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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 92 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 February 28, 1991 (Ref. 1), as amended by letters dated March 21, 1991 (Ref. ?) and April 26, 1991 (Ref. 5), Washington Public Power Supply System (WPPSS), the licensee for WNP-2, proposed changes to the Technical Specification (TS) associated with the minimum critical power ratio (MCPR) Safety Limit for WNP-2. The licensee had concluded from their reload analysis that the reuse of channel boxes in the upcoming cycle, cycle 7, would require recalculation of the MCPR Safety Limit due to channel box bow effects. All calculations were carried out by an NRC approved methodology, (Ref. 3).

The proposed changes would modify the MCPR Safety Limit TS from 1.04 to 1.07 up to a cycle exposure of 4500 MWD/MTU and 1.11 from 4500 MWD/MTU to end of cycle (EOC) for two recirculation loop operation, and 1.08 up to 4500 MWD/MTU cycle exposure and 1.12 for cycle exposure greater than 4500 MWD/MTU to EOC with single recirculation loop operation.

This safety evaluation covers the staff review of the Washington Public Power Supply System amendments to TS 2.1.2 and Bases 2.0, reflecting changes to the MCPR safety limit in the upcoming cycle 7.

The March 21 and April 26, 1991, letters provided clarifying information which did not change the scope of the amendment request and did not affect the staff's initial determination of no significant hazards consideration.

2.0 EVALUATION

The calculation of the Safety Limit MCPR (SLMCPR) is based on statistical consideration of measurement and associated uncertainties with the thermal hydraulic state of the reactor using design basis radial, axial, and local power distribution and considering fuel assembly channel box bow, (Ref. 3). In calculating the SLMCPR, the licensee included the effects of fuel dependent parameters associated with a mixed core. Similarly, when a reload batch (from a specific vendor) is used to replace a group of dissimilar fuel assemblies, the core average fuel dependent parameters change because of the difference in the relative number of each type of the bundle in the core. This was accounted for in the SLMCPR calculation.

The licensee also utilized data pertaining to radial, axial and local peaking factors, from previous cycle in their evaluation of the SLMCPR. Available operating data for WNP-2 and the predicted operating conditions for cycle 7 were evaluated to identify the design basis power distributions for use in the cycle 7 MCPR Safety Limit calculation.

The licensee conducted some 500 Monte Carlo trials to determine that for a minimum CPR value of 1.07 at least 99.9% of the fuel rods in the core would be expected to avoid boiling transition with a confidence level of 95% for the design basis power distributions from BOC to a cycle average burnup of 4500 MWD/MTU. Similarly, to provide the same protection, a minimum CPR value of 1.11 is required for the design basis power distributions from 4500 MWD/MTU to EOC. For single loop operation, the single loop SLMCPR is increased by .01 to account for additional total core flow uncertainties to 1.08 and 1.12 for below and above 4500 MWD/MTU, respectively.

The above calculations included the effects of channel box bow on the Safety Limit MCPR. Without channel box bow effects, the SLMCPR would have been reduced by about 0.03. The Supply System will reuse some initial core channel boxes on ANF 8x8 fuel assemblies in the WNP-2 cycle 7 core. The effects of reused channel boxes adjacent to assemblies with exposed channel boxes was also included as input data in the 8x8 fuel calculations. The input data for the 9x9-9X fuel type, was based on a maximum channel box bow assuming a new channel on the 9x9-9X fuel adjacent to assemblies with exposed channels.

The staff has reviewed the licensee's submittal and has found that the proposed TS changes to the Safety Limit MCPR values for Cycle 7 reload are acceptable since the approved methodology was used and the results are 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. 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. 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: T. Huang

Date: June 3, 1991

6.0 REFERENCES

1. G02-91-040, February 28, 1991, G.C. Sorensen, WPPSS, to USNRC, "Nuclear Plant No. 2, Operating License NPF-21, Request for Amendment to Technical Specifications Safety Limit; Thermal Power, High Pressure and High Flow."

