



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 55 TO PROVISIONAL OPERATING LICENSE NO. DPR-18

ROCHESTER GAS AND ELECTRIC CORPORATION

R. E. GINNA NUCLEAR POWER PLANT

DOCKET NO. 50-244

1.0 INTRODUCTION

Following the January 25, 1982 steam generator tube rupture event at the R. E. Ginna Nuclear Power Plant, Rochester Gas and Electric Corporation (RG&E) and the NRC staff conducted extensive evaluations on the cause of the incident and on the corrective actions that were necessary prior to restart. The NRC staff's evaluation is contained in NUREG-0916, SAFETY EVALUATION REPORT Related to the Restart of the R. E. Ginna Nuclear Power Plant. At that time, RG&E committed to perform an inspection of the steam generators after 120 days to assure that the corrective actions taken to preclude further peripheral tube degradation had been successful.

The steam generator inspections, which included eddy current, fiber optics, video and visual inspections, were performed during the present outage that began September 25, 1982. During the inspection of the B-steam generator, a previously plugged tube (Row 39 Column 69) was found to have a fish-mouth rupture. The opening faced outward towards the steam generator shell and is approximately 1.25 inches long, 3/8 inch at the widest opening and begins approximately 3.5 inches above the top of the tube sheet.

Representatives of RG&E and the NRC staff have had several discussions dealing with the cause of the burst and RG&E's proposed repair program. By letter dated October 6, 1982, RG&E submitted their analysis of the cause of the tube failure and the details of their repair program. In the submittal RG&E committed to perform a steam generator inspection during their next refueling outage, which is scheduled to begin in mid-March 1983. In a telephone conversation on October 7, 1982, RG&E agreed to incorporate this commitment into its License No. DPR-18, which authorizes operation of R. E. Ginna Nuclear Power Plant.

2.0 EVALUATION

The burst tube (R39C69) is on the periphery of the hot leg side of the B-steam generator. The burst occurred in a wear area which is approximately 5 inches long and 3/8 inch wide on the tube that had previously

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been identified during the outage following the January 1982 steam rupture (see NUREG-0916). RG&E has stated that the current video inspection of the burst tube indicates that the wear pattern has not changed since the last inspection. The tube was originally plugged in January, 1976 for a defect measured as 56% through-wall by eddy current testing (ECT).

RG&E has postulated that the most probable cause of the burst in R39C69 is a reduction in the tube wall due to wear, and subsequent pressurization from the primary side through a leaking plug. RG&E has reviewed the plant operations during the period from May 1982 to the shutdown in September 1982 and based on analyses and calculations has determined that the burst most probably occurred during the routine hydrostatic test performed as part of the startup in May. The differential pressure across the steam generator tubes during the test is approximately 2200 psi.

RG&E performed calculations based on the size of the wear area as seen by the video inspections and has concluded that the tube wall thickness could have been sufficiently reduced to result in a burst failure given the 2200 psi differential pressure. The wear area is postulated to have occurred as the result of the presence of the foreign objects that were removed during the outage following the January 25 tube rupture. One foreign object, a 4 inch piece of weld rod, was found during the video inspections performed this outage. The appearance of the weld rod indicates that it had been buried in the sludge pile and had been washed to the periphery during the water lancing performed at the beginning of the present outage. The recent ECT and video inspections indicate that no further degradation of the peripheral tubes has occurred.

Westinghouse explosive plugs were used when this tube was plugged in January 1976. RG&E has stated that the industry has experienced a history of small leakage of these plugs over time as a result of stress corrosion cracking. RG&E has reviewed the variations of secondary system activity at Ginna for the period of May to September 1982. They feel the change in activity levels are consistent with industry experience with leaking plugs of this type. During the period, Ginna had a calculated primary-to-secondary leak rate of approximately 3cc per minute.

