UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 75 TO FACILITY OPERATING LICENSE NO. DPR-18

ROCHESTER GAS AND ELECTRIC CORPORATION

R. E. GINNA NUCLEAR POWER PLANT

DOCKET NO. 50-244

1.0 INTRODUCTION

By letter dated October 20, 1999, the Rochester Gas and Electric Corporation (RG&E or the licensee) submitted a request for changes to the R. E. Ginna Nuclear Power Plant Technical Specifications (TSs). The requested changes would change from December 31, 1999, to June 30, 2001, specified in TS 4.3.1.1.b Note associated with maintaining spent fuel pool (SFP) boron concentration >2300 ppm at all times until a permanent resolution to the current criticality concerns are implemented.

2.0 EVALUATION

2.1 Criticality Considerations

Region 2 of the Ginna SFP contains two types of storage racks, Type 1 and Type 2 racks. Type 1 storage racks are fabricated with Boraflex neutron attenuation panels and Type 2 racks are fabricated with borated stainless steel plates for neutron attenuation. Because of past industry-wide experience which has indicated Boraflex degradation in the form of shrinkage and gap formation as well as dissolution and thinning, these effects were evaluated for the Type 1 rack criticality analysis. The analysis included the assumption of a 12-inch axial gap randomly distributed on each Boraflex panel and an 8.3% shrinkage over the width of each panel. Possible dissolution was accounted for by reducing the Boraflex thickness by 50 percent. However, based on Boraflex testing performed at Ginna in early 1998, as described in LER 1998-001, Boraflex dissolution was discovered in certain locations resulting in gaps larger than those assumed in the criticality evaluation. In order to account for this non-conservatism, the licensee took prompt corrective action by removing spent fuel assemblies from the affected locations and establishing administrative controls to prevent storage of spent fuel assemblies in these designated cells during the last SFP modification. To provide a temporary corrective measure, TS 3.7.12 was changed and a note was added to TS 4.3.1.1.b by Amendment No. 72 to increase the minimum required boron concentration in the pool to 2300 parts per million (ppm), monitored on a weekly basis and to maintain this in effect until December 31, 1999. This is equivalent to the refueling boron concentration required by TS 3.9.1 during Mode 6 and to the minimum reactor water storage tank (RWST) concentration required by TS 3.5.4. Westinghouse calculations have shown that this amount of soluble boron is more than sufficient to compensate for a complete loss of all Boraflex in Region 2, while maintaining $k_{eff} \leq 0.95$ under all postulated normal and accident conditions. Preliminary calculations by Westinghouse

have shown that there is a large margin (approximately 850 ppm) between the boron concentration required to maintain $k_{eff} \leq 0.95$ (1450 ppm) and the proposed minimum value of 2300 ppm. During this interim period, surveillances of boron concentration will be required every 7 days. Due to the large inventory within the SFP, dilution of the soluble boron within the pool from 2300 ppm to 1450 ppm is very unlikely during a 7-day period without being detected by operations personnel or by available water level detection systems. A future licensing amendment request will be submitted for NRC review, detailing required TS changes that will form the basis for a final resolution of this issue. RG&E planned to have the permanent solution implemented by December 31, 1999. However, the licensee proposes to change this date to June 30, 2001. This reflects the time needed to evaluate, design, and implement necessary modifications and to obtain NRC approval. The NRC concurs that these interim measures adequately compensate for the non-conservative assumptions in the criticality analysis and finds the extension to June 30, 2001, acceptable.

2.2 Materials and Chemical Engineering Considerations

Delaying the implementation of a permanent solution to the boron concentration issue until June 30, 2001, does not change the conclusions reached in the safety evaluation for Amendment No. 72, which was granted by letter dated March 30, 1998. In this safety evaluation the staff concluded that, in the chemical environment created by the increased concentration of boric acid, the materials used in the spent fuel racks are not expected to undergo degradation which could affect their ability to safely store spent fuel. Since the concentration of boric acid is unchanged in the time extension requested by the licensee, the original conclusion remains valid.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (64 FR 63345). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the

Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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AMENDMENT NO. 75 TO FACILITY OPERATING LICENSE NO. DPR-18-GINNA NUCLEAR POWER PLANT

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