February 10, 1987

Docket No. 50-244

Mr. Roger W. Kober, Vice President
Electric and Steam Production
Rochester Gas & Electric Corporation
89 East Avenue
Rochester, New York 14649

Dear Mr. Kober:

The Commission has issued the enclosed Amendment No. 22 to Facility Operating License No. DPR-18 for the R. E. Ginna Nuclear Power Plant. This amendment is in response to your application dated October 24, 1986.

The amendment revises the requirements of the Technical Specifications dealing with control rod indications. The revisions resulted from the replacement of the analog rod position indication (ARPI) system with a Westinghouse microprocessor rod position indication (MRPI) system. This action closes our TAC No. 63290.

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

Sincerely,

/s/

Dominic C. DiIanni, Project Manager
Project Directorate #1
Division of PWR Licensing-A

Enclosures:
1. Amendment No. 22 to License No. DPR-18
2. Safety Evaluation

cc w/enclosures:
See next page

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Surname:	PShuttleworth	DDiIanni as noted		GLear for
Date:	01/14/87	01/15/87	01/20/87	01/22/87

Mr. Roger W. Kober
Rochester Gas and Electric Corporation

R. E. Ginna Nuclear Power Plant

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

ROCHESTER GAS AND ELECTRIC CORPORATION

DOCKET NO. 50-244

R. E. GINNA NUCLEAR POWER PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 22
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 October 24, 1986 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.22 , 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 the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Dominic C. DiIanni

Dominic C. DiIanni, Project Manager
Project Directorate #1
Division of PWR Licensing-A

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 10, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 22

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
3.5-7	3.5-7
3.10-2	3.10-2
3.10-7	3.10-7
3.10-8	3.10-8
3.10-9	3.10-9
3.10-10	3.10-10
3.10-13	3.10-13
3.10-14	3.10-14
-----	3.10-14a
3.10-18	3.10-18
3.10-19	3.10-19
-----	3.10-19a
4.1-5	4.1-5
4.1-6	4.1-6
4.1-8	4.1-8
-----	4.1-9

NO.	FUNCTIONAL UNIT	1 NO. OF CHANNELS	2 NO. OF CHANNELS TO TRIP	3 MIN. OPERABLE CHANNELS	4 MIN. DEGREE OF REDUNDANCY	5 PERMISSIBLE BYPASS CONDITIONS	6 OPERATOR ACTION IF CONDITIONS OF COLUMN 3 OR 5 CANNOT BE MET
11.	Turbine Trip	3	2	2	1		Maintain 50% of Rated Power
12.	Steam Flow Feedwater Flow Mismatch With Lo Steam Generator Level	2/loop	1/loop	1/loop	1/loop		Maintain hot shutdown
13.	Lo Lo Steam Generator Water Level	3/loop	2/loop	2/loop	1/loop		Maintain hot shutdown
14.	Undervoltage 4 KV Bus	2/bus	1/bus	1/bus	-*		Maintain hot shutdown
15.	Underfrequency 4 KV Bus	2/bus	1/bus (both busses)	1/bus	-*		Maintain hot shutdown
16.	Quadrant Power Tilt Monitor (Upper & Lower Ex-Core Neutron Detectors)	1	-*	1 or Log individual upper & lower ion chamber currents once/hr & after a load change of 10% or after 48 steps of control rod motion	-*		Maintain hot shutdown

3.10.1.2 When the reactor is critical except for physics tests and control rod exercises, the shutdown control rods shall be fully withdrawn (indicated position).

3.10.1.3 When the reactor is critical, except for physics tests and control rod exercises, each group of control rods shall be inserted no further than the limits shown by the lines on Figure 3.10-1 and moved sequentially with a 100 (±5) step (demand position) overlap between successive banks.

3.10.1.4 During control rod exercises indicated in Table 4.1-2, the insertion limits need not be observed but the Figure 3.10-2 must be observed.

3.10.1.5 The part length control rods will not be inserted except for physics tests or for axial offset calibration performed at 75% power or less.

