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KOBER, R. W. Rochester Gas & Electric Corp.
RECIP. NAME RECIPIENT AFFILIATION
LEAR, G. E. PWR Project Directorate 1

SUBJECT: Forwards response to M Fairtile 860414 ltr re aspects of Reg Guide 1.97 identified in Section 6.2 of Suppl 1 to NUREG-0737. Concerns expressed in 860414 technical evaluation rept & equipment qualification per Reg Guide 1.97 addressed.

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	PWR-A EICSB	2	2	PWR-A FOB	1	1
	PWR-A PD1 LA	1	1	PWR-A PD1 PD	7	7
	FAIRTILE, M	1	1	PWR-A PSB	1	1
	PWR-A RSB	1	1			
INTERNAL:	ADM/LFMB	1	0	IE/DEPER/EPB	3	3
	NRR BWR ADTS	1	1	NRR PAULSON, W	1	1
	NRR PWR-B ADTS	1	1	NRR/DHFT/MTB	1	1
	NRR/DSRO EMRIT	1	1	NRR/DSRO/EIB	1	1
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REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8606250142 DOC.DATE: 86/06/19 NOTARIZED: NO DOCKET #
FACIL:50-244 Robert Emmet Ginna Nuclear Plant, Unit 1, Rochester G 05000244
AUTH.NAME AUTHOR AFFILIATION
KOBER,R.W. Rochester Gas & Electric Corp.
RECIP.NAME RECIPIENT AFFILIATION
ZWOLINSKI,J.A. PWR Project Directorate 1

SUBJECT: Forwards response to NRC 860414 ltr re aspects of Reg Guide 1.97 identified in Section 5.2 of Suppl 1 to NUREG-0737. Concerns expressed in 860414 technical evaluation re plant equipment qualification per Reg Guide 1.97 addressed.

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	PWR-A EICSB	2	2	PWR-A FOB	1	1
	PWR-A PD1 LA	1	1	PWR-A PD1 PD	7	7
	ZWOLINSKI,J	1	1	PWR-A PSB	1	1
	PWR-A RSB	1	1			
INTERNAL:	ADM/LFMB	1	0	IE/DEPER/EPB	3	3
	NRR BWR ADTS	1	1	NRR PAULSON,W	1	1
	NRR PWR-B ADTS	1	1	NRR/DHFT/MTB	1	1
	NRR/DSRO EMRIT	1	1	NRR/DSRO/EIB	1	1
	NRR/DSRO/RSIB	1	1	REG FILES	1	1
	RGN1	1	1			
EXTERNAL:	LPDR	1	1	NRC PDR	1	1
	NSIC	1	1			

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VICE PRESIDENT
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TELEPHONE
AREA CODE 716 546-2700

June 16, 1986

Director of Nuclear Reactor Regulation
Attention: Mr. George E. Lear, Chief
PWR Project Directorate No. 1
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Regulatory Guide 1.97 Review
R. E. Ginna Nuclear Power Plant
Docket No. 50-244
TAC No. 51093

Dear Mr. Lear:

This submittal is in response to the letter of April 14, 1986 from Morton Fairtile of the NRC to Roger Kober, and addresses those aspects of Regulatory Guide 1.97 identified in Section 6.2 of NUREG-0737, Supplement No. 1. Attachment A to this letter responds to the concerns of the Technical Evaluation Report accompanying the NRC April 14 letter. Attachment A also addresses scheduling for modifications necessary to meet our commitments and addresses equipment qualification as it may apply to Regulatory Guide 1.97 equipment.

Very truly yours,

Roger W. Kober

Roger W. Kober

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ATTACHMENT A

Regulatory Guide 1.97 Review
June 16, 1986

The responses below are identified consistent with the paragraph numbers of the EG&G report, "Conformance to RG 1.97, R. E. Ginna Nuclear Power Plant," attached to the April 14, 1986 NRC letter.

