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DOCKET NOS. STN 50-508 and STN 50-509

APPLICANT: WASHINGTON PUBLIC POWER SUPPLY SYSTEM (WPPSS)

FACILITY: WPPSS NUCLEAR PROJECTS NO. 3 AND NO. 5

SUMMARY OF OCTOBER 2, 1975 MEETING REGARDING OUTSTANDING REVIEW MATTERS

On October 2, 1975, representatives of WPPSS, Ebasco, and Combustion Engineering met with the NRC staff in Bethesda, Maryland. The purpose of the meeting was to discuss outstanding items in the staff's review of the WPPSS Nuclear Projects No. 3 and No. 5 construction permit application. A list of attendees is attached.

The following outstanding items identified in the draft Safety Evaluation Report were discussed.

I. Electrical Items

A. Balance-of-Plant Scope

(1) Auxiliary Feedwater System - Compatibility of Figures 7.4-2 and 10.4-7 in the PSAR.

Figures 7.4-2 shows the auxiliary feedwater system logic. Figure 10.4-2 does not facilitate following the functional operation of the system. WPPSS stated that the inconsistency would be clarified in the next amendment.

(2) IEEE Standard 323-1974--Conformance to the aging and/or on-going qualification requirements.

We informed WPPSS that the information submitted in the latest PSAR amendments was still under review. To date no problems have been identified.

(3) Possible exceptions to Regulatory Guide 1.47 -

WPPSS agreed to revise the PSAR to clarify their intent regarding Regulatory Guide 1.47.

(4) Periodic response time testing - PSAR does not include programs for periodic testing of protection system response times.

We informed WPPSS that the information submitted in the most recent amendments was still under review. No problems have been identified to date.

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(5) Battery installation - two batteries per room (Category I) with a barrier between the batteries.

We informed WPPSS that the information supplied in the most recent amendments clarifying that there are indeed separate rooms for each battery has resolved this matter.

II. CESSAR Interfaces
B. Electrical Items

(1) Flow to the core attained within a maximum of 30 seconds after loss of offsite power.

WPPSS claimed that the proposed design meets the interface requirement. We requested that WPPSS confirm this conformance.

(2) ECCS flow re-established in 13 seconds and auxiliary feedwater flow established within 15 seconds following a loss-of-offsite power after a loss-of-coolant accident.

WPPSS stated that the PSAR will be revised to provide the necessary clarification.

(3) Regulation of the voltage on the plant vital instrument buses shall be within ± 1%.

WPPSS stated that the PSAR will be revised to provide the necessary clarification.

(4) Throttling of flow during the recirculation mode to match the available NPSH.

We informed WPPSS that the most recent amendments revised this material in an acceptable manner.

(5) An emergency generator shall be used to supply power to certain equipment following failure of the normal power supply.

We informed WPPSS that the recently-supplied list identified those portions of the CVCS to be connected to the onsite diesel generators was acceptable.

(6) No main steam isolation signal will be provided to close the turbine stop valves for a main steam line break accident.

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We informed WPPSS that our requirements in this regard were being revised, and we would notify them about the approach to be used within a few weeks.

(7) The main steam isolation valves shall be fail-close valves. In the event of loss of power to the valve controllers or a loss in air supply to the valves (if air operated) the main steam isolation valves shall automatically close.

Combustion Engineering stated that CESSAR Amendment No. 38 deleted this interface requirement.

(8) Requirement that the consequences of a steam line break together with a failure of an atmospheric dump valve be demonstrated to be acceptable by either analysis or suitable equipment modifications.

WPPSS stated that additional information would be provided in the PSAR regarding this matter.

(9) No main steam isolation signal will be provided for the main steam isolation valve bypass valves since they will normally be de-energized.

WPPSS stated that additional information concerning this matter will be provided in the PSAR.

(10) Verification that valves of one train will not be powered from the same load center within that train to prevent a single failure from causing possible radiological consequences in excess of the dose guideline values in 10 CFR Part 100.

We provided clarification about this matter. WPPSS stated that our concern would be taken into consideration and a response provided at a later date.

III. Reactor Systems Items - Balance-of-Plant

(1) Overpressure Protection Design - We informed WPPSS that the information provided in Amendment No. 23 is acceptable at the construction permit stage of review.

(2) NPSH Requirements for Low Pressure Safety Injection Pumps - We informed WPPSS that the response provided in Amendment No. 22 to Item 214.2 is acceptable. We stated that we would

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require an evaluation for the LPSI pumps like that provided in Section 6.3.2.14 of the PSAR for the other pumps taking suction from the sump. CE informed us that Amendment 39 of the CESSAR removed the requirement for use of the LPSI pumps in the recirculation mode.

(3) Conformance to Regulatory Guide 1.79 - We informed WPPSS that the exception taken concerning the pre-operational testing of the LPSI pumps taking suction from the containment sump was not acceptable. WPPSS replied that the CESSAR no longer requires use of the LPSI pumps during the recirculation mode. It was also pointed out that Regulatory Guide 1.79 does not address use of the high pressure safety injection pumps to take suction from the sump. We stated that we would take this matter under consideration.