3.10.1.6 During measurement of control rod worth and shutdown margin, the shutdown margin requirement, Specification 3.10.1.1, need not be observed provided the reactivity equivalent to at least the highest estimated control rod worth is available for trip insertion and all part length control rods are fully withdrawn. Each full length control rod not fully inserted, that is, the rods available for trip insertion, shall be demonstrated capable of full insertion when tripped from at least the 50% withdrawn position (indicated) within 24 hours prior to reducing the shutdown margin to less than the limits of Specification 3.10.1.1. The position of each full length rod not fully inserted, that is, available for trip insertion, shall be determined at least once per 2 hours.

3.10.2.12 When the reactor is critical and thermal power is less than or equal to 90% of rated power, an alarm is provided to indicate when the axial flux difference has been outside the target band for more than one hour (cumulative) out of any 24 hour period. In addition, when thermal power is greater than 90% of rated power, an alarm is provided to indicate when the axial flux difference is outside the target band. If either alarm is out of service, the flux difference shall be logged hourly for the first 24 hours the alarm is out of service and half-hourly thereafter.

3.10.3 <u>Control Rod Drop Time</u>

3.10.3.1 While critical, the individual full length (shutdown and control) rod drop time from the fully withdrawn position (indicated) shall be less than or equal to 1.8 seconds from beginning of decay of stationary gripper coil voltage to dashpot entry with:

a. T_{avg} greater than or equal to 540°F, and

b. All reactor coolant pumps operating.

3.10.3.2 With the drop time of any full length rod determined to exceed the above limit, restore the rod drop time to within the above limit prior to criticality.

3.10.4 <u>Control Rod Group Height</u>

3.10.4.1 While critical, and except for physics testing, all full length (shutdown and control) rods shall be operable and positioned within ± 12 steps (indicated position) of their group step counter demand position.

3.10.4.2 With any full length rod inoperable due to being immovable as a result of excessive friction or mechanical interference or known to be untripable, determine that the shutdown margin requirement of Specification 3.10.1.1 is satisfied within 1 hour and be in hot shutdown within 6 hours.

3.10.4.3 With one full length rod inoperable due to causes other than addressed by 3.10.4.2, above, or misaligned from its group step counter demand position by more than ± 12 steps (indicated position), operation may continue provided that within one hour either:

3.10.4.3.1 The rod is restored to operable status within the above alignment requirements, or

3.10.4.3.2 The rod is declared inoperable and the shutdown margin requirement of Specification 3.10.1.1 is satisfied. Operations may then continue provided either:

a. The remainder of the rods in the group with the inoperable rod are aligned to the same indicated position as the inoperable rod within one hour, while maintaining the limit of Specification 3.10.1.3; or

b. The power level is reduced to less than or equal to 75% of rated power within the next one hour, and the high neutron flux trip setpoint is reduced to less than or equal to 85% rated power within the next four hours (total of six hours) and the following evaluations are performed:

(i) The shutdown margin requirement of Specification 3.10.1.1 is determined at least once per 12 hours.

(ii) A power distribution map is obtained from the movable incore detectors and $F_Q (Z)$ and $F^N_{\Delta H}$ are verified to be within their limits within 72 hours.

(iii) A reevaluation of each accident analysis of Table 3.10-1 is performed within 5 days; this reevaluation shall confirm that the previously analyzed results of these accidents remain valid for the duration of operation under these conditions.

c. If power has been restricted in accordance with (b) above, then following completion of the evaluation identified in (b), the power level and high neutron flux trip setpoint may be readjusted based on the results of the evaluation provided the shutdown margin requirement of Specification 3.10.1.1 is determined at least once per 12 hours.

3.10.4.4 With two or more full length rods inoperable or misaligned from the group step counter demand position by more than ± 12 steps (indicated position), be in hot shutdown within 6 hours.

3.10.5 Control Rod Position Indication Systems

3.10.5.1 While critical, the rod position indication system and the step counters shall be operable and capable of determining the control rod positions within ± 12 steps.

