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 DENTON, H.R. Office of Nuclear Reactor Regulation, Director
 STOLZ, J.F. Operating Reactors Branch 4

SUBJECT: Forwards interim rept re seismic qualification for auxiliary feedwater sys requested in 810210 ltr. Completion of evaluation is expected by 811231 w/final rept expected to be provided by 820115.

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October 16, 1981

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. J. F. Stolz, Chief
Operating Reactors Branch No. 4

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287



Dear Sir:

By letter dated February 10, 1981, the Staff requested certain information concerning the seismic qualification of the Oconee auxiliary feedwater systems. My letter of July 23, 1981 previously addressed delays associated with the preparation of the response. Because of continued manpower limitations and the extensive work necessary to evaluate the concern, the response has not been completed. It is currently expected that it will be provided by January 15, 1982.

In response to a Staff request for an interim status report of Duke efforts in this area, please find attached a discussion of the scope of work that is in progress.

I declare under penalty of perjury that the statements set forth herein are true and correct to the best of my knowledge, executed on October 16, 1981.

Very truly yours,

William O. Parker, Jr.

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Attachment

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PDR ADCK 05000269
P PDR

OCONEE EMERGENCY FEEDWATER SEISMIC QUALIFICATION REVIEW

This writeup provides an interim response to NRC's February 10, 1981 request for information on the seismic qualification of Auxiliary Feedwater Systems. The review by Duke Power is not complete at this time. Completion is expected at the end of 1981 with a submittal to be made following internal review January 15, 1982.

The Oconee Emergency Feedwater System (EFW) has been designed to withstand the Oconee Safe Shutdown Earthquake (SSE) which is equivalent to the Oconee Maximum Hypothetical Earthquake (MHE); utilizing the analytical, testing and evaluation methods consistent with other similar Oconee safety-related systems. FSAR Sections 10.2.3 and 10.2.3 identify the following portions of the EFW as being capable of withstanding the SSE:

1. Upper Surge Tanks (UST) and piping to the EFW Pump, including connected piping through the first valve (water supply and suction portion).
2. EFW Pump and Turbine and EFW piping to the Steam Generators, including connected piping through the first valve (discharge portion).
3. Main Steam lines from the Steam Generators through the Turbine stop valves, including the Main Steam Relief Valves and connected piping through the first valve (portion of EFW Pump Turbine steam supply and portion of heat sink).
4. The steam supply line from the Main Steam lines to the EFW Pump Turbine including valve AS-38 and that portion of the auxiliary steam supply downstream of the valve (EFW Pump Turbine steam supply).
5. Condenser Circulating Water (CCW) System from intake to the Low Pressure Service Water (LPSW) Pumps to the EFW Pump coolers (EFW Pump cooling).
6. Electric power for the above.

This includes the EFW System, its steam and electric power, and pump cooling water. The system is shown diagrammatically in FSAR Figures 10-2 and 10-3. The above lines were designed, purchased, and installed to Duke Piping Class F which requires compliance with ANSI B31.1.0 and seismic design. Not described in the FSAR is the recent addition of two electric-motor-driven EFW pumps and associated piping per unit. The same seismic/code Class F requirements were utilized here as for the original system.

A review of Duke drawings, piping system specifications, fabrication drawings, and safety-related lists confirm the above FSAR commitment for seismic design. The EFW system was analyzed originally as a seismic system and, more recently, the reanalyses performed for NRC IE Bulletin 79-14 verify the system's seismic capability. A description of the original seismic analysis criteria and methodology is presented in FSAR Section 1.C.3. A corresponding, but more recent, analysis has been performed to assure the seismic qualification of the motor-driven pump additions.

The individual components in the EFW system (e.g., pumps, valves, motors, actuators) have also been classified Duke Class F and were designed and procured to these seismic and code requirements as original criteria. An in-depth seismic qualification source document review has not been performed, although purchase requirements include the above specifications of code (or similar) and seismic loading.

The primary path and source of water supply from the UST is seismically designed and qualified. A secondary path from the condenser hotwell is qualified except for a small run of piping as described in the response to Request 16 in W. O. Parker's 4/3/81 letter to H. R. Denton; a summary of the procedure for switch-over from primary to secondary supply is presented in the Request 2 response in that letter.

The principal I&C for the EFW system is described in J. F. Stolz's 6/3/81 letter to W. O. Parker including Duke Power letters listed as references in the attachment. This I&C includes the automatic start feature and steam generator level control instrumentation which are designed as safety grade commensurate with other Oconee safety grade instrumentation. Control power is supplied from the vital dc instrumentation and control batteries or the vital ac instrumentation and control busses. These power supplies are described in FSAR Chapter 8 as is the emergency power supply for EFW pumps and valves.

The EFW system is located in the Reactor, Auxiliary, and Turbine Buildings. The Reactor and Auxiliary Buildings are seismic Class 1 Structures, and the Turbine Building is a seismic Class 2 Structure. These categories and their methods of analyses are described in FSAR Sections 5.1, 5.7.1, 5.7.2, and Appendix 5A.

The EFW system has been included as a seismically qualified system in Duke's evaluations and responses to NRC IE Bulletins 79-02, 79-04, 79-07, and 79-14. The system power supply is being included in the Duke investigation for NRC IE Information Notice 80-21.