



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 83 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 dated July 14, 1983, Duquesne Light Company (the licensee) submitted Change Request No. 86, to Operating License No. DPR-66 requesting that the Technical Specifications set forth in Appendix A to the license be amended to clarify the conditions under which the safety action of channels of the protection system are manually bypassed or blocked by the protection system logic. The proposed changes are in response to the NRC Staff resolution of Multi-plant Action No. B-32, Blocked Safety Injection Signal During Cooldown. In addition the licensee has proposed changes to provide further clarification and consistency of the Technical Specifications in response to the staff review of this matter. By letters dated September 22, 1983 and July 3, 1984 the licensee provided additional information.

DISCUSSION AND EVALUATION

The Limiting Conditions for Operation (LCO's) for the protection systems are specified in Table 3.3-1 for Reactor Trip System Instrumentation and Table 3.3-3 for Engineered Safety Feature Actuation System Instrumentation of the plant Technical Specifications (TS). In Table 3.3-3, the

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Low Steamline Pressure channels used to initiate Steam Line Isolation are required to be operable in Modes 1, 2 and 3#, where # is defined by the Table Notation to indicate that the trip function may be bypassed in Mode 3 when operating below the setpoint for the P-11 interlock. The use of the notation avoids the potential for a conflict with the specified channel operability requirements when the safety action is manually bypassed. The capability to bypass the safety action of the channel is an intended feature of the design which is automatically removed by operation above the P-11 interlock setpoint.

The same notation, (#) is used in Table 3.3-3 for the High Steam Pressure Rate channels used to initiate Steam Line Isolation, however this trip function is by design only active when the aforementioned Low Steamline Pressure channels are manually bypassed. Therefore the licensee has proposed a new notation (##) to clarify the conditions under which High Steam Pressure Rate channels may be manually bypassed. This notation indicates that the trip function is bypassed above P-11, and is bypassed below P-11 when Safety Injection on low steam pressure is not manually bypassed. Since this change appropriately reflects the conditions under which the High Steam Pressure Rate channels are bypassed we find it acceptable.

The Power, Intermediate, and Source Range channels of the Reactor Trip System Instrumentation noted in Table 3.3-1 of the TS include manual bypass features using permissive interlocks P-6 and P-10. The licensee has proposed changes to appropriately note the conditions for the Applicable Modes under which these channels may be manually bypassed. Since this change clarifies bypass capability for the design of these channels we find it acceptable.

In addition to the manual bypass capability of protection system channels, permissive interlocks are used in the logic design such that the safety actions are automatically bypassed. The current Technical Specification utilizes a notation under the Functional Unit description of the Loss of Flow of Flow channels for reactor trip in Table 3.3-1 to identify permissive conditions under which the channels are active and are not automatically bypassed. For consistency the licensee has proposed changes to Tables 3.3-1 and 3.3-3 to indicate the interlock permissive associated with each protection system channel where applicable. Since this change is consistent with the design and provides further clarification of the automatic bypassing of protective actions we find it acceptable.

The reactor trip and engineered safety feature interlock permissives are summarized at the end of Tables 3.3-1 and 3.3-3 respectively indicating the condition (parameter and coincidence of channel trips required to establish the permissive condition), the channel setpoint and the interlock function. The licensee has proposed changes to Table 2.2-1, Reactor Trip System Instrumentation Trip Setpoints and Table 3.3-4, Engineered Safety Feature System Instrumentation Trip Setpoints to identify each interlock channel along with the trip setpoint and an allowable value (not presently defined) consistent with the specification of these values for channels which initiate safety actions. Also it was proposed

to identify these channels in Tables 3.3-1 and 3.3-3 with specifications for the Minimum Channels Operable, Applicable Modes, and Action statements to establish limiting conditions for operation appropriate for the operability of the permissive interlocks. Also it was proposed to identify these channels in Table 4.3-1, Reactor Trip System Instrumentation Surveillance Requirements and Table 4.3-2, Engineered Safety Feature Actuation System Instrumentation Surveillance Requirements with specifications for surveillance tests and modes in which surveillance is required. Finally it was proposed to add a description of the permissive interlocks to the Bases for Reactor Trip System Setpoints in Section 2.2, Limiting Safety System Settings and to the Bases for Instrumentation in Section B 3/4.3. Since these changes are consistent with the current guidance provided in NUREG-0452, Rev. 4, Standard Technical Specifications for Westinghouse Pressurized Water Reactors and provide further clarification of the LCO's appropriate for permissive interlock channels we find that they are acceptable.

