

Washington Public Power Supply System

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Docket 50-508
January 27, 1983
G03-83-75

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
(January 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 promised for the month of January. 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.

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.

B001

Mr. G. W. Knighton

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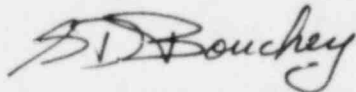
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SUPPLEMENTAL INFORMATION ON CONFORMANCE OF WNP-3 TO STANDARD REVIEW PLAN

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

Sincerely,



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

AJM/ss

cc: D. J. Chin - Ebasco NYO
N. S. Reynolds - D&L
E. F. Beckett - NPI
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Ebasco - Elma
WNP-3 Files - Richland
A. A. Tuzes - Comb. Engr.
A. Vietti - NRC

WNP-3
FSAR
TABLE 1.R-3

NIRFG - 0900

NRC STANDARD REVIEW PLAN

COMPLIANCE
YES NO N/A

REMARKS

SRP ACCEPTANCE CRITERIA

3.8.4 Other Seismic Category I Structures Rev. 1 - July 1981
(Cont'd)

6. Materials, Quality Control, and Special Construction Techniques

X See Remark (1)

For Category I structures outside the containment, the acceptance criteria for materials, quality control, and any special construction techniques are in accordance with the codes and standards indicated in subsection 1.6 of SRP Section 3.8.3, as applicable.

(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 January 1983.

7. Testing and Inservice Surveillance Requirements

X See Remark (2)

At present there are no special testing or inservice surveillance requirements for Category I structures outside the containment. However, where some requirements become necessary for special structures, such requirements are reviewed on a case-by-case basis.

(2) WNP 3 has no structures categorized as special structures.

8. Masonry Walls

X See Remark (3)

Acceptance criteria for masonry walls are contained in Appendix A to this SRP section.

(3) Concrete masonry walls are not designed to support safety related equipment or pipes. Their primary function is shielding and as barriers for fire protection. However, because they are in Class I buildings, they are designed statically to withstand SSE and ORE (from equivalent static analysis).

3.8.5 Foundations Rev. 1 - July 1981

ACCEPTANCE CRITERIA

SEB acceptance criteria for the design of seismic Category I foundations are based on meeting the relevant requirements of the following regulations:

- A. 10 CFR Part 50, 50.55a and General Design Criterion 1 as they relate to safety-related structures being designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety function to be performed. X
- B. General Design Criterion 2 (Ref. 3) as it relates to appropriate considerations being given to the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, and to the combinations of the effects of normal and accident conditions with the effects of the natural phenomena. X
- C. General Design Criterion 4 (Ref. 4) as it relates to structures, systems, and components important to safety being appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit. X
- D. General Design Criterion 5 (Ref. 5) as it relates to structures, systems, and components important to safety not being shared among nuclear power units unless it can be shown that such sharing will not significantly impair their ability to perform their safety functions. X

- (i) The following describes the WNP-3 design position:
- a) ACI 349 is not applicable to the WNP-3 design. ACI 318 and AISC were used as the applicable design codes.
 - b) The quality control requirements for concrete construction are in accordance with ANSI N45.9.3-74 with the exceptions as noted in Subsection 3.8.3.6.1.4.
 - c) No welding of reinforcing bars was used at WNP-3.

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75AR
TABLE 1.8-3
NUREG - 0800
NRC STANDARD REVIEW PLAN

SRP/ACCEPTANCE CRITERIA

COMPLIANCE
YES NO N/A

REMARKS

3.8.3 Concrete And Steel Internal Structures Of Steel Or
Concrete Containments Rev. 1 - July 1981
(Cont'd)

Notes

- (1) S - As defined in "Notes" under first tables in Subsection 11.5 above.
- (2) Y - As defined in "Notes" under first tables in Subsection 11.5 above.
- (3) C - Where experimental testing is used for verification of the design, C shall be the ultimate load carrying capacity of the member. Size effects and any similitude relationship which may exist between the actual component and the test model shall be accounted for in the evaluation of C.

c. BWR Mark III Containment Drywell

- (i) For concrete portions of the drywell, the acceptance criteria of item 11.3.d.(a)(i) as described for the divider barrier apply.
- (ii) For steel portions of the drywell that resist pressure and are not backed by structural concrete, the acceptance criteria of item 11.3.d.(a)(ii) as described for the divider barrier apply.
- (iii) For the lower vent portion of the drywell:
 - If the main reinforcement of the drywell is carried down between the vent holes and the reinforced concrete section is relied upon for structural purposes, the structural acceptance criteria is the same as for item (i) above.
 - If the main reinforcement of the drywell is terminated above the vent holes and two steel plates lining both faces of the wall are utilized for structural purposes, the acceptance criteria for item (ii) above will apply.
 - If other structural systems are used in the vent region, the acceptance criteria are reviewed on a case-by-case basis.