RG&E is removing the portion of the burst tube between the tube sheet and the first support plate in order to verify the failure mechanism of the tube. The section of tube is being removed by drilling out the explosive plug, cutting the tube from the primary channel head, and removing the pieces through access ports on the secondary side. The removed hot leg plug will be replaced with a seal welded plug. The associated cold leg plug and both the hot and cold leg plugs of the adjacent two plugged tubes (R39 C67 and R39 C70) will be repaired in a similar manner. These two tubes have wear patterns that are similar to, but smaller than, that found on the burst tube. Although no leakage in these plugs is evident, they will be preventatively repaired also.

RG&E has stated that the secondary side video inspections have shown no other periphery tubes in either the A or B-steam generators with the type of wear that is believed to have contributed to the burst of tube R39 C69.

RG&E has committed to perform a steam generator inspection during the next refueling outage which is currently scheduled to begin in mid-March 1983. RG&E has stated that the inspection program will be comparable to that conducted during the present outage and will include complete ECT and visual inspections as well as water lancing.

3.0 SUMMARY

The staff has reviewed the licensee's submittal and proposed course of action and have determined that RG&E's program of repair and their analysis of the problem are satisfactory. Therefore, with the addition of this proposed License Condition, the staff has concluded that the operation of the Ginna Plant will not pose a safety hazard.

4.0 ENVIRONMENTAL CONSIDERATION

We have determined that the amendment does not authorize a change in effluent types, increase in total amounts of effluents, or an increase in power level, and will not result in any significant environmental impact. Having made this determination, we have concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact, and pursuant to 10 CFR 51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