3.10.5.2 With a maximum of one rod position indication per bank inoperable either:

a. Determine the position of the non-indicating rod(s) indirectly by the movable incore detectors at least once per 8 hours and immediately after any motion of the non-indicating rod which exceeds 24 steps (demand position) in one direction since the last determination of the rod's position, or

b. Reduce the power to less than 50% of rated power within 8 hours.

3.10.5.3 With a maximum of one step counter per bank inoperable either:

a. Verify that position indication for each rod of the affected bank is operable and that the rods of the bank are at the same indicated position at least once per 8 hours, or

b. Reduce the power to less than 50% of rated power within 8 hours.

Basis

The reactivity control concept is that reactivity changes accompanying changes in reactor power are compensated by control rod motion. Reactivity changes associated with xenon, samarium, fuel depletion, and large changes in reactor coolant temperature (operating temperature to cold shutdown) are compensated by changes in the soluble boron concentration. During power operation, the shutdown groups are fully withdrawn

conditions are as follows:

1. Control rods in a single bank move together with no individual rod insertion differing by more than 25 steps from the bank demand position.
2. Control rod banks are sequenced with overlapping banks as described in Specification 3.10.
3. The full length control bank insertion limits are not violated.
4. Axial power distribution limits which are given in terms of flux difference limits and control bank insertion limits are observed. Flux difference is $q_T - q_B$ as defined in Specification 2.3.1.2d.

The permitted relaxation in $F^N_{\Delta H}$ with reduced power allows radial power shape changes with rod insertion to the insertion limits. It has been determined that provided the above conditions 1 through 4 are observed, these hot channel factors limits are met. In Specification 3.10, F_Q is arbitrarily limited for $P < 0.5$ (except for lower power physics tests).

The limits on axial power distribution referred to above are designed to minimize the effects of xenon redistribution on the axial power distribution during load-follow maneuvers. Basically, control of flux difference is required to limit the difference between the current value of Flux Difference (ΔI) and a reference value which corresponds to the full power equilibrium

value of Axial Offset (Axial Offset = ΔI/fractional power). The reference value of flux difference varies with power level and burnup but expressed as axial offset it varies primarily with burnup. The technical specifications on power distribution assure that the F_Q upper bound envelope of 2.32 times Figure 3.10-3 is not exceeded and xenon distributions are not developed which, at a later time, could cause greater local power peaking even though the flux difference is then within the limits.

The target (or reference) value of flux difference is determined as follows. At any time that equilibrium xenon conditions have been established, the indicated flux difference is noted with part length rods withdrawn from the core and with control Bank D more than 190 steps (indicated position) withdrawn. This value, divided by the fraction of full power at which the core was operating is the full power value of the target flux difference.

Values for all other core power levels are obtained by multiplying the full power value by the fractional power. Since the indicated equilibrium value was noted, no allowances for excore detector error are necessary and indicated deviation of ± 5 percent ΔI is permitted from the indicated reference value. During periods where extensive load following is

required, it may be impossible to establish the required core conditions for measuring the target flux difference every month. For this reason, two methods are

feet out of alignment with its bank) does not result in exceeding core safety limits in steady state operation at rated power and is short with respect to probability of an independent accident. If instead of determining the hot channel factors, the operator decides to reduce power, the specified 75% power maintains the design margin to core safety limits for up to 1.12 power tilt, using the 2 to 1 ratio. Reducing the overpower trip set point ensures that the protection system basis is maintained for sustained plant operation. A tilt ratio of 1.12 or more is indicative of a serious performance anomaly and a plant shutdown is prudent. The maximum rod drop time restriction is consistent with the assumed rod drop time used in the safety analyses. Measurement with T_{avg} greater than or equal to 540°F and with both reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a reactor trip at operating conditions. The various control rod banks (shutdown banks, control banks A,B,C, and D) are each to be moved as a bank; that is, with all rods in the bank within one step (5/8 inch) of the bank position. Position indication is provided by two methods: a digital count of actuation pulses which shows the

demand position of the banks and a microprocessor rod position indication (MRPI) system which indicates the actual rod position. The digital counters are known as the step counters.

