

September 24, 1982

TECHNICAL EVALUATION REPORT
ARKANSAS NUCLEAR ONE, UNIT 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 Arkansas Nuclear One, Unit 2 responded with a letter dated August 7, 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 29, 1982 [Ref.4]. The licensee provided a supplemental response in a letter dated May 27, 1982 [Ref.5].

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 Description of methodologies and acceptance criteria for seismic design of the AFW system, which is determined to be seismically qualified to the SSE level by the licensee.
- o Description of the AFW system boundary.
- o Status of compliance with seismic related NRC Bulletin's and Information Notices.

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

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 systems in the plant. All areas of the AFW system, i.e., pumps/motors, piping, valves/actuators, power supplies, water source, instrument/control systems, and structures supporting and housing the AFW system, are seismically qualified to the SSE level.

The licensee provided a description of the methodologies and acceptance criteria used for seismic qualification of the AFW system, and referred to the applicable sections of the FSAR. The description includes seismic analysis methods, seismic input, load combinations, allowable stresses, qualification testing, and engineering evaluations performed.

Because the primary water source and supply path is seismically qualified, switchover to a secondary water source is not involved. Additional information regarding the seismic capability of any alternate decay heat removal system is not required because the AFW system currently has an SSE level of seismic capability.

Regarding the AFW system boundary, the licensee did not clarify whether the boundary fully conforms to the definitions given in the Generic Letter 81-14 with respect to branch piping being qualified out to the second valve normally closed or capable of automatic closure when function is required or to a point of three orthogonal restraints.

The licensee 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)

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

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

3. CONCLUSIONS

The information contained in licensee's responses to Generic Letter 81-14 is complete except that it did not clarify whether the AFW system boundary fully conform to the definitions of Generic Letter 81-14.

Based on the submitted information, we conclude that the AFW system is fully seismically qualified and is able to provide the safety related function following an SSE assuming that the AFW system boundary fully conform to the boundary definitions specified in GL 81-14. Therefore, we recommend that no further action be initiated regarding upgrading of the AFW systems of this plant under NRC Multiplant Action Plant 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. D. C. Trimble, Arkansas Power and Light Company, letter to D. G. Eisenhut of U.S. Nuclear Regulatory Commission, August 7, 1981.
4. USNRC, letter to Arkansas Power and Light Company, "Request for Additional Information on Seismic Qualification of the Auxiliary Feedwater System, Arkansas Nuclear One, Unit 2," April 29, 1982.
5. J. R. Marshall, Arkansas Power and Light Co., letter to R. A. Clark of USNRC, May 27, 1982.

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