

April 10, 1992

Docket No. 50-397

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

Dear Mr. Sorensen:

SUBJECT: ISSUANCE OF AMENDMENT FOR THE WASHINGTON PUBLIC POWER SUPPLY SYSTEM
NUCLEAR PROJECT NO. 2 (TAC NO. M82662)

The Commission has issued the enclosed Amendment No. 102 to the Facility Operating License No. NPF-21 for WPPSS Nuclear Project No. 2. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated January 21, 1992.

The amendment revises the operability requirements for the source range monitors to provide flexibility for a complete core offload and revises the required signal to noise ratio as recommended by General Electric for this system.

A copy of the related Safety Evaluation is also enclosed. A notice of issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

Original signed by:
William M. Dean, Project Manager
Project Directorate V
Division of Reactor Projects III/IV/V Office of
Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No.102 to NPF-21
- 2. Safety Evaluation

*See previous concurrence

cc w/enclosures:

See next page

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CP-1

OFC	PDV/LA	PDV/PM	*BC/SRXB	*OGC	PDV/D
NAME	DFoster <i>[Signature]</i>	PEng <i>W. Dean</i>	RCJones	RBachmann	TQuay <i>[Signature]</i>
DATE	4/10/91	4/8/92	03/19/92	03/26/92	4/10/92

OFFICIAL DOCUMENT NAME: WNP82662.AMD

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William M. Dean, Project Manager
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OFC	! PDV/LA	! PDV/PM	! BC/SRXB	*OGC	! PDV/D
NAME	! DFoster <i>see prev. conc</i>	! PEng <i>WMM</i>	! RCJones <i>RCJ</i>	! RBachmann	! TQuay <i>TQ</i>
DATE	! 3/30/91	! 3/18/92	! 3/19/92	! 3/26/92	! 4/16/92

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Sincerely,

Patricia L. Eng, Project Manager
Project Directorate V
Division of Reactor Projects III/IV/V Office of
Nuclear Reactor Regulation

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OFC	PDV/LA	PDV/PM	BC/SRXB	OGC <i>CB</i>	PDV/D
NAME	DFoster <i>DF</i>	PEng <i>WMD</i>	RCJones	<i>R Bachmann</i>	TQuay
DATE	3/13/91	3/18/92	/ / 92	3/24/92	/ / 92



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

April 10, 1992

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Sincerely,

A handwritten signature in cursive script, appearing to read "William M. Dean".

William M. Dean, Project Manager
Project Directorate V
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No.102 to NPF-21
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. G. C. Sorensen
Washington Public Power Supply System

WPPSS Nuclear Project No. 2
(WNP-2)

cc:

Mr. J. W. Baker
WNP-2 Plant Manager
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Richland, Washington 99352

Regional Administrator, Region V
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Richland, Washington 99352



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

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

DOCKET NO. 50-397

NUCLEAR PROJECT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 102
License No. NPF-21

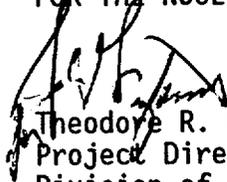
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Washington Public Power Supply System (licensee) dated January 21, 1992, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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 rules and 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;
 - 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 attachment to this license amendment and paragraph 2.C.(2) of 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. 102 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



Theodore R. Quay, Director
Project Directorate V
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 10, 1992

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 102 TO 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 contain vertical lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE

3/4 9-3
3/4 9-4
B 3/4 9-1

INSERT

3/4 9-3
3/4 9-4
B 3/4 9-1

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 REACTOR MODE SWITCH

Locking the OPERABLE reactor mode switch in the Shutdown or Refuel position, as specified, ensures that the restrictions on control rod withdrawal and refueling platform movement during the refueling operations are properly activated. These conditions reinforce the refueling procedures and reduce the probability of inadvertent criticality, damage to reactor internals or fuel assemblies, and exposure of personnel to excessive radioactivity.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of at least two source range monitors ensure that redundant monitoring capability is available to detect changes in the reactivity condition of the core. SRMs are not required to be OPERABLE when less than or equal to 4 bundles are inserted around the SRM and no other fuel assemblies are in the associated core quadrant since this configuration will not be critical even with all control rods withdrawn. Additionally, this configuration (four bundles inserted around each SRM) provides significantly more SHUTDOWN MARGIN than is required by LCO 3.1.1 (SHUTDOWN MARGIN).

