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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 51 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 8, 1992, the Rochester Gas and Electric Corporation (RG&E), the licensee, submitted a request for changes to the R. E. Ginna Nuclear Power Plant (Ginna), Technical Specifications (TS). RG&E requested changes to the Ginna auxiliary electrical system (AES) for the 120 v ac vital instrument buses. Although RG&E has recently reformatted the entire AES for the Ginna plant, the current TS contains no instrument bus operability provisions. With this amendment request, the licensee proposes to add Specifications, Action Statements (AS), Surveillance Requirements (SR) and Basis sections relative to the operation of the 120 v ac vital instrument buses into the AES TS. This amendment also corrects an inconsistency in an existing AS in the AES for a loss of both offsite power supplies.

2.0 EVALUATION

The NRC staff has reviewed RG&E's proposed changes to the Ginna TS. The evaluation for each proposed TS change is as follows:

2.1 Action Statement No. 11 for Hi-Hi Containment Pressure (Item 2 b) in Table 3.5-2 of Engineered Safety Feature (ESF) Actuation Instrumentation

With an inoperable containment spray automatic initiation channel, the above Action Statement requires that the plant operation may proceed provided the inoperable channel is placed in the tripped condition within 1 hour. With this request, the licensee proposes to extend the 1 hour limit to 2 hours because additional time is necessary due to the difficulty of placing a channel in trip condition when an instrument bus is de-energized. The licensee contends that the 2 hour request is consistent with the similar AS in the Standard TS for Westinghouse Pressurized Water Reactors (NUREG-0452). It is also consistent with the 2 hour allowed outage time proposed for an inoperable instrument bus which supplies power to the instrument channel. The licensee further justifies that its request is acceptable due to the low probability of requiring automatic containment spray initiation and the continued availability of manual initiation.

Our review of the similar provision used in the above Westinghouse Standard TS indicates that the inoperable channel may be bypassed for up to 2 hours. We

also find that placing the inoperable channel in tripped condition is more conservative than bypassing it from the ESF actuation logic standpoint. Therefore, we conclude that the proposed AS No. 11 for Hi-Hi Containment Pressure in Table 3.5-2 is acceptable.

2.2 Specification 3.7.1.1

The current Specification 3.7.1.1 begins with a phrase "with fuel in the reactor vessel." It does not explicitly specify the appropriate plant operating modes in this Specification section. The licensee proposes to insert the following phrase "when in cold shutdown or refueling" ahead of the current phrase to include the plant operating modes in this section. We concur with the licensee that by adding this phrase ahead of the current Specification 3.7.1.1 clarifies the plant operating modes, and it does not involve any technical change to the Specification. We find the proposed revision to the Specification 3.7.1.1 to be acceptable.

2.3 Addition of Specifications 3.7.1.1.e, 3.7.2.1.a.6, and 3.7.2.1.a.7

Since the current Ginna TS contain no provisions for the safety related 120 v ac vital instrument bus operability based on the reactor coolant system operation, the licensee proposes to add the following requirements for the instrument buses:

a. When in cold shutdown and refueling, Specification 3.7.1.1.e has been added to require "Either 120 volt A.C. Instrument Bus 1A or 1C energized from its associated inverter."

b. For the operation modes above cold shutdown, Specifications 3.7.2.1.a.6 and 3.7.2.1.a.7 have been added to require "120 volt A.C. Instrument Bus 1A and 1C are energized from their associated inverters" and "120 volt A.C. Instrument Bus 1B is energized from its associated constant voltage transformer from MCC 1C", respectively.