Materials, Quality Control, and Special Construction Techniques

The specified materials of construction and quality control programs are acceptable if in accordance with the public code or standard as indicated in subsection 1.6 of this SRP section.

Special construction techniques, if any, are treated on a case-by-case basis.

X See Remark (1)

(1) WNP-3 is a PWR plant.

- (2) The following describes the WNP-3 design position:
 - a) ACI 349 is not applicable to the WNP-3 design. ACI 318 and AISC were used as the applicable design codes.
 - b) The quality control requirements for concrete construction are in accordance with ANSI N45.2.5-74 with exceptions as noted in Subsection 3.8.3.6.1.4.
 - c) No welding of reinforcing bars was used at WNP-3.

(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 January 1983.

X See Remark (2)

X See Remark (3)

(3) No special construction techniques are used.

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FSAR
TABLE 1.8-3

WURIC - 0800

ENG STANDARD REVIEW PLAN

SRP/ACCEPTANCE CRITERIA

COMPLIANCE
YES NO N/A

REMARKS

3.8.5 Foundations Rev. 1 - July 1981
(Cont'd)

The Regulatory Guides and industry standards identified in item 2 of this subsection provides information, recommendations and guidance and in general describes a basis acceptable to the staff that may be used to implement the requirement of 10 CFR Part 50, KSD.55a, and GDC 1, 2, 4, and 5. Also, specific acceptance criteria necessary to meet these relevant requirements of these regulations for the areas of review, described in subsection 1 of this SRP Section are as follows:

1. Description of the Foundation

The descriptive information in the SAR is considered acceptable if it meets the minimum requirements set forth in Section 3.8.5.1 of Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants."

Deficient areas of descriptive information are identified by the reviewer and a request for additional information is initiated. New or unique design features that are not specifically covered in the "Standard Format..." require a more detailed review. The reviewer determines the additional information required for a meaningful review of such new or unique design features.

2. Applicable Codes, Standards, and Specifications

The design, materials, fabrication, erection, inspection, testing, and surveillance, if any, of seismic Category I foundations are covered by codes, standards, and guides that are either applicable in their entirety or in portions thereof. A list of such documents is contained in subsection 1.2 of the SRP Section 3.8.3. In addition the documents listed in subsection II.2 of SRP Section 3.8.1 are acceptable for the containment foundation.

3. Loads and Load Combinations

The specified loads and load combinations used in the design of seismic Category I foundations are acceptable if found to be in accordance with those combinations referenced in subsection II.3 of SRP Section 3.8.1 for the containment foundation, and with those combinations listed in subsection II.3 of SRP Section 3.8.4 for all other seismic Category I foundations.

In addition to the load combinations referenced above, the combinations used to check against sliding and overturning due to earthquakes, winds, and tornados, and against flotation due to floods, are found acceptable if in accordance with the following:

- (i) The following describes the WNP-3 design position:
- a) ACI 349 is not applicable to the WNP-3 design. ACI 318 and AISI were used as the applicable design codes.
 - b) The quality control requirements for concrete construction are in accordance with ANSI A45.2.5-74 with exceptions as noted in Subsection 3.8.3.6.1.4.
 - c) No welding of reinforcing bars was used at WNP.
 - d) Table 1.8-1 indicates WNP-3 compliance with Regulatory Guides.

X See Remark (1)

(1) Where differences exist between the WNP-3 design criteria and the acceptance criteria identified in this SRP, the basis for concluding that the WNP-3 design criteria are in compliance with the Commission's regulations will be provided by January 1983.

X See Remark (2)

(2) WNP 3 satisfies those combinations listed in II.3 of SRP 3.8.4. Combinations referenced in Subsection II.3 of SRP 3.8.1 (for concrete containment foundation) are not applicable.

