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Alabama Power

the southern electric system

April 22, 1983

Docket Nos. 50-348
50-364

Mr. D. G. Eisenhut, Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Joseph M. Farley Nuclear Plant - Units 1 and 2
Generic Letter 83-10d and NUREG-0737 Item II.K.3.5

Dear Mr. Eisenhut:

The criteria for resolution of NUREG-0737, Item II.K.3.5, "Automatic Trip of Reactor Coolant Pumps," are stated in NRC Generic Letter 83-10d dated February 8, 1983. The Westinghouse Owners Group (WOG), of which Alabama Power Company is a member, has developed a program and schedule to address several criterion of the subject generic letter that are applicable to all Westinghouse plants. A generic submittal will be developed by the WOG that will provide technical justification for tripping the reactor coolant pumps (RCPs) during transients and accidents. For those criteria addressed by the WOG, the generic submittal will be evaluated by Alabama Power Company for applicability to the Farley Nuclear Plant. The results of this evaluation will be submitted to the NRC within 90 days of receipt of the WOG generic response. For those criteria which are plant specific (i.e., not addressed by the WOG), Alabama Power Company has provided the attached response. This attachment includes a summary of the criteria being addressed by the WOG and the response by Alabama Power Company for plant specific criteria.

The WOG generic submittal to address the requirements of Generic Letter 83-10d includes a two-part program. In the first part of the program, revised RCP trip criteria will be developed that provide an indication to the operator to trip the RCPs for small break LOCAs requiring such action but will allow continued RCP operation for steam generator tube ruptures that are less than or equal to a double-ended tube rupture. The revised RCP trip criteria will also be evaluated against other non-LOCA transients and accidents when continued RCP operation is desirable in order to demonstrate that a need to trip the RCPs will not be indicated to the operator for these conditions. The revised RCP trip criteria will be utilized in the development of Revision 1 to the Westinghouse Owners Group Emergency Response Guidelines scheduled to be completed by July 31, 1983.

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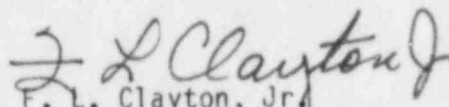
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The results of the initial program effort will be used in the second part of the program to provide justification for manual RCP tripping. The second part of the program will begin subsequent to the completion of the initial program effort and is scheduled for completion by the end of 1983.

If there are any questions regarding this letter, please advise.

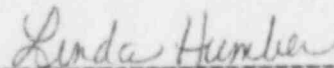
Yours very truly,


F. L. Clayton, Jr.

FLCJr/GGY:1sh-D20
Attachment

cc: Mr. R. A. Thomas
Mr. G. F. Trowbridge
Mr. J. P. O'Reilly
Mr. E. A. Reeves
Mr. W. H. Bradford

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 22nd DAY OF April, 1983



Notary Public

My Commission Expires: 1-10-87

ATTACHMENT

Detailed Response to the Criteria in Generic Letter 83-10d

I. Pump Operation Criteria Which Can Result in RCP Trip During Transients and Accidents

1. Setpoints for RCP Trip

The Alabama Power Company input regarding this section will be incorporated in Revision 1 to the Westinghouse Owners Group Emergency Response Guidelines (ERGs) scheduled for completion by July 31, 1983. Appropriate changes to the Farley Nuclear Plant Emergency Operating Procedures (EOPs) and training program will be implemented in accordance with Alabama Power Company's schedule to implement the provisions of Supplement 1 to NUREG-0737 related to EOPs.

- a) The revised RCP trip criteria will be developed to assure that the need to trip RCPs will be indicated to the operator for LOCAs where RCP tripping is considered necessary. The criteria will also ensure continued forced RCS flow for:
- 1) steam generator tube rupture (SGTR) (up to the design bases, double-ended tube rupture)
 - 2) the other non-LOCA transients where forced circulation is desirable (e.g., steam line breaks smaller than or equal to one stuck open steam dump valve)

Instrument and environmental uncertainties will be accounted for and RCP trip criteria will be included as appropriate.

No partial or staggered RCP trip schemes will be considered. Such schemes are unnecessary and increase the requirements for training, procedures and decision making by the operator during transients and accidents.

The RCP trip criteria currently being considered are:

- 1) RCS wide range pressure < constant (to be determined)
 - 2) RCS subcooling < constant (to be determined)
 - 3) RCP wide range RCS pressure < value that is a function of secondary pressure
- b) The RCP trip criteria selected will be such that the operator will be instructed to trip the RCPs before voiding occurs at the RCP.

