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SUBJECT: Forwards response to Generic Ltr. 81-14 re seismic qualification of auxiliary feedwater sys. Seismic upgrade program developed & implemented.

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JOHN E. MAIER
VICE PRESIDENT

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July 27, 1981

Director of Nuclear Reactor Regulation
Attention: Mr. Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Seismic Qualification of Auxiliary Feedwater Systems
(Generic Letter No. 81-14)
R. E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Crutchfield:

This letter is in response to Generic Letter No. 81-14, Seismic Qualification of Auxiliary Feedwater Systems, dated February 10, 1981 and received by RG&E on March 20, 1981. The attachment to this letter provides a discussion of the qualification of the Ginna auxiliary feedwater system and standby auxiliary feedwater system.

In general, these systems were designed and constructed in accordance with seismic category I standards applicable at the time. Several programs are now in place to upgrade the design and level of qualification of these systems. The systems are maintained in accordance with seismic category I standards.

Very truly yours,


John E. Maier

Attachment

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Attachment
Generic Letter 81-14 Response
July 27, 1981

The Ginna Plant is one of several plants presently being evaluated by the Nuclear Regulatory Commission in their Systematic Evaluation Program (SEP). Consequently, many discussions and much correspondence has been exchanged to establish the extent of seismic qualification of equipment, systems and structures. Specifically, the seismic qualification of the Auxiliary Feedwater System (AFW) and the Standby Auxiliary Feedwater System (SAFW) have been addressed at length.

On April 10-11, 1979, an NRC Seismic Review Team conducted a site visit as a part of their seismic evaluation of the Ginna Plant. This visit was followed by a submittal from the RG&E to the NRC providing additional information requested by the NRC and a submittal schedule [Ref. 3]. The results of the NRC's Seismic Review Team's evaluation is published in NUREG CR-1821 [Ref. 4] and addresses many of the concerns of Generic Letter 81-14. Resolution of open items delineated in the NUREG is an ongoing program. For example, the RG&E has developed and implemented a "Seismic Upgrade Program" for the R. E. Ginna Plant. The purpose of the program is to upgrade certain Safety Related Seismic Category I piping including auxiliary feedwater systems at the Ginna Plant to more current criteria and to provide a seismic data base for use with modifications, the Inservice Inspection Program and NRC requests for information. The Design Criteria for the seismic upgrade program was submitted to the NRC in Reference 16.

The AFW system has two sources of supply. Normally, the suction of the system is aligned to the two condensate storage tanks which contain a minimum of 15,000 gallons of condensate as required by the Technical Specifications. This supply is sufficient to allow operation of the two motor driven auxiliary feedwater pumps or the steam driven auxiliary feedwater pump for one half hour. Upon depletion of the condensate supply, the suction of the auxiliary feedwater pumps is aligned to the service water system which provides an almost infinite supply of cooling water from Lake Ontario. The discharge path of the three auxiliary feedwater pumps is from the pumps to penetrations in the feedwater lines outside of the containment, through the feedwater lines to the steam generators.

B. Fluid Systems

The normal suction path piping of the AFW system (from the condensate storage tanks) is not seismically designed, however, the service water piping to the suction of the pumps and the service water system piping in its entirety is seismic Class I design [Ref. I]. As described in the Seismic Upgrade Program, the seismic review of the AFW system suction and discharge piping is scheduled for completion in early 1983. The service water system seismic review, which includes all piping within the power block, is scheduled for completion in late 1982. The portion of the feedwater

Seismic qualification of structures related to the AFW system and support information is described in References 1,7,8,9,10,11,12, and 13. Specifically, the NRC found, in Ref. 4, that in general all seismically designed structures were adequate. Several open items were noted in Ref. 4 and these are currently under review by RG&E (Ref. 3).

II The Standby Auxiliary Feedwater System

A. Description

The service water system provides cooling water to the suction of the two motor driven SAFW pumps which discharge into the feedwater supply lines (inside Containment Building) to the steam generators. This system provides redundancy for the AFW system. It is a remote-manual system to be operated should both motor operated and the turbine driven AFW pumps fail to operate when required.

B. Fluid Systems

The SAFW system is a seismic Class I system (Ref. 2,13,14).

C. Electrical

The SAFW system electrical system is a Class IE electrical system (Ref. 2,13,14).

D. Structural

The SAFW system pumps, essential equipment and portions of suction and discharge piping are contained in a seismic category I building (Ref.14,15). Portions of



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1. The first part of the document is a list of names and addresses. The names are written in a cursive script, and the addresses are written in a more formal, printed style. The list is organized into two columns, with names on the left and addresses on the right. The names are: John Doe, Jane Smith, and Mary Johnson. The addresses are: 123 Main Street, New York, NY 10001; 456 Elm Street, New York, NY 10002; and 789 Oak Street, New York, NY 10003.

suction piping to the service water header are located in the Auxiliary Building (See Section I D.). Portions of the discharge piping are located in the Auxiliary Building and Containment Building (See Section I D.).