3.1 Adherence to RG 1.97

RG&E has not provided a specific completion date for compliance with Section 6.2 of NUREG-0737, Supplement 1. Dates identified in the RG&E letter of February 28, 1985 were anticipated completion dates for known modifications. Completion dates for additional known modifications are identified later in this response. Modification completion dates for RG 1.97 modifications not previously committed to, or for which agreement has not been reached between RG&E and the NRC, will be negotiated, if necessary, with the NRC project manager.

It should be noted that RG 1.97 specifies that Category 2 items should be environmentally qualified to RG 1.89 and NUREG-0588. Since the issuance of the Regulatory Guide, 10CFR50.49, "Environmental Qualification of Electrical Equipment," has been issued, and implemented at Ginna Station. This regulation defines the evaluation process required to define which equipment should be environmentally qualified. That equipment includes those items of electrical equipment required to ensure (i) the integrity of the reactor coolant pressure boundary, (ii) the capability to shut down the reactor and maintain it in a safe shutdown condition, and (iii) the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the 10CFR100 guidelines. 10CFR50.49 also specifies that non-safety-related equipment which could cause failure of the above equipment, and certain post-accident monitoring equipment, should be environmentally qualified. RG&E agrees that the scope of 10CFR50.49 is appropriate for equipment ensuring the performance of the three critical safety functions. In terms of post-accident monitoring, only Category 1 instruments and certain designated Category 2 instruments warrant inclusion under the rule. Environmental qualification determinations are provided in RG&E's 10CFR50.49 compliance documentation, rather than in the submittals associated with Regulatory Guide 1.97.

3.2 Type A Variables

RG&E has completed its review of Type A variables, and included them in the modified "USNRC Reg. Guide 1.97 Revision 3 Comparison Table" (Attachment B). All Type A variables are considered Category 1, unless specific exceptions are taken.

Instrumentation not previously shown on the table but categorized as Type A variables are standby auxiliary feedwater (SAFW) flow, SG Level (narrow range), pressurizer pressure, and NaOH tank level. All of these instruments meet Category 1 requirements, except NaOH tank level.

The purpose of NaOH tank level is to determine whether or not sump recirculation should be performed with spray flow, or without (if NaOH tank level is greater than 40%, the CS system is to be actuated during recirculation). RG&E is presently evaluating sump pH calculations, to ensure the necessity of this provision. If this provision is determined to be necessary, RG&E will plan to upgrade this instrumentation. Otherwise, RG&E will justify the elimination of this instrument as a Type A variable. This evaluation is scheduled to be completed by September 16, 1986.

3.3 Exceptions to RG 1.97

3.3.1 Neutron Flux

For Ginna Station applications, source and intermediate range neutron flux instrumentation is not required to be Category 1. These instruments, are not used as a primary means of defining operator actions following a design basis event (therefore, they are not Type A variables); they are not used to mitigate a design basis event, such that a safety function (as defined in 10CFR50.49 and Regulatory Guide 1.29) would be compromised; and they are not the only means available to ensure reactor subcriticality (boron concentration using the post-accident sampling system is available). Therefore, no specific safety need exists to justify the upgrade of source range and intermediate range neutron flux instruments to Category 1 requirements.

In addition, the NRC Staff has determined in other instances that neutron flux indication is not required to assure safe shutdown. 10CFR50, Appendix R, Section III.L.2.d states that "the process monitoring function shall be capable of providing direct readings of the process variables necessary to perform and control" the reactivity control function. I&E Information Notice 84-09 provided a listing of instrumentation preferred by the Staff to demonstrate compliance with the regulatory provision. Generic Letter 86-10 states that "while this

guidance provides an acceptable method for compliance with the regulation, it does not exclude other alternative methods of compliance. Accordingly, a licensee may propose to the Staff alternative instrumentation to comply with the regulation (e.g., boron concentration indication)." Thus, proposals addressing the instrumentation guidance of Regulatory Guide 1.97 which are consistent with Staff interpretations of the Appendix R rule should be found acceptable on technical merits. RG&E has previously evaluated the merits of sampling for boron concentration as explained in our RG 1.97 letter of February 28, 1985. In addition, an evaluation was provided for the implementation of item II.B.3 of NUREG-0737, (Post Accident Sampling System), in the NRC's SER dated April 24, 1984.

