Docket No. 50-244 MAR 30 1989

Dr. Robert C. Mecredy, General Manager
Nuclear Production
Rochester Gas & Electric Corporation
89 East Avenue
Rochester, New York 14649-0001

Dear Dr. Mecredy:

SUBJECT: ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE NO. DPR-18 (TAC 71430/71431)

The Commission has issued the enclosed Amendment No. 33 to Facility Operating License No. DPR-18 for the R. E. Ginna Nuclear Power Plant in response to your applications dated November 21, 1988 and November 29, 1988.

The amendment revises the requirements of the Technical Specifications to reflect the modifications for the residual heat removal pump and safety injection pump systems. Also, revisions are made to the Boric Acid Storage Tank specifications as a result of the modifications to pump systems.

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance has been forwarded to the Office of the Federal Register for publication.

Sincerely,

/S/

Carl Stahle, Senior Project Manager
Project Directorate I-3
Division of Reactor Projects I/II

Enclosures:
1. Amendment No. 33 to License No. DPR-18
2. Safety Evaluation

cc w/enclosures:
See next page

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

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Carl Stahle

Carl Stahle, Senior Project Manager
Project Directorate I-3
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Dr. Robert C. Mecredy
Rochester Gas and Electric Corporation

R. E. Ginna Nuclear Power Plant

cc:

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ROCHESTER GAS AND ELECTRIC CORPORATION
DOCKET NO. 50-244
R. E. GINNA NUCLEAR POWER PLANT
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 33
License No. DPR-18

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Rochester Gas and Electric Corporation (the licensee) dated November 21, 1988 and supplemented on November 29, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility Operating License No. DPR-18 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 33 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective immediately.

FOR THE NUCLEAR REGULATORY COMMISSION

Richard H. Wessman, Director
Project Directorate I-3
Division of Reactor Projects I/II

Attachment:
Changes to the Technical Specifications

Date of Issuance: MAR 3 0 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 33

FACILITY OPERATING LICENSE NO. DPR-18

DOCKET NO. 50-244

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE	INSERT
3.2-1	3.2-1
---	3.3.2a*
3.3-4	3.3-4
---	3.3-4a*
3.3-14	3.3-14
4.5-3	4.5-3
4.5-8 thru 4.5-10	4.5-8 thru 4.5-10
---	4.5-11*

*Denotes new page

3.2 Chemical and Volume Control System

Applicability

Applies to the operational status of the chemical and volume control system.

Objective

To define those conditions of the chemical and volume control system necessary to assure safe reactor operation.

Specification

3.2.1 When fuel is in the reactor there shall be at least one flow path to the core for boric acid injection. The minimum capability for boric acid injection shall be equivalent to that supplied from the refueling water storage tank.

3.2.2 The reactor shall not be taken above cold shutdown unless the following Chemical and Volume Control System conditions are met.

a. At least two charging pumps shall be operable.

b. Both boric acid transfer pumps shall be operable.

c. The boric acid tanks together shall contain a minimum of 2000 gallons of a 12% to 13% by weight boric acid solution at a temperature of at least 145°F (See also Specification 3.3.1.1.j).

j. At or above a reactor coolant system pressure and temperature of 1600 psig and 350°F, except during performance of RCS hydro test, the boric acid tanks together shall contain a minimum of 3110 gallons of boric acid above the setpoint for switchover to the RWST. This solution shall be 12% to 13% by weight boric acid at a temperature of at least 145°F. Below 1600 psig or 350°F the requirements of Specification 3.2.2 apply.

b. One residual heat removal heat exchanger may be out of service for a period of no more than 72 hours.

c. Any valve, interlock, or piping required for the functioning of one safety injection train and/or one low heat safety injection train (RHR) may be inoperable provided repairs are completed within 72 hours (except as specified in e. below).

d. Power may be restored to any valve referenced in 3.3.1.1.g for the purposes of valve testing provided no more than one such valve has power restored and provided testing is completed and power removed within 12 hours.

e. Those check valves specified in 3.3.1.1.h may be inoperable (greater than 5.0 gpm leakage) provided the inline MOVs are de-energized closed and repairs are completed within 12 hours.

3.3.1.6 The requirements of 3.3.1.1.j may be modified to allow one boric acid tank to be out of service provided a minimum of 3110 gallons of boric acid above the setpoint for switchover to the RWST is contained in the operable tank. This solution shall be 12% to 13% by weight boric acid at a temperature of at least 145°F. If the modified requirement cannot be met within one hour, be in hot shutdown and borated to a shutdown margin equivalent to 1% delta k/k at 200°F within the next 6 hours.

