UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
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Docket No. 50-244
LS05-81-09-018

John E. Maier
Vice President
Electric and Steam Production
Rochester Gas & Electric Corporation
89 East Avenue
Rochester, New York 14649

Dear Mr. Maier:

SUBJECT: SEP TOPIC III-5.B, PIPE BREAK OUTSIDE CONTAINMENT
R. E. GINNA

The staff evaluation of SEP Topic III-5.B was transmitted to you on June 24, 1980. This evaluation identified five staff positions for which an implementation schedule was requested. Your response was provided in a letter dated August 7, 1980.

Each of the five positions, your responses and staff resolutions are discussed below.

Staff Position 1

Because high and moderate energy line breaks in the Screen House could damage the power supplies to all service water pumps, the licensee must provide protection for these power supplies in accordance with Standard Review Plan 3.6.1 consistent with the service water system modifications which must be performed in connection with other ongoing SEP reviews and the fire protection review. Modifications to provide this protection can be acceptably delayed until the SEP integrated assessment of the plant provided that the diesel generator cooling method described, in the licensee's December 28, 1979 fire protection safe shutdown analysis, is tested to assure its timely availability and its capability to provide adequate cooling. The results of this testing should be submitted for NRC staff review.

Response to Staff Position 1

It is planned to conduct the alternative diesel generator cooling method test by June 1981.

Resolution

The alternate diesel generator cooling method depends on installation of hose connections to each diesel generator. These connections have not yet been installed. As discussed in the June 1980 SER, protection should be provided for Buses 17 and 18 and associated cables. Such modifications should be coordinated in the integrated assessment with fire protection and other SEP topic concerns.

Staff Position 2

The licensee must provide the means to warn the control room operator that flooding conditions exist in the Intermediate Building sub-basement. The licensee should provide the implementation schedule for this capability.

Response to Staff Position 2

Based on RG&E's review of this scenario, we find the proposed solution to be unnecessary. Present routine walk-through inspections of the Intermediate Building would detect a pipe leak long before there were any danger of flooding safety-related equipment. If the postulated leak occurred at a level above the sub-basement, leakage into the sub-basement via the floor drains would be obvious during the routine once-per-shift walk-throughs. And even a large secondary side break would result in only a 2-foot depth in the sub-basement. If the leak were in the Service Water piping located in the sub-basement of the Intermediate Building, there would be a significant time interval between the initiation of the crack and the flooding of safety-related equipment. The Intermediate Building sub-basement has a volume of approximately 50,000 ft^3. With a service water leak rate of about 585 gpm (as calculated on p. 13 of the NRC assessment), it would take over 10 1/2 hours to begin flooding the basement level. It does not seem conceivable that a sizeable leak rate such as this would not be detected, visibly or audibly by personnel during the walk-throughs, or by personnel monitoring the control board (the 585 gpm leak would be a significant fraction - 10% - of the Service Water pump flow).

Resolution

The staff has determined from discussions with the licensee during a site visit on June 2, 1981, that there are two sump pumps in the sub-basement. Operation of the pumps is alarmed at the water treatment station. A control room alarm is provided indicating that an alarm condition exists at the water treatment station. As stated in the topic evaluation, even

if the basement elevation was flooded safe shutdown would not be prevented. Based on this, and the other information provided above, the staff concludes that there are adequate means to warn of flooding conditions in the sub-basement and therefore, that no modifications are required.

Staff Position 3

Based on our evaluation of Main Steam (MS) and Main Feed (MF) line breaks in the Turbine Building and Intermediate Building, the licensee should (1) proceed with the design and installation of jet impingement shielding in the Intermediate Building (as previously committed to by the licensee), (2) provide protection from the effects of the failure of the Turbine Building/Intermediate Building cinder block wall for the MS atmospheric dump valves and assess the need for and provide protection as necessary for the MS safety valves. The installation of additional jet impingement shielding for the MS bypass valves and associated piping is not necessary since the bypass valves are not required for safe shutdown or pipe break mitigation. A proposal to accommodate item (2) above should be submitted for staff review.

Response to Staff Position 3

Protection from the effects of the Turbine Building/Intermediate Building cinder block wall failure on the atmospheric dump valves and main steam safety valves will be integrated into the modification program resulting from RG&E's review of I&E Bulletin 80-11, "Masonry Wall Design." Our initial response to this bulletin is contained in a July 7, 1980 letter from L. D. White, Jr. (RG&E) to Mr. Boyce H. Grier (NRC Region I Director).

Resolution

Additional information in response to I&E Bulletin 80-11 was submitted by the licensee on November 4, 1980 and January 30, 1981. The SEP review of these letters has revealed that pipe break loads were not included in this evaluation of masonry wall design. Furthermore, since the evaluation against original design criteria showed that the walls would satisfy their intended function, no assessment of effects of cinder block wall failure has been provided. Therefore, the licensee should comply with item 2 above.

Staff Position 4

Since certain moderate energy line breaks (MELB) in the mechanical equipment room could result in flooding both battery rooms, the licensee must provide protection from the effects of these postulated MELB's in accordance with the acceptance criteria of Standard Review Plan 3.6.1. The licensee should provide a schedule for the implementation of this position.

Response to Staff Position 4

It is presently planned to separate the battery rooms from the mechanical equipment room, where the source of a Service Water leakage exists, by replacing the doorway with a watertight wall. This modification should be completed by June 1981.

Resolution

The modification will be completed shortly. The licensee also plans to install at the same time a means of removing water from the mechanical equipment room into the turbine building. The staff concludes that these modifications will adequately mitigate the effects of these postulated MELB's.

Staff Position 5

To preclude adverse environmental conditions resulting from a heating steam or CVCS letdown break in the Auxiliary Building, the licensee must analyze the adequacy of once-per-shift inspections to prevent the formation of the adverse environment or to provide some other acceptable means of preventing the existence of the adverse environment. The results of this analysis (with a commitment to provide the required protection, if necessary) should be submitted for NRC staff review.

Response to Staff Position 5

RG&E is performing an evaluation to determine the effects of a CVCS letdown or steam heating line break in the Auxiliary Building in the vicinity of safety-related equipment. The results of this study and proposed modifications, will be submitted to the NRC for review in January 1981. Pending the resolution of any noted concerns, present once-per-shift inspections, together with the procedures available for isolation of the steam heating line, should provide adequate protection against the effects of significant adverse environment damaging safety-related equipment.

Resolution

The environmental effects of these breaks on safety-related equipment are being addressed as part of Unresolved Safety Issues (USI) "Qualification of Class 1E Equipment". Per the Commission's Memorandum and Order of May 23, 1980, all safety-related electrical equipment must be qualified for the adverse environments they would experience by June 30,1982. Therefore, this item will not be further addressed under Topic III-5.B.

The staff now considers this SEP topic to be completed except for completion of the commitments discussed above and of modifications necessary to protect equipment in the screen house and Turbine Building/Intermediate Building.

Enclosed is the revised evaluation which will be a basic input to the integrated safety assessment for your facility unless you identify changes needed to reflect the as-built conditions at your facility. This topic assessment may be revised in the future if your facility design is changed or if NRC criteria relating to this topic are modified before the integrated assessment is completed.

Sincerely,

Dennis M. Crutchfield

Dennis M. Crutchfield, Chief
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Enclosure:
As stated

cc w/enclosure:
See next page

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