It should be noted that power range neutron flux instrumentation is not environmentally qualified, per 10CFR50.49. This is not an exception to Regulatory Guide 1.97 or 50.49, however, since this instrumentation performs a required safety function only for design basis events not causing a harsh environment or has completed its safety function prior to exposure to the harsh environment, for events such as rod withdrawal or ejection or RCP seizure.

3.3.2 RCS Soluble Boron Concentration

The NRC TER notes that resolution of items on this issue are addressed in NUREG-0737 reviews. Item II.B.3 of NUREG-0737 was resolved in the NRC's SER of April 24, 1984.

3.3.3 Degrees of Subcooling

Item II.F.2 of NUREG-0737 was reviewed and approved by the NRC in the SER dated September 7, 1980. The Ginna Station Emergency Procedures provide for primary subcooling information to be generated by calculations based on core exit thermocouple temperature and RCS wide-range pressure. The effective range of this parameter calculation exceeds the recommendation of the regulatory guide. This information is also automatically calculated and displayed on the SAS. The subcooling meter which is based on RC temperature and RC wide-range pressure and has an indication of 0-100°F subcooled, is a backup information display. Thus, it is considered that the present Ginna Station arrangement is acceptable based upon NRC approval in the September 7, 1980 SER.

3.3.4 Containment Isolation Valve Position

In RG&E's review of equipment required to meet 10CFR50.49, containment isolation valve position

indication was specifically considered. In our correspondence with the NRC relative to Environmental Qualification, it has been noted that failure of the valve position indication would have no adverse effect on the isolation capability of the valves, and would not result in any inappropriate operator action. Therefore, valve position indication is a confirmatory type display only whose failure would not result in any safety consequences.

As noted in EG&G's TER, the issue of environmental qualification is best addressed in the resolution of 10CFR50.49, rather than in RG 1.97 discussions.

3.3.5 Radioactivity Concentration on Radiation Level in Circulating Primary Coolant

The EG&G TER found the instrumentation provided for this variable to be acceptable. No further response is required.

3.3.6 Radiation Exposure Rate

Area radiation monitors, with a range of 10^{-5} or 10^{-4} to 10^{4} R/hr, have been installed. These are Category 2 instruments, and meet NRC requirements.

3.3.7 RHR Heat Exchanger Outlet Temperature

RG&E has calculated the maximum temperature out of the RHR heat exchangers, during post-LOCA sump recirculation. Assuming a worst-case single failure and minimum flow rates, this temperature is 196°F. A margin of 114°F to the top of the installed instrument range (310°F) is considered sufficient to compensate for equipment or calculational uncertainties. Therefore, modifications to conform with the generic guidance (top of range = 350°F) are not considered necessary.

3.3.8 Accumulator Tank Level and Pressure and Boric Acid
3.3.9 Charging Flow

The EG&G TER found the instrumentation provided for this variable to be acceptable. No further response is required.

3.3.10 Low Pressure Injection System Flow

The TER notes that RG&E did not provide the information required by Section 6.2 of Supplement No. 1 to NUREG-0737. This information was provided in our February 28, 1985 letter under the title, "RHR System Flow". The RHR (LPI) flow meets the requirements of NUREG-0737, Supplement 1, Section 6.2, as a Category 1 item, except that it is not redundant. According to the Emergency Procedures, it is used only to decide whether to go to

low head sump recirculation, or to go to high head sump recirculation. The RHR flow is only one parameter which can be used for this purpose. Other parameters, such as safety injection flow, and RCS pressure, will also provide the necessary information (e.g., if RCS pressure is above the shutoff head of the RHR pumps when RWST level reaches 15%, high head recirculation would be required). Thus, it is not considered that lack of redundancy for this parameter would prevent proper operator action.

