



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

Enclosure

SUPPLEMENTAL SAFETY EVALUATION
BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO ALTERNATE SHUTDOWN CAPABILITY
FLORIDA POWER & LIGHT COMPANY
ST. LUCIE PLANT, UNIT NO. 1
DOCKET NO. 50-335

1.0 INTRODUCTION

The staff's alternate shutdown capability Safety Evaluation of January 7, 1988 for St. Lucie, Unit 1 concluded that, except for two open items, the licensee's methodology for assuring safe shutdown for a fire in the control room or cable spreading room conformed with the criteria delineated in Sections III.G.3 and III.L of Appendix R to 10 CFR Part 50 and in Generic Letters 81-12 and 86-10. The two open items were (1) the lack of analysis of multiple high impedance faults, and (2) the absence of T-Hot indication on the alternate shutdown panel. The licensee responded to the open items by letter dated February 22, 1988. The staff's evaluation follows.

2.0 EVALUATION - LACK OF ANALYSIS OF MULTIPLE IMPEDANCE FAULTS

The licensee felt that an analysis of multiple high impedance faults was not deemed necessary. The licensee believed that postulating multiple high impedance faults simultaneously for branch circuits goes beyond the scope of the electrical system design. Nevertheless, the licensee believes that it is prudent to add a general note in the alternate shutdown procedures to permit restoration of essential equipment should a bus feeder breaker trip due to a fire. The note will alert plant personnel to trip loads to the affected bus prior to restoration of power to the bus, and to restart only necessary loads.

Based upon the licensee's commitment to augment the subject procedures to resolve this concern, the staff agrees that it is not necessary to perform this multiple high impedance faults analysis.

3.0 EVALUATION - ABSENCE OF T-HOT INDICATION

The indication of T-Cold is installed on the alternate shutdown panel in both St. Lucie units. In the February 22, 1988 letter, and during the

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subsequent conference call held on November 7, 1988, the licensee pointed out that the use of T-Cold indication on the alternate shutdown panel was previously accepted by the NRC.

For St. Lucie Unit 2, the acceptance was documented in the Supplement No. 3 to the Safety Evaluation Report, NUREG-0843, Section 9.5.1.6. Supplement 3 identifies the use of TE-1115 and TE-1125 which provide T-Cold indication. Supplement 3 states: "...we conclude that the instrumentation outside of the control room, and, therefore, the alternate shutdown capability, complies with the guidelines of Section III.L of Appendix R and is therefore, acceptable."

For St. Lucie Unit 1, the agreement on acceptance was arrived at during a series of meetings held between the staff and the licensee in 1982. The approval of St. Lucie Unit 1 design was documented in the NRC letter dated July 17, 1984 transmitting the Safety Evaluation upon completion of review of the alternate shutdown capability. The conclusion of the Safety Evaluation states: "Based on the staff review, it is concluded that the St. Lucie Plant, Unit No. 1 design provides one train of systems necessary to achieve and maintain safe shutdown condition by utilizing either the control room or the alternate shutdown methods, and thus meets the requirements of Appendix R to 10 CFR Part 50, Items III.G.3 and III.L with respect to safe shutdown in the event of a fire."

The acceptance was further confirmed for both St. Lucie units during the NRC's 1985 special fire protection inspection review of alternate shutdown instrumentation conducted jointly by I&E and NRR. The findings from that inspection were sent to the licensee by a letter dated April 22, 1985 which transmitted Inspection Report 85-06. The Inspection Report 85-06 states in part: "EOP 2-0030144, Alternate Shutdown Instrumentation for monitoring reactor coolant hot leg temperature was not installed at the hot shutdown panel or any other remote station. IE Notice 84-09 identifies this system process variable as being required. The licensee provided information indicating that this issue was discussed with NRR and not having T-Hot indication was acceptable to the NRC as documented in NRC meeting minutes of May 7, 1982. The licensee formally submitted letter L-82-208 dated May 17, 1982 which describes the analyses (see FSAR Section 15.3 and 15.C.4) that natural circulation maintains a close relationship between reactor coolant hot and cold leg temperatures. Several natural circulation cooldowns on Unit 1 have verified the accuracy of the above results; thus, an operator can monitor primary system conditions from the hot shutdown panel using T-Cold. The inspector discussed these issues with NRR, Auxiliary Systems Branch, who confirmed that the licensee's approach is satisfactory."

Based on the total record of this issue, the staff concludes that natural circulation flow would exist under loss of non-vital AC power. In addition, a subcooling margin difference of 46 degrees F would provide adequate margin for core cooling concerns. The T-Cold indication coupled

with the subcooling margin difference would give the operator a reasonable indication of maximum hot leg temperature. This is sufficient basis to conclude that T-Hot indication at the alternate shutdown panel is not necessary, and this open item is resolved.

4.0 CONCLUSION

Based upon the evaluations above, the two open items contained in the staff's January 7, 1988 Safety Evaluation are now considered resolved. The staff will not require (1) an analysis of multiple high impedance faults and (2) T-Hot indication on the hot shutdown panel of the St. Lucie Plant, Unit No. 1.

Dated: August 16, 1989

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