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

SUPPLEMENTAL SAFETY EVALUATION BY

THE OFFICE OF NUCLEAR REACTOR REGULATION

VERMONT YANKEE NUCLEAR POWER CORPORATION

VERMONT YANKEE NUCLEAR POWER STATION

DOCKET NO. 50-271

APPENDIX R TO 10 CFR PART 50, ITEMS III.G.3 AND III.L

FIRE PROTECTION OF SAFE SHUTDOWN CAPABILITY

In our January 13, 1983 Safety Evaluation related to Appendix R, Items III.G.3 and III.L for Vermont Yankee, we evaluated the licensee's alternate shutdown system in the event of a fire in the control room, cable spreading room (cable vault) or switchgear room. Our evaluation was based on the licensee's proposal to use the reactor core isolation cooling (RCIC) system full flow test line to permit full steam flow to the RCIC turbine to accomplish reactor depressurization and cooldown to the residual heat removal (RHR) cut-in point. The RCIC system would operate at full speed using maximum steam flow through the turbine and recirculating excess pumped water to the condensate storage tank through the test line. The licensee stated that the full steam flow would cool the reactor coolant system with 72 hours to the point where the RHR system could be placed in operation. Based on the licensee's assurance that cooldown would be accomplished in 72 hours, we concluded that the method of cooldown was acceptable.

The licensee has since determined that the rate of steam flow may not be sufficient to meet the 72-hour requirement of Appendix R, Items III.G.3 and III.L. Therefore, by letter dated May 18, 1984 the licensee proposed modifications to the alternate shutdown method to assure that the 72 hours cold shutdown requirement can be met.

The proposed modification to the alternate shutdown method for going from hot shutdown to cold shutdown will rely on one safety relief valve (SRV) for depressurization/heat removal which will be manually cycled by the operator at the RCIC control panel. The RCIC system will, as before, be used to maintain reactor vessel water level. Once the RCIC system is no longer able to provide makeup due to low steam pressure, the RHR system is placed in the shutdown cooling mode and cold shutdown is maintained.

To provide control of an SRV the licensee intends to perform repairs following a fire in the control room, cable spreading room, or switchgear room. The repairs will include cutting wires of the 125V dc two-conductor circuit for one SRV and splicing a two-conductor cable into the solenoid circuit and running it to the RCIC control panel. A single pole switch

(permanently mounted) will be wired into the solenoid circuit and tapped into the 125V dc power supply provided for the RCIC control panel. The SRV circuit and panel terminal descriptions and locations will be described in plant procedures, and dedicated repair materials will be stored at an appropriate location to perform the repair. Twenty four hours are available to perform the repair to accommodate cold shutdown, and are performed in fire areas outside the control room, cable spreading and switchgear room, they meet the requirements of Appendix R, Items III.G.3 and III.L are are, therefore, acceptable.

Based on the above, we conclude that the proposed modifications to the alternate shutdown method in the event of a fire in the control room, cable spreading room, or switchgear room meets the requirements of Appendix R, Items III.G.3 and III.L and are, therefore, acceptable.

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Dated: July 24, 1984