The purpose of Specification 3.7.1.1.e (i.e., either instrument bus 1A or 1C) is to ensure the availability of one channel of continuous indication while allowing for maintenance and surveillance of one safety related battery. The addition of Specifications 3.7.2.1.a.6 and 7 are intended to require operability of all three instrument buses for the above cold shutdown reactor operation. However, unlike the Standard TS plants where all instrument buses are powered from inverters, only two of the three instrument buses (1A and 1C) at Ginna are powered from a battery backed inverter. The third instrument bus (1B) is powered from a diesel generator backed transformer. Since the diesel backed instrument bus 1B is required to initiate one of three ESF logic, we find that all three instrument buses are needed to perform this safety function.

On this basis, we concur with the licensee that a separate operability requirement for both battery backed (Specification 3.7.2.1.a.6) and diesel backed (Specification 3.7.2.1.a.7) instrument buses should be specified for the cold shutdown reactor operation mode at Ginna.

Since the current Ginna TS has no operability restrictions for inoperable instrument buses during plant operation and during cold shutdown, the staff finds that the proposed Specifications 3.7.1.1.e, 3.7.2.1.a.6, and 3.7.2.1.a.7 provide a safety enhancement over the current TS. The proposed TS revisions provide additional operational restrictions and are consistent with the Standard TS. Therefore, the staff concludes that addition of Specifications 3.7.1.1.e, 3.7.2.1.a.6 and 3.7.2.1.a.7 are acceptable.

2.4 Action Statement 3.7.2.2.d

With both independent offsite power sources inoperable, the AS 3.7.2.2.d requires that both emergency diesel generators (EDGs) must be operable. It also requires restoration of one independent offsite power source within 72 hours, or reduce to a mode equal to or below hot shutdown within the next 6 hours and to an RCS temperature less than or equal to 350 degree F within the following 6 hours.

The licensee proposes the above underlined phrase to be replaced with "and be in cold shutdown within the following 30 hours." The current AS implies that the plant can remain above cold shutdown by maintaining the reactor coolant system (RCS) temperature less than or equal to 350 degree F without any offsite power source. The licensee finds the current AS is inconsistent with the Specification 3.7.2.1.a.1 provision which requires one offsite power source to be operable for the plant to be in above cold shutdown.

The staff concurs with the licensee's assessment that the new requirement is more appropriate and clearer than the existing requirement. The staff also notes that the proposed verbiage has been used in the similar AS throughout Ginna TS. Therefore, the staff concludes the proposed change to the AS 3.7.2.2.d is acceptable.

2.5 Addition of Action Statements 3.7.2.2.f and 3.7.2.2.g

The normal power supply configuration for the instrument bus 1A and 1C are energized from its associated inverter (i.e., battery backed) while the instrument bus 1B is energized from its associated constant voltage transformer (CVT) from its associated diesel (i.e., diesel backed).

With either instrument bus 1A or 1C not energized from its associated inverter, the licensee proposes AS 3.7.2.2.f which adds: (1) the bus will be re-energized within 2 hours (backup or maintenance supply), and (2) re-energized from a safety related supply (backup or inverter) within 24 hours, and (3) re-energized from its associated inverter within 72 hours, otherwise reduce the plant mode equal to or below hot shutdown within the next 6 hours and be in cold shutdown within the following 30 hours.

With instrument bus 1B not energized from its associated CVT from MCC 1C, the licensee also proposes AS 3.7.2.2.g which adds: (1) the bus be re-energized within 2 hours (maintenance supply), and (2) and re-energized from its associated CVT from MCC 1C within 7 days, otherwise reduce to the plant mode equal to or below hot shutdown within the next 6 hours and be in cold shutdown within the following 30 hours.

The staff has reviewed the power supply configuration system for the above instrument buses with respect to the proposed ASs 3.7.2.2.f and g. We find that power for the instrument buses 1A and 1C is available from:

1. its normal supply from a safety related dc bus via an inverter.
2. a backup supply from a safety related 480 v bus (MCC 1C or 1D) via a CVT.
3. a maintenance supply from a non-safety related 480 v bus (MCC 1A) via a CVT.