2. G02-91-054, March 21, 1991, G.C. Sorensen, WPPSS to USNRC, "Nuclear Plant No. 2, Operating License NPF-21, Request for Amendment to Technical Specifications Safety Limit; Thermal Power, High Pressure and High Flow - Revision."

3. Letter, August 8, 1990, A.C. Thadani, USNRC to R.A. Copeland, ANF, "Acceptance for referencing of Topical Report ANF-524(P), Revision 2, ANF Critical Power Methodology for Boiling Water Reactor."

4. Letter, April 19, 1991, P.L. Eng, USNRC to G.C. Sorensen, WPPSS, "Request for Additional Information Regarding Request for Amendment to the Technical Specification Safety Limit: Thermal Power, High Pressure and High Flow."

5. Letter, April 26, 1991, G.C. Sorensen, WPPSS to USNRC, "Nuclear Plant No. 2, Operating License NPF-21 Request for Amendment to Technical Specifications Safety Limit; Thermal Power and High Flow - Additional Information (TAC No. 79884)."

April 19, 1991

Docket No. 50-397

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

Dear Mr. Sorensen:

SUBJECT: CORRECTION TO AMENDMENT NO. 91 TO FACILITY OPERATING LICENSE NO. NPF-21 (TAC NO. 79493)

On April 11, 1991, the Commission issued Amendment No. 91 to the operating license for the WPPSS Nuclear Project No. 2, in response to your application dated January 18, 1991. The amendment revised Technical Specification (TS) 3/4.7.4 to reflect recommendations of Generic Letter 90-09 for an alternative inspection schedule based on the number of unacceptable snubbers found during the previous inspection in proportion to the sizes of various snubber populations or categories.

Inadvertently, errors occurred on two of the TS pages issued with the amendment. Page 3/4 7-12 was an unchanged overleaf page which had been reproduced from a punched page. The position of a hole caused a broken marginal line which should have been a solid line as issued in amendment 54. Page 3/4 7-14a contained a typographical error in the first line of Note 4.

These errors have been corrected and the new pages, including overleaf, are enclosed. Please accept our apologies for any inconvenience these errors may have caused you.

Sincerely,

Original signed by

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

Enclosures:
TS pages 3/4 7-12
and 3/4 7-14a

cc w/enclosures:
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Mr. G. C. Sorensen
Washington Public Power Supply System

WPPSS Nuclear Project No. 2
(WNP-2)

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SURVEILLANCE REQUIREMENTS (Continued)

c. Visual Inspection Acceptance Criteria

Visual inspections shall verify that: (1) the snubber has no visible indications of damage or impaired OPERABILITY, (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for attachment of the snubber to the component and to the snubber anchorage are functional. Snubbers which appear inoperable as a result of visual inspections shall be classified as unacceptable and may be reclassified acceptable for the purpose of establishing the next visual inspection interval, provided that: (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers irrespective of type that may be generically susceptible; and (2) the affected snubber is functionally tested in the as-found condition and determined OPERABLE per Specification 4.7.4f. All snubbers found connected to an inoperable common hydraulic fluid reservoir shall be counted as unacceptable for determining the next inspection interval. A review and evaluation shall be performed and documented to justify continued operation with an unacceptable snubber. If continued operation cannot be justified, the snubber shall be declared inoperable and the ACTION requirements shall be met.

d. Transient Event Inspection

An inspection shall be performed of all hydraulic and mechanical snubbers attached to sections of systems that have experienced unexpected, potentially damaging transients as determined from a review of operational data and a visual inspection of the systems within 6 months following such an event. In addition to satisfying the visual inspection acceptance criteria, freedom-of-motion of mechanical snubbers shall be verified using at least one of the following: (1) manually induced snubber movement; or (2) evaluation of in-place snubber piston setting; or (3) stroking the mechanical snubber through its full range of travel.

e. Functional Tests

During the first refueling shutdown and at least once per 18 months thereafter during shutdown, a representative sample of snubbers shall be tested using one of the following sample plans. The sample plan shall be selected prior to the test period and cannot be changed during the test period. The NRC Regional Administrator shall be notified in writing of the sample plan selected prior to the test period or the sample plan used in the prior test period shall be implemented:

