Washington Public Power Supply System
Box 1223 Elma, Washington 98541 (206) 482-4428

Docket No. 50-508

April 20, 1983
G03-83-342

Director of Nuclear Reactor Regulation
ATTN: Mr. G. W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
US Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: NUCLEAR PROJECT 3
SUPPLEMENTAL INFORMATION ON CONFORMANCE
OF WNP-3 TO STANDARD REVIEW PLAN
(March 1983)

Reference: a) Letter #G03-82-1015, G. D. Bouchey to
J. D. Kerrigan, dated October 6, 1982.

Reference a) transmitted amendment #1 to the WNP-3 FSAR. This amendment contained the initial phase of the WNP-3 Review for conformance with the Standard Review Plan (SRP) NUREG-0800, required by 10CFR50.34(g).

In those cases where differences between the WNP-3 design criteria and the SRP acceptance criteria were identified in the initial Supply System review, a schedule was provided detailing when the bases would be presented for concluding that the WNP-3 design criteria are in compliance with the Commission Regulations.

Presented herewith is the material for which commitments were made for the month of March. Included are marked up FSAR pages to show the changes which will be incorporated into a subsequent amendment. In those cases where exception is taken to the SRP acceptance criteria a reference is provided to the FSAR section where further information is provided. If necessary, additional information will be added to the appropriate FSAR section indicated on the marked up FSAR pages.

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In certain instances, following a detailed review, we have been able to conclude based on information presented in the FSAR that the WNP-3 design criteria do, in fact, conform to the SRP acceptance criteria. For these cases, with the exception of a change to the FSAR conformance review table (Table 1.8-3), no further change will be necessary.

If you require further information for clarification, the Supply System point of contact for this matter is Mr. K. W. Cook, Licensing Project Manager (206/482-4428 ext. 5436).

Sincerely,

KW Cook for

G. D. Bouchey, Manager
Nuclear Safety and Regulatory Programs

AJM/ss

Attachments:

cc: D. J. Chin - Ebasco NYO
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TABLE 1.8-3

NUREG - 0800

NRC STANDARD REVIEW PLAN

SRP/ACCEPTANCE CRITERIA	COMPLIANCE YES	NO	N/A	REMARKS
10.2.3 Turbine Disk Integrity Rev. 1 - July 1981 (Cont'd)				
b. The combined stresses of low-pressure turbine disk at design overspeed due to centrifugal forces, interference fit, and thermal gradients should not exceed 0.75 of the minimum specified yield strength of the material, or 0.75 of the measured yield strength in the weak direction of the materials if appropriate tensile tests have been performed on the actual disk material.				
c. The turbine shaft bearings should be able to withstand any combination of the normal operating loads, anticipated transients, and accidents resulting in turbine trip.				
d. The natural critical frequencies of the turbine shaft assemblies existing between zero speed and 20% overspeed should be controlled in the design and operation so as to cause no distress to the unit during operation.				
e. The turbine disk design should facilitate inservice inspection of all high stress regions, including bores and keyways, without the need for removing the disks from the shaft.				
5. Inservice Inspection				
The applicant's inservice inspection program is acceptable if in compliance with the following criteria:				
The inservice inspection program for the steam turbine assembly should provide assurance that disk flaws that might lead to brittle failure of a disk at speeds up to design speed will be detected. The inservice inspection program for the turbine assembly should include the following:	X			
Disassembly of the turbine at approximately 10-year intervals, during plant shutdown coinciding with the inservice inspection schedule as required by ASME Boiler and Pressure Vessel Code, Section XI, and complete inspection of all normally inaccessible parts, such as couplings, coupling bolts, turbine shafts, low-pressure turbine blades, low-pressure disks, and high-pressure rotors. This inspection should consist of visual, surface, and volumetric examinations, as required.				

No change this page.