Operability of the control rod position indication is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits. The 12 step permissible demand to indicated misalignment and the 0 step rod to rod indicated misalignment ensures that the 25 step misalignment assumed in the safety analysis is met. The MRPI system displays the position of all rods on a CRT. A failure of the CRT would result in loss of position indication of the rods even though the MRPI system is still operable. Since the MRPI system also transmits rod position information to the Plant Process Computer System (PPCS), the PPCS can be used for rod position indication until the CRT is made operable.

The action statements which permit limited variations from the basic requirements are accompanied by additional restrictions which ensure that the original design criteria are met. Misalignment of a rod requires measurement of peaking factors or a

restriction in power; either of these restrictions provide assurance of fuel rod integrity during continued operation. In addition, those safety analyses affected by a misaligned rod are reevaluated to confirm that the results remain valid during future operation.

References:

(1) Updated Final Safety Analysis Report (UFSAR) Section 4.2.

TABLE 4.1-1

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TEST OF INSTRUMENT CHANNELS

Channel Description	Check	Calibrate	Test	Remarks
1. Nuclear Power Range	S M*(3)	D(1) Q*(3)	B/W(2)(4) P(2)(5)	1) Heat balance calculation** 2) Signal to ΔT; bistable action (permissive, rod stop, trips) 3) Upper and lower chambers for axial offset** 4) High setpoint (≤109% of rated power) 5) Low setpoint (≤25% of rated power)
2. Nuclear Intermediate Range	S(1)	N.A.	P(2)	1) Once/shift when in service 2) Log level; bistable action (permissive, rod stop, trip)
3. Nuclear Source Range	S(1)	N.A.	P(2)	1) Once/shift when in service 2) Bistable action (alarm, trip)
4. Reactor Coolant Temperature	S	R	M(1) (2)	1) Overtemperature-Delta T 2) Overpower - Delta T
5. Reactor Coolant Flow	S	R	M	
6. Pressurizer Water Level	S	R	M	
7. Pressurizer Pressure	S	R	M	
8. 4 Kv Voltage & Frequency	N.A.	R	M	Reactor Protection circuits only
9. Rod Position Indication	S(1,2)	N.A.	M	1) With step counters 2) Log rod position indications each 4 hours when rod deviation monitor is out of service

* By means of the movable in-core detector system.
** Not required during hot, cold, or refueling shutdown but as soon as possible after return to power.

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 Tank Level	D	R	N.A.	Bubbler tube rodded weekly
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 4.1-2

MINIMUM FREQUENCIES FOR EQUIPMENT AND SAMPLING TESTS

		Test	Frequency	FSAR Section Reference
1.	Reactor Coolant Chemistry Samples	Chloride and Fluoride Oxygen	3 times/week and at least every third day 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 Tank	Boron concentration	Twice/week	
5.	Control Rods	Rod drop times of all full length rods	After vessel head removal and at least once per 18 months (1)	7
6.a	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	7
6.b	Full Length Control Rod	Move each rod through its full length to verify that the rod position indication system transistions occur	Each Refueling Shutdown	
7.	Pressurizer Safety Valves	Set point	Each Refueling Shutdown	4
8.	Main Steam Safety Valves	Set point	Each Refueling Shutdown	10
9.	Containment Isolation Trip	Functioning	Each Refueling Shutdown	5
10.	Refueling System Interlocks	Functioning	Prior to Refueling Operations	9.4.5

