



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 29 TO FACILITY OPERATING LICENSE NO. DPR-66

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

PENNSYLVANIA POWER COMPANY

BEAVER VALLEY POWER STATION, UNIT NO. 1

DOCKET NO. 50-334

Introduction

By letter of May 14, 1980, Duquesne Light Company (the licensee) requested that the Technical Specifications for Beaver Valley Unit No. 1 be revised. The revision would eliminate the use of a Reactor Coolant Pump Breaker Position Trip whenever the plant was above Setpoint P-8 ($> 31\%$ of rated power). The change was requested to prevent spurious reactor trips which occur when the output of the vital bus inverters is inadvertently short-circuited.

The purpose of this review was to determine whether or not the proposed modification to the P-8 reactor trip circuitry meets the licensing guidelines of SRP 7. Specifically, this review examined the modifications to ensure that adequate justification exists for bypassing this trip and that no other trips are affected.

Discussion and Evaluation

SRP 7.2 provides guidelines for review of electrical, instrumentation, and control system (EICS) features of Reactor Trip Systems. IEEE Standard 279 and Regulatory Guide (RG) 1.53 contain single failure criteria. Redundancy and independence criteria are in IEEE Standard 279 and RG 1.6. Testing requirements are contained in IEEE Standard 279 and RG 1.118.

The P-8 permissive in the Beaver Valley Unit No. 1 reactor trip system ensures that a loss of flow in any one reactor coolant loop when reactor power is above 31% will initiate a reactor scram. This trip is initiated either by two of three low flow signals from flow instruments in each loop or by any reactor coolant pump (RCP) breaker auxiliary relays indicating that power to the pump is interrupted. Each of the three flow sensors per loop is powered from independent and redundant vital buses and requires two of three sensors to indicate low flow in order to initiate a scram. Thus, no EICS single failure will render this protective feature inoperable. However, failure of any one static inverter power supply can cause a spurious reactor trip by causing the reactor coolant pump breaker auxiliary relays to indicate that the pump has tripped. The modification to the P-8 circuitry would eliminate this input to the reactor trip system.

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The RCP breaker trip is an anticipatory trip and serves as a backup to the flow sensors. However, no credit has been taken for this trip in the Beaver Valley Unit No. 1 safety analyses. Therefore, removal of this trip has no effect on the safety analyses.

The RCP breaker trip is removed by removing the leads to an electronic "OR" gate. This action has no effect on any other trips and still allows the two of three low flow signals to initiate a scram. This modification has no effect on the independence or testability of the two of three low flow trip signals.

The removal of the RCP breaker auxiliary relays trip in the P-8 circuitry does not affect the safety analyses, does not affect the independence or testability of the remaining signals, and does not affect any other reactor trips. Therefore, the proposal meets the guidelines of SRP 7.2.

Summary

The removal of the RCP breaker auxiliary relays trips to the P-8 circuitry meets the guidelines of SRP 7.2, does not affect the safety analysis, and does not affect the operation of any other trips.

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: August 29, 1980

References

1. Final Safety Analysis Report, Beaver Valley Nuclear Station, Unit 1.
2. Duquesne Light Company letter (Dunn) to NRC (Varga) "Request for Amendment No. 46 to Operating License."