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

December 7, 1993

Docket No. 50-244

Dr. Robert C. Mecredy
Vice President, Nuclear Production
Rochester Gas and Electric Corporation
89 East Avenue
Rochester, New York 14649

Dear Dr. Mecredy:

SUBJECT: ISSUANCE OF AMENDMENT NO. 57 TO FACILITY OPERATING LICENSE NO. DPR-18, R. E. GINNA NUCLEAR POWER PLANT (TAC NO. M85326)

The Commission has issued the enclosed Amendment No. 57 to Facility Operating License No. DPR-18 for the R. E. Ginna Nuclear Power Plant. This amendment is in response to your application dated December 17, 1992, as supplemented April 8, 1993.

The amendment requests a revision to the Technical Specification (TS) Sections 1.21, 3.2.1.1, 3.2.2, 3.2.3, 3.2.4, 3.2 Bases, 3.3.1.1b, 3.3.1.1c, 3.3.1.1i, 3.3.1.1j, 3.3.1.4, 3.3.1.6 (deleted), 3.3 Bases, Table 3.2-1 (added), Table 4.1-1, and Table 4.1-2 to eliminate the provision of high concentration boric acid (20,000 ppm) to the safety injection system. Currently, this high concentration is maintained in the boric acid storage tanks (BASTs) requiring heat tracing to prevent boron precipitation. The proposed change would eliminate the need for heat tracing and the associated maintenance activities if the boric acid concentration in the the BASTs could be reduced from 20,000 ppm to 2000 ppm. The proposed change also includes a requirement to allow borating the reactor to a shutdown margin equivalent of at least 2.45% delta k/k at cold shutdown conditions with no xenon. As concluded in the enclosed Safety Evaluation, it has been satisfactorily demonstrated that a 2000 ppm boron solution can replace the 20,000 ppm solution for the purpose of reactivity reduction during safety injection. The proposed change has also been found acceptable with respect to the effects of boron concentration reduction on containment integrity.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by:
Allen R. Johnson, Project Manager
Project Directorate I-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 57 to
   License No. DPR-18
2. Safety Evaluation

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A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Allen R. Johnson

Allen R. Johnson, Project Manager
Project Directorate I-3
Division of Reactor Projects - I/II
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See next page

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cc:

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

ROCHESTER GAS AND ELECTRIC CORPORATION

DOCKET NO. 50-244

R. E. GINNA NUCLEAR POWER PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 57
License No. DPR-18

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

   A. The application for amendment filed by the Rochester Gas and Electric Corporation (the licensee) dated December 17, 1992, as supplemented April 8, 1993, 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. 57 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Walter R. Butler

Walter R. Butler, Director
Project Directorate I-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 7, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 57

FACILITY OPERATING LICENSE NO. DPR-18

DOCKET NO. 50-244

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

Remove	Insert
1-8	1-8
3.2-1	3.2-1
3.2-2	3.2-2
----	3.2-2a
3.2-3	3.2-3
3.2-4	3.2-4
----	3.2-5
3.3-1	3.3-1
3.3-2	3.3-2
3.3-2a	-----
3.3-3	3.3-3
3.3-4	3.3-4
3.3-14	3.3-14
3.3-14a	3.3-14a
4.1-6	4.1-6
4.1-7a	4.1-7a
4.1-8	4.1-8
4.1-9	4.1-9

1.18 Dose Equivalent I-131

The dose equivalent I-131 shall be that concentration of I-131 which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The dose conversion factors used for this calculation shall be those for the adult thyroid dose via inhalation, contained in NRC Regulatory Guide 1.109 Rev. 1 October 1977.

1.19 Reportable Event

A Reportable Event shall be any of those conditions specified in Section 50.73 to 10CFR Part 50.

1.20 Canisters Containing Consolidated Fuel Rods

Canisters containing consolidated fuel rods are stainless steel canisters containing the fuel rods of no more than two fuel assemblies which have decayed at least five years and are capable of being stored in a storage cell of the spent fuel pool.

1.21 Shutdown Margin

Shutdown margin shall be the amount of reactivity by which the reactor is subcritical, or would be subcritical from its present condition assuming all rod cluster control assemblies (shutdown and control) are fully inserted except for the single rod cluster control assembly of highest reactivity worth which is assumed to be fully withdrawn, and assuming no changes in xenon or boron concentration.

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 During cold shutdown or refueling with fuel 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.

3.2.1.1 With this flow path unavailable, immediately suspend all operations involving core alterations or positive reactivity changes and return a flow path to operable status as soon as possible.

3.2.2 When the reactor is above cold shutdown, two boron injection flow paths shall be operable with one operable charging pump for each operable flow path, and one operable boric acid transfer pump for each operable flow path from the boric acid storage tank(s).