		Test	Frequency	FSAR Section Reference
11.	Service Water System	Functioning	Each Refueling Shutdown	9.5.5
12.	Fire Protection Pump and Power Supply	Functioning	Monthly	9.5.5
13.	Spray Additive Tank	NaOH Concent.	Monthly	7
14.	Accumulator	Boron Concentration	Bi-Monthly	6
15.	Primary System Leakage	Evaluate	Daily	4
16.	Diesel Fuel Supply	Fuel Inventory	Daily	8.2.3
17.	Spent Fuel Pit	Boron Concentration	Monthly	9.5.5
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.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 22 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 October 24, 1986, from Roger Kober (RG&EC) to Harold R. Denton (NRC), the licensee submitted information regarding revisions to the R. E. Ginna Technical Specifications (TSs). These revisions resulted from a replacement of the analog rod position indication (ARPI) system with a Westinghouse microprocessor rod position indication (MRPI) system. The licensee stated that the ARPI system is being replaced because the system requires significant effort to maintain alignments, the system (because of age) is becoming prone to component failures, and system spare parts are difficult to obtain. Also, replacing the ARPI system will resolve human engineering discrepancies raised during control room design review. (This aspect of the staff review will be completed at a later date).

2.0 SYSTEM DESCRIPTION

A block diagram of the MRPI system is illustrated in attached Figure 1. The system consists of a digital detector assembly for each rod, a data cabinet located inside containment, and display racks located in the relay room. Rod position data is displayed on a color cathode ray tube (CRT) in the control room and transmitted to the plant process computer system (PPCS). The data cabinet inside containment contains two multiplexers which take rod position information from each of the rods and transmit it to the processors which are in the display racks located in the relay room. One processor supplies information to the CRT located on the control board, the other processor supplies information to the PPCS. Both processors produce a turbine runback and block rod withdrawal signal.

The MRPI system senses rod position in intervals of 12 steps for each rod. The digital detector assemblies consist of 20 discrete coil pairs spaced at 12 step intervals for a series of 12 step ranges which automatically vary as the rod is moved beyond the range limits. The MRPI system will normally indicate 0 rod position until the rod goes from the fifth to sixth step. When the rod is positioned between the fifth and sixth step, the indication range will normally switch from 0 to 12. When the rod goes from the seventeenth to the eighteenth step, the indication will normally switch from 12 to 24. The rod will normally be within ± 6 steps of the MRPI indication, however, if the transition uncertainty of ±2 steps is considered the rod will always be within ±8 steps of the MRPI indication.

3.0 DISCUSSION AND EVALUATION

The proposed changes to the Technical Specifications basically (1) replace references to the ARPI system with references to the MRPI system, (2) provide clarification whether indicated position or demand positions is required, (3) allow the PPCS to be used as a backup to the MRPI CRT if the CRT should become inoperable, (4) remove the calibration requirement, and (5) modify the rod movement test. The PPCS backup is used because with the MRPI system, the position indication is lost for all rods if the CRT becomes inoperable. Whereas, with the ARPI system, there is one indicator for each rod and, as a result, an indicator failure would cause a loss of position indication for only one rod.

The staff could not verify from the licensee's initial submittal that the MRPI system was a non-Class 1E system that only performed non-Class 1E functions. This matter was clarified by the licensee's letter dated December 22, 1986, that the entire system described in the original submittal is non-Class 1E and not required for the safe shutdown of the plant or required to operate during and/or after a seismic event. The only significant, albeit non-Class 1E, concerns associated with replacing the ARPI system with the MRPI system are associated with generation of a turbine runback (TR) signal, generation of a block rod withdrawal (BRW) signal, and the ability to comply with the rod misalignment requirement.

The current ARPI system consists of one detector assembly per rod. The detector assembly is input to an ARPI drawer (one drawer processes two rods). The ARPI system drawers will sense a rod bottom for any rod and send an actuating signal to the turbine runback (TR) and blocked rod withdrawal (BRW) relays. The signal from one drawer is required to generate a TR and BRW.

The MRPI system consists of one digital detector assembly per rod. All the detector assemblies are multiplexed and become input to two redundant MRPI signal processors. Each signal processor independently monitors all rods and senses a rod bottom for any rod. A rod bottom signal from both signal processors is required to generate a TR and BRW. The-two-out-of-two coincident signal reduces inadvertent TR and BRW. The rod drop analysis assumes a TR is generated by rod bottom indication from the MRPI system or negative flux rate, whichever is more limiting. Failure of a component may prevent a TR from the RPI system but not from the negative flux rate circuitry. However, failure of a processor or other components in the MRPI system will be annunciated on the main control board. This condition is the same as the existing ARPI system; failure of the drawer responding to a dropped rod will also not produce a TR from the position indication system. However the redundant negative flux rate TR will still be available in accordance with the safety analysis.

