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CENTRAL FILES

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

LEON D. WHITE, JR.
VICE PRESIDENT

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December 21, 1977

Mr. Boyce H. Grier, Director
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Subject: IE Bulletin No. 77-04, Calculational Error Affecting the Design Performance of a System for Controlling pH of Containment Sump Water Following a LOCA
R. E. Ginna Nuclear Power Plant, Unit #1
Docket No. 50-244

Dear Mr. Grier:

This letter is in response to IE Bulletin No. 77-04, requesting that we review pH control of the containment sump water following a LOCA under conditions of elevated boron concentrations and sump water source volumes. The results of our review are enclosed.

Very truly yours,

L. D. White, Jr.

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Enclosure

xc: NRC Office of Inspection and Enforcement
Division of Reactor Operations Inspection
Washington, D. C. 20555

NO)

ATTACHMENT

Rochester Gas and Electric Corporation
R. E. Ginna Nuclear Power Plant, Unit #1
Response to IE Bulletin 77-04

Design provisions for post-accident containment iodine removal and sump water pH control utilizing a sodium hydroxide (NaOH) spray solution are discussed in Section 6.4 and Appendix 6E of the Ginna FSAR.

During post-accident operation of the containment spray system, dilution and partial neutralization of the NaOH additive occurs in two stages. Initially, the NaOH mixes with refueling water in the spray pump suction piping, and subsequently is combined with water in the containment sump. Section 1.3.2 of FSAR Appendix 6E concluded that sufficient NaOH is contained in the chemical additive tank to obtain a pH range of 8.6-10 upon mixing with the contents of the refueling water storage tank and the reactor coolant system fluid. Also, for the purpose of materials evaluation in the design chemistry solution, the FSAR considered boron concentrations of 2500 ppm over a time period of 1 hour to 12 months. The calculated pH was 9.0.

An independent evaluation of containment sump pH has been performed employing conservative boron concentrations (2500 ppm) and maximum design volumes of all applicable borated water sources to the containment sump. These included the boric acid tanks, refueling water storage tank, accumulators, and reactor coolant system. The results of this evaluation indicate that a sump pH of approximately 8.8-9.0 will be reached upon blending of the total quantity of borated solution with the minimum available NaOH as permitted by Ginna Technical Specifications.

Because an acceptable pH range for materials compatibility will be maintained in the post-accident containment sump solution under conditions of maximum boron availability, there is no further action required to meet system design parameters.