1) At least 10% of the total of each type of snubber shall be functionally tested either in-place or in a bench test. For each snubber of a type that does not meet the functional test acceptance criteria of Specification 4.7.4f., an additional 5% of that type of snubber shall be functionally tested until no more failures are found or until all snubbers of that type have been functionally tested; or

2) A representative sample of 37 snubbers shall be functionally tested in accordance with Figure 4.7-1. "C" is the total number of snubbers found not meeting the acceptance requirements of Specification 4.7.4f. The cumulative number of snubbers of a type tested is denoted by "N". If at any time the point plotted falls in the "Accept" region, testing of snubbers may be terminated. When the point plotted lies in the "Continue Testing" region, additional snubbers shall be tested until the point falls in the "Accept" region or all the snubbers have been tested. Testing equipment failure during functional testing may invalidate that day's testing and allow that day's testing to resume anew at a later time provided all snubbers tested with the failed equipment during the day of equipment failure are retested.

The representative sample selected for the functional test sample plans shall be randomly selected from the snubbers of each type and reviewed before beginning the testing. The review shall ensure, as far as practicable, that they are representative of the various configurations, operating environments, range of size, and capacity of snubbers of each type. Snubbers placed in the same location as snubbers which failed the previous functional test shall be retested at the time of the next functional test but shall not be included in

TABLE 4.7-1
SNUBBER VISUAL INSPECTION INTERVAL

Population or Category (Notes 1 and 2)	NUMBER OF UNACCEPTABLE SNUBBERS		
	Column A Extended Interval (Notes 3 and 6)	Column B Repeat Interval (Notes 4 and 6)	Column C Reduce Interval (Notes 5 and 6)
1	0	0	1
80	0	0	2
100	0	1	4
150	0	3	8
200	2	5	13
300	5	12	25
400	8	18	36
500	12	24	48
750	20	40	78
1000 or greater	29	56	109

Note 1: The next visual inspection interval for a snubber population or category size shall be determined based upon the previous inspection interval and the number of unacceptable snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. However, the licensee must make and document that decision before any inspection and shall use that decision as the basis upon which to determine the next inspection interval for that category.

Note 2: Interpolation between population or category sizes and the number of unacceptable snubbers is permissible. Use next lower integer for the value of the limit for Columns A, B or C if that integer includes a fractional value of unacceptable snubbers as determined by interpolation.

Note 3: If the number of unacceptable snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months.

Note 4: If the number of unacceptable snubbers is equal to or less than the number in Column B but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.

Note 5: If the number of unacceptable snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of unacceptable snubbers is less than the number in column C but greater than the number in Column B, the next interval shall be reduced proportionally by interpolation, that is, the previous interval shall be reduced by a factor that is one-third of the ratio of the difference between the number of unacceptable snubbers found during the previous interval and the number in column B to the difference in numbers in Columns B and C.

Note 6: The provisions of Specification 4.0.2 are applicable for all inspection intervals up to and including 48 months.

Docket File

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

April 11, 1991

MEMORANDUM FOR: Sholly Coordinator

FROM: Patricia L. Eng, Project Manager
Project Directorate V
Division of Reactor Projects III/IV/V

SUBJECT: REQUEST FOR PUBLICATION IN BIWEEKLY FR NOTICE - NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE (TAC NO. 79493)

Washington Public Power Supply System, Docket No. 50-397, Nuclear Project No. 2, Benton County, Washington

Date of application amendment: January 18, 1991

Brief description of amendment: The amendment revised the Technical Specification 3/4.7.4, "Snubbers," to reflect the recommendations of Generic Letter (GL) 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions." The GL proposes an alternative inspection schedule based on the number of unacceptable snubbers found during the previous inspection in proportion to the sizes of various snubber populations or categories.

Date of issuance: April 11, 1991

Effective date: April 11, 1991

Amendment No.: 91

Facility Operating License No. NPF-21: The amendment revised the Technical Specifications.

