

Docket 46

SEP 02 1977

Docket Nos. 50-269
50-270
and 50-287

Duke Power Company
ATTN: Mr. William O. Parker, Jr.
Vice President - Steam Production
Post Office Box 2178
422 South Church Street
Charlotte, North Carolina 28242

Gentlemen:

RE: OCONEE NUCLEAR STATION, UNITS 1, 2 & 3

The NRC staff continually reviews experience from operating reactors to assure that an adequate level of safety is maintained at each individual nuclear plant and for the total population of nuclear plants. As new technical information and operating experience becomes available, the NRC evaluates whether such information could significantly alter the previously determined levels of safety. In this regard, we have noted that there have been about 50 reported water hammer events in light water reactors some of which resulted in structural damage to safety significant systems. Of these, approximately 20 water hammers have occurred due to the rapid condensation of steam in feedwater lines in plants with Westinghouse and Combustion Engineering designed steam generators. While for the most part damage from these events has been limited to piping supports, one event in the feedwater line of a pressurized water reactor did result in a significant piping failure. None of the events to date has resulted in an adverse impact on the health and safety of the public. It is possible, however, that water hammers could lead to more severe consequences; although it would be expected that the probability of such events is very low.

Because of the continuing occurrence of water hammer events, the NRC staff has been evaluating available operating experience, actively discussing with nuclear steam supply vendors and architect/engineering firms ways of reducing the frequency and consequences of such events, and utilizing technical consultants to more definitely examine water hammer phenomena. A copy of the report of our principal consultant, CREARE, is attached (Enclosure 1) for your information.

As a result of our efforts to date, we believe that water hammers due to the rapid condensation of steam in the feedwater lines of steam generators represent a safety concern. Accordingly, licensees of facilities with

OFFICE >						
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Hestinghouse or Combustion Engineering design steam generators are being requested to take further actions, including possible design modifications, to assure an acceptably low risk to the health and safety of the public from such events. Your facility is not included in this category since it utilizes B&W steam generators which have not exhibited a propensity for water hammers based on operating experience to date.

The staff will continue to monitor operating experience to assess the possible effects of water hammer on the safety of nuclear power plants. While existing Technical Specifications contain reporting requirements applicable to water hammers, the staff has developed additional guidance regarding the type of events to be reported. Specifically, all damaging water hammer events occurring in safety-related systems, or occurring in other systems that affect safety-related systems, should be reported. A format for the reports is enclosed. Damaging water hammer events are those events that result in: (a) damage to pipe supports or pipe insulation, (b) pipe displacement, or (c) failure of pipes or components.

Approved by GAO, B-180225 (R0072), clearance expires July 31, 1980. Approval was given under a blanket clearance specifically for identified generic problems.

Sincerely,

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Enclosures:

1. Report by CREARE on
Water Hammer Phenomena
2. Format for Report

cc w/o enclosures:
See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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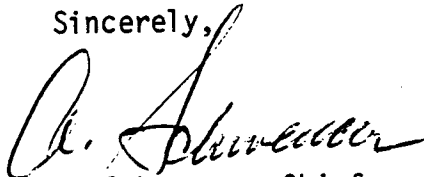
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See next page

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P. O. Box 2178
422 South Church Street
Charlotte, North Carolina 28242

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