3.3.1.7 Except during diesel generator load and safeguard sequence testing or when the vessel head is removed, or the steam generator primary system manway is open, no more than one safety injection pump shall be operable whenever the overpressure protection system is required to be operable.

3.3.1.7.1 Whenever only one safety injection pump may be operable by 3.3.1.7, at least two of the three safety injection pumps shall be demonstrated inoperable a minimum of once per twelve hours by verifying that the control switches are in the pull-stop position.

a single PORV.

The limitation on boric acid storage tank volume is based on the assumption that 2000 gallons of 12% to 13% solution is delivered to the RCS during a large steam line break associated with the containment integrity analysis.[10] The 3110 gallons specified is sufficient to accommodate the losses associated with the recirculation flow to the RWST and the sweep volume in the SI pump suction line and still deliver 2000 gallons to the RCS.

References

(1) Deleted

(2) UFSAR Section 6.3.3.1

(3) UFSAR Section 6.2.2.1

(4) UFSAR Section 15.6.4.3

(5) UFSAR Section 9.2.2.4

(6) UFSAR Section 9.2.2.4

(7) Deleted

(8) UFSAR Section 9.2.1.2

(9) UFSAR Section 6.2.1.1 (Containment Integrity) and UFSAR Section 6.4 (CR Emergency Air Treatment)

(10) Westinghouse Analysis, "Report for the BAST Concentration for R.E. Ginna", August 1985 submitted by RG&E letter from R.W. Kober to H.R. Denton, dated October 16, 1985.

b. Acceptable levels of performance for the pumps shall be that the pumps start, operate, and develop the minimum discharge pressure for the flows listed in the table below:

PUMPS	RECYCLE FLOW RATE	DISCHARGE PRESSURE	Notes
Containment Spray Pumps	35 gpm	240 psig	
Residual Heat Removal Pumps	[200 gpm] 450 gpm	[140 psig] 138 psig	(1)
Safety Injection Pumps	[50 gpm] 150 gpm	[1420 psig] 1356 psig	(2)

Table 4.5-1

Notes

(1) Items in square brackets are effective until the installation of the new residual heat removal minimum flow recirculation system.

(2) Items in square brackets are effective until installation of the new safety injection minimum flow recirculation system.

4.5.2.2 Valves

a. Except during cold or refueling shutdowns the spray additive valves shall be tested at intervals not to exceed one month. With the pumps shut down and the valves upstream and downstream and verification made that the components receive the safety injection in the proper sequence. The test demonstrates the operation of the valves, pump circuit breakers, and automatic circuitry.[1]

During reactor operation, the instrumentation which is depended on to initiate safety injection and containment spray is generally checked daily and the initiating circuits are tested monthly. In addition, the active components (pumps and valves) are to be tested monthly to check the operation of the starting circuits and to verify that the pumps are in satisfactory running order and develop the minimum required pressure to meet accident conditions.[2] The minimum discharge pressure values listed in Table 4.5-1 are based on an assumed degradation of the pump head-capacity (characteristic) curve adjusted to water temperature of 60°F as follows:

Containment Spray Pumps	5%*
Residual Heat Removal Pumps	5%*
Safety Injection Pumps	3%*

*Percentage is based on the head at the best efficiency point of flow.

The test interval of one month is based on the judgement that more frequent testing would not significantly increase the reliability (i.e., the probability that the component would operate when required) and would result in increased wear over long periods of time.

Other systems that are also important to the emergency cooling function are the accumulators, the component cooling system, the service water system and the containment fan coolers. The accumulators are a passive safeguard. In accordance with the specifications, the water volume and pressure in the accumulators are checked periodically. The other systems mentioned operate when the reactor is in operation and by these means are continuously monitored for satisfactory performance. The reactor coolant drain tank pumps operate intermittently during reactor operation, and thus are also monitored for satisfactory performance.

The air filtration portion of the containment air recirculation system is a passive safeguard which is isolated from the cooling air flow during normal reactor operation. Hence the charcoal should have a long useful lifetime. The filter frames that house the charcoal are stainless steel and should also last indefinitely. The pressure drop, filter efficiency, and valve operation test frequencies will assure that the system can operate to meet its design function under accident conditions. As the adsorbing charcoal is normally isolated, the test schedule, related to hours of operation as well as elapsed time, will assure that it does not degrade below the required adsorption efficiency. The test conditions for charcoal sample adsorbing efficiency are those which might be encountered under an accident situation.[3]

The control room air treatment system is designed to filter the control room atmosphere (recirculation and intake air) during control room isolation conditions. HEPA filters are installed before the charcoal filters to remove particulate matter and prevent clogging of the iodine adsorbers. The charcoal filters reduce the airborne radioiodine in the control room. Bypass leakage must be at a minimum in order for these filters to perform their designed function. If the performances are as specified the calculated doses will be less than those analyzed.[4]

Retesting of the post accident charcoal system or the control room emergency air treatment system in the event of painting, fire, or chemical release is required only if the system is operating and is providing filtration for the area in which the painting, fire, or chemical release occurs.