3.3.11 Pressurizer Heater Status

The TER implies that pressurizer heater current instrumentation is required to ensure that the diesel generators will not be overloaded. Loading of the pressurizer heaters onto the diesel generators was previously discussed with the NRC, and the acceptability of RG&E's resolution was determined in the NRC's SER of July 7, 1980, "TMI Lessons Learned Category A." No reliance on or need for pressurizer heater current instrumentation was defined during this acceptance review. Based on that acceptance, it is not considered that pressurizer heater current instrumentation is required for RG 1.97.

3.3.12 Quench Tank Temperature

RG&E's range is 0-300°F, compared to the recommendation of 50-750°F. The tank rupture disk pressure is 100 psig, corresponding to a temperature of 328°F. Thus, a small portion of the possible temperature range which could be experienced in this tank would not be provided to the operator.

The purpose, presumably, of providing quench tank temperature is to determine if a reactor coolant leak from the pressurizer safety or relief valves exists. At Ginna Station Category 1 instrumentation is provided for the pressurizer relief valve and pressurizer safety valve position indication. Thus, RG&E considers that sufficient information is provided to the operator to inform him of events which could indicate adverse conditions in the reactor coolant pressure boundary. The pressurizer relief tank, or quench tank, is provided only to prevent the spread of contamination within containment and is not required for accident mitigation, indication, or recovery. Furthermore, any tank temperature above normal (well below 300°F) would certainly provide the operator with indication of an unusual situation, which would be verified by other available instruments. Therefore, RG&E does not consider that any safety reason exists for modifying the instrument range.

3.3.13 Steam Generator Level (Wide Range)

A review of the Ginna Station Emergency Procedures has shown that this parameter is not a primary parameter for providing necessary operator information. Safety actions are based on SG level (narrow range), AFW flow and main steam pressure. All of these instruments are Category 1 and thus are redundant, independent and satisfy the single failure criterion.

Steam generator level, wide range, is used in the Ginna Station Functional Restoration procedures. (The FR procedures describe contingency actions for situations beyond the station design basis.) It is used in combination with pressurizer pressure such that any one of the three signals (pressurizer pressure, SG1A level-wide, SG 1B level-wide) provide the same guidance to the operator. The wide range SG level instrumentation meets all Category 1 requirements, except that it is not redundant for each steam generator. Since the SG level wide range instrumentaton is not used in the Ginna Station Emergency procedures, and is used only in combination with other instrumentation in the FR procedures, it is considered only as a useful backup instrument. RG&E does not consider that any safety justification exists to install redundant wide range level instrumentation for each steam generator.

3.3.14 Containment Spray Flow

During the initial injection phase following an SI signal, no containment spray flow indication exists. Pump status is available, however. Since no control functions are dictated by the availability of this parameter, and the containment spray system itself is single failure proof, no need for CS flow indication exists. During the sump recirculation phase following a LOCA, CS flow can be determined by comparing RHR discharge flow to the CS and SI pumps (FT 931A,B) to the indicated SI flow (FT 924, 925). Both of these sets of instrumentation meet Category 1 requirements. In addition, containment pressure and sodium hydroxide tank level provide indication of proper spray system operation. Thus, sufficient information is provided to perform all required safety functions.

3.3.15 Containment Sump Water Temperature

RG&E is providing, as part of the RVLIS, an RTD which monitors sump temperature. This instrument, being part of the RVLIS, is Class 1E. The implementation date for RVLIS is March 20, 1987, as indicated in an RG&E letter of August 7, 1984. Indication of sump water temperature will have a range of 0-360^{o}F, will be displayed on the plant process computer, and will be considered Category 2 instrumentation, as suggested in RG 1.97.

3.3.16 Makeup Flow In

The EG&G TER found the instrumentation provided for this variable to be acceptable. No further response is required.

3.3.17 CCW Temperature to ESFs

The EG&G TER found the instrumentation provided for this variable to be acceptable. No further response is required.

3.3.18 Component Cooling Water Flow to ESF Systems

RG&E provides redundant component cooling water pumps, with pump status indication, as well as CCW surge tank level indication in the control room. Also, alarms are provided for the following: low surge tank level, low system flow, low system pressure, and low CCW flow from the RHR, CS and SI pumps. Thus, substantial information exists to verify operability of the CCW system.

