

ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER, N.Y. 14649

LEON D. WHITE, JR.
VICE PRESIDENT

TELEPHONE
AREA CODE 716 546-2700

February 10, 1977



Mr. James P. O'Reilly, Director
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Subject: Supplemental Report on Reportable Occurrence 76-24, 14-day,
Leaks in 8" schedule 10 boric acid piping
R. E. Ginna Nuclear Power Plant, Unit No. 1
Docket No. 50-244

Dear Mr. O'Reilly:

On October 22, 1976 we submitted Reportable Occurrence 76-24, 14-day report, leaks in 8" schedule 10 boric acid piping. In that report the statement was made that the investigation was continuing, and further information would be provided in a supplemental report.

RG&E has received a written report of the Westinghouse metallurgical examination of cracks and analysis of the ID residue in the sample piping sections sent to the Westinghouse laboratory. This report gives support to the conclusion that the cracks were caused by stress corrosion attack, almost positively by chloride contamination of the ID from an unknown source. All cracks were associated with stresses induced by welding and probably augmented by bending moments inherent in the structure. There is no evidence of any sensitization of the parent material or any suggestion of intergranular attack of the weld heat-affected zone.

The corrective action performed consisted of the following. An extensive surface and volumetric nondestructive examination of the safety injection pump suction piping was carried out, with the exception of six welds that were inaccessible. To provide assurance that the inaccessible welds are suitable for service, stress and failure analyses were performed to demonstrate that stresses in the piping did not exceed code allowances, and that the piping would develop a detectable leak prior to development of a critical crack. As a result of the above analyses, an expansion loop was installed in the outlet pipe of one of the boric acid tanks, and

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TO Mr. James P. O'Reilly, Director

fourteen additional pipe supports and hangers were installed. An acoustical leak monitoring system was installed to monitor the inaccessible portions of the piping. This consists of acoustic emission transducers at five locations on the piping surface with an associated control room alarm. This system will detect a 0.02 gpm leak at eight feet from the leak. The schedule 10 sections of pipe and fittings which contained leaks and unacceptable indications were replaced with schedule 40 materials. The sections between the redundant valves were modified to include vents to preclude trapped air. After the modifications and repairs were completed a system hydrostatic pressure test was performed to verify system integrity. A review of the remainder of the safety injection system piping and the containment spray piping which are not frequently flushed, or which contain nonflowing liquids, was conducted and was reported in our December 21, 1976 response to IE Circular 76-06.

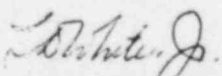
The piping system is being evaluated for the possibility of eliminating the inaccessible portion of the piping by rerouting it during the next refueling and maintenance outage. The accessible piping is inspected for leakage daily, to continue until examinations described below are completed.

A system hydrostatic pressure test will be performed on the safety injection and containment spray piping during the above outage. Liquid penetrant and ultrasonic examinations will be performed on selected welds in the boric acid storage tank outlet piping during the above outage to verify no further attack has occurred on this system.

To provide assurance of continued structural and operational integrity, the safety injection and containment spray systems will be tested in accordance with the system pressure test program required by Section XI of the ASME Boiler and Pressure Vessel Code.

Two additional copies of this letter are enclosed to conform to the original submittal of Reportable Occurrence 76-24, 14-day report.

Very truly yours,


L. D. White, Jr.

cc: Dr. Ernst Volgenau (40)
Mr. William G. McDonald (3)