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TABLE 1.8-3

NUREG - 0800

NRC STANDARD REVIEW PLAN

SRP/ACCEPTANCE CRITERIA	COMPLIANCE YES	NO	N/A	REMARKS
10.3 Main Steam Supply System Rev. 2 - July 1981				
ACCEPTANCE CRITERIA				
Acceptability of the design of the MSSS, as described in the applicant's safety analysis report (SAR), is based on specific general design criteria and regulatory guides.				
The design of the MSSS is acceptable if the integrated design of the system is in accordance with the following criteria:				
1. General Design Criterion 2, as related to safety-related portions of the system being capable of withstanding the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, and floods, and the positions of the following:	X			(2) No credit is being taken for the valves downstream of the MSIV's since they are not safety-related and are not located in a [redacted] seismic Category I structure. 1
a. Regulatory Guide 1.29, as related to the seismic design classification of system components, Positions C.1.a, C.1.e, C.1.f, C.2, and C.3.	X			
b. Regulatory Guide 1.117, as related to the protection of structures, systems, and components important to safety from the effects of tornado missiles, Appendix Positions 2 and 4.	X			
2. General Design Criterion 4, with respect to safety-related portions of the system being capable of withstanding the effects of external missiles and internally generated missiles, pipe whip, and jet impingement forces associated with pipe breaks, and the position of Regulatory Guide 1.115 as related to the protection of structures, systems, and components important to safety from the effects of turbine missiles, Position C.1.	X			
3. General Design Criterion 5, as related to the capability of shared systems and components important to safety to perform required safety functions.			X see remark (1)	(1) There are no shared systems and components at WNP3.
4. General Design Criterion 34, as related to the system function of transferring residual and sensible heat from the reactor system in indirect cycle plants, and the following:	X			
a. The positions in Branch Technical Position RSB 5-1 as related to the design requirements for residual heat removal.	X			
b. Issue Number 1 of NUREG-0138 as related to credit being taken for all valves downstream of the main steam isolation valves (MSIV) to limit blowdown of a second steam generator in the event of a steam line break upstream of the MSIV.			X see remark (2)	(2) Where differences exist between the WNP-3 design criteria and the acceptance criteria identified in this SRP, the bases for concluding that the WNP-3 design criteria are in compliance with the Commission's regulations will be provided by March 1983.

SCN 403

TABLE 1.8-3

NUREG - 0800

NRC STANDARD REVIEW PLAN

SRP/ACCEPTANCE CRITERIA	COMPLIANCE YES	NO	N/A	REMARKS
8.3.1 A-C Power Systems (Onsite) Rev. 2 - July 1981 (Cont'd)				
(3) A preventive maintenance program shall be provided which encompasses investigative testing of components which have a history of repeated malfunctioning and a plan for the replacement of those components which require constant attention and repair with other products of proven reliability.	X			
(4) Repair and maintenance procedures shall provide for a final equipment check prior to an actual start-run-load test to assure that all electrical circuits are functional (i.e. fuses in place, no loose wires, test leads removed etc.) and all valves are in the proper position. The test procedure(s) shall explicitly state that upon satisfactory test completion the diesel generator unit shall be returned to a ready automatic standby service under the control of the control room operator.	X			
(5) Except for sensors and other equipment that must be directly mounted on the engine or associated piping, the controls and monitoring instruments shall be installed on a free standing floor mounted panel located on a vibration free floor area. NOTE: If the floor is not vibration free the panel shall be equipped with vibration mounts.		X See Remark (1)		(1) The Generator Control Panel and Excitation panel were qualified by the combined vibration effect of seismic and service vibration of the Diesel Generator by the following approach; the response spectrum curves for seismic and service vibration were separately generated at the mounting locations of the above panels. The combined response spectrum curves of seismic and service vibration were then used as an input motion to dynamically qualify the above two panels, therefore, the panel mounted devices such as sensors and monitoring devices were demonstrated to withstand the vibration effect induced by seismic and service vibration of the Diesel Generator.
5. General Design Criterion 18, as related to the testability of the onsite a-c power system, and the guidelines of Regulatory Guide 1.118, (see also IEEE 338), as related to the capability for testing the onsite a-c power system.	X			
6. The design requirements for an onsite a-c power supply for systems covered by General Design Criteria 33, 34, 38, 41 and 44 are encompassed in General Design Criterion 17.	X			
7. General Design Criterion 50, as related to the design of containment electrical penetrations containing circuits of the a-c power system and the guidelines of Regulatory Guide 1.63 (see also IEEE 317) as related to the capability of the electric penetration assemblies to withstand, without loss of mechanical integrity, the maximum possible fault current versus time condition that could occur given single random failure of circuit overload protective devices located in circuits of the onsite a-c power systems.	X			

