

TECHNICAL EVALUATION REPORT  
JOSEPH M. FARLEY UNITS 1 AND 2  
SEISMIC QUALIFICATION OF AUXILIARY FEEDWATER SYSTEM

1. INTRODUCTION

Since the accident at Three Mile Island, considerable attention has been focused on the capability of nuclear power plants to reliably remove decay heat. The NRC has recently undertaken Multiplant Action Plan C-14 "Seismic Qualification of AFW Systems" [Ref. 1], which is the subject of this evaluation.

To implement the first phase of Action Plan C-14, the NRC issued Generic Letter No. 81-14 "Seismic Qualification of AFW Systems" [Ref. 2], dated February 10, 1981, to all operating PWR licensees. This letter requested each licensee (1) to conduct a walk-down of non-seismically qualified portions of the AFW system and identify deficiencies amenable to simple actions to improve seismic resistance, and (2) to provide design information regarding the seismic capability of the AFW system to facilitate NRC backfit decisions.

The licensee of Joseph M. Farley Units 1 and 2 responded with a letter dated October 9, 1981 [Ref. 3]. The licensee's response was found not to be complete and a Request for Additional Information (RAI) was issued by the NRC, dated April 2, 1982 [Ref. 4]. The licensee provided a supplemental response in a letter dated July 16, 1982.

This report provides a technical evaluation of the information provided in the licensee's responses to the Generic Letter, and includes a recommendation regarding the need for additional analysis and/or upgrading modifications of this plant's AFW system.

## 2. EVALUATION

Information provided in licensee's responses included:

- o Specification of the overall seismic capability of the AFW system.
- o Identification of currently non-seismically qualified components of the AFW system.
- o Description of the AFW system boundary.
- o Status of compliance with seismic related NRC Bulletins and Information Notices.
- o Additionally, description of methodologies and acceptance criteria for the seismically qualified components.

We have reviewed the licensee's responses, and a point-by-point evaluation of licensee's responses against Generic Letter's requirements is provided below.

### (1) Seismic Capability of AFW system

Except for those items identified in the following, the AFW system has been designed, constructed and maintained to withstand an SSE utilizing methods and acceptance criteria consistent with that applicable to other safety-related system in the plant. Presently those items identified by the licensee as not being fully seismically qualified are evaluated below:

- o Pumps/Motors - None
- o Piping - The underground portions of the pump minimum flow recirculation lines downstream of the minimum flow orifices are not seismic Category I. However, the licensee stated in their responses that the AFW system was designed to accomplish its required function with failure of these minimum flow recirculation lines. Therefore we judge that the AFW system

pipng possesses an overall seismic capability that will withstand an SSE.

- o Valves/Actuators - None
- o Power Supplies - None
- o Water Source(s) - None
- o Initiation/Control Systems - None
- o Structures - None

Based on our evaluation described above, those areas of the AFW system judged not to possess an SSE level capability are identified below:

- |   |                                   |      |
|---|-----------------------------------|------|
| o | <u>Pumps/Motors</u>               | None |
| o | <u>Piping</u>                     | None |
| o | <u>Valves/Actuators</u>           | None |
| o | <u>Power Supplies</u>             | None |
| o | <u>Water Source(s)</u>            | None |
| o | <u>Initiation/Control Systems</u> | None |
| o | <u>Structures</u>                 | None |

In summary, our evaluation indicates that the licensee's AFW system possesses an overall seismic capability that can withstand an SSE.

Because the primary water source and supply path is seismically qualified, switchover to a secondary water source is not involved. In addition, information regarding the seismic capability of any alternate decay heat removal system is not required because the AFW system is fully seismically qualified.

Regarding the AFW system boundary, the licensee's responses stated that it fully conforms to the requirements specified in the Generic Letter.

The licensee also stated that the AFW system was included within the scope of the seismic related NRC Bulletins 79-02, 79-04, 79-07, 79-14, 80-11 and IE Information Notice 80-21. '

(2) Walk-Down of Non-Seismically Qualified Portions of AFW System

A walk-down is not required because we found that no lack of seismic qualification of the AFW system was indicated.

(3) Additional Information

The licensee's responses provided, via references to the applicable sections of the FSAR, a description of the methodologies and acceptance criteria that were used in the design of the seismic Category I components of the AFW system.

3. CONCLUSIONS

The licensee's responses provided all the information that was explicitly requested by GL 81-14. Based on this information, we conclude that the AFW system at Joseph M. Farley Nuclear Plant Units 1 and 2 will be able to provide the safety-related function following an SSE to assure safe shutdown of the plant. Therefore, we recommend that no further action be initiated regarding the need of modification/upgrading of the AFW systems of these plants under NRC Multiplant Action C-14.

## REFERENCES

1. D. G. Eisenhut, U. S. Nuclear Regulatory Commission, memorandum to H. R. Denton, "Multiplant Action Plan C-14; Seismic Qualification of Auxiliary Feedwater Systems," February 20, 1981.
2. U. S. Nuclear Regulatory Commission, Generic Letter No. 81-14 to all operating pressurized water reactor licensees, "Seismic Qualification of Auxiliary Feedwater Systems," February 10, 1981.
3. F. L. Clayton, Jr., Alabama Power Company, letter to S. A. Varga of U. S. Nuclear Regulatory Commission, "Seismic Qualification of Auxiliary Feedwater System, Joseph M. Farley Nuclear Plant Units 1 and 2," October 9, 1981.
4. S. A. Varga, U. S. Nuclear Regulatory Commission, letter to F. L. Clayton, Jr., Alabama Power Company, "Request for Additional Information on Seismic Qualification of the Auxiliary Feedwater System, Joseph M. Farley Nuclear Plant Units 1 and 2," April 2, 1982.
5. F. L. Clayton, Jr., Alabama Power Company, letter to S. A. Varga of U. S. Nuclear Regulatory Commission, "Seismic Qualification of Auxiliary Feedwater System, Joseph M. Farley Nuclear Plant Units 1 and 2," July 16, 1982.