The CCW system is aligned to provide cooling water flow to the required ESF components, with no required manipulations. The combination of redundancy and normal alignment ensure that, even assuming a worst-case single failure, no loss of required safety function can occur to more than one train. Thus, RG&E does not consider the upgrade of the present instrumentation from alarms to control room indication to be justified based on safety considerations.

3.3.19 Radioactive Gas Holdup Tank Pressure

The tank pressure is normally maintained below a maximum pressure of 100-110 psig. The indicated range of 0-150 psig provides substantial margin over this range, and is equal to the relief valve setpoint and design pressure of the tank. RG&E considers that appropriate action, if possible, would be taken prior to the time that 150 psig were reached (or actions would be taken if the four pressure gauges indicated high off-scale).

It is not clear what the purpose would be of indicated pressures greater than 150 psig. Decay tank rupture analyses have been performed per Chapter 15 of the UFSAR, with radiological consequences well below Part 100 guidelines.

RG&E, therefore, does not consider that there is a safety reason to modify the tank pressure instrumentation to provide the generic range suggested in RG 1.97.

3.3.20 Accident Sampling

The NRC TER noted a few minor deviations from the guidance of Regulatory Guide 1.97 regarding the range of sampled parameters and noted that these deviations would be addressed under the review of NUREG-0737 item II.B.3. An NRC SER dated April 24, 1984 determined the acceptability of RG&E's resolution of item II.B.3 of NUREG-0737.

ATTACHMENT B

USNRC Regulatory Guide 1.97, Revision 3
Instrumentation Comparison Table

Rochester Gas and Electric Corporation

R.E. Ginna Nuclear Power Plant

Docket No. 50-244

June 16, 1986

June 16, 1986

ROCHESTER GAS & ELECTRIC

USNRC REG. GUIDE 1.97 REVISION 3 COMPARISON TABLE

Variable	Required Range	NRC Category	Present Ginna Status	Required for EOPs	Schedule for Upgrade or Justification of Existing Configuration
Neutron Flux	10^{-6} to 100% power	1	Existing intermediate and source range not qualified to Category 1	No	See Attachment A, item 3.3.1
Control Rod Position	Full in or not full in	3	Existing	No	N/A
RCS Soluble Boron Concent.	0-6000 ppm	3	Available on PASS, System Range: 50-6000 ppm	No	See Attachment A, Item 3.3.2
RCS Cold Leg Temperature (Type A)	50-700°F	1	Existing TE-409B-1 and TE-410B-1 (range 0-700°F)	Yes	N/A
RCS Hot Leg Temperature (Type A)	50-700°F	1	Existing TE-409A-1 and TE-410A-1 (range 0-700°F).	Yes	N/A
RCS Pressure (Type A)	0-3000 psig	1	PT-420A feeds PR-429 (0-3000 psig) and is Category 1; PT-420 feeds PR-420 (0-3000 psig) and is Category I.	Yes	N/A
Core Exit Temperature	200-2300°F	1	Category 1 thermocouple system has 0-2300°F range.	Yes	See Attachment A, item 3.3.3

Variable	Required Range	NRC Category	Present Ginna Status	Required for EOPs	Schedule for Upgrade or Justification of Existing Configuration
Standby Auxiliary Feedwater Flow (Type A)	Plant Specific	1	Existing	Yes	N/A
Pressurizer Pressure (Type A)	Plant Specific	1	Existing	Yes	N/A
Sodium Hydroxide Tank Level (Type A)	Plant Specific	1	Existing	Yes	See Attachment A, item 3.2
Coolant Level in Reactor	Bottom of hot leg to top of vessel	1	Installed; in test phase	No	To be operable as of 3/20/87 as discussed in RG&E letter of 8/7/84.
Degrees of Sub-cooling	200°F sub-cooling to 35°F superheat	2	Existing, (range: 0-100°F subcooling)	Yes	See Attachment A, item 3.3.3
Containment Sump Narrow Range	Plant specific	2	Existing, Sump A: LT-2039 and LT-2044 (range: 0-30 ft.)	No	N/A
Containment Sump Wide Range (Type A)	Plant specific	1	Existing, Sump B: LC-942(A-E) and LC-943(A-E) indication of 8, 78,113, 180, 214 inches (214 inches = approx. 500,000 gal. which was previously justified and accepted by NRC).	Yes	N/A
Containment Pressure (Type A)	10 psia to 3 times design pressure	1	Existing, PT-946 & 948 (10-200 psia)	Yes	N/A
Containment Isolation Valve Position	Closed/not closed	1	Existing, status lights on MCB.	No	See Attachment A, item 3.3.4

