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 STAHL, C. Document Control Branch (Document Control Desk)

SUBJECT: Responds to 870324 SER on structural upgrade program. Bulk of  
 mods re SEP Topics II-3. A, III-2, III-4. A, III-6 & III-7. B will  
 be completed as of Dec 1988. Resolution of issues will serve  
 to document completion of agreements reached during SEP.

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ROGER W. KOBER  
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May 26, 1987

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U.S. Nuclear Regulatory Commission  
Document Control Desk  
Attn: Mr. Carl Stahle  
PWR Project Directorate No. 1  
Washington, D.C. 20555

Subject: Structural Upgrade SER  
R. E. Ginna Nuclear Power Plant  
Docket No. 50-244

The purpose of this letter is to respond to the NRC's March 24, 1987 "Safety Evaluation Report on the Structural Upgrade Program." You requested that we respond within 60 days from the receipt of the letter, relative to our acceptance of the NRC findings and comments, in order to proceed with a timely implementation of the program.

The attached RG&E responses provide the necessary information requested by the NRC, as well as our acceptance of and comments on the NRC findings. Final resolution of outstanding issues will serve to document the completion of the agreements reached during the Systematic Evaluation Program relative to the Structural Upgrade Program.

The Structural Upgrade Program was an ambitious combination of five SEP "phenomenological" issues which required a major effort on both the NRC and RG&E's part. It is considered to be a successful example of the integration effort which was the central theme of the SEP. Even though this project has required, and will continue to require, major commitment of personnel and resources by RG&E, it is expected to result in a comprehensive re-evaluation and modification of the Ginna structures.

If there are any questions regarding our responses, or any clarifications necessary, RG&E personnel are available to discuss the issues.

Very truly yours,

Roger W. Kober

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ATTACHMENT TO NRC SER OF 3/24/87, "STRUCTURAL UPGRADE PROGRAM"

RG&E has been actively implementing the Structural Upgrade Program (SUP) since 1983 in accordance with the commitments and agreements made in numerous correspondence and meetings. The majority of the SUP design and modifications have already been completed, and the bulk of the modifications relative to SEP Topics II-3.A (Flooding), III-2 (Winds and Tornadoes), III-4.A (Tornado Missiles), III-6 (Seismic Considerations), and III-7.B (Load Combinations) will be completed as of December 1988. RG&E committed to begin this very sizeable effort, prior to receiving this final SER, in order not to delay the completion of the structural modifications.

Our responses to Section III of the SER, "Conclusions", reflect our understanding of the agreements reached during SEP, which formed the basis for the substantially completed R.E. Ginna Structural Upgrade Program.

NRC Comment 1:

The licensee should assess actual thermal loads for use in load combinations for any areas of the plant known to have high operating temperatures (e.g., concrete surrounding the reactor vessel).

RG&E Response:

This specific subject was reviewed in TER-C5506-423 for SEP Topic III-7.B, provided as an attachment to the NRC's SER of August 22, 1983. The worst-case condition was analyzed, and found to be acceptable. Furthermore, during normal operation, there are no concrete regions subject to temperatures in excess of 150°F. Therefore, it is considered that RG&E has already adequately assessed the proper thermal loads for use in load combinations.

NRC Comment 2:

Straight wind loads should be applied to windward, leeward and side walls as prescribed by ANSI A58.1-1982.

RG&E Response:

The application of the wind and tornado loads was applied as a constant uniform load over the height of each structure, instead of stepping the wind pressure as stated in ANSI A58.1-1982. It was determined that the variations in the total load transferred into the structure by this assumption was small, and would not affect the results of the overall analysis.

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NRC Comment 3:

Although portions of siding and decking are permitted to fail, any loads imparted by the siding or decking to the steel frame should be considered in the analysis. It is not acceptable to assume all of the siding blows off and reduces the load applied to the steel frame.

RG&E Response:

As noted by the NRC, RG&E has assumed, in its calculations of wind and tornado loadings on Ginna structures, that the siding and decking will remain intact and, therefore, transfer the full magnitude of these loads to the structures. This conservative assumption was made even though RG&E conducted tests on the siding in order to establish the load capacity of the siding. These tests showed that the siding will tear but not separate from the structure under the wind loads associated with the design basis tornado, and would therefore reduce the loads imposed on the structures.

NRC Comment 4:

If portions of the roof decking are permitted to fail from snow loading, the licensee should assure that the failure is local and consequences are acceptable.

RG&E Response:

Table 3-12 of Appendix A of the Structural Reanalysis Program lists the capacities of the roofs at Ginna Station. The table shows that the capacities of the roofs are greater than the applied loads in all areas except the D/G Building. Modifications to the diesel generator building, including the roof, are part of Ginna's Structural Upgrade Program and will upgrade the building to assure no failures, or to assure that the consequences are acceptable. The NRC comment will thus be resolved, since no roof decking failures due to snow loadings will be calculated to occur with unacceptable consequences.