Date of initial notice in FEDERAL REGISTER: February 20, 1991 (56 FR 6884)

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated April 11, 1991.

No significant hazards consideration comments requested: No.

Local Public Document Room location: Richland Public Library, 955 Northgate Street, Richland, Washington 99352

Original Signed By:

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

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Docket No. 50-397

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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 NO. 91 TO FACILITY OPERATING LICENSE NO. NPF-21 FOR THE WPPSS NUCLEAR PROJECT NO. 2 (TAC NO. 79493)

The Commission has issued the enclosed Amendment No. 91 to the Facility Operating License for the WPPSS Nuclear Project No. 2. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated January 18, 1991 (G02-91-09).

The amendment revises Technical Specification 3/4.7.4, "Snubbers," to reflect the recommendations of Generic Letter (GL) 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions." The GL proposes an alternative inspection schedule based on the number of unacceptable snubbers found during the previous inspection in proportion to the sizes of various snubber populations or categories.

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:

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

Enclosures:
1. Amendment No. 91to NPF-21
2. Safety Evaluation

cc w/enclosures:
See next page

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

WPPSS Nuclear Project No. 2
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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. 91
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 (licensees) dated January 18, 1991, 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. 91 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

James E. Dyer

James E. Dyer, 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 11, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 91

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 Pages	Insert Pages
3/4 7-10	3/4 7-10
3/4 7-11	3/4 7-11
B 3/4 7-2	B 3/4 7-2
B 3/4 7-3	B 3/4 7-3

The following new pages should be inserted.

3/4 7-14a
3/4 7-14b

SURVEILLANCE REQUIREMENTS (Continued)

c. At least once per 18 months by:

1. Performing a system functional test which includes simulated automatic actuation and restart and verifying that each automatic valve in the flow path actuates to its correct position. Actual injection of coolant into the reactor vessel may be excluded.

2. Verifying that the system will develop a flow of greater than or equal to 600 gpm in the test flow path when steam is supplied to the turbine at a pressure of 150 + 15, -0 psig.*

3. Verifying that the suction for the RCIC system is automatically transferred from the condensate storage tank to the suppression pool on a condensate storage tank water level-low signal.

*The provisions of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the tests.

PLANT SYSTEMS

3/4.7.4 SNUBBERS

LIMITING CONDITION FOR OPERATION

3.7.4 All hydraulic and mechanical snubbers shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3. OPERATIONAL CONDITIONS 4 and 5 for snubbers located on systems required OPERABLE in those OPERATIONAL CONDITIONS#.

ACTION:

With one or more required snubbers inoperable on any system, within 72 hours replace or restore the inoperable snubber(s) to OPERABLE status and perform an engineering evaluation per Specification 4.7.4g on the attached component or declare the attached system inoperable and follow the appropriate ACTION statement for that system.

SURVEILLANCE REQUIREMENTS

4.7.4 Each snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program and the requirements of Specification 4.0.5.

a. Inspection Types

As used in this specification, type of snubber shall mean snubbers of the same design and manufacturer, irrespective of capacity.

b. Visual Inspections

Snubbers are categorized as inaccessible or accessible during reactor operation. Each of these categories (inaccessible and accessible) may be inspected independently according to the schedule determined by Table 4.7-1. The visual inspection interval for each type of snubber shall be determined based upon the criteria provided in Table 4.7-1 and the first inspection interval determined using these criteria shall be based upon the previous inspection interval as established by the requirements in effect before amendment 91 .

#Unless the removal of snubber(s) for maintenance or testing is justified by engineering analysis.

