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 AUTH.NAME AUTHOR AFFILIATION  
 VAUGHN,G.E. Carolina Power & Light Co.  
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SUBJECT: Discusses justification for continued operation re  
 "Pressurizer Surge Line Thermal Stratification."

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**JUL 03 1991**

G. E. VAUGHN  
Vice President  
Nuclear Services Department

SERIAL: NLS-91-159

United States Nuclear Regulatory Commission  
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JUSTIFICATION FOR CONTINUED OPERATION REGARDING  
PRESSURIZER SURGE LINE THERMAL STRATIFICATION

Gentlemen:

This letter documents developments which impact the completion schedule for the pressurizer surge line thermal design confirmation pursuant to NRC Bulletin 88-11, "Pressurizer Surge Line Thermal Stratification", for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR2).

By letter dated December 7, 1990, Carolina Power & Light Company (CP&L) submitted a revised schedule for performing plant specific analyses to show the acceptability of the HBR2 pressurizer surge line design. At that time, the schedule was extended to allow the performance of plant specific design verification. The plant specific analysis was required because the Westinghouse Owner's Group generic approach failed to bound the HBR2 pressurizer surge line design.

Carolina Power & Light Company, through contract with Westinghouse Electric Corporation, reanalyzed the surge line to include the effects of thermal stratification and striping. This reanalysis used a conservative interpretation of "Industry" data available for surge lines with critical characteristics similar to those of the HBR2 pressurizer surge line. Use of a conservative interpretation was intended to bound HBR2 and thereby show applicability in accordance with the Bulletin's requirements. However, use of this conservative data yielded analytical results that did not predict realistic stress values and surge line deflections. The evidence of HBR2 surge line deflections observed by field inspection during the last outage did not support the magnitude of the analytically predicted movements. Therefore, CP&L has reinitiated analyses using a more realistic interpretation of similar plants' actual data. This reanalysis is scheduled to be completed by the end of the fourth quarter of 1991.

In accordance with the Bulletin's requirements, CP&L is also pursuing mechanisms to demonstrate applicability of the "Industry" data used for

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HBR2. Carolina Power & Light Company will address data applicability on the same schedule as the analysis. However, should the only method of showing data applicability be determined to be surge line instrumentation, then that determination will be made in time to install appropriate instrumentation in the upcoming refueling outage (No. 14 scheduled to begin April 11, 1992). Should instrumentation be necessary, data for at least one heatup and one cooldown must be collected. An additional three months would be necessary to complete the applicability determination. Therefore, if instrumentation is necessary, HBR2 will experience at least one cooldown while entering the outage to install the instrumentation and an additional heatup and cooldown cycle to complete data collection.

The above schedules are bounded by the existing Justification for Continued Operation of the pressurizer surge line submitted on December 29, 1989. The JCO documents the acceptability of the pressurizer surge line design for at least ten additional heatup and cooldown cycles from the date of the bounding evaluation, i.e., June 1989. HBR2 has experienced two heatup and cooldown cycles since the issuance of the JCO. Sufficient margin remains for completion of the analyses, data applicability determination including instrumentation, and implementation of any modifications, if necessary, within the bounds of the Justification for Continued Operation.

In accordance with the Bulletin's reporting requirements, Carolina Power & Light Company will submit, within thirty days after completion of the analyses, a notification that the analyses have been completed. If the analyses show the current design does not account for the effects of thermal stratification and striping for the design life of the plant, the existing justification for continued operation will be re-evaluated, if necessary, and the proposed actions to be taken for resolution will be submitted.

In summary, CP&L has initiated plant specific analyses to demonstrate that thermal stratification and striping phenomena are accounted for in the design basis for the HBR2 plant. The analyses are scheduled to be completed by the end of the fourth quarter 1991. Surge line data confirmation is expected to be completed coincident with the analyses unless instrumentation is necessary, in which case data confirmation will take approximately two thermal cycles plus three months. The JCO which justified completion of the design confirmation by December 29, 1990 remains valid and supports the revised schedule. Carolina Power & Light Company will submit to the NRC within 30 days of completion of the analyses either a notification that design verification is completed or additional information in accordance with the Bulletin's reporting requirements.

Please refer any questions regarding this submittal to Mr. Steven Chaplin at (919) 546-6623.

Yours very truly,



G. E. Vaughn

GEV/SDC

cc: Mr. S. D. Ebnetter  
Mr. L. Garner (NRC-HBR2)  
Mr. R. Lo

G. E. Vaughn, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.

My commission expires: 2/6/96

Eleanor C. Chappell  
Notary (Seal)