The MRPI system is designed to satisfy the rod misalignment requirement. The MRPI system determines rod position in 12 step intervals. The true

rod position is always within ±8 steps of the indicated position (±6 steps due to the 12 step interval and ±2 steps transition uncertainty due to processing a coil sensitivity). The rod deviation alarm will be generated by the PPCS as is currently done for the ARPI system. The maximum deviation possible is 20 steps. This is bounded by the accident analysis which assumes a maximum 25 step rod misalignment. Another possible situation is the rod to rod misalignment within a group or a bank.

If the rods are required to have the same indicated position, the maximum actual position difference would be 15 steps. This is bounded by the accident analysis. Therefore, replacing the ARPI system with the MRPI system is acceptable since TSs 3.10.4.3.2a and 3.10.5.3a have been changed to require the affected rods to be aligned to the same indicated position.

The final safety issue concerns response time for the TR. The MRPI system processes rod position information several times a second. Westinghouse has calculated the response time to be approximately one second. This is less than the calculated response time of the ARPI system. Since the MRPI response time is faster than the ARPI response time, replacing the ARPI system with the MRPI system does not change the results of the current safety analysis.

Calibration as defined in the current Ginna TS 1.7.1 is "The adjustment as necessary of the channel output so that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors." The licensee has stated that this definition is inappropriate for a digital system. Once the MRPI system is installed and the digital detector assemblies positioned, the licensee believes that the system does not need periodic calibration and has proposed removing the calibration requirement from Table 4.1-1. The licensee believes that the shift checks and the monthly functional test (moving each rod or bank a known distance and verifying the data output to the CRT) will insure proper functioning of the MRPI system. The staff agrees with the licensee in that calibration as defined above is inappropriate for the MRPI system. However, the staff believes that a total operational check (a movement of each rod from bottom to top) should be performed before start-up after each refueling outage and that this change of position should be verified by the MRPI system. This will insure complete operability of the MRPI system. On this basis the proposed technical specification change was modified to include the surveillance requirements dealing with the operational check of the MRPI during each refueling outage. This modification was discussed with and agreed upon with the licensee.

Based on our review of the licensee's submittals, we conclude that the MRPI system is used for normal operation and it is not relied on to perform safety functions but it does control plant processes that have a significant impact on plant safety. As a result, the MRPI system is classified as a non-Class 1E system that only has to meet the criteria of Section 7.7 of NUREG-0800, "Standard Review Plan."

The staff has determined that the proposed changes have minimal impact on the probability of occurrence or the consequences of an accident previously evaluated because (1) the MRPI system will indicate rod misalignment within the bounds of current safety analyses, (2) the MRPI system response time is faster than the ARPI system, and (3) the response to a control rod drop coincident with a system single failure is essentially the same as that of the ARPI system.

Since the MRPI system maintains system variables within prescribed operating limits, it satisfies this aspect of GDC 13. On this basis, the staff concludes that failure of the MRPI system or a consequence of failure of supporting systems such as power sources does not result in plant conditions more severe than those bounded by the analyses of anticipated operational occurrences.

The proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated because the MRPI system provides the same interfaces as the existing ARPI system. Failure of MRPI only causes loss of indication which is consistent with a failure of the ARPI system. Therefore, the staff has concluded that the proposed changes to the TSs do not involve a reduction in a margin of safety (the existing bounding conditions used in the safety analysis for the ARPI system are also applicable to the MRPI system). On this basis, the staff finds the proposed revisions to the Ginna TSs as modified to include a total operational check of the MRPI system during each refueling outage are acceptable.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and a change to the surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

5.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ACKNOWLEDGEMENT

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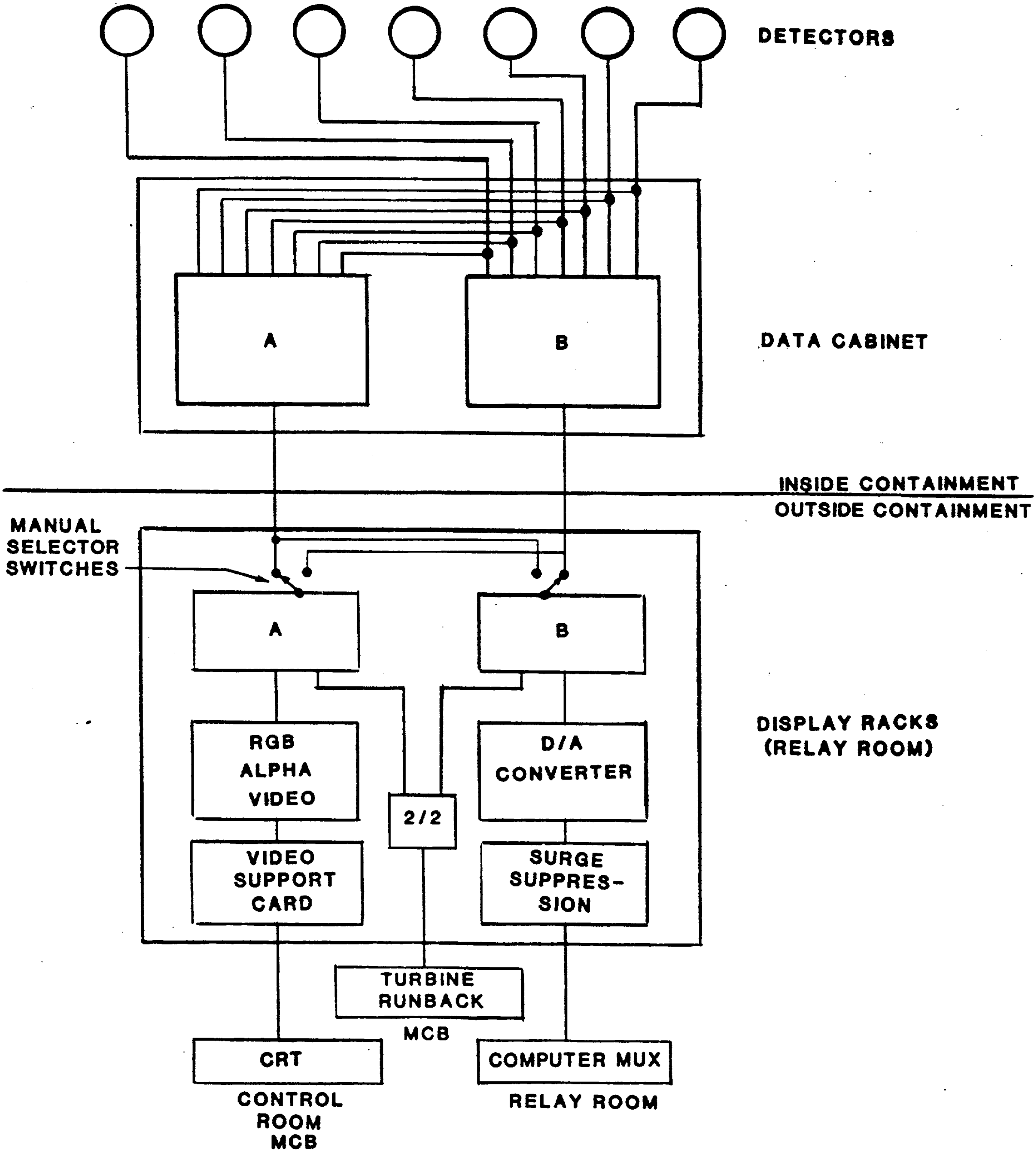
Dated: February 10, 1987

FIGURE 1

MRPI SUBSYSTEM ARCHITECTURE



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