



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 52 TO FACILITY OPERATING LICENSE NO. DPR-23

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NO. 50-261

Introduction

By letter dated September 18, 1980 the staff issued Amendment No. 49 to License No. DPR-23 for the H. B. Robinson Steam Electric Plan, Unit No. 2. That amendment changed the Radiological Technical Specifications to reflect modifications of the plant related to degraded grid voltage protection for Class 1E equipment. The licensee (Carolina Power and Light Company) desires to further modify this protection system. In letters dated September 19, October 7, and October 17, 1980 the licensee proposed changes and corrections to the Technical Specifications related to the degraded grid voltage protection system that were approved in Amendment No. 49.

Discussion and Evaluation

A. In its letter of September 19, 1980 the licensee requested that two errors in his earlier submittals, that were reviewed during preparation of Amendment No. 49, be corrected.

1. In Table 3.5-1, Item No. 6, of the Radiological Technical Specifications, the setting limit for the loss of voltage relay, was in error.

The undervoltage relay setpoint for the emergency 480 volt buses, as well as the normal 480 volt buses, should be 328 volts + 1 volt with instantaneous response. The staff's review failed to acknowledge corrected information provided by the licensee in a letter dated July 23, 1980. In this letter the licensee corrected its earlier submittal of October 3, 1979, wherein the undervoltage instantaneous trip setting was described as being 394 volts, 82% of normal. This correction was based on the fact that all of the licensee's undervoltage protection analyses had assumed a trip point of approximately 70% of nominal voltage would afford adequate protection to plant equipment.

The use of an undervoltage trip setting for the 480V emergency bus undervoltage breaker equal to 328 volts + 1 volt is acceptable, since the trip value of the second level of undervoltage protection (degraded voltage) is higher, i.e., 412 volts + 1 volt with a time delay of 10 seconds + 0.5 seconds to preclude spurious trips.

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2. In Amendment No. 49 the new degraded voltage trip point was set at 413 volts \pm 1 volt. By letter dated September 19, 1980 the licensee requested that this setting be changed to 412 volts \pm 1 volt. The reason for this request was that the second level of undervoltage protection had been selected as 76% of a nominal 480 volts, i.e., 412.8 volts. For ease of calibration the licensee actually rounded down this value to 412 rather than 413 volts. This change does not affect the staff's evaluation as submitted in Amendment No. 49 and is, therefore, acceptable.

B. In its letter of October 7, 1980, the licensee requested changes in Item 3 in Table 3.5.3 related to Instrument Operating Conditions for Engineered Safety Features. These specifications had been required by Amendment No. 49.

The licensee requested that the minimum number of operable channels for relays protecting against loss of voltage be reduced from 2 per bus. The licensee also requested that the minimum degree of redundancy of these channels be reduced from 1 per bus to zero. The bases for these requests were twofold: there are only two relays per bus, and, when one relay is taken out of service for maintenance or testing, the plant must be placed in Hot Shutdown; and the requested change is consistent with requirements for other protective systems that have only two relays.

The staff recognizes the problems associated with dependence on two relays and we have agreed to modify this Technical Specification so that the licensee will not be required to stop operation of the plant during maintenance and testing of these channels. The new qualifying footnotes (a) and (b) for Item 3.a will allow the licensee to be dependent on only one bus per channel for limited periods of time only. Protection from undervoltage during these periods will be maintained by requiring implementation of the action statement, i.e., to place the plant in Hot Shutdown if the second channel becomes inoperable.

C. In its October 7, 1980 letter, the licensee also requested that revisions be made in Table 4.1-1. Items 32a and 32b, of the Radiological Technical Specifications. This table lists the minimum frequencies for checks, calibrations, and test of instrument channels. Items 32a and 32b relate to the channels required for undervoltage and degraded grid voltage and were added in Amendment No. 49.

The licensee states that the frequencies originally proposed in his letter of October 3, 1979 and approved by the staff in Amendment No. 49 were erroneous and should be changed to be consistent with those currently required for the channels that protect the 4kV circuits. These changes would require that the channels that protect the 480V circuits against undervoltage and degraded voltage would be tested during each refueling shutdown rather than monthly and need not be checked on any schedule.

We approve these requested changes as being consistent with existing requirements for other parts of the electrical power supply system at Robinson.

D. In its letter of October 17, 1980, the licensee requested that Item 3.b of Table 3.5-3 be revised as an interim measure to permit efficient operation of the reactor cooling pumps. This item was added in Amendment No. 49 and requires the plant to be placed in Hot Shutdown if the minimum number of channels protecting the 480V emergency bus is less than two per bus or the degree of redundancy is less than one per bus.

The licensee states that the following problem has arisen since the degraded grid voltage protection has been installed.

During extended periods of time with the reactor critical below the Power Operating Condition (less than two percent of rated power), it may be necessary to start and stop reactor coolant pumps (RCP) in order to aid in reactor coolant system temperature control. The RCPs are powered by large 4160V motors with flywheels, and draw a sizeable current during the initial start. As a result, the starting creates a momentary (10-15 seconds) voltage "dip" below the Degraded Voltage Setpoint of 412 volts. Therefore, it is necessary to be able to inhibit this feature of the Loss of Power function during the period that a pump is started. Until a permanent fix can be installed, this can be accomplished procedurally by blocking the signal which trips the normally closed feeder breaker with a temporary jumper. When the reactor is critical, operating procedures will ensure that the temporary jumper will only be in place for the time required to start the reactor coolant pumps. A key interlock switch will be installed as a permanent fix during the next extended outage pending the availability of parts and equipment.

We have reviewed the licensee's proposed method for applying a jumper to bypass the second level undervoltage trip during startup of the motors for the Reactor Coolant Pumps. The licensee has further advised us that administrative control of this action is maintained by a specific "Safety Related Jumper Control" procedure that assures attention is provided by the Shift Supervisor, Shift Foreman and the operator who installs and removes the jumper.

The Office of Inspection and Enforcement will verify that such procedures provide positive assurance that the jumper will remain installed only during the time needed to start the three RCP motors.

The licensee also advised the staff that whenever feasible the temperature of the reactor coolant will be controlled, before criticality is attained, by the use of the secondary coolant rather than by brief actuations of the RCPs.

The interim proposal is approved (and footnote (c) to Item 3 of Table 3.5-3 has been added) on the basis that the key interlock switch will be installed at the next extended outage. Such an outage is planned before the next refueling outage to make steam generator inspection.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: October 22, 1980