3.2.3 If required by specification 3.2.2 above, the Boric Acid Storage Tank(s) shall satisfy the concentration, minimum volume and solution temperature requirements of Table 3.2-1.

3.2.4 With only one of the required boron injection flow paths to the RCS operable, restore at least two boron injection flow paths to the RCS to operable status within 72 hours, or within the next 6 hours be in at least hot shutdown and borated to a shutdown margin equivalent to at least 2.45% delta k/k at cold, no xenon conditions. If the requirements of 3.2.2 are not satisfied within an additional 7 days, then be in cold shutdown within the next 30 hours.

3.2.5 Whenever the RCS temperature is greater than 200°F and is being cooled by the RHR system and the over-pressure protection system is not operable, at least one charging pump shall be demonstrated inoperable at least once per 12 hours by verifying that the control switch is in the pull-stop position.

Table 3.2-1

Boric Acid Storage Tank(s)

Minimum-Volume-Temperature-Concentration[(2)]

Concentration ppm boron	Minimum Volume gal.	Minimum Solution Temperature °F
4700 to less than 5000	8400	40
5000 to less than 6000	7800	52
6000 to less than 7000	6400	62
7000 to less than 8000	5400	70
8000 to less than 9000	4700	78
9000 to less than 10000	4200	85
10000 to less than 11000	3800	91
11000 to less than 12000	3500	97
12000 to less than 13000	3200	103
13000 to less than 14000	3000	108
14000 to less than 15000	2700	113
15000 to less than 16000	2500	118
16000 to less than 17000	2400	123
17000 to less than 18000	2200	127
18000 to less than 19000	2100	131
19000 to less than 20000	2000	137
20000 to less than 21000	1900	140
21000 to less than 22000	1800	143
22000 to less than 23000	1800	145

Basis

The chemical and volume control system provides control of the reactor system boron inventory.[1] This is normally accomplished by using one or more charging pumps in series with one of the two boric acid transfer pumps.

Above cold shutdown conditions, a minimum of two of four boron injection flowpaths are required to insure single functional capability in the event that an assumed single active failure renders one of the flow paths inoperable. The boration volume available through any flow path is sufficient to provide the required shutdown margin at cold conditions from any expected operating condition and to compensate for shrinkage of the primary coolant from the cooldown process. The maximum volume requirement is associated with boration from just critical, hot zero power, peak xenon with control rods at the insertion limit, to cold shutdown with single reactor coolant loop operation. This requires 26,000[2] gallons of 2000 ppm borated water from the refueling water storage tank or the concentrations and volumes of borated water specified in Table 3.2-1 from the boric acid storage tanks. Two boric acid storage tanks are available. One of the two tanks may be out of service provided the required volume of boric acid is available to the operable flow paths.

Above cold shutdown, two of the following four flow paths must be operable with one operable charging pump for each operable flow path, and one operable boric acid transfer pump for each operable flow path from the boric acid storage tanks.

(1) Boric acid storage tanks via one boric acid transfer pump through the normal makeup (FCV 110A) flow path to the suction of the charging pumps.

(2) Boric acid storage tanks via one boric acid transfer pump through the emergency boration flow path (MOV 350) to the suction of the charging pumps.

(3) Refueling water storage tank via gravity feed through AOV 112B to the suction of the charging pumps.

(4) Refueli water storage tank via g vity feed through manual bypass valve 358 to the suction of the charging pumps.

Available flow paths from the charging pumps to the reactor coolant system include the following:

(1) Charging flow path through AOV 392A to the RCS Loop B hot leg.

(2) Charging flow path through AOV 294 to the RCS Loop B cold leg.

(3) Seal injection flow path to the reactor coolant pumps.

The rate of boric acid injection must be sufficient to offset the maximum addition of positive reactivity from the decay of xenon after a trip from full power. This can be accomplished through the operation of one charging pump at minimum speed with suction from the refueling water storage tank. Also the time required for boric acid injection allows for the local alignment of manual valves to provide the necessary flow paths.

The quantity of boric acid specified in Table 3.2-1 for each concentration is sufficient at any time in core life to borate the reactor coolant to the required cold shutdown concentration and provide makeup to maintain RCS inventory during the cooldown. The temperature limits specified on Table 3.2-1 are required to maintain solution solubility at the upper concentration in each range. The temperatures listed on Table 3.2-1 are taken from Reference (4). An arbitrary 5°F is added to the Reference (4) for margin. Heat tracing may be used to maintain solution temperature at or above the Table 3.2-1 limits. If the solution temperature of either the flow path or the borated water source is not maintained at or above the minimum temperature specified, the affected flow path must be declared inoperable and the appropriate actions specified in 3.2.4 followed.