Variable	Required Range	NRC Category	Present Ginna Status	Required for EOPs	Schedule for Upgrade or Justification of Existing Configuration
Radioactivity Concentration or Radiation Level in Circulating Primary Coolant	1/2 to 100 times Tech. Spec. limit R/hr	1	Available with PASS system.	No	See Attachment A, item 3.3.5
Analysis of Primary Coolant	10^{-6} to 10 Ci/gm or TID-14844 source term in coolant volume	3	Existing capability	No	N/A
Containment Area Radiation (Type A)	1 to 10^{7} R/hr	1	Existing	Yes	N/A
Radiation Exposure Rate (areas where access required to service equipment)	10^{-1} to 10^{4} R/hr	2	Existing	No	See Attachment A, item 3.3.6
Effluent Radio-activity-Noble Gas:					
-Condenser Air Ejector Exhaust	10^{-6} to 10^{5} uCi/cc	2	Existing	No	N/A
-Containment Purge Vent Exhaust	10^{-6} to 10^{5} uCi/cc	2	Existing	No	N/A
-Plant Bldg. Exhaust Vent	10^{-6} to 10^{3} uCi/cc	2	Existing	No	N/A

Variable	Required Range	NRC Category	Present Ginna Status	Required for EOPs	Schedule for Upgrade or Justification of Existing Configuration
-Vent from S/G Safety Relief & Atmospheric Dump Valves	10^{-1} to 10^{3} uCi/cc	2	Existing	Yes	N/A
Effluent Radioactivity - Particulates and Halogens. Sampling with Onsite Analysis Capability:					
-Containment Purge Vent Exhaust	10^{-3} to 10^{2} uCi/cc	2	Existing	No	N/A
-Aux. Bldg. Vent Exhaust	10^{-3} to 10^{2} uCi/cc	2	Existing	No	N/A
Containment Hydrogen Concentration	0-10%	1	Existing	Yes	N/A
Radiation Exposure Rate in Areas Adjacent to Containment	10^{-1} to 10^{4} R/hr	2	Existing	No	See Attachment A, item 3.3.6
RHR System Flow (Type A)	0-110% design	1	Existing, FT-626 (0-4000 gpm) (Not redundant. SI flow or RCS pressure is used as backup indication)	Yes	See Attachment A, item 3.3.10

Variable	Required Range	NRC Category	Present Ginna Status	Required for EOPs	Schedule for Upgrade or Justification of Existing Configuration
RHR Heat Exchanger Outlet Temperature	40-350°F	2	Existing, TE-627 to computer (range: 0-310°F)	No	See Attachment A, item 3.3.7
Accumulator Tank Level and Pressure	10-90% volume 0-750 psig	2	Narrow range instrument indicates ±7 inches from normal fill level for accurate Tech. Spec. compliance; 0-800 psig pressure	No	N/A
Accumulator Isol. Valve Position	Closed or open	2	Existing, MOV 841 & 865 position indicated on MCB	No	N/A
Charging Flow	0-110% design	2	Existing FT-128 (0-75 gpm, the maximum flow anticipated in normal operations)	No	N/A
SI Flow (Type A)	0-110% design	1	Existing FT-924 & 925 (0-1000 gpm)	Yes	N/A
RWST Level (Type A)	Top to bottom	1	Existing, LT-920 & 921 (0-100%)	Yes	N/A
Reactor Coolant Pump Status	Electric current	3	Ammeter existing at 4KV Bus (0-1200A)	No	N/A
Primary System Safety Relief Valve Positions (PORV's & Code Safeties)	Closed/not closed	2	Existing	Yes	N/A
Pressurizer Level (Type A)	Bottom to top	1	Existing	Yes	N/A