III Conclusions

The R. E. Ginna AFW systems and the supporting structures were initially designed and constructed as class I systems. Recognizing the continued upgrading of qualification codes and standards for electrical, mechanical and structural systems, the RG&E has instituted programs that are intended to upgrade the AFW system to meet the criteria established and indicated in the referenced documents.

The redundant SAFW system is a seismically qualified decay heat removal system.



References

1. FSAR.
2. Letter from L. White to A. Schwencer, May 20, 1977, "Standby Auxiliary Feedwater System."
3. Letter from L. White to D. Ziemann, July 3, 1979, "Systematic Evaluation Program - Seismic Review."
4. Letter from M. Crutchfield to J. Maier, January 7, 1981, "SEP Topic III-6, Seismic Design Consideration and III-11, Component Integrity - Robert E. Ginna Nuclear Power Station."
5. Letter from J. Maier to D. Crutchfield, December 22, 1980, "Anchorage and Support of Safety Related Electrical Equipment, Final Report."
6. Letter from J. Maier to D Crutchfield, May 26, 1981, "Battery Racks".
7. Letter from L. White to D. Ziemann, May 7, 1979, "Systematic Evaluation Program Seismic Review."
8. Letter from L. White to D. Ziemann, May 22 1979, "Systematic Evaluation Program Seismic Review."
9. Letter from L. White to D. Ziemann, July 16, 1979, "Systematic Evaluation Program Seismic Review."
10. Letter from L. White to D. Ziemann, February 12, 1980, "Systematic Evaluation Program Seismic Review."
11. Letter from L. White to D. Ziemann, April 17, 1980, "Systematic Evaluation Program Seismic Review."

Another example of continuing efforts to upgrade facility seismic qualification is a recently submitted report summarizing all activities completed on the anchorage and support of safety related electrical equipment [Ref. 5].

The seismic qualification of the Ginna decay heat removal systems have been a consideration in all of the above items of discussion. The primary system for decay heat removal is the Auxiliary Feedwater System (AFW). To achieve a greater margin of safety and versatility, a redundant Seismic Category I Standby Auxiliary Feedwater System (SAFW) was designed, constructed and placed into operation at the end of 1979. The SAFW was approved by the NRC in Reference 14.

I Auxiliary Feedwater System

A. Description

The Auxiliary Feedwater System and its supporting auxiliaries at the R. E. Ginna Nuclear Plant are an integral part of the Safeguards System and are automatically initiated and controlled as an element in the Safety Injection Sequence. The system was designed constructed and maintained to withstand a Safe Shutdown Earthquake (SSE) utilizing the analytical, testing, evaluation methods and acceptance criteria consistent with other safety-grade systems in the plant and included within the scope of seismic related Bulletins 79-02, 79-04, 79-07, 79-14, 80-11 and Generic Letter 80-21.



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lines which are an integral part of the AFW system discharge piping will be reviewed for seismic upgrade by late 1982.

C. Electrical

The seismic qualification status of electrical systems and equipment in general, which includes that which is related to the AFW system, is described in References 3,4, and 11. Recently completed efforts to seismically upgrade electrical systems are discussed in References 5 and 6. Current programs regarding cable trays and electrical equipment are referenced in Reference 17.

D. Structural

The AFW system pumps, condensate suction piping, portions of service water suction piping, AFW discharge piping, including portions of feedwater piping associated valves and instrumentation are located in the Intermediate Building which is a seismic Class I structure (Ref.1). Other portions of the service water suction piping are located in the Service Building. The service water header system piping is installed throughout all major structures with the exception of the Containment Building. However, service water header piping in the Service Building is encased in concrete and buried below the basement floor. AFW system discharge piping not in the Intermediate Building is that feedwater system piping located in the containment building and exterior facade area.

12. Letter from J. Maier to B. Grier, November 4, 980 IE Bulletin No. 80-11 "Masonry Wall Design."
13. Letter from L. White to D. Ziemann, July 29, 1977, "Standby Auxiliary Feedwater System."
14. Letter from D. Ziemann to L. White, August 24, 1979, "Approval of Amendment 29."
15. Letter from L. White to D. Ziemann, April 3, 1979, "Systematic Evaluation Program Seismic Review."
16. Letter from L. White to D. Crutchfield, August 14, 1980 "Ginna Piping Seismic Analysis."
17. Letter from L. White to D. Crutchfield, February 6, 1981 SEP Topics III-6 and III-11, "Seismic Design Considerations."