Placing a charging pump in pull-stop whenever the reactor coolant system temperature is ≥200°F and is being cooled by RHR without the overpressure protection system operable will prevent inadvertent overpressurization of the RHR system should letdown be terminated.[3]

<u>References:</u>

(1) UFSAR Section 9.3.4.2

(2) RG&E Design Analysis DA-NS-92-133-00 "BAST Boron Concentration Reduction Technical Specification Values" dated Dec. 14, 1992

(3) L.D. White, Jr. letter A. Schwencer, NRC, Subject: Reactor Vessel Overpressurization, dated February 24, 1977

(4) Kerr-McGee Chemical Corp. Bulletin 0151 "Boric Acid - Technical Grades" dated 5/84

3.3 Emergency Core Cooling System, Auxiliary Cooling Systems, Air Recirculation Fan Coolers, Containment Spray, and Charcoal/ HEPA Filters

Objective

To define those conditions for operation that are necessary: (1) to remove decay heat from the core in emergency or normal shutdown situations, (2) to remove heat from containment in normal operating and emergency situations, (3) to remove airborne iodine from the containment atmosphere following a postulated Design Basis Accident, and (4) to minimize containment leakage to the environment subsequent to a Design Basis Accident.

Specification

3.3.1 Safety Injection and Residual Heat Removal Systems

3.3.1.1 The reactor shall not be taken above the mode indicated unless the following conditions are met:

a. Above cold shutdown, the refueling water storage tank contains not less than 300,000 gallons of water, with a boron concentration of at least 2000 ppm.

b. Above a reactor coolant system pressure of 1600 psig, except during performance of RCS hydro test, each accumulator is pressurized to at least 700 psig with an indicated level of at least 50% and a maximum of 82% with a boron concentration of at least 1800 ppm.

c. At or above a reactor coolant system temperature of 350°F, three safety injection pumps are operable.

d. At or above an RCS temperature of 350°F, two residual heat removal pumps are operable.

e. At or above an RCS temperature of 350°F, two residual heat removal heat exchangers are operable.

f. At the conditions required in a through e above, all valves, interlocks and piping associated with the above components which are required to function during accident conditions are operable.

g. At or above an RCS temperature of 350°F, A.C. power shall be removed from the following valves with the valves in the open position: safety injection cold leg injection valves 878B and D. A.C. power shall be removed from safety injection hot leg injection valves 878A and C with the valves closed. D.C. control power shall be removed from refueling water storage tank delivery valves 896A, 896B and 856 with the valves open.

h. At or above an RCS temperature of 350°F, check valves 853A, 853B, 867A, 867B, 878G, and 878J shall be operable with less than 5.0 gpm leakage each. The leakage requirements of Technical Specification 3.1.5.2.1 are still applicable.

i. Above a reactor coolant system pressure of 1600 psig, except during performance of RCS hydro test, A.C. power shall be removed from accumulator isolation valves 841 and 865 with the valves open.

j. At or above an RCS temperature of 350° F, A.C. power shall be removed from Safety Injection suction valves 825A and B with the valves in the open position, and from valves 826A, B, C, D with the valves in the closed position.

3.3.1.2 If the conditions of 3.3.1.1a are not met, then satisfy the condition within 1 hour or be at hot shutdown in the next 6 hours and at least cold shutdown within an additional 30 hours.

3.3.1.3 The requirements of 3.3.1.1b and 3.3.1.1i may be modified to allow one accumulator to be inoperable or isolated for up to one hour. If the accumulator is not operable or is still isolated after one hour, the reactor shall be placed in hot shutdown within the following 6 hours and below a RCS pressure of 1600 psig within an additional 6 hours.

3.3.1.4 The requirements of 3.3.1.1c may be modified to allow one safety injection pump to be inoperable for up to 72 hours. If the pump is not operable after 72 hours, the reactor shall be placed in hot shutdown within the following 6 hours and below a RCS temperature less than 350°F within an additional 6 hours.

3.3.1.5 The requirements of 3.3.1.1d through h. may be modified to allow components to be inoperable at any one time. More than one component may be inoperable at any one time provided that one train of the ECCS is operable. If the requirements of 3.3.1.1d through h. are not satisfied within the time period specified below, the reactor shall be placed in hot shutdown within 6 hours and at an RCS temperature less than 350°F in an additional 6 hours.

a. One residual heat removal pump may be out of service provided the pump is restored to operable status within 72 hours.

