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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 73 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 November 24, 1998, Rochester Gas and Electric Corporation (the licensee) submitted a license amendment request of proposed technical specification (TS) changes for R. E. Ginna Nuclear Power Plant. The proposed TS changes include the use of ZIRLO alloy fuel assemblies in Cycle 28 and subsequent cycles, and administrative changes in the core operating limits report (COLR). The ZIRLO alloy was approved in the topical report WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report." The ZIRLO alloy is chosen to obtain additional operational benefit from the alloy's improved corrosion resistance and dimensional stability under irradiation. The ZIRLO fuel design has been tested through lead test assembly (LTA) programs, and was selected as reload fuel by other utilities.

## 2.0 EVALUATION

The ZIRLO fuel design is presented in the Westinghouse topical report WCAP-12610-P, "VANTAGE+ Fuel Assembly Reference Core Report." The staff approved the mechanical, neutronic, and thermal-hydraulic performance of the ZIRLO fuel design in a safety evaluation dated July 1, 1991. The staff approved the loss of coolant accident (LOCA) methodologies in another safety evaluation dated October 9, 1991, which addressed WCAP-12610-P, Appendices F, "LOCA NOTRUMP Evaluation Model: ZIRLO Modifications," and G, "LOCA Plant Specific Accident Evaluation." Westinghouse published the approved version of WCAP-12610-P-A in April 1995 for the ZIRLO fuel design. These methodologies are appropriate for use at Ginna and 10 CFR 50.44, 50.46, and Part 50, Appendix K indicate that both zircaloy and ZIRLO are acceptable cladding materials for nuclear power reactors.Therefore, the staff concludes that the use of ZIRLO fuel is acceptable for Ginna's Cycle 28 and subsequent cycles.

## 3.0 TECHNICAL SPECIFICATION CHANGES

### 3.1 Section 4.2 Reactor Core, 4.2.1 Fuel Assemblies

The licensee proposes to add ZIRLO in addition to zircaloy as an acceptable material for fuel rod and assembly designs, and to replace the zirconium alloy with zircaloy or ZIRLO as acceptable material for filler rods in fuel designs. The licensee also proposed two administrative changes to conform to the staff requirements. The new paragraph includes the following statements:

> Each assembly shall consist of a matrix of zircaloy or ZIRLO clad ... Limited substitution of zircaloy, ZIRLO, or stainless steel filler rods ... in accordance with NRC approved applications ... shown by tests or cycle specific analyses ...

These modifications to Section 4.2.1 are acceptable to Ginna based on the above staff evaluation of the acceptability of ZIRLO as a cladding material, the acceptability of using cycle specific analyses to ensure that fuel designs satisfy applicable safety limits, and the TS, as modified, are consistent with the staff position regarding standard language for a fuel design specification.

3.2 Section 5.6.5 COLR

The licensee proposed that (1) References 2, 4, and 9 be removed due to other existing references, (2) References 6, 7, 8, and 10 be modified to reflect more accurate information, and (3) two new documents, WCAP-13677-P-A (10 CFR 50.46 Evaluation Model Report: WCOBRA/TRAC Two-Loop Upper Plenum Injection Model Updates to Support ZIRLO Cladding Option) dated February 1994, and WCAP-12610-P-A (VANTAGE+ Fuel Assembly Reference Core Report) dated April 1995, be added for the new approved material ZIRLO.

These changes clarify the TSs and add methodologies applicable to the ZIRLO fuel design that will ensure that the valves for cycle-specific parameters will be determined such that applicable limits of the plant safety analyses are met. Thus, these changes acceptable.

3.3 Conclusions on Technical Specification Changes

The staff reviewed the licensee's submittal of proposed TS changes for the use of the approved ZIRLO fuel assembly design for Ginna Cycle 28 and subsequent cycles and the administrative changes to the COLR. Based on the staff's evaluation, the staff concludes that the ZIRLO fuel design and the administrative changes to the COLR are acceptable for reload licensing applications, and thus the proposed TS changes are acceptable for the R. E. Ginna Nuclear Power Plant.

4.0 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.

5.0 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. 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

(63 FR 71972 ). The amendment also relates to changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendment meets the eligibility criteria for categorical exclusions set forth in 10 CFR 51.22(c)(9) and (10). 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.

6.0 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.

Principal Contributor: S. Wu

Date: March 3, 1999