- c) The criteria developed in Item 1a above is not expected to require RCP trip for non-LOCA and SGTR transients. Since continued RCP operation is not necessarily assumed for accident analysis, the Farley EOPs will continue to provide guidance for the use of alternate methods for RCS depressurization.
- d) The generic ERGs contain specific guidance for detecting, managing and removing coolant voids that result from flashing. The symptoms of such a situation are described in these guidelines and in detail in the background document for the guidelines. The existing Farley EOPs and training program are based on analyzed accident situations which include void formation in the reactor vessel head. Appropriate changes to the EOPs and training program resulting from Revision 1 of the generic ERGs will be incorporated in accordance with Alabama Power Company's schedule to implement the provisions of Supplement 1 to NUREG-0737 related to EOPs as discussed above.
- e) In order to maintain RCP seal integrity with pumps running or not running, Westinghouse recommends that either component cooling water to the thermal barrier heat exchanger or seal injection from the charging pumps be maintained. As a result, the Farley Nuclear Plant design does not isolate RCP seal injection flow upon a containment isolation signal. Therefore, containment isolation will not lead to seal damage or failure.
- f) Detailed response to this criteria is contained in 1a and 1c above.

2. Guidance for Justification of Manual RCP Trip

The Alabama Power Company response to this section of requirements will be addressed as part of the Westinghouse Owners Group program which is scheduled to be completed by the end of 1983. This program is dependent on the completion of the revised RCP trip criteria which is scheduled for formulation by July 31, 1983 as stated above. Alabama Power Company will review the generic program and will provide the NRC with an assessment of the applicability of the generic program to the Farley Nuclear Plant within 90 days of receipt of the WOG generic response.

- a) A significant number of analyses have been performed by Westinghouse for the Westinghouse Owners Group using the currently approved Westinghouse Appendix K Evaluation Model for small break LOCAs. These analyses, which envelope the Farley Nuclear Plant design, are documented in WCAP 9584

and 8596, dated August 1979. In addition, these analyses demonstrate for small break LOCAs of concern that manual RCP tripping at 2 minutes following the onset of reactor conditions corresponding to the RCP trip setpoint does not significantly affect the conclusions in the existing Farley FSAR. Thus the Farley FSAR documents compliance with this RCP trip criteria and 10 CFR 50.46. Allowance for instrument error is discussed in item I.1.a above.

- b) Better estimate analyses will be performed for a limiting Westinghouse designed plant to determine the minimum time available for operator action for a range of break sizes such that the acceptance criteria of 10 CFR 50.46 are not exceeded. It is expected that the minimum time available for manual RCP trip will exceed the guidance contained in Draft ANSI Standard N660.

3. Other Considerations

The Alabama Power Company response to this section is contained herein. No additional analyses or future reports are needed to address this section.

- a) At the Farley Nuclear Plant, the parameter utilized for the RCP trip setpoint is RCS Wide Range Pressure. The RCS Wide Range Pressure Instrumentation is built to stringent QA requirements established by Westinghouse for post accident monitoring equipment. This instrumentation has been identified in the Alabama Power Company environmental qualification reports that have been submitted to the NRC with testing and test conditions documented. Redundant transmitters, cable, electronic equipment and indicators are utilized. The cabling is routed in conduit from the containment building to the control room. Class 1E power supplies are utilized and the design provides for seismic mounting of this Q-listed equipment. Overall, the RCS Wide Range Pressure Instrumentation has been provided with a level of quality that assures it will be available to the operators should the need arise.
- b) The existing Farley EOPs contain guidance for the timely restart of the RCPs when conditions which will support safe pump start-up and operation are established. Additional guidance included in Revision 1 to the ERGs for restarting the RCPs will be incorporated into the Farley EOPs as appropriate in accordance with the schedule to implement the provisions of Supplement 1 to NUREG-0737 related to EOPs.

- c) The existing Farley training program includes training of the operators in their responsibilities for performing RCP tripping in the event of a small break LOCA. This training is based on the existing Farley EOPs which includes setting priorities for actions following engineered safety feature actuation. The training program will be modified to address any changes to the Farley EOPs based on Revision 1 to the Emergency Response Guidelines.

II. Pump Operation Criteria Which Will Not Result in RCP Trip During Transients and Accidents

Alabama Power Company believes that the preferred and safest method of operation following a small break LOCA is to manually trip the RCPs. Therefore, there is no need to address the criteria contained in this section.