SURVEILLANCE REQUIREMENTS (Continued)

c. Visual Inspection Acceptance Criteria

Visual inspections shall verify that: (1) the snubber has no visible indications of damage or impaired OPERABILITY, (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for attachment of the snubber to the component and to the snubber anchorage are functional. Snubbers which appear inoperable as a result of visual inspections shall be classified as unacceptable and may be reclassified acceptable for the purpose of establishing the next visual inspection interval, provided that: (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers irrespective of type that may be generically susceptible; and (2) the affected snubber is functionally tested in the as-found condition and determined OPERABLE per Specification 4.7.4f. All snubbers found connected to an inoperable common hydraulic fluid reservoir shall be counted as unacceptable for determining the next inspection interval. A review and evaluation shall be performed and documented to justify continued operation with an unacceptable snubber. If continued operation cannot be justified, the snubber shall be declared inoperable and the ACTION requirements shall be met.

d. Transient Event Inspection

An inspection shall be performed of all hydraulic and mechanical snubbers attached to sections of systems that have experienced unexpected, potentially damaging transients as determined from a review of operational data and a visual inspection of the systems within 6 months following such an event. In addition to satisfying the visual inspection acceptance criteria, freedom-of-motion of mechanical snubbers shall be verified using at least one of the following: (1) manually induced snubber movement; or (2) evaluation of in-place snubber piston setting; or (3) stroking the mechanical snubber through its full range of travel.

e. Functional Tests

During the first refueling shutdown and at least once per 18 months thereafter during shutdown, a representative sample of snubbers shall be tested using one of the following sample plans. The sample plan shall be selected prior to the test period and cannot be changed during the test period. The NRC Regional Administrator shall be notified in writing of the sample plan selected prior to the test period or the sample plan used in the prior test period shall be implemented:

1) At least 10% of the total of each type of snubber shall be functionally tested either in-place or in a bench test. For each snubber of a type that does not meet the functional test acceptance criteria of Specification 4.7.4f., an additional 5% of that type of snubber shall be functionally tested until no more failures are found or until all snubbers of that type have been functionally tested; or

2) A representative sample of 37 snubbers shall be functionally tested in accordance with Figure 4.7-1. "C" is the total number of snubbers found not meeting the acceptance requirements of Specification 4.7.4f. The cumulative number of snubbers of a type tested is denoted by "N". If at any time the point plotted falls in the "Accept" region, testing of snubbers may be terminated. When the point plotted lies in the "Continue Testing" region, additional snubbers shall be tested until the point falls in the "Accept" region or all the snubbers have been tested. Testing equipment failure during functional testing may invalidate that day's testing and allow that day's testing to resume anew at a later time provided all snubbers tested with the failed equipment during the day of equipment failure are retested.

The representative sample selected for the functional test sample plans shall be randomly selected from the snubbers of each type and reviewed before beginning the testing. The review shall ensure, as far as practicable, that they are representative of the various configurations, operating environments, range of size, and capacity of snubbers of each type. Snubbers placed in the same location as snubbers which failed the previous functional test shall be retested at the time of the next functional test but shall not be included in

TABLE 4.7-1
SNUBBER VISUAL INSPECTION INTERVAL

Population or Category (Notes 1 and 2)	NUMBER OF UNACCEPTABLE SNUBBERS		
	Column A Extended Interval (Notes 3 and 6)	Column B Repeat Interval (Notes 4 and 6)	Column C Reduce Interval (Notes 5 and 6)
1	0	0	1
80	0	0	2
100	0	1	4
150	0	3	8
200	2	5	13
300	5	12	25
400	8	18	36
500	12	24	48
750	20	40	78
1000 or greater	29	56	109

Note 1: The next visual inspection interval for a snubber population or category size shall be determined based upon the previous inspection interval and the number of unacceptable snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. However, the licensee must make and document that decision before any inspection and shall use that decision as the basis upon which to determine the next inspection interval for that category.

Note 2: Interpolation between population or category sizes and the number of unacceptable snubbers is permissible. Use next lower integer for the value of the limit for Columns A, B or C if that integer includes a fractional value of unacceptable snubbers as determined by interpolation.

Note 3: If the number of unacceptable snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months.

Note 4: If the number of unacceptable snubbers is equal to or less then the number in Column B but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.

