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SUBJECT: Submits revised response re fire protection & safe shutdown capability. *82-16*

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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G02-88-222

Docket No. 50-397

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
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Washington, D. C. 20555

Subject: NUCLEAR PLANT NO. 2  
FIRE PROTECTION AND SAFE SHUTDOWN CAPABILITY,  
RESPONSE TO SAFETY EVALUATION REPORT (REVISED RESPONSE)

Reference: 1) Letter G02-88-008, GCS (SS) to NRC, "Fire Protection  
and Safe Shutdown Capability, Response to Safety Evaluation  
Report," dated January 11, 1988

2) NRC Inspection Report No. 50-397/88-16, dated July 25, 1988

In NRC Inspection Report 88-16 (Reference 2), Item 2.E.5 (Separation of Redundant Trains in the Drywell Expansion Gap), the NRC advised the Supply System that our January 11, 1988 response (Reference 1) regarding this issue was unacceptable. The staff further requested that the Supply System revise that response and provide a detailed discussion of what methods are being utilized to prevent this type of fire occurrence, how early detection of fires occurring in the expansion gap will be accomplished and how fires occurring in the expansion gap will be suppressed. The purpose of this letter is to revise the above discussed response as follows:

The annular gap constructed between the metal shell of the primary containment vessel and the concrete biological shielding wall is filled with a compressible insulating spacer system consisting of polyurethane flexible foam sheets, butted at the joints and cemented directly to the primary containment shell, a jacket of premolded Fiberglass Reinforced Polyester (FRP) jacket panels, and epoxy flashing.

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FIRE PROTECTION AND SAFE SHUTDOWN CAPABILITY,  
RESPONSE TO SAFETY EVALUATION REPORT (REVISED RESPONSE)

The foam spacer system is in a confined space, and exposed to a minimal quantity of air through clearance around pipe penetrations. There is adequate spatial separation from the foam to the nearest combustible (electrical cable insulation) to reduce the possibility of a fire spreading into the foam liner (Reference Calculation NE-02-84-17). As noted in the above calculation, as an added precaution Kao-Wool was placed into selected penetrations to eliminate exposure from radiant energy. These penetrations (generally up to 10 feet above floor level) were selected on the basis as being the most likely areas to be exposed to sources of radiant energy. However, the Supply System took no credit for Kao-Wool as a fire barrier in the calculations.

Plant procedures dealing with the Fire Protection Program and Fire Watch Training include cautions about and actions needed during "hot work" (i.e., cutting, welding and grinding) in the area of all penetrations, including those greater than 10 feet above floor level. These actions are designed to prevent a fire from starting in the foam.

In the unlikely event of a fire, the spread in the annular gap would be very slow due to the limited space and oxygen deficient atmosphere for burning. The metal vessel liner and the concrete bioshield wall would act like a large heat sink and thus slow the growth of the fire in the annular gap.

Electrical penetrations carrying safe shutdown cables are spaced such that if a fire did occur, it would be detected and extinguished before it could affect both redundant divisions of safe shutdown circuits. The redundant penetrations for the ADS valve controls are 90° apart in azimuth and separated by one floor elevation. Those for the suppression pool temperature monitors are 180° apart but on the same floor elevation.

There is no automatic detection system dedicated to the annular gap. The Supply System relies on smoke detectors in the general area and the fire watch that will be established during hot work in this area. Suppression of any fires in this area will be in accordance with the Fire Protection Program and would include the use of water and/or dry chemical fire extinguishers.


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Based on the above, the Supply System has concluded that a fire in the drywell expansion gap has a very low probability of starting. However, in the unlikely event that one should start, the results of the fire will not have an effect on the safe shutdown of the plant.

The above text completes our revised response to Reference 1.

Very truly yours,

  
G. C. Sorensen, Manager  
Regulatory Programs

HLA:lw

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