The staff also finds that power from instrument bus 1B can be supplied via a CVT from:

1. its normal supply from a safety related 480 v bus (MCC 1C) via diesel generator.
2. a maintenance supply from a non-safety related 480 v bus (MCC 1A).

The Standard PWR plant (i.e., 4 loop and 4 channel system) requires re-energizing the instrument buses within 2 hours and to return the original normal inverter power supply configuration within 24 hours. The licensee submitted additional information to NRC in this regard during a November 16, 1992, telecon, that this requirement cannot be applied directly to Ginna, as it is designed as a two loop plant with two ESF channels. For the Ginna plant another channel (instrument bus 1B) has been added to provide the third channel.

Considering that Ginna has no instrument bus operability requirements in its current TS, the instrument buses can be connected indefinitely to any one of the above available power sources including non-Class 1E power supplies. Although the proposed ASs with its allowed outage time provisions do not fully conform to the Standard TS, they provide some limitation as to how long the instrument buses can remain on other power sources (i.e., non-Class 1E power supplies). The staff finds that the proposed ASs provide a reasonable time for the instrument buses to return to their normal power supply configurations. On this basis, the proposed changes are an improvement over the current TS. Therefore, the staff concludes addition of ASs 3.7.2.2.f and 3.7.2.2.g to be acceptable.

2.6 Addition of Surveillance Requirement (SR) 4.6.4 and Basis page 4.6-5

In order to ensure proper power supply alignment and operability of the vital instrument buses, the SR 4.6.4 has been proposed when each instrument bus is required to be demonstrated operable at least once per 7 days by verifying correct breaker alignment, nominal voltage indications for the instrument buses 1A, 1B, and 1C. In addition, the licensee provided a paragraph to describe the basis of adding new SR 4.6.4 for the instrument buses in the Basis section (i.e., sixth paragraph of page 4.6-5).

The staff has reviewed the proposed SR 4.6.4 and the paragraph for Basis. The staff finds that the methodology and frequency are consistent with the Standard TS which are required for the vital instrument buses and the SR provision is properly described in the Basis section. Therefore, the staff concludes addition of SR 4.6.4 and the description provided for the SR in the Basis section to be acceptable.

2.7 Basis page 3.7-5 and page 4.6-5A

The current design basis for the diesel fuel storage capacity has been explained on page 3.7-5 and page 4.6-5A of the Basis. It states that the minimum diesel fuel oil inventory (i.e., 5000 gallons for each diesel) is sized to ensure two ESF trains for 40 hours operation under LOCA conditions (or 80 hours for one train) or for operation under hot standby non-accident conditions for 111 hours. However, the Ginna Electrical Distribution System Functional Inspection (EDSFI) on May 6 to June 7, 1991, found the design basis of the fuel storage tanks was to provide capacity for full load operation of both diesels for 24 hours. In accordance with EDSFI findings, the licensee agreed to change the design basis for the fuel oil storage capacity described in pages of 3.7-5 and 4.6-5A for operation of both diesels at design ratings for 24 hours and to delete the reference to hot standby operation which has never been considered as a design requirement.

The staff has reviewed the proposed changes in the Basis sections and find them to be acceptable.

2.8 Basis page 3.7-6

a. First paragraph

With less than one offsite and one onsite ac source of power and one dc power train, the current Basis requires that no operations involving positive reactivity changes, core alterations, and movement of irradiated fuel should occur. With this amendment request, the licensee proposes to add "one battery backed instrument bus" to the above conditions for the Basis section. The staff finds that this proposed change in the Basis section is appropriate and consistent with the addition of Specification 3.7.1.1.e. Therefore, the staff concludes that it is acceptable.

b. Third paragraph

Since new proposed TS includes the vital instrument buses, the licensee added a description for the instrument buses to the Basis section. The staff has reviewed the description for the instrument buses in the Basis section, and finds it 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 and changes surveillance requirements. 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 (57 FR 58251). 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.

Principal Contributor: P. Kang

Date: April 13, 1993