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 head 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 3.3.1.1g 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 3.3.1.1h 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 Deleted

that the mass addition from the inadvertent operation of safety injection will not result in RHR system pressure exceeding design limits. The limitation on no safety injection pumps operable and the discharge lines isolated when overpressure protection is provided by the pressurizer PORV's removes mass injection from inadvertent safety injection as an event for which this configuration of overpressure protection must be designed to protect. Inoperability of a safety injection pump may be verified from the main control board with the pump control switch in pull stop, or the pump breaker in the test racked out position such that the pump could not start from an inadvertent safety injection signal. Isolation of a safety injection pump discharge path to the RCS may be verified from the main control board by the discharge MOV switch position indicating closed, or the discharge valve closed with A.C. power removed, or a manual discharge path isolation valve closed such that operation of the associated safety injection pump would not result in mass injection to the RCS.

High concentration boric acid is not needed to mitigate the consequences of a design basis accident. Reference (10) demonstrates that the design basis accidents can be mitigated by safety injection flow of RWST concentration. Therefore, SI pump suction is taken from the RWST.

Requiring that the safety injection suction valves (825A and B, 826A, B, C and D) are aligned with A.C. power removed insures that the safety injection system would not be exposed to high concentration boric acid and the assumptions of the accident analysis are satisfied.

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 Report, "R.E. Ginna Boric Acid Storage Tank Boron Concentration Reduction Study" dated Nov. 1992 by C.J. McHugh and J.J. Spryshak

TABLE 4.1-1 (Continued)

Channel Description	Check	Calibrate	Test	Remarks
10. Rod Position Bank Counters	S(1,2)	N.A.	N.A.	1) With rod position indication 2) Log rod position indications each 4 hours when rod deviation monitor is out of service
11. Steam Generator Level	S	R	M	
12. Charging Flow	N.A.	R	N.A.	
13. Residual Heat Removal Pump Flow	N.A.	R	N.A.	
14. Boric Acid Storage Tank Level	D	R	N.A.	Note 4
15. Refueling Water Storage Tank Level	N.A.	R	N.A.	
16. Volume Control Tank Level	N.A.	R	N.A.	
17. Reactor Containment Pressure	D	R	M(1)	1) Isolation Valve signal
18. Radiation Monitoring System	D	R	M	Area Monitors R1 to R9, System Monitor R17
19. Boric Acid Control	N.A.	R	N.A.	
20. Containment Drain Sump Level	N.A.	R	N.A.	
21. Valve Temperature Interlocks	N.A.	N.A.	R	
22. Pump-Valve Interlock	R	N.A.	N.A.	
23. Turbine Trip Set-Point	N.A.	R	M(1)	1) Block Trip
24. Accumulator Level and Pressure	S	R	N.A.	

TABLE 4.1-1 (Continued)

Channel Description	Check	Calibrate	Test	Remarks
39. Reactor Trip Breakers	N.A	N.A.	M	Function test - Includes independent testing of both undervoltage and shunt trip attachment of reactor trip breakers. Each of the two reactor trip breakers will be tested on alternate months.
40. Manual Trip Reactor	N.A.	N.A.	R	Includes independent testing of both undervoltage and shunt trip circuits. The test shall also verify the operability of the bypass breaker.
41a. Reactor Trip Bypass Breaker	N.A.	N.A.	M	Using test switches in the reactor protection rack manually trip the reactor trip bypass breaker using the shunt trip coil.
41.b Reactor Trip Bypass Breaker	N.A.	N.A.	R	Automatically trip the undervoltage trip attachment.

NOTE 1: Logic trains will be tested on alternate months corresponding to the reactor trip breaker testing. Monthly logic testing will verify the operability of all sets of reactor trip logic actuating contacts on that train (See Note 3). Refueling shutdown testing will verify the operability of all sets of reactor trip actuating contacts on both trains. In testing, operation of one set of contacts will result in a reactor trip breaker trip; the operation of all other sets of contacts will be verified by the use of indication circuitry.

NOTE 2: Testing shall be performed monthly, unless the reactor trip breakers are open or shall be performed prior to startup if testing has not bee performed within the last 30 days.

NOTE 3: The source range trip logic may be excluded from monthly testing provided it is tested within 30 days prior to startup.

NOTE 4: When BAST is required to be operable.

