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

AUG 4 1981

Docket No. 50-397

Washington Public Supply System
ATTN: Mr. R. L. Ferguson
Managing Director
3000 George Washington Way
Richland, Washington 99352

Dear Mr. Ferguson:

Subject: WNP-2 FSAR - Request for Additional Information

As a result of our review of your application for operating license we find that we need additional information regarding the WNP-2 FSAR. The specific information required is as a result of the Chemical Engineering Branch's review and is listed in the Enclosure.

To maintain our licensing review schedule for the WNP-2 FSAR, we will need responses to the enclosed request by September 18, 1981. If you cannot meet this date, please inform us within seven days after receipt of this letter of the date you plan to submit your responses so that we may review our schedule for any necessary changes.

Please contact Raj Auluck, Licensing Project Manager, if you desire any discussion or clarification of the enclosed request.

Sincerely,

Robert L. Tedesco, Assistant Director
for Licensing
Division of Licensing

cc:
See next page

Enclosure:
As stated

Docket File

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U.S. NUCLEAR REGULATORY COMMISSION

Mr. R. L. Ferguson
Managing Director
Washington Public Power Supply System
P. O. Box 968
3000 George Washington Way
Richland, Washington 99352

ccs: Nicholas Reynolds, Esq.
Debevoise & Liberman
1200 Seventeenth Street, N.W.
Washington, D. C. 20036

Richard Q. Quigley, Esq.
Washington Public Power Supply System
P. O. Box 968
Richland, Washington 99352

Nicholas Lewis, Chairman
Energy Facility Site Evaluation Council
820 East Fifth Avenue
Olympis, Washington 98504

Mr. Albert D. Toth
Resident Inspector/WPPSS-2 NPS
c/o U.S. Nuclear Regulatory Commission
P. O. Box 69
Richland, Washington 99352

Mr. G. C. Sorensen, Licensing Manager
Washington Public Power Supply System
P. O. Box 968
Richland, Washington 99352

Mr. O. K. Earle, Project Licensing Supervisor
Burns and Roe Incorporated
601 Williams Boulevard
Richland, Washington 99352

NUREG-0737, II.B.3 - Post Accident Sampling Capability

REQUIREMENT

Provide a capability to obtain and quantitatively analyze reactor coolant and containment atmosphere samples, without radiation exposure to any individual exceeding 5 rem to the whole body or 75 rem to the extremities (GDC-19) during and following an accident in which there is core degradation. Materials to be analyzed and quantified include certain radionuclides that are indicators of severity of core damage (e.g., noble gases, iodines, cesiums and non volatile isotopes), hydrogen in the containment atmosphere and total dissolved gases or hydrogen, boron and chloride in reactor coolant samples in accordance with the requirements of NUREG-0737.

To satisfy the requirements, the application should (1) review and modify his sampling, chemical analysis and radionuclide determination capabilities as necessary to comply with NUREG-0737, II.B.3, (2) provide the staff with information pertaining to system design, analytical capabilities and procedures in sufficient detail to demonstrate that the requirements have been met.

EVALUATION AND FINDINGS

The applicant has committed to a post-accident sampling system that meets the requirements of NUREG-0737, Item II.B.3 in Amendment 49, but has not provided the technical information required by NUREG-0737 for our evaluation. Implementation of the requirement is not necessary prior to low power operation because only small quantities of radionuclide inventory will exist in the reactor coolant system and therefore will not affect the health and safety of the public. Prior to exceeding 5% power operation the applicant must demonstrate the capability to promptly obtain reactor coolant samples in the event of an accident in which there is core damage consistent with the conditions stated below.

1. Demonstrate compliance with all requirements of NUREG-0737, II.B.3, for sampling, chemical and radionuclide analysis capability, under accident conditions.

2. Provide sufficient shielding to meet the requirements of GDC-19, assuming Reg. Guide 1.3 source terms.

3. Commit to meet the sampling and analysis requirements of Reg. Guide 1.97, Rev. 2.

4. Verify that all electrically powered components associated with post accident sampling are capable of being supplied with power and operated, within thirty minutes of an accident in which there is core degradation, assuming loss of off site power.

5. Verify that valves which are not accessible for repair after an accident are environmentally qualified for the conditions in which they must operate.

6. Provide a procedure for relating radionuclide gaseous and ionic species to estimated core damage.

7. State the design or operational provisions to prevent high pressure carrier gas from entering the reactor coolant system from on line gas analysis equipment, if it is used.

8. Provide a method for verifying that reactor coolant dissolved oxygen is at < 0.1 ppm if reactor coolant chlorides are determiend to be < 0.15 ppm.

9. Provide information on (a) testing frequency and type of testing to ensure long term operability of the post accident sampling system and (b) operator training requirements for post-accident sampling.

10. Demonstrate that the reactor coolant system and suppression chamber sample locations are representative of core conditions.

In addition to the above licensing conditions the staff is conducting a generic review of accuracy and sensitivity for analytical procedures and on-line instrumentation to be used for post-accident analysis. We will require that the applicant submit data supporting the applicability of each selected analytical chemistry procedure or on-line instrument along with documentation demonstrating compliance with the licensing conditions four months prior to exceeding 5% power operation, but review and approval of these procedures will not be a condition for full power operation. In the event our generic review determines a specific procedure is unacceptable, we will require the applicant to make modifications as determined by our generic review.

