ENCLOSURE 1

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

SAFETY EVALUATION REPORT
DUKE POWER COMPANY
OCONEE NUCLEAR STATION, UNIT NOS. 1, 2 AND 3
DOCKET NOS. 50-269, 50-270 and 50-287
CONFORMANCE TO REGULATORY GUIDE 1.97

1.0 INTRODUCTION

Duke Power Company was requested by Generic Letter 82-33 to provide a report to the NRC describing how the post-accident monitoring instrumentation meets the guidelines of Regulatory Guide (RG) 1.97 as applied to emergency response facilities. The licensee's response to RG 1.97 was provided by letters dated September 28, 1984, September 9, 1985, and February 18, 1986.

A detailed review and technical evaluation of the licensee's submittals was performed by EG&G Idaho, Inc., under contract to the NRC, with general supervision by the NRC staff. This work was reported by EG&G in the Technical Evaluation Report (TER), "Conformance to Regulatory Guide 1.97, Oconee Nuclear Station, Unit Nos. 1, 2 and 3," dated February 1987 (enclosed). We have reviewed this report and concur with the conclusion that the licensee either conforms to, or is justified in deviating from the guidance of RG 1.97 for each post-accident monitoring variable except for the variables (a) accumulator tank level and pressure, (b) pressurizer level, (c) pressurizer heater status, and (d) safety relief valve position or main steam flow.

2.0 EVALUATION CRITERIA

Subsequent to the issuance of the generic letter, the NRC held regional meetings in February and March 1983 to answer the licensee's questions and concerns

regarding NRC policy on RG 1.97. At these meetings, it was established that NRC review would only address exceptions taken to the guidance of RG 1.97. Further, where the licensee explicitly stated that instrument systems conform to the provisions of the regulatory guide, no further staff review would be necessary. Therefore, the review performed and reported by EG&G only addresses exceptions to the guidance of the regulatory guide. This safety evaluation addresses the licensee's submittals based on the review policy described in the NRC regional meetings and the conclusions of the review as reported by EG&G.

3.0 EVALUATION

We have reviewed the evaluation performed by EG&G contained in the enclosed TER and concur with its bases and findings except for the findings contained in TER section 3.3.7 concerning a) accumulator tank level and pressure. For the remaining items we agree with EG&G's findings that the licensee either conforms to or has acceptably justified deviations from the guidance of R.G. 1.97 for each post-accident monitoring variable except for the variables b) pressurizer level, c) pressurizer heater status, and d) safety relief valve position or main steam flow.

a) In TER section 3.3.7 EG&G concluded that for the variable accumulator tank level and pressure, the licensee should designate either level or pressure as the key variable to directly indicate accumulator discharge and provide instrumentation for that variable that meets the requirements of 10 CFR 50.49. The staff, however, is currently generically reviewing the need for environmentally qualified Category 2 instruments to monitor accumulator tank level and pressure. We will, therefore, report on the acceptability of this item when the generic review process is complete.

b) RG 1.97 recommends pressurizer level instrumentation with a range from the bottom to the top of the tank. The licensee has provided instrumentation that will monitor 11 to 84 percent of the tank level as a percentage of

volume. The licensee states that the monitored water volume was chosen such that the reactor coolant system can experience a reactor trip from full power without uncovering the level sensors in the lower shell and to maintain system pressure above the high pressure injection system actuation setpoint. The steam volume is chosen such that the reactor coolant system can experience a turbine trip without uncovering the level sensors in the upper shell. The licensee's analysis covers normal operation of the pressurizer and reactor trip or turbine trip. The purpose of this instrumentation as stated in RG 1.97 is to ensure proper operation of the pressurizer. It is the staff's position that pressurizer level is the key variable for this function. The licensee does not show that the existing range is adequate to remain on scale during all anticipated transient or accident conditions.

c) RG 1.97 recommends instrumentation that will monitor the current drawn by the pressurizer heaters when energized. The licensee has instrumentation that consists of on/off status lights. The licensee states that the most direct and effective measure of heater performance is reactor coolant system pressure. While the staff agrees with the reasoning presented by the licensee there is another reason for the recommended instrumentation. The heater switch in the on or off position does not indicate that the heaters are in fact energized or how many of the heaters are working. In this regard, we find the licensee's proposed exception to the guidelines of RG 1.97 unacceptable.

d) RG 1.97 recommends Category 2 instrumentation to monitor safety relief valve position or main steam flow. The licensee made a commitment to install open/closed status indication to monitor the main steam relief valves. However, a description and implementation schedule for this instrumentation has not been submitted as promised by the licensee.

4.0 CONCLUSION

Based on the staff's review of the enclosed Technical Evaluation Report and the licensee's submittals, we find that the Oconee Nuclear Station Unit Nos. 1, 2 and 3 design is acceptable with respect to conformance to RG 1.97, Revision 2, with the exception of the following variables: accumulator tank level and pressure, pressurizer level, pressurizer heater status, and safety relief valve position or main steam flow.

a) The acceptability of instrumentation for accumulator tank level and pressure will remain open pending the outcome of the staff's generic review of the need for environmentally qualified Category 2 instrumentation to monitor this variable. The staff's conclusion will be reported on when the generic review is complete.

b) It is the staff's position that the information provided by pressurizer level instrumentation is useful to an operator in the evaluation of proper pressurizer operation. Instrumentation that will remain on scale during all anticipated transient or accident conditions should be supplied for this variable. It is also the staff's position that the licensee shall provide additional analysis to support the deviation from the recommended range. This analysis should be submitted within 90 days of the receipt of this report.

c) It is the staff's position that pressurizer heater current indication is useful to the operator in determining that the heaters are in fact energized when the switch is turned on and how many heaters in the group are functioning. It is also the staff's position that the licensee shall install, and have operational, pressurizer heater current instrumentation in the control room at the first scheduled outage of sufficient duration, but no later than startup following the second refueling outage after receipt of this report.

d) It is the staff's position that the description and implementation schedule, for monitoring the main steam relief valves, promised by the licensee should be submitted so an evaluation of the proposed instrumentation can be made. This description and implementation schedule should be submitted within 60 days of the receipt of this report.

An appropriate implementation schedule will be developed by the project manager in discussions with the licensee. Once the schedule is established, the licensee is required to inform the Commission, in writing, of any significant changes in the estimated completion schedule. The licensee should also notify the NRC when the action items have actually been completed.

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