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MARTIN, J. B. Region 5, Ofc of the Director
RECIP. NAME RECIPIENT AFFILIATION
SORENSEN, G. C. Washington Public Power Supply System

SUBJECT: Forwards [redacted] on 870803-28, [redacted] summary of significant findings. Insp overview & conclusions discussed.

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Letter dated 12/17/87 Sorensen to DCD asked for extension of response date to 2/8/88.

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CALIFORNIA 94596-5368

DEC 8 1987

Docket No. 50-397

Washington Public Power Supply System
P.O. Box 968
3000 George Washington Way
Richland, Washington 99352

Attention: Mr. G. C. Sorensen, Manager
Regulatory Programs

Gentlemen:

Subject: NRC Inspection at WNP-2

This refers to the special team inspection, conducted by Mr. F. R. Huey and other members of our staff on August 3 through August 28, 1987. This inspection examined your activities as authorized by NRC License No. NPF-21. Discussion of our findings were held with members of your staff at the conclusion of the inspection.

Areas examined during this inspection are described in the enclosed inspection report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel and observations by the inspectors.

Based on the results of this inspection, it appears that certain of your activities were not conducted in full compliance with NRC requirements, as set forth in the Notice of Violation, enclosed herewith as Appendix A. Your response to this notice is to be submitted in accordance with the provisions of 10 CFR 2.201, as stated in the Notice of Violation.

Inspection Overview

The inspection conducted by the team was a safety system functional inspection (SSFI). The objective of an SSFI is to assess the operational readiness of selected safety systems to function under all operational and analyzed accident conditions. For this inspection, the AC and DC electrical distribution systems, the standby service water system, and the automatic depressurization system were selected for review. These systems were selected because it is considered essential that they function correctly following an event such as a loss of offsite power or a major plant transient. Additionally, Probabilistic Risk Assessment studies of boiling water reactors have indicated that the failure of the selected systems, following a loss of offsite power or a major plant transient, contribute highly to the probability of occurrence of a core melt event or an event with significant offsite consequences. In assessing the operational readiness of these systems, the team focused heavily on the capability of your engineering organization to access the design basis of the systems; and their capability to maintain the design basis when modifying the systems. Additionally, the team considered maintenance, surveillance, testing, quality assurance, and plant operational aspects associated with the systems selected. As discussed in detail below, the team identified a large number of deficiencies and raised many significant questions with regard to these systems.

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It is worthwhile to more carefully consider the basic approach of this type of inspection and the manner in which findings are reached. The first step involves the selection of a small number of plant systems that have significant impact on plant safety and which involve a broad cross section of site activities. As noted above, the team selected the site AC and DC electrical systems, with additional attention to the standby service water and automatic depressurization systems.

The second step involves a thorough and methodical review of the licensee's design and engineering processes, as applied to the selected systems. An SSFI inspection is based on the premise that an effective design and engineering organization incorporates the following basic functions in a logical and disciplined manner:

1. The system design basis is valid and can be shown to fulfill specified design requirements.

2. The system design basis is well documented, available and understood by the licensee.

3. Effective administrative programs are implemented to control design and engineering activities such that system design requirements are properly factored into applicable site activities (e.g. construction, testing, operation, maintenance, training).

4. Effective quality assurance controls are implemented to ensure a continuing high standard of performance.

Overall Conclusions

The team identified a number of significant deficiencies in the management control of engineering work at WNP-2. Specific concerns involve an incomplete understanding of the design basis for important plant equipment and examples of inadequate control of implementation of design requirements into site activities. The team observed weaknesses in your design control processes which allowed errors in design modification activities to go undetected and which failed to ensure that necessary design related parameters were properly factored into station operating documents. Implementing the inspection approach discussed above, the team identified the following concerns which, to varying degrees, are applicable to each of the systems reviewed:

1. Several examples of significant errors in design basis documents were identified.

   - In the area of DC electrical systems, design errors significantly reduced available margin for battery performance under accident conditions.

