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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RESPONSE TO GENERIC LETTER 90-06

ROCHESTER GAS AND ELECTRIC CORPORATION

R. E. GINNA NUCLEAR POWER PLANT

DOCKET NO. 50-244

1.0 INTRODUCTION

By letters dated April 18, 1991 (Reference 1), April 30, 1991 (Reference 2), September 15, 1992 (Reference 3) and April 20, 1993 (Reference 4), the Rochester Gas and Electric Corporation (RG&E), the licensee for the R. E. Ginna plant, submitted information in response to Generic Letter (GL) 90-06. GL 90-06 addresses the resolution of Generic Issue (GI) 70 "Power Operated Relief Valve and Block Valve Reliability" and GI 94 "Additional Low Temperature Overpressure Protection for Light Water Reactors." RG&E's responses and proposed changes are generally consistent with the model technical specifications (TSs) proposed in the GL. Deviations from this model are accounted for by: (1) the Ginna plant configuration for power-operated relief valves (PORVs) that have been designed as safety-related equipment and (2) Ginna plant operational needs involving unimproved TSs. The GL 90-06 requirements that focus at improving PORV quality have been preempted by the Ginna safety-related design.

2.0 EVALUATION

2.1 Generic Issue 70

a. Based on the NRC staff's analysis and findings for GI-70, the NRC staff concluded that the following actions should be taken to improve PORV and block valve reliability.

(1) Include PORVs and block valves within the scope of an operational quality assurance program that is in compliance with 10 CFR Part 50, Appendix B. This program should include the following elements:

(a) The addition of PORVs and block valves to the plant operational Quality Assurance List.

(b) Implementation of a maintenance/refurbishment program for PORVs and block valves that is based on the manufacturer's recommendations or guidelines and is implemented by trained plant maintenance personnel.

Enclosure

(c) When replacement parts and spares, as well as complete components, are required for existing nonsafety-grade PORVs and block valves (and associated control systems), it is the intent of the GL that these items may be procured in accordance with the original construction codes and standards.

(2) Include PORVs, valves in PORV control air systems, and block valves within the scope of a program covered by subsection IWV, "Inservice Testing of Valves in Nuclear Power Plants," of Section XI of the ASME Boiler and Pressure Vessel Code. Stroke testing of PORVs should only be performed during Mode 3 (HOT STANDBY) or Mode 4 (HOT SHUTDOWN) and in all cases prior to establishing conditions where the PORVs are used for low-temperature overpressure protection. Stroke testing of the PORV block valves should be included in the licensee's expanded MOV test program discussed in NRC GL 89-10, "Safety-Related Motor Operated Valve Testing and Surveillance," dated June 28, 1989.

(3) For operating pressurized-water reactor plants, modify the limiting conditions of operation of PORVs and block valves in the TSs for Modes 1, 2, and 3 to incorporate the position adopted by the staff in recent licensing actions. Attachment A-1 of GL 90-06 is provided for guidance.

b. For items 2.1.a(1) and 2.1.a(2) above, the licensee responded as follows:

(1) RG&E presently has the PORVs and block valves in the Ginna Quality Assurance Manual. They are classified as safety related.

(2) The PORVs and block valves are included in the Ginna maintenance program. Maintenance procedures are based amongst others on vendor recommendations. The block valves are included in the MOV testing program (stated in the GL 89-04 response). New block valves and motor operators were installed in 1989, meeting environmental qualifications of 10 CFR 50.49. The plant maintenance program is implemented by trained maintenance personnel.

(3) Parts that are safety-related are procured as safety-related and in accordance with the original code requirements.

(4) The PORVs, the valves in the PORV control system, and the block valves are within the inservice testing (IST) program, as described in the licensee's response to GL 89-04.

(5) The present IST program includes cold shutdown PORV testing; however, RG&E will revise the IST for PORV testing in "Modes 3 or 4" but with the corresponding block valves closed. (Ginna operational practice does not distinguish "Modes" but will do the testing in equivalent pressure temperature conditions. There is sufficient fluid trapped in the space between the block valves and PORVs to perform the test).

(6) The block valves are included in the MOV test program.

c. From the licensee's responses on the NRC staff's analysis and findings for GI 70 (paragraphs 2.1.a(1) and 2.1.a(2), regarding PORV and block valve quality assurance and testing, we find that the licensee's proposed actions are essentially identical to those proposed in Attachment A-1 of GL 90-06. The exceptions are summarized below:

(1) The GL recommends that in the case of an inoperable PORV for causes other than excessive seat leakage that operability be restored within 72 hours or initiate shutdown actions.