In addition to manual bypass and automatic blocking of safety actions which have been addressed above, the logic for Safety Injection includes the capability to block (override) a safety injection signal subsequent to the automatic initiation of a safety injection. This feature has safety significance when used during the normal recovery of stable plant

conditions following an inadvertent safety injection. Under these conditions the safety injection signal is blocked by action of the reset of safety injection and remains until the P-4 interlock permissive is cleared by closing the reactor trip breakers. The present Action statement for inoperable (bypassed) safety injection logic requires that the unit be placed in hot standby within six hours and be in cold shutdown within the following 30 hours. Therefore in order to assure that Safety Injection is restored to operable status during either a return to power or plant shutdown following an inadvertent initiation of Safety Injection, an Action statement has been proposed to stipulate that the block of safety injection be removed by resetting the reactor trip breakers within one hour providing that all trip input signals have reset due to stable plant conditions. We find that this change is acceptable and appropriate for restoring the Safety Injection logic to an operable status following recovery from an inadvertent Safety Injection.

Attachment A to the licensee's letter dated July 3, 1984 identified the proposed changes to the Technical Specifications. Based on the review of these changes, the NRC staff and the licensee mutually agreed to the following modifications to the proposed changes to be included in the Technical Specifications (letter, S. A. Varga (NRC) to J. J. Carey (DLC), September 24, 1984).

1. Functional Unit No. 20 in Table 2.2-1 on reactor trip system instrumentation trip setpoints is titled Reactor Trip System Interlocks (Based on ascending power). Since the logic diagrams in the FSAR specifically note that the interlock channels are tripped on ascending power it was concluded that the parenthetical notation proposed is not necessary and therefore has been deleted. We find this is acceptable since it is consistent with the guidance in the Standard Technical Specifications.

2. The Trip Setpoint and Allowable Value for Functional Unit item 20.D, Power Range Neutron Flux, P-10 in Table 2.2-1 were indicated as greater than 9% and less than 12% Rated Thermal Power respectively. It was concluded that the Trip Setpoint should be specified as 10% Rated Thermal Power and that lower limit proposed for the trip setpoint be included under the Allowable Value column. This change has been incorporated to avoid any ambiguity in interpretation of the specified values. Since this change is consistent with the guidance in the Standard Technical Specifications we find it acceptable.

3. Some of the instrument channels identified in Table 4.3-1 on reactor trip system surveillance requirements included parenthetical notation under the functional unit description to identify permissive

interlocks associated with the automatic bypass of the safety action. Since this notation is included in Table 3.3-1 as clarification of the operability requirements of channels and does not add further to the surveillance requirements of Table 4.3-1, it has been deleted. We find this acceptable since it is consistent with the guidance in the Standard Technical Specifications.

4. In Table 3.3-3 the engineered safety feature actuation system operability requirements were clarified by the addition of the parenthetical notation (Loop Stop Valves Open) for Functional Units 1.e., Low Steamline Pressure and 7.a., Steam Generator Water Level-Low-Low. This addition is consistent with the identification permissive interlocks used in Tables 3.3-1 and 3.3-3 and is therefore, acceptable.
5. Action 36 in Table 3.3-3 was proposed to specify a time limit for unblocking of a Safety Injection signal following an inadvertent safety injection. The Action statement includes a sentence noting that manual block is permitted after safety injection and P-4 reset. In that P-4 reset removes the block this statement is not technically correct, however its purpose to permit the use of the override feature of the reset feature is implicit in the action statement itself. Therefore, this statement was deleted and is acceptable since it was neither technically correct nor necessary.

In summary, the licensee has proposed changes to the Technical Specification for Beaver Valley Unit 1 which are purely administrative to achieve consistency. Based upon this review the Staff finds that they are acceptable on the basis noted therein.

ENVIRONMENTAL CONSIDERATION

This amendment involves only changes in administrative procedure and requirements. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 51.22(c)(10). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

CONCLUSION

We have concluded, based on the considerations discussed above, that:

- (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner,
- and (2) 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.

Dated: November 13, 1984

PRINCIPAL CONTRIBUTOR:

T. Dunning