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Georgia Power

the southern electric system

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United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II - Suite 2900
101 Marietta Street, Northwest
Atlanta, Georgia 30323

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Reference: Vogtle Electric Generating Plant-Units 1 and 2, 50-424, 50-425;
NSCW Piping System Design Temperatures

Attention: Mr. James P. O'Reilly

On December 18, 1984, Mr. R. E. Folker of Georgia Power Company reported a potentially reportable condition to Mr. W. H. Rankin of the USNRC, Region II, concerning the use of an incorrect design temperature for piping design analyses in the Nuclear Service Cooling Water piping system.

Georgia Power Company has concluded its evaluation of this condition and determined that a reportable condition per the criteria of Part 10CFR21 and 10CFR 50.55(e) does exist. In accordance with regulatory guidelines in NUREG-0302 and other NRC documents, Georgia Power Company is reporting this condition per the reporting requirements of Part 10CFR 50.55(e). Enclosed is a summary of our evaluation.

This response contains no proprietary information and may be placed in the NRC Public Document Room.

Very truly yours,

D. O. Foster

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NUCLEAR SERVICE COOLING WATER PIPING SYSTEM
DESIGN TEMPERATURE

EVALUATION FOR A REPORTABLE CONDITION

Initial Report: Mr. R. E. Folker, Georgia Power Company Quality Assurance Engineer, reported a potential deficiency to Mr. W. H. Rankin of the USNRC, Region II on December 18, 1984, concerning the design temperature used for some of the piping system analyses in the Nuclear Service Cooling Water Piping System (NSCW).

Background Information:

The analyses of some of the NSCW piping system was completed based on a design temperature of 150°F. This temperature was used since the maximum mixed mean return water temperature to the NSCW cooling tower will always be less than 150°F. However, as a result of the ultimate heat sink analysis, it was found that a portion of the NSCW piping could operate at temperatures greater than 150°F for a limited time following a design basis accident with single train operation. For these conditions, the affected piping could reach a peak temperature of 270°F, remain above 200°F for about one hour, and above 150°F for about twelve hours.

Engineering Evaluation:

The stress analyses for the affected lines were completed using a design temperature of 150°F. Since the design temperature was changed to 280°F, the piping stress analyses were revised. Design modifications were made to the pipe support systems as required to keep the piping system stresses below the allowable values.

Exposing a piping/support system which was designed for 150°F to 280°F temperatures produces pipe thermal stresses above the amount considered in the original analysis. It is not obvious, without more analysis, if the affected pipe support system would have allowed for the additional thermal stresses. If this discrepancy were to have remained uncorrected, the thermal stresses resulting from the temperature increase could have caused the failure of the supports given in Attachment 1. These lines are essential to the safe operation of the plant.

Evaluation for Quality Assurance Program Breakdown:

It has been concluded that a significant breakdown in the Quality Assurance Program of Bechtel Power Corporation did not occur. This error affected only 31 lines of approximately 12,800 lines and was detected during a design review.

Conclusion:

It has been concluded that the use of the incorrect design temperature for this piping system constitutes a reportable condition pursuant to the criteria of 10CFR21 and 10CFR50.55(e). Georgia Power Company is reporting this event per the regulatory criteria of 10CFR50.55(e) to avoid duplicate reporting in accordance with NRC directions in NUREG-0302 Rev. 1.

Corrective Action:

All Nuclear Service Cooling Water (NSCW) piping/support system components affected by this temperature change have been reanalyzed and, if required, appropriate design changes were made.

ATTACHMENT 1

NSCW CONTAINMENT PIPING
LINES REQUIRING PIPE SUPPORT SYSTEM DESIGN MODIFICATION*

<u>LINE NO.</u> (1-1202-L4-XXX)	<u>ISO</u>
001	1K4-1202-002-01/04/05
002	1K3-1202-002-02
099	1K3-1202-099-01/02
138	1K4-1202-138-02
139	1K4-1202-139-02
140	1K4-1202-140-01
141	1K4-1202-141-01
151	1K3-1202-099-01
181	1K3-1202-181-02
188	1K4-1202-188-01/03
189	1K4-1202-188-02
192	1K4-1202-192-01/02/04 1K4-1202-290-02
196	1K4-1202-196-01/04/05
197	1K4-1202-196-05
202	1K4-1202-192-04
204	1K4-1202-001-05
205	1K4-1202-205-01 1K4-1202-212-02
207	1K4-1202-220-02/04

ATTACHMENT 1 (Cont'd)

LINE NO.
(1-1202-L4-XXX)

ISO

209	1K4-1202-209-01/02
211	1K4-1202-211-01
212	1K4-1202-212-01/02
216	1K4-1202-216-02/03/04
218	1K4-1202-216-04
220	1K4-1202-220-01/02/04
223	1K3-1202-222-01 1K4-1202-223-01/03
225	1K3-1202-226-01 1K4-1202-225-01/03
229	1K4-1202-229-01/04/05
231	1K4-1202-231-02/04/05
291	1K4-1202-188-03
292	1K4-1202-209-02
351	1K4-1202-188-03

*Design temperature changed from 150° to 280°F. Lines were originally analyzed based on 150°F. Reanalysis based on 280°F required redesign of some pipe supports.