

May 2, 1985

Docket No. 50-364

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EReeves  
ACRS (10)

Mr. R. P. McDonald  
Senior Vice President  
Alabama Power Company  
Post Office Box 2641  
Birmingham, Alabama 35291

Dear Mr. McDonald:

SUBJECT: PRESSURE-TEMPERATURE LIMIT CALCULATIONS FOR JOSEPH M. FARLEY  
NUCLEAR PLANT UNIT NO. 2

On January 22, 1985 the Commission issued License Amendment No. 48 to Facility Operating License NPF-8. The amendment was in response to your application dated February 10, 1984, supplemented June 18, 1984. In the transmittal letter for the amendment we noted that action was not being taken at that time on the proposed pressure-temperature limits of Technical Specification Figures 3.4-2 and 3.4-3.

We discussed the reasons with your staff who agreed that Figures 3.4-2 and 3.4-3, as proposed, would not be required for Cycle 4 operation. However, since the figures are dependent on effective full power years of operation new figures would be needed prior to Cycle 5. On that basis, certain NRC staff concerns should be addressed in your next submittal relating to the pressure-temperature limits.

These concerns, as noted in the enclosure, should be addressed in your license amendment application. We request that you submit the amendment request for NRC staff review within six months of your need date for the Cycle 5 operation.

Sincerely,

/s/SAVarga

Steven A. Varga, Chief  
Operating Reactors Branch #1  
Division of Licensing

Enclosure:  
As stated

cc w/enclosure:  
See next page

ORB#1:DL  
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

May 2, 1985

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Senior Vice President  
Alabama Power Company  
Post Office Box 2641  
Birmingham, Alabama 35291

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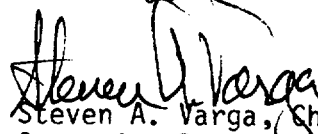
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Division of Licensing

Enclosure:  
As stated

cc w/enclosure:  
See next page

Mr. R. P. McDonald  
Alabama Power Company

Joseph M. Farley Nuclear Plant

cc: Mr. W. O. Whitt  
Executive Vice President  
Alabama Power Company  
Post Office Box 2641  
Birmingham, Alabama 35291

Mr. Louis B. Long, General Manager  
Southern Company Services, Inc.  
Post Office Box 2625  
Birmingham, Alabama 35202

Houston County Commission  
Dothan, Alabama 36301

George F. Trowbridge, Esquire  
Shaw, Pittman, Potts and Trowbridge  
1800 M Street, N.W.  
Washington, DC 20036

Chairman  
Houston County Commission  
Dothan, Alabama 36301

Robert A. Buettner, Esquire  
Balch, Bingham, Baker, Hawthorne,  
Williams and Ward  
Post Office Box 306  
Birmingham, Alabama 35201

Resident Inspector  
U.S. Nuclear Regulatory Commission  
Post Office Box 24 - Route 2  
Columbia, Alabama 36319

State Department of Public Health  
ATTN: State Health Officer  
State Office Building  
Montgomery, Alabama 36104

D. Biard MacGuineas, Esquire  
Volpe, Boskey and Lyons  
918 16th Street, N.W.  
Washington, DC 20006

Charles R. Lowman  
Alabama Electric Corporation  
Post Office Box 550  
Andalusia, Alabama 36420

Dr. J. Nelson Grace  
Regional Administrator - Region II  
U.S. Nuclear Regulatory Commission  
101 Marietta Street, Suite 2900  
Atlanta, GA 30303

Ira L. Myers, M.D.  
State Health Officer  
State Department of Public Health  
State Office Building  
Montgomery, Alabama 36130

Clarification of Closure Flange Region Safety Margins

ALABAMA POWER COMPANY

JOSEPH M. FARLEY NUCLEAR PLANT UNIT 2

1. The licensee's consultant has indicated that the moment arm of the bolt force about the center of gravity of the flange bearing pressure diagram was measured to the outer edge for reasons having to do with the finite element modeling. In a real reactor vessel the barrel pressure will be distributed over the mating surface (core barrel to flange and head to flange), which will result in a greater moment arm at the flange junctions than that calculated by the finite element method used by the licensee's consultant. The licensee must provide an analysis that accounts for this larger moment arm, which results from a realistic distribution of the bearing pressure.
  
2. The finite element stress analysis must account for the stress concentration effect of fillets at the flange junctions. The licensee must explain how the finite element analysis determined the effect fillets on the localized stresses concentration. Indicate the peak and nominal stress values adjacent to the closure flange fillets.

3. Describe the dimensional analysis that was performed to determine that the finite element stress analysis performed for the Comanche Peak vessels will be conservative for the Farley 2 vessel.
  
4. In order to demonstrate that the beltline region is more limiting than the flange region, indicate the minimum metal temperature at the flange and beltline regions, which results from the fracture analysis. During a heatup and cooldown, what are the required minimum water temperatures to ensure that the limiting flange locations will be equal to or greater than the required minimum metal temperatures?