Note 5: If the number of unacceptable snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of unacceptable snubbers is less than the number in Column C but greater than the number in Column B, the next interval shall be reduced proportionally by interpolation, that is, the previous interval shall be reduced by a factor that is one-third of the ratio of the difference between the number of unacceptable snubbers found during the previous interval and the number in Column B to the difference in numbers in Columns B and C.

Note 6: The provisions of Specification 4.0.2 are applicable for all inspection intervals up to and including 48 months.

3/4.7.1 SERVICE WATER SYSTEMS

The OPERABILITY of the service water systems ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of these systems, assuming a single failure, is consistent with the assumptions used in the accident conditions within acceptable limits.

During periods of low ambient temperatures, when the possibility of freezing exists if the sprays were to be operated, the discharge of each spray cooling division is typically aligned directly into the pond (spray bypass mode). Safety analysis has shown that several hours are available for realignment to spray following the design basis LOCA accident in conjunction with extreme meteorological conditions. A 72°F alarm requiring action for realignment provides 2½ hours before 77°F would be exceeded, based on accident heat loads. With the pond temperature below 77°F and the spray headers in service the safety analysis provided in FSAR Section 9.2.5 is bounding and the system therefore remains operable in the spray or bypass mode of operation.

3/4.7.2 CONTROL ROOM EMERGENCY FILTRATION SYSTEM

The OPERABILITY of the control room emergency filtration system ensures that (1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and (2) the control room will remain habitable for operations personnel during and following all design basis accident conditions. Continuous operation of the system with the heaters OPERABLE for 10 hours during each 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rems or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50.

3/4.7.3 REACTOR CORE ISOLATION COOLING SYSTEM

The reactor core isolation cooling (RCIC) system is provided to assure adequate core cooling in the event of reactor isolation from its primary heat sink and the loss of feedwater flow to the reactor vessel without requiring actuation of any of the emergency core cooling system (ECCS) equipment. The RCIC system is conservatively required to be OPERABLE whenever reactor pressure exceeds 150 psig. This pressure is substantially below that for which the low pressure core cooling systems can provide adequate core cooling for events requiring the RCIC system.

The RCIC system specifications are applicable during OPERATIONAL CONDITIONS 1, 2, and 3 when reactor vessel pressure exceeds 150 psig because RCIC is the primary non-ECCS source of emergency core cooling when the reactor is pressurized.

3/4.7.3 REACTOR CORE ISOLATION COOLING SYSTEM (Continued)

With the RCIC system inoperable, adequate core cooling is assured by the OPERABILITY of the HPCS system and justifies the specified 14 day out-of-service period.

The surveillance requirements provide adequate assurance that RCIC will be OPERABLE when required. Although all active components are testable and full flow can be demonstrated by recirculation during reactor operation, a complete functional test requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage and to start cooling at the earliest possible moment.

3/4.7.4 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads. Snubbers excluded from this inspection program are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed would have no adverse effect on any safety-related system. During shutdown, snubbers which are redundant per engineering analysis can be removed for maintenance and/or testing and are excluded from the operability requirements.

Snubbers are classified and grouped by design and manufacturer but not by size. For example, mechanical snubbers utilizing the same design features of the 2-kip, 10-kip, and 100-kip capacity manufactured by Company "A" are of the same type. The same design mechanical snubbers manufactured by Company "B" for the purposes of this Technical Specification would be of a different type, as would hydraulic snubbers from either manufacturer.

A list of individual snubbers with detailed information of snubber location and size and of system affected shall be available at the plant in accordance with Section 50.71(c) of 10 CFR Part 50. The accessibility of each snubber shall be determined and approved by the Plant Operations Committee. The determination shall be based upon the existing radiation levels and the expected time to perform a visual inspection in each snubber location as well as other factors associated with accessibility during plant operations (e.g., temperature, atmosphere, location, etc.), and the recommendations of Regulatory Guides 8.8 and 8.10. The addition or deletion of any hydraulic or mechanical snubber shall be made in accordance with Section 50.59 of 10 CFR Part 50.