3/4.9.3 CONTROL ROD POSITION

The requirement that all control rods be inserted during other CORE ALTERATIONS ensures that fuel will not be loaded into a cell without a control rod.

3/4.9.4 DECAY TIME

The minimum requirement for reactor subcriticality prior to fuel movement ensures that sufficient time has elapsed to allow the radioactive decay of the short-lived fission products. This decay time is consistent with the assumptions used in the safety analyses.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during movement of fuel within the reactor pressure vessel.

3/4.9.6 REFUELING PLATFORM

The OPERABILITY requirements ensure that (1) the refueling platform will be used for handling control rods and fuel assemblies within the reactor pressure vessel, (2) each crane and hoist has sufficient load capacity for handling fuel assemblies and control rods, and (3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations.

REFUELING OPERATIONS

BASES

3/4.9.7 CRANE TRAVEL - SPENT FUEL STORAGE POOL

The restriction on movement of loads in excess of the nominal weight of a fuel assembly over other fuel assemblies in the storage pool ensures that in the event this load is dropped (1) the activity release will be limited to that contained in a single fuel assembly, and (2) any possible distortion of fuel in the storage racks will not result in a critical array. This assumption is consistent with the activity release assumed in the safety analyses.

3/4.9.8 and 3/4.9.9 WATER LEVEL - REACTOR VESSEL and WATER LEVEL - SPENT FUEL STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gas activity released from the rupture of an irradiated fuel assembly. This minimum water depth is consistent with the assumptions of the safety analysis.

3/4.9.10 CONTROL ROD REMOVAL

These specifications ensure that maintenance or repair of control rods or control rod drives will be performed under conditions that limit the probability of inadvertent criticality. The requirements for simultaneous removal of more than one control rod are more stringent since the SHUTDOWN MARGIN specification provides for the core to remain subcritical with only one control rod fully withdrawn.

3/4.9.11 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

The requirement that at least one residual heat removal loop be OPERABLE or that an alternate method capable of decay heat removal be demonstrated and that an alternate method of coolant mixing be in operation ensures that (1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during REFUELING, and (2) sufficient coolant circulation would be available through the reactor core to assure accurate temperature indication and to distribute and prevent stratification of the poison in the event it becomes necessary to actuate the standby liquid control system.

The requirement to have two shutdown cooling mode loops OPERABLE when there is less than 22 feet of water above the reactor vessel flange ensures that a single failure of the operating loop will not result in a complete loss of residual heat removal capability. With the reactor vessel head removed and 22 feet of water above the reactor vessel flange, a large heat sink is available for core cooling. Thus, in the event a failure of the operating RHR loop, adequate time is provided to initiate alternate methods capable of decay heat removal or emergency procedures to cool the core.

REFUELING OPERATIONS

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 At least 2 source range monitor* (SRM) channels shall be OPERABLE and inserted to the normal operating level with:

- a. Continuous visual indication in the control room,
- b. At least one with alarm in the control room,
- c. One of the required SRM detectors located in the quadrant where CORE ALTERATIONS are being performed and the other required SRM detector located in an adjacent quadrant, and
- d. The "shorting links" removed from the RPS circuitry prior to and during the time any control rod is withdrawn[#] and shutdown margin demonstrations are in progress.

APPLICABILITY: OPERATIONAL CONDITION 5.***

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS** and insert all insertable control rods.

SURVEILLANCE REQUIREMENTS

4.9.2 Each of the above required SRM channels shall be demonstrated OPERABLE by:

- a. At least once per 12 hours:
 1. Performance of a CHANNEL CHECK,
 2. Verifying the detectors are inserted to the normal operating level, and
 3. During CORE ALTERATIONS, verifying that the detector of an OPERABLE SRM channel is located in the core quadrant where CORE ALTERATIONS are being performed and another is located in an adjacent quadrant.

*The use of special movable detectors during CORE ALTERATIONS in place of the normal SRM nuclear detectors is permissible as long as these special detectors are connected to the normal SRM circuits.

**Except movement of IRM, SRM or special movable detectors.

#Not required for control rods removed per Specification 3.9.10.1 and 3.9.10.2.