Variable	Required Range	NRC Category	Present Ginna Status	Required for EOPs	Schedule for Upgrade or Justification of Existing Configuration
Pressurizer Heater Status	Electric current	2	For control group of heaters, ammeter existing in Aux. Bldg. No ammeter for backup group, but have breaker position for both control and backup groups in Control Room.	No	See Attachment A, item 3.3.11
Quench Tank Level	Top to bottom	3	Existing, LT-442 (0-100%)	No	N/A
Quench Tank Temp.	50-750°F	3	Existing, TE-439 (0-300°F)	No	See Attachment A, item 3.3.12
Quench Tank Pressure	0 to design pressure	3	Existing, PT-440 (0-150 psig)	No	N/A
S/G Level	Tubesheet to separators	1	Existing, LT-460 & 470 input to LR-460 on MCB (0-518" H_2O)	No	See Attachment A, item 3.3.13
S/G Level (Type A)	Narrow Range 0-100%	1	Existing	Yes	See Attachment A, item 3.3.13
S/G Pressure (Type A)	From atmospheric press. to 20% above lowest safety valve setting (1300 psig)	1	Existing, PT-468, 469, 478, 479 (range: 0-1400 psig)	Yes	N/A
Safety/Relief Valve Positions or Main Steam Flow	Closed/not closed	1 (flow only)	Existing, main steam flow FT-464, 465, 474, 475 (range: 0-3.8 x 10^6 pph). Safety/relief valve positions only during high radiation in secondary sys.	Yes	N/A

Variable	Required Range	NRC Category	Present Ginna Status	Required for EOPs	Schedule for Upgrade or Justification of Existing Configuration
Main Feedwater Flow	0-110% design	3	Existing, FT-466, 467, 476, 477 (range: 0-3.8 x 10^6 pph)	No	N/A
Aux. Feedwater Flow (Type A)	0-110% design flow	1	Existing	Yes	N/A
Condensate Storage Tank (Type A)	Plant Specific	1 (Note 1)	CST Transmitters LT-2022A and LT-2022B are qualified; read 0-24 ft.	Yes	See Note 1
Containment Spray Flow	0-110% design flow	2	Containment spray flow itself is not available, however, SI, RHR, and total flow are available - CS flow can be determined.	No	See Attachment A, item 3.3.14
CV Fan Heat Removal	Plant Specific	2	CV fan 1A, 1B, 1C, 1D on/off status at MCB, plenum exhaust temp.	No	N/A
CV Atmosphere Temp.	40-400°F	2	24 CV RTD's go to Leak Rate Test Panel; range - 40-130°F Also, RTD's in plenum exhaust read 0-600°F	No	N/A

Note 1: Condensate storage tank level is not redundant per tank; however the tanks are normally tied together and thus redundant indication is provided. Furthermore, the CST's are not located in a Seismic Category I building, although the instruments are Seismic Category I. (This is consistent with Section B (6th paragraph) of Regulatory Guide 1.97). However the Ginna Station arrangement is such that a completely qualified redundant Seismic Category I system, using the AFW pumps or the SAFW pumps, taking suction for the Service Water pumps, which draw water from Lake Ontario, is available to provide an unlimited source of seismically qualified auxiliary feedwater to the steam generators. Thus, it is not considered that this lack of redundancy or full seismic qualification is of concern.