RG&E noted that the PORVs are needed in all operating modes, thus, subjecting the reactor to a transient is detrimental to safety. Instead RG&E has installed safety-related PORVs and block valves which diminish the chance for inoperable PORVs or block valves. In addition the licensee performed additional work on the PORV control circuits to meet equipment qualification (EQ) conditions.

The NRC staff finds this responsive to the intent of GL 90-06 and, therefore, the staff finds it acceptable.

(2) RG&E noted that in the case where one or both block valves are inoperable they will place the PORV(s) in manual control as required by the GL, but will not initiate shutdown actions. The justification is based on: (1) the safety grade design of the PORVs and the block valves and the low probability to be inoperable and (2) the judgment that subjecting the plant to a shutdown transient does not improve safety.

The NRC staff finds this responsive to the intent of GL 90-06, therefore, the staff finds it acceptable.

(3) RG&E proposes to test the PORVs with the corresponding block valves closed.

In view of the fact that the PORVs and the corresponding block valves are designed as safety related justifies the choice to test with the block valves closed, thus, avoiding potential damage by testing at full temperature and pressure conditions.

The NRC staff finds this position responsive to the intent of GL 90-06, therefore, the staff finds it acceptable.

d. On the staff's analysis and findings for GI 70 for modifying the the limiting conditions of operation (paragraph 2.1.a(3), GL 90-06 Attachment A-1 proposes the following model TSs:

3.4.4 Both power-operated relief valves (PORVs) and their associated block valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one or both PORVs inoperable because of excessive seat leakage, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) with power maintained to the block valve(s); otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one PORV inoperable due to causes other than excessive seat leakage, within 1 hour either restore the PORV to OPERABLE status or close its associated block valve and remove power from the block valve; restore the PORV to OPERABLE status within the following 72 hours or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With both the PORVs inoperable due to causes other than excessive seat leakage, within 1 hour either restore at least one PORV to OPERABLE status or close its associated block valve and remove power from the block valve and be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

d. With one or both block valves inoperable, within 1 hour restore the block valve(s) to OPERABLE status or place its associated PORV(s) in manual control. Restore at least one block valve to OPERABLE status within the next hour if both block valves are inoperable; restore any remaining inoperable block valve to operable status within 72 hours; otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

e. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.4.1 In addition to the requirements of Specification 4.0.5 each PORV shall be demonstrated OPERABLE at least once per 18 months by:

a. Operating the PORV through one complete cycle of full travel during MODES 3 or 4, and

b. Where applicable, operating solenoid air control valves and check valves on associated air accumulators in PORV control systems through one complete cycle of full travel for plants with air operated PORVs, and

c. Performing a CHANNEL CALIBRATION of the actuation instrumentation.

e. For item 2.1.a(3) above, regarding the limiting conditions of operation, the licensee proposed the following changes to the Ginna TS:

3.1.1.6 Reactor Coolant System Vents

Specification

a. When the reactor is at or above an RCS temperature of 350 °F:

(1) Both Reactor Vessel head vent paths each consisting of two valves in series shall be operable and closed.

(2) Both Pressurizer Steam Space vent paths each consisting of a PORV and its associated block valve shall be operable.

Action

a. With an inoperable valve in one or both Reactor Vessel head vent path(s), within 1 hour close at least one valve in the inoperable path and remove motive power from its actuator and within the following 30 days close the remaining valve in the inoperable Reactor Vessel head path(s) with motive power removed from its valve actuator; otherwise, be in at least hot shutdown within the next 6 hours and below an RCS temperature of 350 °F within the following 6 hours.

b. With excessive seat leakage in one or both Pressurizer Space path(s) PORV, within 1 hour close its (their) associated block valve(s) with power maintained to the block valve(s); otherwise, be in at least hot shutdown within the next 6 hours and below an RCS temperature of 350 °F within the following 6 hours.

c. With one or both PORV(s) inoperable, within 1 hour either restore the PORV(s) to operable status or close its (their) associated block valve(s) and remove power to the block valve(s); otherwise, be in at least hot shutdown within the next 6 hours and below an RCS temperature of 350 °F within the following 6 hours. If the PORV(s) is (are) not operable within 72 hours, prepare and submit a Special Report within 30 days outlining the cause and plans for restoring the PORV(s).

