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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 11 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 August 1, 1983, Rochester Gas and Electric Corporation (the licensee, RG&E) requested an amendment to the Ginna Technical Specifications (TS) which consisted of five parts: (1) revise the Overpressure Protection System (OPS) operability requirements such that the OPS will be made operable whenever the Residual Heat Removal (RHR) system is placed in operation; (2) revise the minimum refueling water storage tank (RWST) volume requirements from 230,000 gallons to 300,000 gallons; (3) delete the process-to-actuator response time testing requirement for auxiliary feedwater and containment isolation; (4) revise the service water pump class 1E power alignments to include the requirement that at least one of the pumps be aligned to each of the two redundant class 1E power supplies; and (5) revise the battery testing requirements to include the requirement for a battery discharge test.

A Notice of Consideration of Issuance of Amendment to License and Proposed No Significant Hazards Consideration Determination and Opportunity for Hearing related to the requested action was published in the Federal Register on November 22, 1983 (50 FR 52824). No public comments or requests for hearing were received.

The proposed change on battery testing requirements was revised by a letter from RG&E dated October 26, 1983. This proposed change will be addressed in separate correspondence. The other four changes are discussed below.

2.0 EVALUATION

2.1 Overpressure Protection System Operability

The overpressure relief capacity was reviewed by the staff as part of the Systematic Evaluation Program (SEP). The results of the review were reported in Section 4.21.1 of the Integrated Plant Safety Assessment Report (IPSAR) for Ginna (NUREG-0821).

Overpressure relief capacity is required by 10 CFR Part 50 (General Design Criteria 19 and 43), as implemented by Standard Review Plan (SRP) Section 5.4.7, BTP ASB 5-1, and Regulatory Guide 1.139, for the RHR system when it is in operation; that is, when it is not isolated from the reactor coolant system (RCS). The OPS fulfills this function. At the time of the SEP review there was no procedural requirement in the TS that ensured that the OPS was in service whenever the RHR system is in service. During cooldown, the procedures placed the RHR system into service at 350°F and 360 psi, whereas the OPS was not required to be in service until 330°F. TS 3.15 "Overpressure Protection System" requires that the OPS be operable whenever the temperature of one or more of the RCS cold legs is $<$330°F. The licensee has proposed to further specify that the OPS be operable whenever the RHR system is in operation. Use of the OPS for RHR system protection is also reflected in the objective, reporting requirements section and basis of this TS. In addition, it is proposed that the wording for TS 3.3.1.3 be changed from "whenever the temperature of one or more of the RCS cold legs is 300°F" to "whenever the overpressure protection system is required to be operable." This change would make this TS consistent with the proposed change to TS 3.15. The proposed TS changes provide added assurance of protection from overpressure events, are responsive to staff requests and are therefore considered acceptable. The TS changes to be incorporated by this amendment for the OPS are consistent with the staff position and are acceptable.

2.2 Minimum Refueling Water Storage Tank Requirements

The Engineered Safety Feature (ESF) Switchover Procedures were reviewed by the staff as part of the SEP. The results of the review were reported in Section 4.23.1 of the Ginna IPSAR.

Item 19 of SRP Section 6.3 states that the complete sequence of emergency core cooling system (ECCS) operation from injection to long-term core cooling (recirculation) should be examined to see that minimal manual action is required, and that, where manual action is needed, sufficient time (generally 20 minutes) is available for the operator to respond. The time for individual operators actions suggested by ANSI standard N660 is one minute per action. Parallel actions, such as switching off both RHR pumps, are counted as one action.

The Ginna procedures for switchover from injection to recirculation did not meet current NRC criteria with respect to time for operator action. In addition, the staff noted that the procedure required that all injection flow to the core be terminated while pump suction was realigned to the containment sump. The staff therefore recommended that the switchover procedure be evaluated for improvement. As discussed in a letter from RG&E dated June 25, 1982, the licensee has developed a revised switchover approach to address these concerns.

