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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

OCT 29 1979

In Reply Refer To:
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South Carolina Electric and Gas Company
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Special Services and Purchasing
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Gentlemen:

The enclosed Bulletin No. 79-17, Revision 1 is forwarded to you for information. No written response is required. However, the potential corrosion behavior of safety-related systems as it regards your plant over the long-term should be taken into consideration. If you desire additional information concerning this matter, please contact this office.

Sincerely,

James P. O'Reilly
Director

Enclosure:
IE Bulletin No. 79-17,
Revision 1 w/encls.

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NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

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IE Bulletin No. 79-17
Revision 1

PIPE CRACKS IN STAGNANT BORATED WATER SYSTEMS AT PWR PLANTS

Description of Circumstances:

IE Bulletin No. 79-17, issued July 26, 1979, provided information on the cracking experienced to date in safety-related stainless steel piping systems at PWR plants. Certain actions were required of all PWR facilities with an operating license within a specified 90-day time frame. R1

After several discussions with licensee owner group representatives and inspection agencies, it has been determined that the requirements of Item 2, particularly the ultrasonic examination, may be impractical because of unavailability of qualified personnel in certain cases to complete the inspections within the time specified by the Bulletin. To alleviate this situation and allow licensees the resources of improved ultrasonic inspection capabilities, a time extension and clarifications to the bulletin have been made. These are referenced to the affected items of the original bulletin. R1

During the period of November 1974 to February 1977 a number of cracking incidents have been experienced in safety-related stainless steel piping systems and portions of systems which contain oxygenated, stagnant or essentially stagnant borated water. Metallurgical investigations revealed these cracks occurred in the weld heat affected zone of 8-inch to 10-inch type 304 material (schedule 10 and 40), initiating on the piping I.D. surface and propagating in either an intergranular or transgranular mode typical of Stress Corrosion Cracking. Analysis indicated the probable corrodents to be chloride and oxygen contamination in the affected systems. Plants affected up to this time were Arkansas Nuclear Unit 1, R. E. Ginna, H. B. Robinson Unit 2, Crystal River Unit 3, San Onofre Unit 1, and Surry Units 1 and 2. The NRC issued Circular No. 76-06 (copy enclosed) in view of the apparent generic nature of the problem.

During the refueling outage of Three Mile Island Unit 1 which began in February of this year, visual inspections disclosed five (5) through-wall cracks at welds in the spent fuel cooling system piping and one (1) at a weld in the decay heat removal system. These cracks were found as a result of local boric acid buildup and later confirmed by liquid penetrant tests. This initial identification of cracking was reported to the NRC in a Licensee Event Report (LER) dated May 16, 1979. A preliminary metallurgical analysis was performed by the licensee on a section of cracked and leaking weld joint

R1 - Identifies those additions or revisi