Testing of the air filtration systems will be, to the extent it can, given the configuration of the systems, in accordance with ANSI N510-1975, "Testing of Nuclear Air-Cleaning Systems."

References:

(1) UFSAR Section 6.3.5.2

(2) UFSAR Figures 15.6-12 and 15.6-13

(3) UFSAR Section 6.5.1.2.4

(4) UFSAR Section 6.4.3.1

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 33 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

On November 21, and 29, 1988, Rochester Gas and Electric Corp. (RGE) requested amendments to the Technical Specifications to modify the requirements for residual heat removal pump (RHR) and safety injection pump surveillance tests following the proposed modifications to the pump recirculation flow lines. Also, the Technical Specifications on the Boric Acid Storage Tanks level and subsequent amounts of boric acid must be modified as a result of the expected change in recirculation lines for the pumps. These proposed amendments are required in response to NRC Bulletin 88-04, Potential Safety-Related Pump Loss, dated July 7, 1988.

2.0 EVALUATION

NRC Bulletin 88-04 requested an evaluation of two conditions that might exist at Ginna. Such conditions if found to exist, might result in damage or failure of residual heat removal pumps and/or safety injection pumps. One condition involves two pumps operating in parallel, where the weaker pump may be deadheaded by the stronger pump when the pumps are operating at minimum flow. A second condition concerns the inadequacy of flow to preclude damage even if a single pump is operating.

RGE carried out a detailed analysis of the modes of operation for these pumps to determine whether or not the conditions, noted above, could exist at Ginna with the current system configuration. A review and analysis of several months of test data revealed that pump deadheading under certain conditions could occur. Special testing of the RHR pumps, operating in parallel, were carried out. The tests confirmed that the pumps could deadhead. Safety injection pumps have independent recirculation lines; consequently, these pumps are not susceptible to deadheading.

Other aspects of pump operation were reviewed and tested to determine the type of modifications that would be needed to satisfy NRC Bulletin 88-04. For both systems, larger recirculation lines are considered desirable. Continued operation utilizing the present recirculation systems were justified on the basis that it did not create a condition which is outside the original design basis for the system nor does it represent an unacceptable condition in terms of pump protection for the maximum duration that the pumps would be expected to operate in the recirculation modes. In the interim, procedures for pump operation were developed and adopted to assure the aforementioned adverse conditions delineated in the NRC Bulletin 88-04 would not occur. The corrective action that is necessary for a permanent solution to the NRC concerns are plant modifications to the recirculation system.

The necessary hardware modifications will be carried out during the current plant outage which began in mid-March 1989. The proposed Technical Specifications are to be effective upon completion of the modification and subsequent plant startup.

For the RHR system, a redesign is underway which will provide each RHR pump with a minimum flow recirculation line which is independent of the opposite train. The line is being sized to provide sufficient recirculation flow when the pump discharge path is isolated. For the SI system, the planned modification will require additional larger diameter recirculation piping with a pressure breakdown orifice in each separate line, sized to allow 100 gpm or about 25% of best efficiency point (BEP) of flow. Each of these designs had the objective of providing sufficient recirculation flow consistent with pump manufacturer recommendations without reduction in the injected flow delivery during accident conditions used in the safety analysis report.

The auxiliary feedwater pumps have also been evaluated relative to the NRC Bulletin 88-04 concerns. The Ginna Station main auxiliary feedwater system consists of two 100% capacity motor driven pumps and one 100% capacity turbine driven pump. Two additional standby auxiliary feedwater pumps, each 100% capacity, are also installed in a separate building as a backup to the main auxiliary feedwater pumps. Each of these pumps is provided with an automatically controlled minimum flow recirculation system sized and periodically tested to ensure that sufficient minimum flow will be provided under all accident and normal operating conditions. It has been determined that the minimum flow concerns raised in NRC Bulletin 88-04 have been adequately addressed in the design and testing of these systems at Ginna. There are no other safety-related pumps which are susceptible to the NRC Bulletin 88-04 concerns.