1.8-169

Amendment No. 1, (10/82)

WNP-3
FSAR

TABLE 1.5-3

NUREG - 0800

NRC STANDARD REVIEW PLAN

SRP/ACCEPTANCE CRITERIA

COMPLIANCE
YES NO N/A

REMARKS

3.11 Environmental Qualification Of Mechanical And Electrical Equipment Rev. 2
(Cont'd) July 1981

Regulatory Guide 1.40; IEEE Std 382, "Guide for Type Test of Class I Electric Valve Operators for Nuclear Power Generating Stations" (augmented by Regulatory Guide 1.73); and IEEE Std 383, "Standard for Type Test of Class 1E Electric Cables, Field Splices, and Connections for Nuclear Power Generating Stations" (augmented by Regulatory Guide 1.131), are specific with regard to type test qualification of the equipment identified in their titles. The detailed criteria contained in these documents as they relate to environmental qualification should be used in conjunction with the more comprehensive criteria of NUREG-0588 for evaluating the respective equipment environmental qualifications.

IEEE Std 317, "Electric Penetration Assemblies in Containment Structures for Nuclear Power Generating Stations" (augmented by Regulatory Guide 1.63), contains general guidance for qualification of penetration assemblies. Therefore, this document as it relates to environmental qualification should be used in conjunction with NUREG-0588 for evaluating the environmental qualification of this equipment.

In addition, IEEE Standards 381, 535, 627, 649, and 650 can be used for guidance purposes even though NRC has not formerly endorsed these standards through the issuance of a Regulatory Guide.

The effects of the chemicals should be addressed for the equipment qualification. The concentration of chemicals used for qualification should be equivalent to or more severe than that resulting from the most limiting mode of plant operation (e.g., containment spray, ECCS initiation, or recirculation phase). If the chemical composition of the chemical spray can be affected by equipment malfunctions, the most severe chemical environment that results from a single failure in the spray system should be assumed. If only demineralized water spray is used then the effect of the demineralized water spray should be included in the equipment qualification.

Radiation dose and dose rate used to determine the radiation environment for qualification of electrical and mechanical equipment shall be based on NRC staff approved source term and methodology as discussed in NUREG-0588 and supplemented by Section 11.B.2 of NUREG-0737 and NUREG-0718. The radiation environment shall be based on the integrated effects of the normally expected radiation environment over the equipment's installed life plus that associated with the most severe design basis event during or following which the equipment is required to remain functional. Effects of the beta radiation shall also be considered in the qualification program. Effect of recirculatory fluid shall be considered for the equipment located outside the containment.

MILD ENVIRONMENT

The environmental qualification of all electrical and mechanical equipment located in the mild environment is acceptable if the following procedure is followed:

X

X See Remark (1) (1) Presently, IEEE Standards 381, 535, 627, 649 and 650 have not been used for guidance purposes.

X

X

X

X See Remark (2) (2) Where differences exist between the WNP-3 design criteria and the acceptance criteria identified in this SRP, the basis for concluding that the WNP-3 design criteria are in compliance with the Commission's regulations will be provided by January 1983.

1.5-209

Amendment No. 1, (10/82)

1

NRC STANDARD REVIEW PLAN

SRP/ACCEPTANCE CRITERIA	COMPLIANCE			REMARKS
	YES	NO	N/A	
9.1.3 Spent Fuel Pool Cooling And Cleanup System Rev. 1 - July 1981 (Cont'd)				
(2) Suitable redundancy of components so that safety functions can be performed assuming a single active failure of a component coincident with the loss of all offsite power.		X		
(3) The capability to isolate components, systems, or piping, if required, so that the system safety function will not be compromised.		X		
(4) In meeting this criterion acceptance is based on the recommendations of Branch Technical Position ASB 9-2 for calculating the heat loads and the assumptions set forth in item 1.h of subsection III of this SRP section. The temperature limitations of the pool water identified in item 1.d of subsection III of this SRP section is also used as a basis for meeting this criterion.		X	* See Remark (1)	(1) Compliance with this criterion is under review by the Supply System and a compliance statement will be provided by January, 1982.
e. General Design Criterion 45, as related to the design provisions to permit periodic inspection of safety-related components and equipment.		X		
f. General Design Criterion 46, as related to the design provisions to permit operational functional testing of safety-related systems or components to assure structural integrity and system leak tightness, operability, and adequate performance of active system components, and the capability of the integrated system to perform required functions during normal, shutdown, and accident situations.		X		
g. General Design Criterion 61, as related to the system design for fuel storage and handling of radioactive materials, including the following elements:		X		
(1) The capability for periodic testing of components important to safety.				
(2) Provisions for containment.				
(3) Provisions for decay heat removal.				
(4) The capability to prevent reduction in fuel storage coolant inventory under accident conditions in accordance with the guidelines of position C.6 of Regulatory Guide 1.13				
(5) The capability and capacity to remove corrosion products, radioactive materials and impurities from the pool water and reducing occupational exposures to radiation.				