As part of this approach, the minimum initial RWST level would be increased from 230,000 gallons to 300,000 gallons (88% level). From this level (with a 3% allowance for instrument error) it takes over 20 minutes to reach the 28% low level alarm assuming that all ESF pumps operate at runout flow rates. At the 28% low level alarm the operator must shut off one safety injection pump, one containment spray pump, and both RHR pumps. The RHR pump suction is then realigned to draw from the containment building sump. RG&E has stated

that analyses show that there would be sufficient water in the sump at this time to provide adequate net positive suction head (NPSH) for the RHR pumps. During the time that the RHR pumps are not running, RWST water will be injected into the RCS by the safety injection pumps. Analyses show that one safety injection pump will maintain a sufficient flowrate to compensate for coolant boil-off and maintain vessel coolant inventory.

Once the RHR pump suction has been switched from RWST injection to the recirculation mode, the operator would shut off the remaining operating containment spray pump and safety injection pumps at the 15% low-low RWST level signal. If the RCS pressure is above the shutoff head for the RHR pumps, the operator would "piggy-back" the safety injection pump suction to the RHR pump discharge to draw water from the sump.

RG&E has provided an analysis of its revised procedure for ESF switchover following a loss-of-coolant accident. No operator action for switchover is required before 20 minutes and sufficient time is available to complete the necessary actions while maintaining adequate pump NPSH. The staff therefore finds the Ginna method for ECCS switchover from injection to recirculation mode acceptable.

The emergency operating procedures for the revised switchover method are being implemented in coordination with TMI Action Plan item I.C.1 "Short-term Accident and Procedures Review." The staff noted that there is a possibility that the 15% low-low level alarm will actuate before the RHR pump switchover sequence is complete. The staff recommends that the procedures be written with an explicit precaution to complete RHR switchover before shutting off other pumps at the low-low level alarm. This precaution would provide further assurance that core cooling will be maintained by the RHR system when the safety injection pumps are secured. The licensee should address the staff recommendation when developing the emergency operating procedures discussed above.

The licensee has proposed to increase the minimum RWST volume to be maintained per TS 3.3.1.1a from 230,000 gallons to 300,000 gallons. This change results in more water being available for core cooling and more time for the operator to respond to a loss-of-coolant accident. Therefore, the staff finds this proposed TS change acceptable.

2.3 Deletion of Response Time Testing of Selected Isolation Initiation Circuits

The licensee has proposed to delete the requirement to perform response time testing of the initiating circuits (sensor to bistable) for containment isolation (TS 4.4.6.2) and for the auxiliary feedwater system (TS 4.8.10).

The licensee has conducted response time testing from the sensor through the bistable devices, during 1981 and 1982 refueling outages, and found that the response time testing of the initiating circuits does not appear to be beneficial. This particular portion of the overall system response time is a very small fraction of the total system response time (milliseconds vs. 1 to 10 minutes). The licensee has proposed that functional testing of the actuation logic and relays be retained, while the sensor to actuated equipment bistable response time testing would be deleted.

The response time testing for ESF system was a technical assessment topic in the SEP. NUREG-0820, IPSAR for Palisades, Section 4.22 concluded that the response time testing of time-critical components (for example, diesel generator load-sequencer timing, diesel generator start times, and stroke times of important valves) are considered adequate to detect circuit problems that could contribute to degraded response time. Backfitting was not required to include the initiating circuits in the response time testing. The requirements for the response time of containment isolation valve travel and auxiliary feedwater train operation is still included in these TS.

The staff finds therefore that the proposed TS changes are consistent with NUREG-0820 findings, and the licensee's proposed changes are acceptable.

2.4 Service Water Pump Class 1E Power Alignments

The proposed change to TS 3.3.4.1a will clarify the electrical power alignment of the service water pumps. During the review of SEP Topic IX-3, "Station Service and Cooling Water Systems," it was noted that, during power operation, the Ginna TS required that two service water pumps be operable. It did not specify that at least one of these pumps be aligned to each of the two redundant Class 1E power supplies. This proposed TS change does require that the pumps be aligned on redundant Class 1E bases. This will assure that a single failure of one train of power will not affect both operable service water pumps. The staff considers this proposed change acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and in surveillance requirements. The 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

4.0 CONCLUSION

The staff 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; and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ACKNOWLEDGEMENT

H. Li, E. McKenna and C. Miller prepared this Safety Evaluation.

Dated: July 30, 1985