TABLE 4.1-2

MINIMUM FREQUENCIES FOR EQUIPMENT AND SAMPLING TESTS

		Test	Frequency
1.	Reactor Coolant Chemistry Samples	Chloride and Fluoride	3 times/week and at least every third day
		Oxygen	5 times/week and at least every second day except when below 250°F
2.	Reactor Coolant Boron	Boron Concentration	Weekly
3.	Refueling Water Storage Tank Water Sample	Boron Concentration	Weekly
4.	Boric Acid Storage Tank	Boron Concentration	Twice/Week[4]
5.	Control Rods	Rod drop times of all full length rods	After vessel head removal and at least once per 18 months (1)
6a.	Full Length Control Rod	Move any rod not fully inserted a sufficient number of steps in any one direction to cause a change of position as indicated by the rod position indication system	Monthly
6b.	Full Length Control Rod	Move each rod through its full length to verify that the rod position indication system transitions occur	Each Refueling Shutdown
7.	Pressurizer Safety Valves	Set point	Each Refueling Shutdown
8.	Main Steam Safety Valves	Set point	Each Refueling Shutdown
9.	Containment Isolation Trip	Functioning	Each Refueling Shutdown
10.	Refueling System Interlocks	Functioning	Prior to Refueling Operations

		Test	Frequency
11.	Service Water System	Functioning	Each Refueling Shutdown
12.	Fire Protection Pump and Power Supply	Functioning	Monthly
13.	Spray Additive Tank	NaOH Concent	Monthly
14.	Accumulator	Boron Concentration	Bi-Monthly
15.	Primary System Leakage	Evaluate	Daily
16.	Diesel Fuel Supply	Fuel Inventory	Daily
17.	Spent Fuel Pit	Boron Concentration	Monthly
18.	Secondary Coolant Samples	Gross Activity	72 hours (2) (3)
19.	Circulating Water Flood Protection Equipment	Calibrate	Each Refueling Shutdown

Notes:

(1) Also required for specifically affected individual rods following any maintenance on or modification to the control rod drive system which could affect the drop time of those specific rods.

(2) Not required during a cold or refueling shutdown.

(3) An isotopic analysis for I-131 equivalent activity is required at least monthly whenever the gross activity determination indicates iodine concentration greater than 10% of the allowable limit but only once per 6 months whenever the gross activity determination indicates iodine concentration below 10% of the allowable limit.

(4) When BAST is required to be operable.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 57 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 December 17, 1992, as supplemented April 8, 1993, the Rochester Gas and Electric Corporation (the licensee) submitted a request for changes to the R. E. Ginna Nuclear Power Plant Technical Specifications (TS). The April 8, 1993, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

The requested changes would eliminate the provision of high concentration boric acid (20,000 ppm) to the safety injection (SI) system. This source would be replaced by the refueling water storage tank (RWST) which has a boron concentration of 2000 ppm. Physically, this would be implemented through a valve lineup change where AC power is removed from SI suction valves 825A and B (from the RWST) in the open position and from valves 826A, B, C, D, (from the boric acid storage tanks (BASTS)), in the closed position. This would enable the SI pumps to take suction from the RWST.

The BASTs would continue to be used in conjunction with the chemical volume and control system (CVCS) to provide changes in boron concentration, to serve as a source of concentrated boric acid for use in maintaining long-term subcriticality, and to provide redundant boration flow paths. The current high concentration of boric acid requires that the BASTs system have heat tracing to prevent precipation of boron.

With a sufficient reduction in BAST concentration and the proximity of the BASTs to the ambient temperatures in the auxiliary building, it would be possible to eliminate the heat tracing and its associated TS operability requirements. The need for SI suction switchover from the BAST to the RWST during the injection phase would also be eliminated. TS Table 3.2-1 has been added to provide minimum temperature requirements and minimum volumes for a range of BAST concentrations. These volumes provide the necessary inventory to maintain the required shutdown margin in a cooldown from hot zero power to cold shutdown.

The licensee has added a provision to the TS which requires the capability of borating to a shutdown margin equivalent of 2.45% delta-k/k at cold shutdown conditions (68 °F) with no xenon. This compensates for long-term xenon decay and temperature reduction and provides an adequate shutdown margin for all modes of operation, including cold shutdown.

2.0 EVALUATION

2.1 RWST as a source for SI; Boration in maintaining long-term subcriticality

The steamline break (SLB) is the only design basis event that could be significantly affected by the proposed elimination of the high concentration BASTs as a safety-related source for reactivity control injection fluid. Analyses of the SLB with a BAST boron concentration of 2000 ppm (i.e., the same concentration as the refueling water storage tank (RWST)) and 2 loops in service were submitted in the Reload Transition Safety Report (RTSR) dated December 20, 1983. Utilizing the LOFTRAN code, these analyses considered a double-ended rupture of a main steamline at hot zero power conditions, with and without offsite power available. An analysis was also performed for steam release through a failed-open steam generator safety valve with 2 loops in service and offsite power available. These analyses were based on the following conservative assumptions: the most negative moderator temperature coefficient at end-of-life; the most reactive rod stuck in its fully withdrawn position; failure of one safety injection pump; and minimum shutdown margin equal to 1.8% delta-k/k. The results of these analyses indicated that the departure from nucleate boiling (DNB) design basis continued to be met with the BAST boron concentration reduced to 2000 ppm. The RTSR was approved by issuance of Amendment 61 dated May 1, 1984.

