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 RECIPIENT AFFILIATION  
 Document Control Branch (Document Control Desk)

SUBJECT: Submits final response to NRC Bulletin 88-011 re  
 pressurizer surge line thermal stratification. Util  
 contracted w/Westinghouse to perform ASME Class I stress &  
 fatigue analysis of line to account for effects of striping.

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 TITLE: Bulletin 88-11 Pressurizer Surge Line Thermal Stratification

NOTES: Application for permit renewal filed.      05000400

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Carolina Power & Light Company

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APR 30 1991

G. E. VAUGHN  
Vice President  
Nuclear Services Department

SERIAL: NLS-91-103

United States Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT  
DOCKET NO. 50-400/LICENSE NO. NPF-63

FINAL RESPONSE TO NRC BULLETIN 88-11,  
"PRESSURIZER SURGE LINE THERMAL STRATIFICATION"

- References:
- 1) NRC Bulletin 88-11, dated December 20, 1988
  - 2) CP&L Letter NLS-89-052 dated February 28, 1989 from M. A. McDuffie (CP&L) to NRC Document Control Desk
  - 3) NRC Letter dated May 11, 1989 from R. A. Becker (NRC) to L. W. Eury (CP&L)
  - 4) CP&L Letter NLS-89-160 dated December 29, 1989 from A. B. Cutter (CP&L) to NRC Document Control Desk
  - 5) CP&L Letter NLS-90-238 dated December 07, 1990 from A. B. Cutter (CP&L) to NRC Document Control Desk

Gentlemen:

On December 20, 1988, the NRC issued Bulletin 88-11 which requested addressees to establish and implement a program to confirm pressurizer surge line integrity. Licensees were requested to demonstrate that the pressurizer surge line meets applicable design codes and other FSAR and regulatory commitments for the licensed life of the plant, considering the phenomena of thermal stratification and thermal striping in the fatigue and stress evaluations.

In accordance with the Bulletin's reporting requirements and subsequent correspondence identified in the references above, Carolina Power & Light Company herein submits notification that the reanalysis of the Shearon Harris Nuclear Power Plant (SHNPP) surge line has been completed.

Carolina Power & Light Company contracted Westinghouse to perform an ASME Class I stress and fatigue analysis of the SHNPP pressurizer surge line that accounts for the effects of thermal stratification and striping. The Westinghouse analysis shows that the pressurizer surge line piping meets applicable code requirements for the design life of the plant including maximum allowable component stress and cumulative usage factors.

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The analysis also showed that two of the surge line rigid supports may experience loads in excess of the code allowable values when the effects of thermal stratification and striping are taken into account concurrently with other design loadings. As a result CP&L is investigating modifying the design of these supports. If, necessary, modifications to the rigid supports will be completed in the next refueling outage (RFO Number 4) currently scheduled for September 1992.

Sufficient margin remains within the bounds of the existing Justification for Continued Operation (JCO) pending implementation of the modifications (Reference 4). The JCO documents the acceptability of the pressurizer surge line design in the absence of plant specific detailed reanalysis, for at least ten additional heatup and cooldown cycles from the date of the bounding evaluation, i.e., June 1989. SHNPP is currently in its fifth cycle since the issuance of the JCO.

In summary, the integrity of the SHNPP surge line has been confirmed in accordance with Bulletin requirements. The analysis is available for inspection at Westinghouse's facilities. Two rigid surge line supports may be modified as a result of increased loadings due to thermal stratification and striping. If necessary, these modifications will be completed during the next refueling outage. Resolution of the support design will complete the actions required by the Bulletin with regard to surge line integrity.

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. R. A. Becker  
Mr. S. D. Ebnetter  
Mr. J. E. Tedrow

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: 2/6/94

Eleanor C. Chappel  
Notary (Seal)