The visual inspection schedule is based on the number of unacceptable snubbers found during the previous inspection in proportion to the sizes of the various snubber populations or categories. A snubber is considered unacceptable if it fails the acceptance criteria of the visual inspection. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. The decision to examine these categories separately

3/4.7.4 SNUBBERS (Continued)

or jointly shall be made and documented before the examination begins, and cannot be changed during the examination. The inspection interval is based on a fuel cycle of up to 24 months and may be as long as two fuel cycles, or 48 months for other fuel cycles, depending on the number of unacceptable snubbers found during the previous visual inspection. The examination interval may vary by ± 25 percent to coincide with the actual outage.

To provide assurance of snubber functional reliability, one of two functional testing methods are used with the stated acceptance criteria:

1. Functionally test 10% of a type of snubber with an additional 5% tested for each functional testing failure, or

2. Functionally test a sample size and determine sample acceptance or continue testing using Figure 4.7-1.

SNUBBERS (Continued)

Figure 4.7-1 was developed using "Wald's Sequential Probability Ratio Plan" as described in "Quality Control and Industrial Statistics" by Acheson J. Duncan.

Permanent or other exemptions from the surveillance program for individual snubbers may be granted by the Commission if a justifiable basis for exemption is presented and, if applicable, snubber life destructive testing was performed to qualify the snubbers for the applicable design conditions at either the completion of their fabrication or at a subsequent date. Snubbers so exempted shall be listed in the list of individual snubbers indicating the extent of the exemptions.

The service life of a snubber is established via manufacturer input and information through consideration of the snubber service conditions and associated installation and maintenance records (newly installed snubbers, seal replaced, spring replaced, in high radiation area, in high temperature area, etc.). The requirement to monitor the snubber service life is included to ensure that the snubbers periodically undergo a performance evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life.

3/4.7.5 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values. Sealed sources are classified into three groups according to their use, with surveillance requirements commensurate with the probability of damage to a source in that group. Those sources which are frequently handled are required to be tested more often than those which are not. Sealed sources which are continuously enclosed within a shielded mechanism, i.e., sealed sources within radiation monitoring devices, are considered to be stored and need not be tested unless they are removed from the shielded mechanism.

3/4.7.8 AREA TEMPERATURE MONITORING

The area temperature limitations ensure that safety-related equipment will not be subjected to temperatures in excess of their environmental qualification temperatures. Exposure to excessive temperatures may degrade equipment and can cause loss of its OPERABILITY.

3/4.7.9 MAIN TURBINE BYPASS SYSTEM

The main turbine bypass system is required to be OPERABLE consistent with the assumptions of the feedwater controller failure analysis of the cycle specific analysis. The main turbine bypass system provides pressure relief during the feedwater controller failure event so that the safety limit MCPR is not violated.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 91 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 18, 1991, (G02-91-09), Washington Public Power Supply System (the licensee) proposed changes to the Technical Specifications (TS) for WNP-2. This proposed action removes the snubber visual examination schedule in the existing Technical Specifications and replaces it with a refueling outage based visual examination schedule, Table 1 of the Generic Letter 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions," dated December 11, 1990, to all holders of operating licenses or construction permits for nuclear power reactors.

2.0 EVALUATION

The snubber visual examination schedule in the existing Technical Specification is based on the permissible number of inoperable snubbers found during the visual examination. Because the existing snubber visual examination schedule is based only on the absolute number of inoperable snubbers found during the visual examinations irrespective of the total population of snubbers, licensees with a large snubber population find the visual examination schedule excessively restrictive. The purpose of the alternative visual examination schedule is to allow the licensee to perform visual examinations and corrective actions during plant outages without reduction of the confidence level provided by the existing visual examination schedule. The new visual examination schedule specifies the permissible number of inoperable snubbers for various snubber populations. The basic examination interval is the normal fuel cycle up to 24 months. This interval may be extended to as long as twice the fuel cycle or reduced to as small as two-thirds of the fuel cycle depending on the number of unacceptable snubbers found during the visual examination. The examination interval may vary by ±25 percent to coincide with the actual outage.