d. With one or both block valve(s) inoperable, within 1 hour restore the block valve(s) to operable status or place its (their) associated PORV(s) switch(es) in manual control; otherwise, be in at least hot shutdown within the next 6 hours and below an RCS temperature of 350 °F within the following 6 hours.

e. With both vent paths at either the Reactor Vessel head or the Pressurizer Steam Space inoperable, continued operation is permitted provided at least one vent path at each location is

operable within 30 days; otherwise be in hot shutdown within 6 hours and below 350 °F within the following 6 hours.

f. With all the above reactor coolant system vent paths inoperable; restore at least one of the vent paths to operable status within 72 hours or be in hot shutdown within 6 hours and below 350 °F within the following 6 hours.

The proposed TS is essentially identical, however, the differences are due to: (1) the fact that RG&E does not distinguish modes of operation, that Ginna has a 1.1 square inch pressure vessel vent which is part of the depressurization system and that Ginna does not have operability requirements for excessive PORV seat leakage. One difference is in action statement which specifies 30 days of operation with one PORV inoperable, while the suggested time is 3 days. On the other hand Ginna has two viable depressurization paths available, thus, this is acceptable. Proposed action statement c is equivalent to action statements b and c of the GL. Finally, proposed action statement e incorporates parts of a and b and integrates all depressurization paths (i.e. the PORVs and the 1.1 square inch vent at the top of the pressure vessel).

In summary the proposed TS 3.1.1.6 and the associated action statements are equivalent to those proposed in GL 90-06. The staff finds this position responsive to the intent of GL 90-06 therefore the staff finds it acceptable.

2.2 Generic Issue 94

a. Generic Issue 94, "Additional Low-Temperature Overpressure Protection for Light-Water Reactors," addresses concerns with the implementation of the requirements in the resolution of unresolved safety issue A-26, "Reactor Vessel Pressure Transient Protection (Overpressure Protection)." The administrative controls and procedures which were identified in the resolution were the following:

(1) Minimize the time the reactor coolant system is maintained in a water solid condition.

(2) Restrict the number of high-pressure safety injection pumps operable to no more than one when the RCS is in the low temperature overpressure (LTOP) condition.

(3) Ensure that the steam generator to RCS temperature difference is less than 50 °F when a reactor coolant pump is being started in a water solid RCS.

(4) Set the PORV setpoint (if the particular plant relies on this component for LTOP) to a plant specific analysis supported value, and have surveillance that checks the PORV actuation electronics and setpoint.

The limiting conditions of operation identified in Attachment B-1 of GL 90-06 are conservatively satisfied by the existing TS 3.15.1 with the exception of provision of 3.0.4 (standard technical specification (STS) which is not applicable to Ginna. The Ginna existing TSs do not use the STS format.

The staff finds that Ginna satisfies the requirements of GL 90-06 GI 94.

2.3 Editorial Changes

2.3.1 Ginna TS 3.1.1.4 was deleted and its provisions were incorporated into proposed TS 3.1.1.6. Likewise surveillance requirements 4.3.5.6 were renumbered and relocated under TS 4.3.4. TS 3.1.1.3 will be revised to address operating conditions above cold shutdown, this is considered to be an editorial change. The NRC staff finds these changes acceptable.

3.0 REFERENCES

1. Letter from R. C. Mecredy, Rochester Gas and Electric Corporation to U.S. NRC "Response to Generic Letter 90-06 R. E. Ginna Nuclear Power Plant" April 18, 1991.

2. Letter from R. C. Mecredy, Rochester Gas and Electric Corporation to U.S. NRC "RG&E's April 18, 1991 Response to Generic Letter 90-06, R. E. Ginna Nuclear Power Plant" April 30, 1991.

3. Letter from R. C. Mecredy, Rochester Gas and Electric Corporation to U.S. NRC "Generic Letter 90-06, Resolution of Generic Issue 70, 'Power-Operated Relief Valve and Block Valve Reliability' and Generic Issue 94 'Additional Low-Temperature Overpressure Protection for Light-Water Reactors'" September 15, 1992.

4. Letter from R. C. Mecredy, Rochester Gas and Electric Corporation to U.S. NRC "License Amendment Application Relative to Generic Letter 90-06 R. E. Ginna Nuclear Power Plant" April 20, 1993.

5. Letter from R. C. Mecredy, Rochester Gas and Electric Corporation to U.S. NRC "License Amendment Application Requests, R. E. Ginna Nuclear Power Plant" April 26, 1995.