



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
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ATLANTA, GEORGIA 30303

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In Reply Refer To:
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OCT 29 1979

Florida Power Corporation
Attn: W. P. Stewart, Manager
Nuclear Operations
P. O. Box 14042, Mail Stop C-4
St. Petersburg, Florida 33733

Gentlemen:

The enclosed Bulletin No. 79-17, Revision 1 is forwarded to you for action. A written response is required. If you desire additional information regarding 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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OCT 29 1979

Florida Power Corporation

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cc w/encl:

G. P. Beatty, Jr.

Nuclear Plant Superintendent

Post Office Box 1240

Crystal River, Florida 32629

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

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October 29, 1979

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 R1
experienced to date in safety-related stainless steel piping systems at PWR R1
plants. Certain actions were required of all PWR facilities with an operating R1
license within a specified 90-day time frame. R1

After several discussions with licensee owner group representatives and inspection R1
agencies, it has been determined that the requirements of Item 2, particularly R1
the ultrasonic examination, may be impractical because of unavailability of R1
qualified personnel in certain cases to complete the inspections within the time R1
specified by the Bulletin. To alleviate this situation and allow licensees the R1
resources of improved ultrasonic inspection capabilities, a time extension and R1
clarifications to the bulletin have been made. These are referenced to the R1
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 por-
tions of systems which contain oxygenated, stagnant or essentially stagnant bor-
ated 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 inter-
granular 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 revisions

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