By letter dated October 16, 1985, the licensee submitted an amendment request to revise containment internal pressure limitations. Because the SLB is the design basis event for the determination of maximum containment pressure, the results of SLB analyses were included in this document. These analyses were performed using LOFTRAN and considered the double-ended main steamline rupture and the failed-open safety valve events under similar assumptions described above for the RTSR analyses, including a BAST boron concentration of 2000 ppm. However, only one loop was assumed to be in service during cooldown since the analyses performed assuming two-loop operation were previously reviewed and approved, as noted above. Additionally, a minimum shutdown margin of 2.45% delta-k/k was assumed for one-loop operation. The results indicated that the DNB design basis continued to be met at the reduced boron concentration.

The licensee has also evaluated the effect of the proposed reduction in boron concentration on loss-of-coolant accident (LOCA) related analyses. For both the large-break and small-break LOCA, the proposed reduction has no impact on the results of the analyses of record because the codes employed for these analyses do not model reactor coolant system (RCS) boron concentration. Concerning post-LOCA long term core cooling requirements, the licensee has performed calculations using a BAST boron concentration of 2000 ppm and has determined that the core will remain subcritical, assuming all control rods out. Additionally, the reduction in concentration will not adversely affect boron precipitation in the reactor vessel following boiling in the core since only an increase in concentration would produce an adverse effect.

With the RWST (at a concentration of 2000 ppm) replacing the BASTs as the source of safety injection coolant, boration of the RCS would occur through a charging pump at a maximum rate of 60 gpm. Concerning the rate at which negative reactivity is introduced by boration, the requirement is that this rate must be greater than the rate at which reactivity is added as a result of xenon decay. The licensee's calculations have indicated that this requirement is met with a concentration of 2000 ppm at a charging flow rate of 60 gpm.

Concerning proposed TS Table 3.2-1, the licensee's calculations indicate that a margin exists between the minimum required volume of boric acid specified in the table for each boron concentration and the inventory necessary to maintain the required shutdown margin. The shutdown requirement of 2.45% delta-k/k is based on cold shutdown (68 °F), no xenon conditions, assuming single loop operation during cooldown. This requirement is more conservative than the current TS value of 1% delta-k/k at a reference temperature of 200 °F.

Based on our review of the licensee's documentation, as described above, we conclude that the licensee has adequately demonstrated that the BASTs can be eliminated as a safety-related source for safety injection coolant and replaced by the RWST, which has a boron concentration of 2000 ppm.

2.2 Containment Integrity

SLB events are the only analyzed events which are significantly affected by a reduction in boron concentration. The rate at which boron is introduced into the core following an in-containment steam line break affects the mass and energy release to the containment and thereby affects the peak containment pressure resulting from the event. An analysis submitted by the licensee on October 16, 1985, indicated that for various size breaks, with failure of one containment spray pump, there was not enough margin to the containment pressure limit to permit a reduction in boron concentration. Subsequently, by letter dated December 17, 1992, the licensee forwarded a new containment integrity analysis which supports a reduction in boron concentration to 2000 ppm. The new analysis predicts a peak containment pressure of 60 psig (which is equal to the containment design pressure) for the limiting case of a 4.37 sq.ft. double-ended rupture at 30% power with a main steam line check valve failure. Both the 1985 and 1992 analyses utilized the LOFTRAN and COCO codes.

The 1992 analysis eliminated a major conservatism of the earlier analysis, i.e., inconsistent assumptions regarding the availability of offsite power. The 1985 analysis assumed that offsite power was available to run reactor coolant pumps during the break (a conservative assumption), but that boron injection was delayed for emergency diesel startup and load sequencing (a conflicting assumption). The 1992 analysis also eliminated other unnecessary conservatisms with respect to the 1985 analysis. These relate to reactivity feedback coefficients, feedwater flow rates, initial steam generator water level, safety injection flow rate, containment spray flow rate and timing and heat sink properties. These changes are described in a supplemental letter dated April 8, 1993. Elimination of excess conservatisms to support boron concentration reduction is consistent with Generic Letter 85-16, issued August 23, 1985.

In accordance with the review guidance of SRP 6.2.1.1, the staff performed an independent confirmatory CONTEMPT-LT analysis for peak containment pressure. The staff's analysis confirmed that, using the licensee's mass and energy release data as input, the peak containment pressure does not exceed the containment design pressure. A copy of the resulting pressure response curve is attached.