As a result of the expected modifications to the safety injection (SI) pump recirculation flow, the level of boric acid in the Boric Acid Storage Tanks (BAST) must be increased to be consistent with the analysis that requires 2000 gallons of 20,000 ppm boric acid solution to be delivered to the Reactor Coolant System (RCS). This is based on a transient event analyzed in Chapter 15 of the UFSAR that requires high concentration boric acid to be delivered. The results of the loss-of-coolant accident analysis and the steam break accident analysis for core response satisfy the UFSAR acceptance criteria with 2000 ppm boric acid, which is provided from the refueling water storage tank. Since the SI recirculation flow returns to the refueling water storage tank instead of the BAST, the inventory in the BAST must be increased to ensure 2000 gallons of 20,000 ppm solution is delivered to the RCS after the SI recirculation line is modified. Calculations using the RCS pressure vs. time for the most limiting containment integrity steam break and SI flow assumptions that maximize the recirculation loss were performed to determine a bounding initial BAST volume. These calculations show that a BAST inventory of 3110 gallons above the switchover to the RWST setpoint will ensure 2000 gallons of 20,000 ppm solution is delivered during the most limiting containment integrity steam break. Also the tanks were determined to be large enough to hold the necessary usable inventory. The ability of the Safety Injection system to meet or exceed the UFSAR SI flow requirements was evaluated using a hydraulic analysis computer software entitled KYPIPE (Kentucky Pipe Network Analysis Program). The hydraulic analysis model consisted of the primary injection flow paths, miniflow recirculation paths, and suction paths of the Safety Injection System. KYPIPE software was used to perform steady-state simulation of flows throughout the Safety Injection System at varying reactor pressures and tank levels. During the March 1989 outage, SI and RHR systems will be tested to validate the results of the analysis to assure adequate flows and discharge pressures are met or exceeded on the modified systems.

Since the requirements for 3110 gallons are associated with Safety Injection (SI) they have been added to the section of Specifications associated with SI. The requirements are applicable only when SI is required to be operable (above 1600 psig and 350°). Below 1600 psig or 350° the existing requirements in Section 3.2 are still applicable.

3.0 ENVIRONMENTAL CONSIDERATION

The proposed amendment was noticed for hearing on February 3, 1989 (54 FR 5565), and no comments or requests for hearing were received. An Environmental Assessment and Finding of No Significant Impact was published in the Federal Register on March 28, 1989 (54FR12685).

4.0 CONCLUSION

Based on the review of the analysis and the results provided, the staff finds RGE has shown that the proposed modifications to the RHR and SI recirculation systems will satisfy the concerns of NRC Bulletin 88-04. 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 the proposed plant modifications, (2) such activities will be conducted in compliance with the Commission's regulations, and 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: C. Stahle

Dated: MAR 2 9 1989

UNITED STATES NUCLEAR REGULATORY COMMISSION

ROCHESTER GAS AND ELECTRIC CORPORATION

DOCKET NO. 50-244

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

The U.S. Nuclear Regulatory Commission (Commission) has issued Amendment No. to Facility Operating License No. DPR-18 issued to Rochester Gas and Electric Corporation (the licensee), which revised the Technical Specifications for operation of the R. E. Ginna Nuclear Power Plant located in Wayne County, New York. The amendment was effective as of the date of issuance.

The amendment revised the Technical Specifications related to the safety injection and residual heat removal sump recirculation system.

The application for amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which is set forth in the license amendment.

Notice of Consideration of Issuance of Amendment and Opportunity for Hearing in connection with this action was published in the Federal Register on February 3, 1989 (54 FR 5565). No request for a hearing or petition for leave to intervene was filed following this notice.

The Commission has prepared an Environmental Assessment and Finding of No Significant Impact related to the action and has concluded that an environmental impact statement is not warranted and that the issuance of this amendment will not have a significant adverse effect on the quality of the human environment.

For further details with respect to the action, see (1) the application for amendment dated November 21, 1988, as supplemented on November 29, 1988, (2) Amendment No. 33 to License No. DPR-18 and (3) the Commission's related Safety Evaluation and Environmental Assessment.

All of these items are available for public inspection at the Commission's Public Document Room, 2120 L Street, NW, Washington, DC, and at the Local Public Document Room, Rochester Public Library, 115 South Avenue, Rochester, New York 14610. A copy of items (2) and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Director, Division of Reactor Projects.

Dated at Rockville, Maryland, this 30th of March, 1989

FOR THE NUCLEAR REGULATORY COMMISSION

Carl Stahle

Carl Stahle, Senior Project Manager
Project Directorate I-3
Division of Reactor Projects I/II