ENCLOSURE 1

281.1 (10.4.6) In accordance with Regulatory Position C.1 of Regulatory Guide 1.56 revision 1, describe the sampling frequency, chemical analyses, and established limits for purified condensate dissolved and suspended solids that will be performed and the basis for these limits.

281.2 (10.4.6) Establish and state the sequential resin replacement frequency in order to maintain adequate capacity margin in the condensate treatment system (Regulatory Position C.2 of Regulatory Guide 1.56, revision 1). Include the basis for the resin replacement frequency.

281.3 (5.4.8) (10.4.6) Verify that the initial total capacity of new demineralizer resins (condensate and primary coolant) will be measured and describe the method to be used for this measurement (Regulatory Position C.3 of Regulatory Guide 1.56, revision 1).

281.4 (5.4.8 (10.4.6) Describe the method of determining the condition of the demineralizer units so that the ion exchange resin can be replaced before an unacceptable level of depletion is reached (Regulatory Position C.4 of Regulatory Guide 1.56, revision 1). Describe the method by which (a) the conductivity meter readings for the condensate cleanup system will be calibrated, (b) the flow rates through each demineralizer will be measured, (c) the quantity of the principal ions likely to cause demineralizer breakthrough will be calculated, and (d) the accuracy of the calculation of resin capacity will be checked.

281.5 (5.4.8) (10.4.6) Indicate the control room alarm set points of the conductivity meters at the inlet and outlet demineralizers in the condensate and reactor water cleanup systems when either (Regulatory Position C.5 of Regulatory Guide 1.56, revision 1):

a. The conductivity indicates marginal performance of the demineralizer system;

b. The conductivity indicates noticeable breakthrough of one or more demineralizers.

281.6 (5.4.8) (10.4.6) The reactor coolant limits and corrective action to be taken if the conductivity, pH, or chloride content is exceeded will be established in the Technical Specifications. Describe the chemical analysis methods to be used for their determination (Regulatory Position C.6 of Regulatory Guide 1.56, revision 1).

281.7 (10.4.6) Describe the water chemistry control program to assure maintenance of condensate demineralizer influent and effluent conductivity within the limits of Table 2 of Regulatory Guide 1.56, revision 1. Include conductivity meter alarm set points and the corrective action to be taken if the limits of Table 2 are exceeded.

281.8 (9.1.3) Regarding the Spent Fuel Pool Cleanup System, provide the following information:

Describe the samples and instrumentation and their frequency of measurement that will be performed to monitor the Spent Fuel Pool water purity and need for ion exchanger resin and filter replacement. State the chemical and radiochemical limits to be used in monitoring the spent fuel pool water and for initiating corrective action. Provide the basis for establishing these limits. Your response should consider variables such as: gross gamma and iodine activity, demineralizer and/or filter differential pressure, demineralizer decontamination factor, pH and crud level.

281.9 (6.1.2) a. Indicate the total amount of paint or protective coatings (area and film thickness) used inside containment that do not meet the requirements of ANSI N101.2 (1972) and Regulatory Guide 1.54. We will use the above information to estimate the rate of combustible gas generation vs. time and the amount (volume) of solid debris that can be formed from these unqualified organic materials under DBA conditions that can potentially reach the containment sump. A G value of 5 will be used unless a lower G value is justified technically.

b. In order for the staff to estimate the rate of combustible gas generation vs. time due to exposure of organic cable insulation to DBA conditions inside containment, provide the following information:

1) The approximate total quantity (weight and volume) of organic cable insulation material used inside containment, including uncovered cable and cable in closed metal conduit or closed cable trays. We will give credit for beta radiation shielding for cable in closed conduit or trays if information is provided as to the respective quantities of cable in closed conduits or trays vs. uncovered cable.

2) The approximate breakdown of cable diameters and conductor or cross section associated or an equivalent cable diameter and conductor cross section which is representative of the total cable surface area consistent with the quantity of cable surface area consistent with the quantity of cable identified in 1) above.

3) The major organic polymer or plastic material associated with the cable in 1) above. If this information is not provided, we will assume the cable insulation to be polyethylene and a G value of 3.

281.10 (9.3.2) Verify that sample line purge flows and duration times are sufficient to flush out stagnant lines to assure that a representative sample is obtained.

281.11 (9.3.2) Acceptance Criterion 2.g in Standard Review Plan Section 9.3.2 states that passive flow restrictions to limit reactor coolant loss from a rupture of the sample line should be provided. You do not address this criterion in the FSAR. Describe how the requirement of maintaining radiation exposures to as low as is reasonably achievable will be met in the event of a rupture of the sample line containing contaminated primary coolant, in accordance with Regulatory Position C.2.i(6) of Regulatory Guide 8.8, revision 3 (June 1978).

281.12 (9.3.2) Acceptance criterion 1.a in Standard Review Plan Section 9.3.2 indicates that sumps inside containment and the standby liquid control storage tank should be sampled. Describe provisions to sample sump water inside the containment in accordance with the requirements of General Design Criterion 64 in Appendix A to 10 CFR Part 50.

281.13 (5.4.8) Verify that provisions have been made for draining and venting reactor water cleanup system components through a closed system in accordance with GDC 60 and 61.

281.14 (TMI II.B.3) Provide information that satisfies the attached proposed license conditions for post-accident sampling.