2.3 Changes to Ginna TS to support elimination of the BASTs

TS 3.2.1 and 3.2.1.1

This proposed revision ensures that, during cold shutdown or refueling, any activities involving core alterations or positive reactivity changes will be suspended when no flow path for boric acid injection to the core is available. Because this revision represents an added caution and is consistent with the latest approved version of the Westinghouse Standard Technical Specifications (STS), Item 3.1.2.1, we find it acceptable.

TS 3.2.2 and 3.2.3

The proposed revision to TS 3.2.2 is consistent with the current TS 3.2.2 above cold shutdown for meeting CVCS boron injection flow path operability requirements to the extent of establishing two flow paths. The volume and solution temperature requirements for the BASTs would be replaced by Table 3.2-1 requirements. These proposed revisions are accepted based on the discussions in paragraphs 2.1 and 2.2 above.

TS 3.2.4

The proposed revision applies when the reactor is above cold shutdown and only one of the two required boron injection flow paths to the RCS is operable. The allowable outage time (AOT) for the inoperable path would be extended from 24 hours to 72 hours. This revision is consistent with the latest approved version of the Westinghouse STS, Item 3.1.2.2, and is justified based on the low probability of a design basis accident occurring during the inoperability period. We find this revision acceptable.

The proposed revision to TS 3.2.4 also includes a provision requiring the capability to borate to a shutdown margin equivalent to at least 2.45% delta k/k at cold shutdown (68 °F) conditions with no xenon present. This ensures that adequate shutdown margin is maintained for all modes of operation and is more conservative than the current TS value of 1% delta-k/k at a reference temperature of 200 °F. This revision is therefore accepted.

TS 3.3.1.1b

The proposed revision to TS 3.3.1.1b applies to operability of the cold leg accumulators when system pressure exceeds 1600 psig. A RCS hydro test exception would be added to this requirement. The intent of this TS is to ensure availability of the accumulators during reactor operating modes at operating, hot shutdown and RCS temperature above 350 °F. The hydro test at Ginna is conducted at an RCS temperature below 350 °F and therefore the hydro test exception is acceptable.

TS 3.3.1.1c

The proposed revision to TS 3.3.1.1c applies to SI pump operability. The current TS requires operability at or above a RCS pressure and temperature of 1600 psig and 350 °F, except during RCS hydro test performance. The revision would delete the pressure requirement and retain only the temperature requirement. Because the above pressure and temperature cannot be simultaneously established during normal operation, the temperature requirement alone would meet the intent of the TS and any ambiguity would be eliminated. This revision is consistent with the latest approved version to the Westinghouse STS, Item 3.5.2b, and is acceptable. Deletion of the hydro test exception is consistent with the above discussion of TS 3.3.1.1b and is also acceptable.

TS 3.3.1.1i

The proposed revision to TS 3.3.1.1i applies to A.C. power removal from the accumulator isolation valves in the open position when RCS pressure is above 1600 psig. A hydro test exception would be added to this requirement and is acceptable as per the above discussion of TS 3.3.1.1b.

TS 3.3.1.1j

The proposed revision to TS 3.3.1.1j is consistent with the requirements of TS 3.2 Bases (Page 3.3-14) where SI suction valves continue to be aligned with the RWST and therefore AC power is removed at or above RCS temperature of 350 °F. The revisions are acceptable.

TS 3.3.1.2

This proposed revision applies to the operability conditions of the RWST when the reactor is above cold shutdown and would extend the AOT by 1 hour. This revision is consistent with the latest approved version of the Westinghouse STS, Item 3.5.5, and is acceptable.

TS 3.3.1.4

The proposed revision to TS 3.3.1.4 would delete the pressure requirement and retain only the RCS temperature requirement less than 350 °F consistent with the above discussion of TS 3.3.1.1c. The revision is acceptable.

TS 3.3.1.6

The proposed revision deletes this section. Modification of TS 3.3.1.1j to allow one BAST to be out of service, provided minimum volume and solution temperature requirements are maintained before switchover to the RWST, no longer applies.

TS 3.2 and 3.3 Bases (Pages 3.2-3, 3.2-4, 3.2-5, 3.3-14 and 3.3-14a

Our review of these bases sections finds them to be technically accurate, clearly written, and acceptable.

2.4 Administrative changes to the Ginna TSs

TS 1.21

The proposed revision to TS 1.21 provides a definition for the term "Shutdown Margin" for the purposes of clarity. The proposed revision is acceptable.

TS 3.2.5

The current TS 3.2.4 has been renumbered to TS 3.2.5 without any other changes. We find this proposed revision acceptable.

TS Table 4.1-1

The proposed revision would add "Note 4" to the table for applicability to the BAST level instrumentation, only when the BAST is required to be operable. We find the proposed revision acceptable.