   - In the area of AC electrical systems, design errors contributed to a potentially significant reduction in the ability of emergency diesel generators to function as designed following a fire or volcanic ash event.

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- In the area of the standby service water and other safety related systems, the lack of a properly defined design basis for time delay relays resulted in failure to perform required testing and raised questions as to the design adequacy of time delay settings.

- In the area of the automatic depressurization system, inconsistencies between the design basis in the FSAR and system design documents raised questions as to the adequacy of the system to fulfill its design requirements.

2. Several examples were identified in which inadequate administrative control of the design process resulted in improper implementation of design requirements.

   - In the area of DC electrical systems, design control deficiencies resulted in instances of improperly revised design calculations and improper testing of station batteries.

   - In the area of AC electrical systems, design control problems resulted in examples of improper testing of emergency diesel generators and improper modification of system components.

   - In the area of the standby service water system and other safety related systems, inadequate control of testing of motor operated valve thermal overload devices raised questions as to the adequacy of these components to fulfill their design functions. In addition, lack of proper control over the equipment modification process resulted in cases where specific modifications, required by completed design change packages, had not been accomplished as mandated.

   - In the area of the automatic depressurization system, inadequate design controls allowed the installation of a system defeat circuit without necessary limitations for use of this function being properly factored into site operating procedures.

In addition to design related problems, the team noted other areas of deficiencies warranting increased management attention. In particular:

1. The team observed several examples of the need for increased management attention to plant material condition and housekeeping in general.

2. The team noted instances in which your staff did not appear to have properly addressed root cause evaluations associated with safety related equipment malfunctions.

The number of design control related deficiencies identified during this inspection indicates a significant weakness in the basic administrative programs implemented at WNP-2 for control of these processes. During the course of the inspection, the team identified several examples of administrative procedure deficiencies which contributed to specific problems.

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The number and type of problems noted is also indicative of the need for additional and better focused quality assurance attention to design related activities. In this regard, the team had several discussions with licensee quality assurance management personnel. These management personnel shared this concern and noted that comprehensive efforts have already been initiated to enhance performance in this area.

During the team exit meeting, Mr. Burn acknowledged the team's conclusions relating to design and design control deficiencies and described several planned actions to correct these deficiencies. The team understands that these actions are intended to: 1) review and update design basis information and calculations associated with plant safety systems and bring this information together into an accessible, controlled format; 2) review the operation, maintenance, surveillance, and training activities associated with plant safety systems, and confirm that these activities reflect design basis information; 3) provide improved administrative control over all organizations implementing design basis requirements and 4) provide improved quality assurance overview of the technical aspects of design and modification activities. These corrective actions appear to be appropriate in addressing the areas of weakness noted. You are strongly encouraged to assign the highest priority to efforts to improve your performance in this area.

It is further requested that, in addition to your response to the enclosed Notice of Violation, you provide a detailed written description of your action plan. We anticipate periodically meeting with you and your staff to discuss the status of your actions. It should also be noted that several areas of potential violation of NRC requirements remain unresolved, pending your completion of additional evaluations of the specific problems involved. Most of the items in this category involve perceived problems with your basic program for controlling plant design activities.

In addition to your response to the Notice of Violation, Appendix A, please provide your assessment of the apparent deficiencies identified as unresolved items in the enclosed report, including any corrective actions taken or planned.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosures will be placed in the NRC Public Document Room.

The responses directed by this letter and the attached Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

Should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely,

J. B. Martin
Regional Administrator

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Enclosures:
1. Appendix A, Notice of Violation
2. Appendix B, Summary of Significant Findings
3. Inspection Report No. 50-397/87-19

cc w/enclosures:
C. M. Powers, WPPSS
P. L. Powell, WPPSS
R. B. Glasscock, WPPSS
G. E. Doupe, Esq., WPPSS
A. L. Oxsen, WPPSS
State of Washington
N. S. Reynolds, Esq., BCP&R

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1. Appendix A, Notice of Violation
2. Appendix B, Summary of Significant Findings
3. Inspection Report No. 50-397/87-19

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M. Smith

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