***An individual SRM is not required to be OPERABLE with ≤ 4 fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant.

REFUELING OPERATIONS

SURVEILLANCE REQUIREMENTS (Continued)

- b. Performance of a CHANNEL FUNCTIONAL TEST:
 - 1. Within 24 hours prior to the start of CORE ALTERATIONS, and
 - 2. At least once per 7 days.
- c. Verifying that the channel count rate is at least 0.7# cps:
 - 1. Prior to control rod withdrawal,
 - 2. Prior to and at least once per 12 hours during CORE ALTERATIONS, and
 - 3. At least once per 24 hours.
- d. Verifying, within 8 hours prior to and at least once per 12 hours during, that the RPS circuitry "shorting links" have been removed during:
 - 1. The time any control rod is withdrawn,## or
 - 2. Shutdown margin demonstrations.

#Provided signal-to-noise ratio ≥ 20 . Otherwise, ≥ 3 cps, provided signal-to-noise ratio ≥ 2 .

##Not required for control rods removed per Specification 3.9.10.1 or 3.9.10.2.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 102 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 January 21, 1992, Washington Public Power Supply System submitted a request for changes to the Technical Specifications (TS) for Nuclear Project No. 2. The proposed changes would revise the operability requirements for the source range monitors to provide flexibility for a complete core offload and the required signal to noise ratio as recommended by General Electric for this system.

2.0 EVALUATION

By letter dated January 21, 1992, (G02-92-016), the Washington Public Power Supply System (WPPSS) submitted a request for changes to the Technical Specifications (TS) for WPPSS Nuclear Project No. 2 (WNP-2). The proposed changes would revise Section 3/4.9.2, "Refueling Operations - Instrumentation," and the associated Bases of the TS regarding the requirements of the source range monitors (SRMs) during core offloads.

During refueling operations, the TS require that minimum count rate levels are met by the SRM. In the case of a complete offload of the reactor core, as the reactor fuel inventory is removed from the reactor vessel, the required minimum count rate cannot be met. As the fuel assemblies are removed from the core, the SRM count rates will decrease to the point where there was an insufficient source of neutrons to maintain the required count rate. Therefore WNP-2 has requested that the TS be revised to state that an individual SRM is not required to be operable with less than four fuel assemblies in the vicinity of the SRM and no other fuel assemblies in the associated core quadrant.

WNP-2 also requested revision of the signal to noise ratio requirements to reflect those recommended by General Electric (GE) in its Service Information Letter (SIL) No. 478, "SRM Minimum Count Rate."

WNP-2 proposes to be allowed to go below the required SRM count rate when there are less than four fuel assemblies in each quadrant of the core located adjacent to each of the four SRM positions during both fuel unloading and

loading operations. Calculations performed by GE show that the configuration of four assemblies at the maximum reactivity condition without control rods inserted and separated from other assemblies by at least two fuel cells would have a k_{eff} of less than 0.95. Therefore, the configuration proposed by the licensee will be subcritical. WPPSS also asserts that this configuration will remain subcritical at the most reactive temperature (68°F) by a large margin.

Our review of the proposed revisions to the SRM operability requirements with less than four fuel assemblies adjacent to the SRM indicates that the configuration would be well subcritical and industry experience indicates that required count rates should be achieved with four irradiated assemblies located next to a SRM. This proposed revision regarding SRM operability with less than four fuel assemblies adjacent is acceptable.

The proposed changes also revise required SRM count rates and associated signal to noise ratios to more conservative values. The proposed values are in agreement with those recommended by GE in SIL 478. The SIL states that a signal to noise ratio of at least 20:1 is required to maintain the design basis level of uncertainty with a 0.7 count per second minimum count rate. This higher signal to noise ratio is required so that the SRM can effectively distinguish between actual counts and noise at lower count rates.

The SIL also noted that a minimum SRM count rate of three counts per second was acceptable with a signal to noise ratio of 2:1. With this ratio, GE stated that there is a 95% confidence level that the indicated signal is correct. The proposed changes to the SRM minimum count rate and associated signal to noise ratios is acceptable.

3.0 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.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the 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 has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (57 FR 7817).

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.

5.0 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: Patricia L. Eng

Date: April 10, 1992