In the event one or more snubbers are found inoperable during a visual examination, the Limiting Conditions for Operation (LCO) in the present TS require the licensee to restore or replace the inoperable snubber(s) to operable status within 72 hours or declare the attached system inoperable and follow the appropriate action statement for that system. This LCO will remain in the TS; however, the permissible number of inoperable snubber(s) and the subsequent visual examination interval will now be determined in accordance with the new visual examination schedule (Table 1 of Generic Letter 90-09 dated December 11, 1990). As noted in the guidance for this line item TS improvement, certain corrective actions may have to be performed depending on the number of inoperable snubbers

found. All requirements, for corrective actions and evaluation associated with the use of the visual examination schedule and stated in the footnotes 1 thru 6, (Table 1 of Generic Letter 90-09) shall be included in the TS.

The licensee has proposed changes to Specification 3/4.7.4 that are consistent with the guidance provided in Generic Letter 90-09 for the replacement of the snubber visual examination schedule with Table 1 (including footnotes 1 thru 6) of Generic Letter 90-09. On the basis of its review of this matter, the staff finds that the proposed changes to the TS for WNP-2 are 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

This amendment involves changes with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20, or changes a surveillance requirement. The 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 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 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: J. Rajan, EMEB/DET

Date: April 11, 1991

Docket File

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

March 21, 1991

MEMORANDUM FOR: Sholly Coordinator

FROM: Patricia L. Eng, Project Manager
Project Directorate V
Division of Reactor Projects III/IV/V

SUBJECT: REQUEST FOR PUBLICATION IN BIWEEKLY FR NOTICE - NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE AND PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION AND OPPORTUNITY FOR HEARING (TAC NO. 79884)

Washington Public Power Supply System, Docket No. 50-397, Nuclear Project No. 2, Benton County, Washington

Date of amendment request: February 28, 1991

Description of amendment request: The proposed amendment would modify the facility minimum critical power ratio safety limit and associated bases to reflect cycle specific safety analyses resulting from use of a new reload methodology and effects of channel box bow phenomena.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration which is presented below:

The Supply System has evaluated this request per 10 CFR 50.92 and determined that it does not:

1. Involve a significant increase in the probability or consequence of an accident previously evaluated.

   A multidiscipline analysis has been performed for the Cycle 7 reload design. This analysis examines all of the core design changes and their operational impact. The SLMCPR is established through statistical consideration of measurement and calculational uncertainties associated with the thermal hydraulic state of the reactor. The SLMCPR [safety limit minimum critical power ratio] as developed determines that at least 99.9% of the fuel rods in the core will be expected to avoid boiling transition during normal and anticipated operational occurrences. The proposed change in safety limit, analyzed based upon changing core conditions, provides renewed assurance that the above criterion will be met. Because the above criterion has not changed establishment of the proposed safety limit change will assure that the probability or consequences of accidents previously analyzed will not change.

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

   The Cycle 7 reload design has been analyzed in some detail. The identification of the need for a change to the SLMCPR does not create a new type of accident. The reload design itself is sufficiently similar to the present design, even considering the fuel design changes, to preclude the introduction of a new transient.

3. Create a significant reduction in the margin of safety.

   The proposed change to the SLMCPR does not create a reduction in the margin of safety. The purpose of the proposed increase in SLMCPR is to at least preserve the current margin to safety. Changes in analytical methodology, which because of flatter power distributions increases the population of fuel rods potentially near boiling transition, and direct consideration of potential channel bow associated with extended life fuel increase has been shown to maintain the current margin of safety enjoyed by the WNP-2 core.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

Local Public Document Room location: Richland Public Library, 955 Northgate Street, Richland, Washington 99352

Attorney for licensee: Nicholas S. Reynolds, Esq., Winston & Strawn, 1400 L Street, N.W., Washington, D.C. 20005-3502

NRC Project Director: James E. Dyer

Original Signed By:
Patricia L. Eng, Project Manager
Project Directorate V
Division of Reactor Projects III/IV/V

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