Variable	Required Range	NRC Category	Present Ginna Status	Required for EOPs	Schedule for Upgrade or Justification of Existing Configuration
CV Sump Water Temp	50-250°F	2	To be installed as part of RVLIS	No	See Attachment A, item 3.3.15
Letdown Flow	0-110% design	2	FT-134 (0-100 gpm)	No	N/A
Volume Control Tank Level	top to bottom	2	LT-112 (0-100%)	No	N/A
Component Cooling Water Temp. to ESF	40-200°F	2	TE-621 from CCW Hx goes to computer (50-200°F)	No	N/A
CCW Flow to ESF	0-110% Design Flow	2	Have low flow alarms	No	See Attachment A, item 3.3.18
High Level Radioactive Tank Level	top to bottom	3	L1001 (0-100%)	No	N/A
Radioactive Gas Holdup Tank Pressure	0 to 150% design	3	P1036, 1037, 1038, 1039 (0-150 psig) design pressure 150 psig, normal operation 100-110 psig.	No	See Attachment A, item 3.3.19
Emergency Vent Damper Position	Open/close status	2	Existing for containment vent on MCB	No	N/A

Variable	Required Range	NRC Category	Present Ginna Status	Required for EOPs	Schedule for Upgrade or Justification of Existing Configuration
Status of Standby Power and Other Energy Sources Important to Safety (hydraulic, pneumatic):	Voltage, current pressure	2		No	N/A
-480 V Bus			Existing diesel voltmeters & ammeters on MCB		
-Instrument Bus			Existing voltmeters on panels in control room; ammeters on inverters in battery rooms for bus 1A & 1C	No	N/A
-125 VDC Bus			Existing voltmeters and ammeters in Control Room	No	N/A
Radiation Exposure Meters (continuous indication at fixed locations)	Range, location, and qualification criteria to be developed to satisfy NUREG-0654, Section II.H.5b and 6b requirements for emergency radiological monitors	2	Existing procedures and equipment are used to initiate emergency measures in accordance with Appendix I and II.H.5b and 6b of NUREG 0654 and NRC approved plant Technical Specifications for compliance with 10 CFR 50 Appendix I.	No	N/A
Airborne Radiohalogens and Particulates (portable sampling with onsite analysis capability)	10^{-9} to 10^{-3} uCi/cc	3	Existing	No	N/A

Variable	Required Range	NRC Category	Present Ginna Status	Required for EOPs	Schedule for Upgrade or Justification of Existing Configuration
Plant and Environs Radiation (portable instrumentation)	10^{-3} to 10^{4} R/hr, photon 10^{-3} to 10^{4} rads/hr, beta radiations and low energy photons	3	Existing	No	N/A
Plant and Environs Radioactivity (portable instrumentation)	Multichannel gamma ray spectrometer	3	Existing	No	N/A
Wind Direction	0-360°	3	Existing	No	N/A
Wind Speed	0-67 mph	3	Existing at 33, 150, 250 ft. elevations (range: 0-100 mph)	No	N/A
Estimation of Atmospheric Stability	Based on vertical temperatures differences	3	Existing, 2 RTD's at 33, 150, 250 ft. elevations; delta T between each elevation	No	N/A
Primary Coolant and Sump: -Gross Activity	Grab Sample 10^{-6} to 10 Ci/cc	3	Available with PASS system	No	See Attachment A, item 3.3.20
-Gamma Spectrum	Isotopic Analysis		Existing	No	N/A
-Boron Content	0-6000 ppm		(50-6000 ppm) with PASS	No	N/A
-Chloride Content	0-20 ppm		5 ppb - 100 ppm lab analysis	No	N/A

Variable	Required Range	NRC Category	Present Ginna Status	Required for EOPs	Schedule for Upgrade or Justification of Existing Configuration
-Dissolved Hydrogen	0-2000 cc(STP)/Kg		(10-2000 cc/Kg) with PASS	No	N/A
-Dissolved Oxygen	0-20 ppm		(0.1 - 20 ppm) with PASS	No	N/A
-pH	1-13		1-13 with PASS	No	N/A
Containment Air:	Grab Sample	3	Available with PASS	No	N/A
-Hydrogen Content	0-10%		Available with H_2 monitors and PASS	No	N/A
-Oxygen Content	0-30%		0-30% with PASS	No	N/A
-Gamma Spectrum	Isotopic Analysis		Existing	No	N/A