SCN 405

TABLE 1.8-3

NUREG - 0800

NRC STANDARD REVIEW PLAN

SRP/ACCEPTANCE CRITERIA	COMPLIANCE YES	NO	N/A	REMARKS
10.4.9 Auxiliary Feedwater System (PWR) Rev. 2 - July 1981 (Cont'd)				
In meeting these criteria, the recommendations of NUREG-0611 and 0635 shall also be met. An acceptable AFWS should have an unreliability in the range of 10^{-4} to 10^{-5} per demand based on an analysis using methods and data presented in NUREG-0611 and NUREG-0635. Compensating factors such as other methods of accomplishing the safety functions of the AFWS or other reliable methods for cooling the reactor core during abnormal conditions may be considered to justify a larger unavailability of the AFWS.	~~See Remark (1)~~ X			(1) Where differences exist between the WNP-3 design criteria and the acceptance criteria identified in this SRP, the bases for concluding that the WNP-3 design criteria are in compliance with the Commission's regulations will be provided by March 1983. 1
6. General Design Criterion 45, as related to design provisions made to permit periodic inservice inspection of system components and equipment.	X			
7. General Design Criterion 46, as related to design provisions made to permit appropriate functional testing of the system and components to assure structural integrity and leak-tightness, operability and performance of active components, and capability of the integrated system to function as intended during normal, shutdown, and accident conditions. In meeting this criteria the technical specifications should specify that the monthly AFWS pump test shall be performed on a staggered test basis to reduce the likelihood of leaving more than one pump in a test mode following the tests.	X			

(1) The WNP-3 design follows the recommendations of Nureg-0635. Refer to Appendix 10.4.9A for a description of the Auxiliary Feedwater System availibility analysis. As per the requirements of BTP-ASB 10-1, the AFS consists of two 100 percent capacity independent systems that includes diverse power sources and suitable redundacy to ensure the supply of feedwater to either or both steam generators in the event of an accident and any single active component failure

The present analysis described in Appendix 10.4.9A indicates the unavailability of the AFS does not meet the recommendations of NUREG-0611 & 0635. However, further reliability analyses are being performed under the auspices of the CE Owners Group which are expected to demonstrate that the reliability for cooling the reactor core during abnormal conditions will be shown to be within acceptable Limits. This analysis should be complete by January 1984.

SCN407

TABLE 1.8-3

NUREG - 0800

NRC STANDARD REVIEW PLAN

No change this page

SRP/ACCEPTANCE CRITERIA	COMPLIANCE YES	NO	N/A	REMARKS
11.1 Source Terms Rev. 2 - July 1981				
ACCEPTANCE CRITERIA				
ETSB will accept the source terms used as the design basis for expected releases if the following Commission regulations are met:				
1. 10 CFR Part 20 as it relates to radioactivity in effluents to unrestricted areas.	X			
2. 10 CFR Part 50, Appendix I as it relates to the numerical guides for design objectives and limiting conditions for operation to meet the criterion "as low as is reasonably achievable" given in the Appendix I.	X			
3. General Design Criterion 60 as it relates to the radioactive waste management systems being designed to control releases of radioactive materials to the environment.	X			
The requirement of the Commission regulations identified above are met by using the regulatory positions contained in the following regulatory guides:				1
a. Regulatory Guide 1.110 as it relates to the cost-benefit analysis for radioactive waste management systems and equipment.	X See Remark (1)			(1) Refer to FSAR subsections 11.2.3 and 11.3.3.
b. Regulatory Guide 1.112 as it relates to the method of calculating release of radioactive materials in effluents from nuclear power plants.	X			
c. Regulatory Guide 1.140 as it relates to the design testing and maintenance of normal ventilation exhaust systems at nuclear power plants.	X			
Specific criteria necessary to meet the relevant requirements of 10 CFR Part 20 and 10 CFR Part 50 are as follows:				
1. The parameters used to calculate primary and secondary coolant concentrations for PWRs are consistent with those given in NUREG-0017 (Ref. 1). The parameters used to calculate coolant concentrations for BWRs are consistent with those given in NUREG-0016 (Ref. 2).	X			
2. All normal and potential sources of radioactive effluent delineated in subsection I are considered.	X			
3. For each source of liquid and gaseous waste considered in subsection I.1, the volumes and concentrations of radioactive material given for normal operation and anticipated operational occurrences are consistent with those given in NUREG-0016 or NUREG-0017.	X			
4. Decontamination factors for inplant control measures used to reduce gaseous effluent releases to the environment, such as iodine removal systems and high efficiency particulate air (HEPA) filters for building ventilation	X			