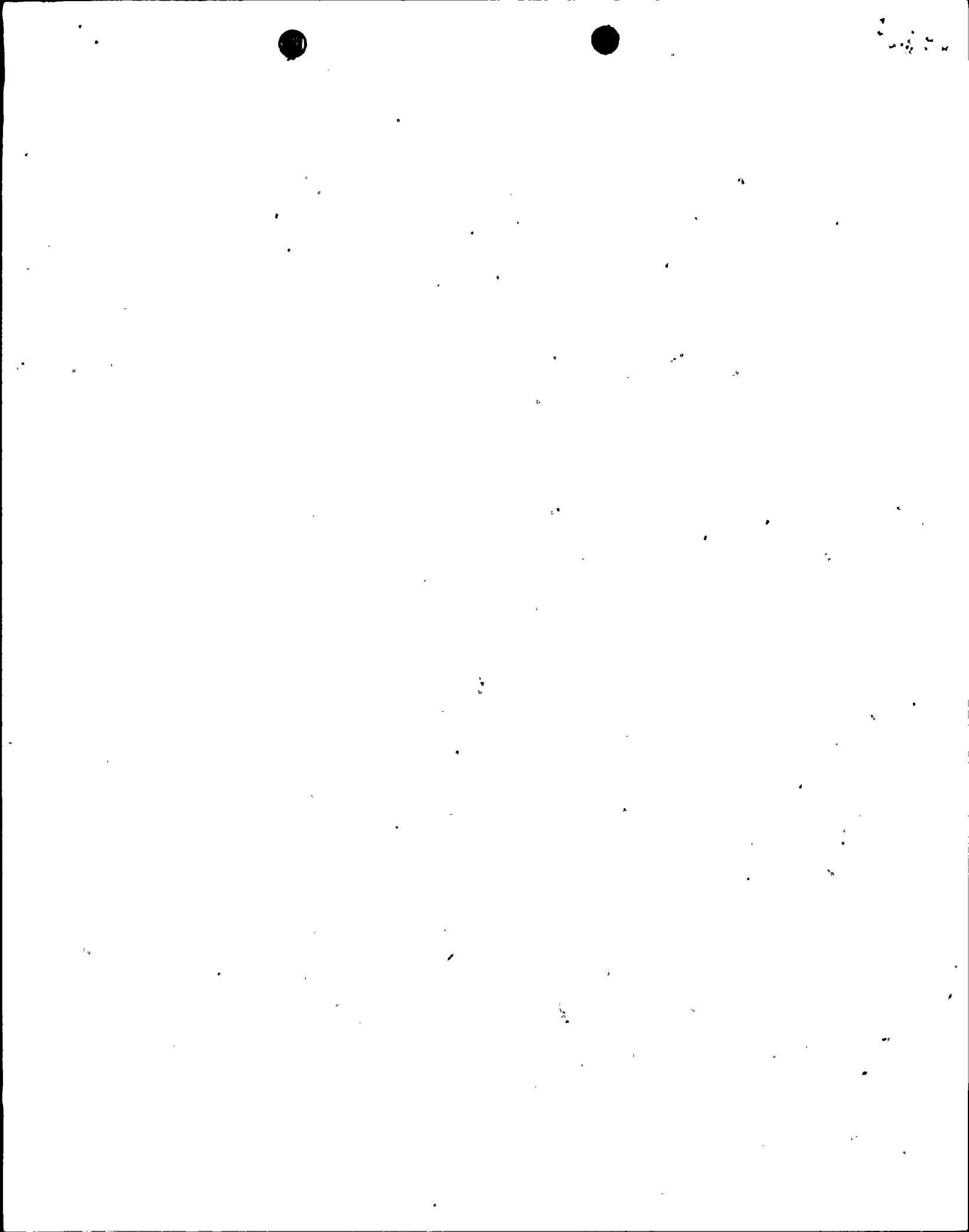
5.0 CONCLUSION

We also conclude, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered, does not involve a significant decrease in a safety margin, and does not create the possibility of an accident of a type different from any evaluated previously, the amendment does not involve a significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by the operation in the proposed manner; and (3) 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 the health and safety of the public.

6.0 ACKNOWLEDGEMENTS

This safety evaluation report was prepared by J. Lyons.

Date: October 2, 1982



REACTOR FACILITY FEE DETERMINATION

PRELIMINARY

FINAL

AMENDED

MEMO

54

INSTRUCTIONS. Fill-in items 1 through 14, as applicable, and send the original copy to the License Fee Management Branch.

2. DOCKET NUMBER(S)

50-241

3. ACCESSION NUMBER

4. LICENSEE

Rochester Gas

5. PLANT NAME AND UNIT(S)

Genoa

6. DATE OF APPLICATION

10/8/82

7. FEE REMITTED

YES

NO

8. LICENSEE FEE DETERMINATION

CLASS I

CLASS II

CLASS III

CLASS IV

CLASS V

CLASS VI

EXEMPT

NONE

9. SUBJECT

Steam Generator Impact

10. TAC NUMBER ASSIGNED (if available)

11. APPROVAL

LETTER

ORDER

AMENDMENT NUMBER(S)

55

DATE OF ISSUANCE

10/8/82

12. NRC FEE DETERMINATION

The above application has been reviewed in accordance with Section 170.22 of Part 170 and is properly categorized.

The above application has been reviewed in accordance with Section 170.22 of Part 170 and is incorrectly classified.

Fee should be class(es):

JUSTIFICATION FOR CLASSIFICATION OR RECLASSIFICATION:

This application is a Class III type of action and is exempt from fees because it is:

Filed by a nonprofit educational institution.

Filed by a Government agency and is not for a power reactor.

For a Class I, II, or III amendment which results from an NRC request dated 10/7/82 for the application and the amendment is to simplify or clarify License or Technical Specifications; has only minor safety significance; and is being issued for the convenience of NRC (must meet all of the criteria).

Other (State reason therefor)

An action that is within the purview of 2.204 provisions. It has taken the form of a proposed amendment which incorporates a license condition for the staff's convenience. Since the licensee agreed by above to the license condition, which was requested for enforcement reasons, the staff chose to issue a license amendment in place of a 2.204 order. 10/7/82

13. SIGNATURE (Branch Chief)

A. E. Lyons

10/8/82

DATE

14. FINAL CERTIFICATION: The preliminary fee determination has been reassessed and is hereby affirmed.

SIGNATURE (Project Manager or Branch Chief)

Norris M. Crawford

10/8/82

DATE

FOR LICENSE FEE MANAGEMENT BRANCH USE ONLY (All others do not write below this line)

The above exemption request has been reviewed and is hereby accepted as being exempt.

SIGNATURE (Chief, LFMB)

William C. Miller

DATE

10/18/82

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Records Services Branch

DL Branch Chief

LFMB Exemption File

LFMB Reactor File