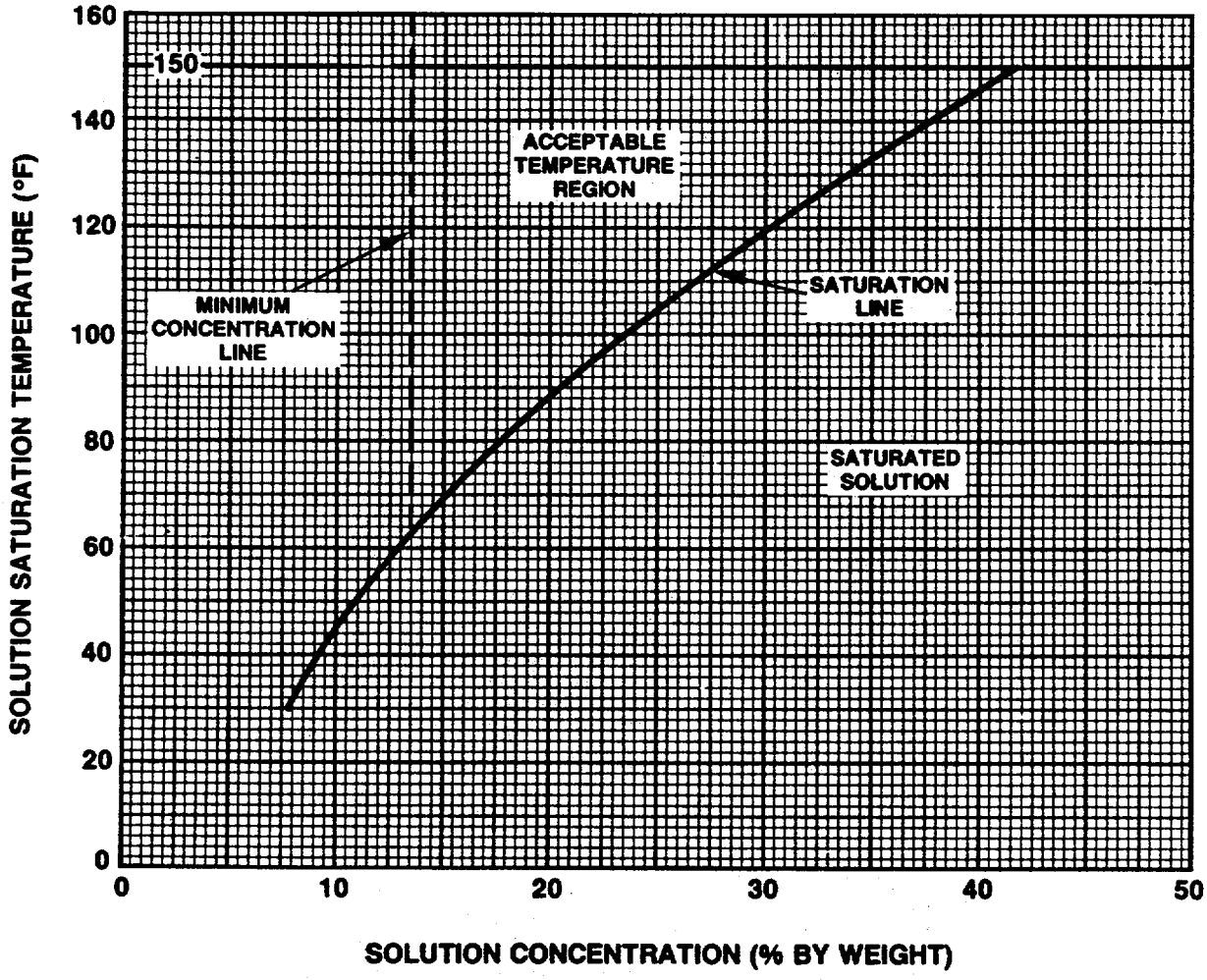
Replacement of the explosive charges in the valves at regular intervals will ensure that these valves will not fail because of deterioration of the charges.

For Anticipated Transient Without Scram (ATWS), mitigation requires an equivalent 86 gpm -- 13% sodium pentaborate decahydrate pumping rate. This requirement is met by running both standby liquid control (SLC) pumps simultaneously. At the minimum allowable single pump pumping rate (41.2 gpm), and with two pumps operating, a 13.6% sodium pentaborate decahydrate concentration will provide the required equivalent injection rate. Maintenance of the SLC solution volume and concentration within the limits established ensure that the single pump shutdown and ATWS requirements can be met.



SODIUM PENTABORATE TANK, VOLUME VS. CONCENTRATION REQUIREMENTS

FIGURE 3.1.5-2



SODIUM PENTABORATE
SOLUTION SATURATION TEMPERATURE

FIGURE 3.1.5-1

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 43 TO FACILITY OPERATING LICENSE NO. NPF-21

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

WPPSS NUCLEAR PROJECT NO. 2

DOCKET NO. 50-397

1.0 INTRODUCTION

By letter dated January 6, 1987 as clarified by letters dated March 3 and March 12, 1987, the Washington Public Power Supply System proposed certain changes to Section 3/4.1.5, Standby Liquid Control (SLC) system, and referenced Figures 3.1.5-1 and 3.1.5-2 of the Technical Specifications for WNP-2.

2.0 EVALUATION

The Standby Liquid Control system provides a backup capability for bringing the reactor from full power to a cold, Xenon-free shutdown assuming that none of the withdrawn control rods can be inserted. Applicable ATWS regulations require, as set forth in 10 CFR 50.62(c)(4), that the SLC system be capable of injecting at a minimum flow capacity and boron content equivalent in control capacity to 86 gpm of 13 weight percent sodium pentaborate solution. The licensee has proposed that this equivalency be achieved by simultaneous operation of two SLC pumps, each with a capacity of 41.2 gpm, and with sodium pentaborate decahydrate concentration increased to 13.6 weight percent.

Following the modification necessary to permit two pump operation, acceptance testing will be performed to demonstrate the capability to meet a flow rate of not less than 82.4 gpm. Subsequent periodic surveillance will include quarterly single pump flow rate testing and 18 month single loop system functional testing to assure continued SLC system capability.

The proposed changes have been reviewed against the ATWS rule and against Generic Letter 85-03, "Clarification of Equivalent Control Capacity for Standby Liquid Control Systems," dated January 28, 1985. The licensee's proposal to increase sodium pentaborate decahydrate concentration to 13.6 weight percent in conjunction with a flow rate of 82.4 gpm will provide a boron content equivalent in control capacity to 86 gpm of 13 weight percent sodium pentaborate. This is in compliance with 10 CFR 50.62 and is, therefore, acceptable.

The licensee's plan to test periodically only one LCS system pump at a time instead of both pumps simultaneously is also acceptable. This is based on the licensee's plan to perform initial two-pump tests, correlate single pump data to the initial two-pump data, and then compare the periodic single pump test data to the initial test data for verification of system capability.

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. 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 which was published in the Federal Register (52 FR 13351) on April 22, 1987, 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: T. Collins, NRR

Dated: May 29, 1987

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