

APR 10 1978

Docket Nos. 50-400, 50-401,  
50-402 and 50-403

Carolina Power & Light Company  
ATTN: Mr. J. A. Jones, Executive  
Vice President - Engineering  
Construction and Operations  
336 Fayetteville Street  
Raleigh, North Carolina 27602

Gentlemen:

SUBJECT: DESIGN OF THE PIPE TUNNEL FOR MAIN STEAM LINE AND FEEDWATER  
LINE IN THE SHEARON HARRIS PLANT

We are revising Standard Review Plans 3.6.1 and 3.6.2 to clarify our requirements relating to postulated high energy line breaks outside the containment. Specifically, we require that the compartment between the containment and the turbine building, which houses the main steam lines and feedwater lines and the isolation valves for these lines, be designed to consider the pressure and environmental effects from an assumed crack, equivalent to the flow area of a single ended pipe rupture in these lines. We will require that if this assumed crack could cause the collapse of this compartment, then the collapse should not jeopardize the safe shutdown of the plant. Furthermore, we require that essential equipment located within the compartment, or adjacent to the compartment, be designed to withstand the environmental effects resulting from the above crack.

It is our understanding that the design of the pipe tunnel for each Shearon Harris Unit, as shown in the PSAR, may not be capable of withstanding the pressure and environmental effects resulting from a postulated crack of a main steam or feedwater line in the tunnel. Therefore, in the interest of avoiding potentially costly plant modifications later, we require that you submit a subcompartment pressure analysis to confirm that the design of the pipe tunnel for each Shearon Harris unit conforms to our position as outlined above. In addition, we require that any equipment required for safe shutdown, which will be located in the tunnel, including the main steam isolation valves and operators, be qualified to be capable of operating in the resultant environment of the postulated pipe crack.

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We request that you evaluate the Shearon Harris design against this staff position and advise us as to the outcome of your review, including any design changes which may be required. The evaluation should include a verification that the methods used to calculate the pressure build-up in the subcompartments outside of the containment for postulated breaks are the same as those used for subcompartments inside the containment. If different methods are used, justify that your method provides adequate design margins and identify the margins that are available. When you submit the results of your evaluation please include the computer codes used, the assumptions used for mass and energy release rates, and design data so that we may perform independent calculations. Please advise us when you expect to have the results of this evaluation, as well as the results of the subcompartment pressure analysis available. If you have any questions regarding this position, we are prepared to meet with you to discuss it.

Please contact us if you have any questions regarding the information requested.

Sincerely,  
Original Signed by,  
O. D. Parr,

Olan D. Parr, Chief  
Light Water Reactors Branch No. 3  
Division of Project Management

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