(4) Steam Line Break Analysis - We informed WPPSS that any valves in the main steam and feedwater systems that will remain open to contribute to blowdown of the intact steam generator assuming a steam line break coincident with a single failure must be identified. The existing steam line break analysis must be justified or a new analysis including maximum blowodwn conditions provided.

IV. Compliance with CESSAR Interface Requirements

(1) Shutdown Cooling Requirements - We informed WPPSS that it is not apparent that the reduced flow rate proposed for the shutdown cooling heat exchangers will provide the performance capability of the system as presented in the CESSAR. WPPSS should either meet the CESSAR interface requirements or demonstrate that all of the performance requirements for the shutdown cooling system are satisfied with reduced flow capability. This means that the system should cool the primary system from 350°F to 212°F in about 24 hours assuming a single failure. WPPSS replied that this matter is currently under discussion with CE.

(2) Post-LOCA Cooling Requirements - We informed WPPSS that we will require a breakdown of the shutdown cooling heat exchanger duty requirements under post LOCA conditions with comparisons to CESSAR to explain and justify the reduced cooling water flow requirements.

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(3) Removal of Power from Atmospheric Dump Valves - We informed WPPSS that the proposal to remove power to these valves to preclude a spurious failure is currently under review.

(4) Removal of Power from Main Steam Isolation Valve Bypass Valves - We informed WPPSS that this proposal is currently under review.

(5) Protection of Safety Injection Tanks from Pipe Whip - We stated that we would require identification of those potential pipe ruptures for which the safety injection tanks will not be afforded protection from consequential effects. Ebasco informed us that the SI tanks would not be protected from the effects of a main steam line break since the SI tanks are not required to mitigate the consequences of this accident.

V. Site-Related Items
A. Slope Stability

(1) Item 323.16 in the staff's request for additional information was discussed.

Woodward-Clyde stated that the response to this question would discuss the conditions associated with profiles 4 thru 7, and would show that the conditions conducive to landslide formation are not present.

Woodward-Clyde stated that, in the case of profile 4, (1) the absence of continuous siltstone beds, (2) the absence of undercutting in the direction of the slope and (3) the fact that the bedding angle dips back into the slope precludes slide formation. We questioned reason (1), stating that the absence of continuous siltstone beds is not a very strong argument against slide formation.

Woodward-Clyde stated that, with regard to profile 5, (1) there is an absence of continuous siltstone beds, (2) it is horizontally bedded, and (3) only weathering is present. Therefore, Woodward-Clyde has concluded that slide formation on profile 5 in precluded. We commented that there are problems with the identification of residual soils versus rock strata in the PSAR.

In a discussion of profile 7, the profile of most concern from a safety standpoint, Woodward-Clyde stated that, because of the absence of undercutting and the lack of siltstone beds, slide formation is precluded along profile 7.

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WPPSS informed us that the PSAR response to item 323.16 will use the above reasoning to show that a bedding plane failure along slopes 4, 5 or 7 is precluded.

Item 323.17 was then discussed. Ebasco stated that several alternatives responses to this question had been considered.

The first method consisted of drilling in each slide and testing the residual soil

Ebasco identified the following problems with this method of determining soil strength:'

(1) If undisturbed soil is tested - questionable if data are applicable since this soil did not fail.

(2) If disturbed soil is tested - will obtain remolded shear strength, not shear strength at the time the slope failed.

For these reasons, the shear strengths thus obtained may not be representative of shear strengths of the soils at the site.

In the second method, from the geometry of the slide, a back calculation would be performed of residual soil properties at the time that the slide occurred. From this information, the cause of the slide would then be estimated. Ebasco expressed concern about the reliability of this method.

We replied that we were concerned about the reliability of the first method. Of the two methods, we expressed our preference for the second, acknowledging that conservative assumptions based on sound principles must be made.

(1) Assume static failure caused slide - can't demonstrate slide was caused by a seismic event.

(2) It must be recognized that this method yields relatively low shear strengths.

Ebasco summarized the possible courses of action that could be taken relative to the staff's concerns about slope stability.

(1) Remove all residual soil.

(2) Assume the presentation given at this meeting is acceptable to the staff, open up the slopes in question, and use state-of-the-art techniques to evaluate their failure potential.

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(3) Evaluate the progressive slide mechanism (creeping slopes).

(4) Use residual strength properties of the soil at the site to demonstrate that no slide could come down rapidly into the site area.

(5) Use an entirely new approach in conjunction with observational techniques.

After a brief discussion of item (5), Ebasco indicated that this would be the approach used to address the staff's concerns. Details of this method will be presented at a future meeting.

Original Signed by
Patrick D. O'Reilly

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Light Water Reactors
Project Branch 1-3
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Enclosure:
Attendance List

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ATTENDANCE LIST
MEETING WITH WNP-3 & WPN-5

OCTOBER 2, 1975

WPPSS

D. B. Whitford
G. C. Sorensen

EBASCO

P. J. Hannaway
H. Oslick
A. Wern
W. D. Rezak
J. H. Barnes
J. L. Ehasz
R. T. Vickers

COMBUSTION ENGINEERING

C. Brinkman

WOODWARD-CLYDE

A. Patwardhan

NRC - STAFF

D. L. Tibbitts
P. D. O'Reilly
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