TS Table 4.1-2

The proposed revision would add "Note 4" to the table for applicability of minimum frequency for BAST equipment and sampling tests, only when the BAST is required to be operable. We find this proposed revision acceptable.

The proposed revision also would delete the "FSAR Section Reference" column. This revision precludes conflicts with annual Updated Final Safety Analysis Report updates without a TS change to Table 4.1-2, and would be consistent with other TS Section 4 Tables. We find this proposed revision acceptable.

Based on the above evaluation of the licensees proposed TS revisions, we find these revisions to be acceptable.

3.0 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.

4.0 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 (58 FR 52994). Accordingly, the 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 the amendment.

5.0 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.

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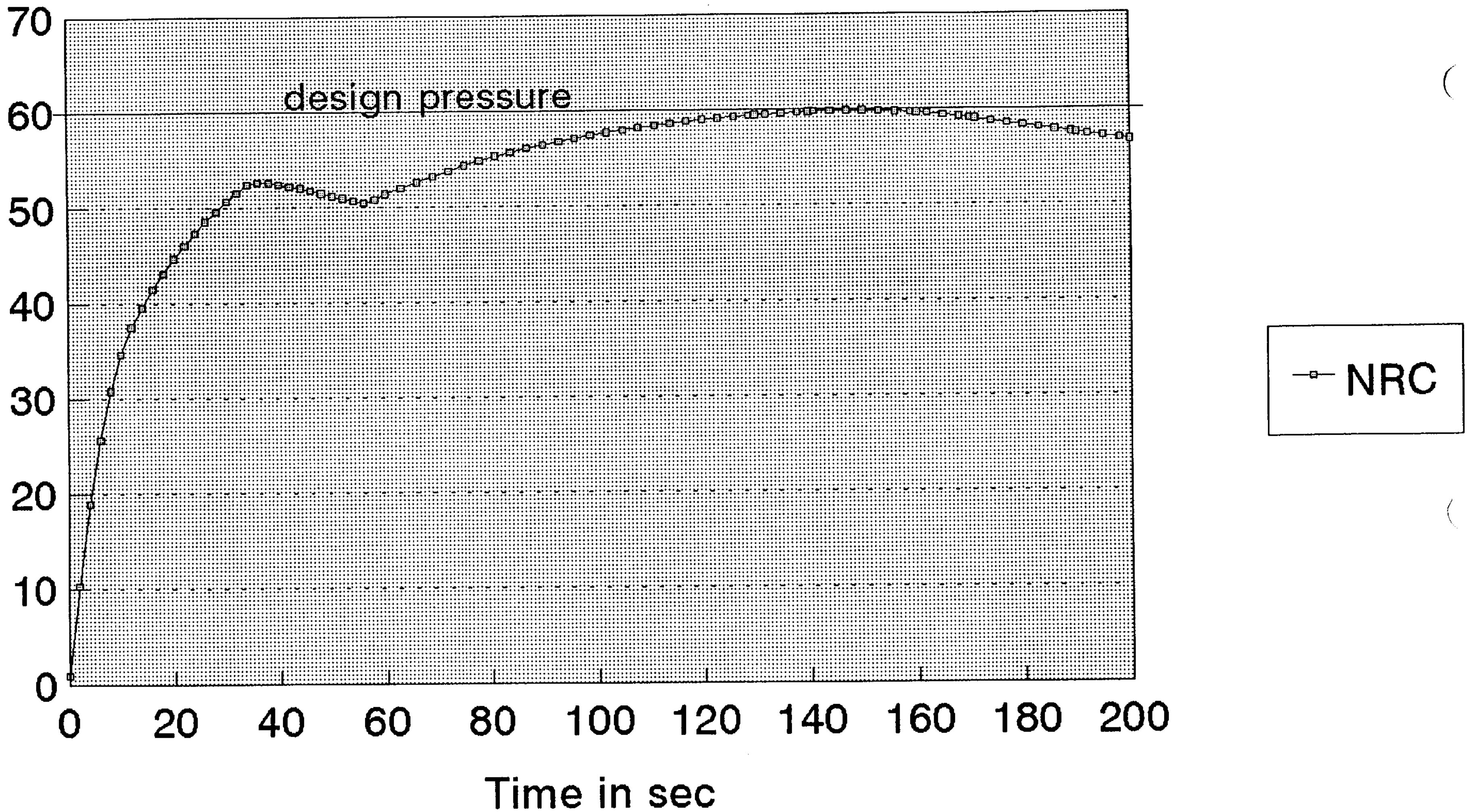
Date: December 7, 1993

Attachment

GINNA

Limiting Main Steam Line Break



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