NRC Comment 5:

In demonstrating the adequacy of roof decks, the licensee should account for buckling, taking into account such factors as unsupported lengths, deck shape, and noting that elastic buckling can occur for long, unsupported lengths.



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RG&E Response:

In the July 13, 1984 letter from R. W. Kober (RG&E) to D. M. Crutchfield (USNRC) it was stated that local buckling would not occur. However, the subject of deck capacity relative to length was not specifically discussed. The following additional RG&E comments apply relative to this issue.

As defined in the "Cold-Formed Steel Design Manual" of the American Iron and Steel Institute, the metal roof decking used at Ginna is considered a multiple stiffened element. Because of its shape and the width-to-thickness ratios of the compression zones of the deck, the full bending capacity of the shape can be developed. In other words, the capacity of this type of section is not dependent on length as it is for usual structural members. Therefore, RG&E's position is that no local buckling of the roof decking will occur.

NRC Comment 6:

The licensee has committed to examine the east wall of the control building and portions of the diesel generator building for tornado winds and missiles.

RG&E Response:

The east wall of the relay room (part of the Control Building) is being modified to withstand wind and tornado loadings, including missiles. The east wall of the control room was previously found capable of resisting these loads in the SER's for SEP Topics III-2 and III-4.A. The diesel generator building is also being modified as part of the SUP in order to withstand wind and tornado loads, including missiles.

NRC Comment 7:

The licensee should assure that previous conclusions reached regarding seismic capability developed in SEP Topic III-6 remain valid considering seismic loads in combination with other loads.

RG&E Response:

The overall structural seismic integrity of the Ginna structures was previously evaluated by NRC contractors (Lawrence Livermore Laboratories) and found acceptable as a result of the review of SEP Topic III-6, "Seismic Considerations", in NUREG/CR-1821. Some local modifications were agreed to by RG&E. In the NUREG/CR-1821 assessment, load combinations were addressed as follows:



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a. Section 4.3.3

"Because stresses resulting from load cases and combinations of loads from these more recent criteria are not available, the reevaluation of the containment building concentrates on the effects of variations of seismic criteria on the stresses developed for the original design load combinations. In the other cases, for which no original seismic analysis results are available, conservative estimates of stresses from other loads are made." (emphasis added)

b. Section B.3.3

"B.3.3 Normal, Seismic, and Accident Loadings  
Those loading combinations of particular importance in the reevaluation process involve the usual combinations incorporating normal loadings (dead load, live load, pressure, temperature, etc., as appropriate) with seismic loadings. Design basis accident load effects were not considered..." (emphasis added)

Based on the Lawrence Livermore Review, and the resultant NRC SER of 8/22/83, which did not list any structural issues as unresolved, it is considered that the NRC's conclusion regarding seismic acceptability of Ginna structures properly reflected conformance with current criteria.

Load Combinations, including seismic, were also specifically evaluated in SEP Topic III-7.B. In the NRC's SER on this topic, dated August 22, 1983 (with attached FRC TER C5506-423), several open issues were identified, including the seismic loads on the diesel generator shear walls. RG&E has committed, as part of the SUP, to make the appropriate modifications, considering loads due to winds, tornadoes, snow, floods, and seismic events, as noted in our letters of May 19, May 27, and August 19, 1983 (SEP Topic III-7.B) as well as our July 13, 1984 letter concerning the overall Structural Upgrade Program.

Based on these NRC Safety Evaluation Reports, and the RG&E commitments which previously delineated the scope and extent of RG&E's Structural Upgrade Program, RG&E does not consider that any additional assurance regarding seismic load combination issues is necessary to validate the conclusions.

NCR Comment 8:

The licensee has committed to evaluate the effects of masonry blockwall failure on main steam and feedwater lines and associated valves, and to prevent the walls from entering the spent fuel pool.



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RG&E Response:

As noted in RG&E's July 13, 1984 submittal, RG&E has agreed to evaluate the effects of masonry wall failure on the main steam and feedwater lines, and associated valves, and the spent fuel. The means to prevent damage to the required steam and feedwater piping, and associated valves, will be completed as part of the SUP by December, 1988. The modification to prevent damage to the spent fuel due to failure of the block wall on the north side of the spent fuel pool has already been completed. The block wall on the west side of the spent fuel pool is not expected to adversely effect the integrity of the fuel in the spent fuel pool, such that the guideline exposures of 10CFR Part 100 would be exceeded. Preliminary calculations indicate that the effect of failure of this relatively small wall is bounded by the previously accepted effects of a design basis tornado missile. Thus, no modifications are expected to be required for this wall. The detailed calculation will be completed prior to the scheduled completion of the SUP (12/88).

NRC Comment 9:

The licensee has committed to assure operability of the power supply and piping associated with one auxiliary feedwater pump, assure sufficient instrumentation to monitor safe shutdown conditions, and to perform an evaluation of the effect of depressurization on diesel generator operability.

RG&E Response:

These commitments will be implemented prior to RG&E's completion date for SUP of 12/88. The necessary instrumentation rerouting has already been completed.

