TABLE 3.2-B (Continued)

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Minimum No. of Operable Instrument Channels Per Trip System (1)	Trip Function	Trip Level Setting	Number of Instrument Channels Provided by Design	Remarks
2	Suppression Chamber HPCI Suction Level	≤ 5" above normal water level	2 Instrument Channels	Transfers HPCI pump suction to suppression chamber
1	RCIC Turbine High Flow	≤ 155 Inches $H_2O_{(2)}$	2 Instrument Channels	
2	RCIC Turbine Equipment Room High Ambient Temperature	≤ 175°F$_{(2)}$	4 Instrument Channels	
2	RCIC Vent High Differential Temperature	≤ Δ 50°F$_{(2)}$	4 Instrument Channels	
2	RCIC Steam Line Low Pressure	100 > P > 50 psig$_{(2)}$	4 Instrument Channels	
1	HPCI Turbine Steam Line High Flow	≤ 103 Inches $H_2O_{(3)}$ (Outboard Instr.) ≤ 386 Inches $H_2O_{(3)}$ (Inboard Instr.)	2 Instrument Channels	
2	Suppression Pool Area High Ambient Temperature	150°F	4 Instrument Channels	
2	Suppression Pool Area High Differential Temperature	50°F	4 Instrument Channels	
1	HPCI Leak Detection Time Delay	15 min.	2 Instrument Channels	

The HPCI high flow and temperature instrumention are provided to detect a break in the HPCI steam piping. Tripping of this instrumentation results in actuation of HPCI isolation valves. Tripping logic for the high flow is a 1 out of 2 logic.

Temperature is monitored at two (2) locations with four (4) temperature sensors at each location. Two (2) sensors at each location are powered by "A" direct current control bus and two (2) by "B" direct current control bus. Each pair of sensors, e.g., "A" or "B", at each location are physically separated and the tripping of either "A" or "B" bus sensor will actuate HPCI isolation valves.

The trip settings of 103 inches H_2O (outboard instrument) and 386 inches H_2O (inboard instrument) which correspond to 300% of design flow for high flow and 175°F and Δ45° for high temperature are such that core uncovery is prevented and fission product release is within limits.

The RCIC high flow and temperature instrumentation are arranged the same as that for the HPCI. The trip setting of 155 inches H_2O for high flow and 175° and Δ45° for temperature are based on the same criteria as the HPCI.

ENVIRONMENTAL CONSIDERATION

10 CFR 51.22(c)(9) identifies the licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration; (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; and (3) result in an increase in individual or cumulative occupational radiation exposure. Iowa Electric Light and Power has reviewed this request and determined that the proposed amendment meets the criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment. The basis for this determination follows:

Basis

The change meets the criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

1. As demonstrated in Attachment 1, the proposed amendment does not involve a significant hazards consideration.

2. The proposed trip level settings for HPCI and RCIC high steam flow isolations remain conservative with respect to the Analytic Limit of 300% of rated steam flow. The consequences of a steam line break in either system are therefore bounded by our existing analysis. Consequently, the proposed amendment will not result in a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite.

3. The proposed trip level settings will not result in an increase in individual or cumulative occupational radiation exposure. Should a steam line break occur, the resulting release would not exceed the values assumed in our existing analysis. Therefore, no increase in the corresponding radiation exposure will occur.

SAFETY ASSESSMENT

1. INTRODUCTION

By letter dated February 14, 1992, Iowa Electric Light and Power Company submitted a request for revision of the Technical Specifications, Appendix A to Operating License No. DPR-49 for the Duane Arnold Energy Center. The proposed change would revise Table 3.2-B of Technical Specification 3.2 and the associated Bases to incorporate a revised setpoint for isolation of the High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) systems on high steam flow.

Evaluation

General Electric has typically used the value 300% of normal steam flow to determine isolation setpoints for steam-driven Emergency Core Cooling Systems (ECCS). That value is less than the choke flow limit and greater than normal system startup transients. However, test results at several BWRs showed that the original method used to convert 300% of rated steam flow to a differential pressure value may produce a value which is not conservative with respect to the Analytic Limit, i.e., which exceeds 300%. As a result, General Electric issued SIL 475 which suggested that licensees recalculate the affected setpoints.

IELP has evaluated the existing setpoints and determined that, while current setpoints are conservative with respect to the Analytic Limits, an increase in the setpoints is warranted. The revised setpoints will provide additional margin between the isolation setpoints and the value of steam flow expected during system startup transients. This will reduce the likelihood of an inadvertent system isolation, thereby improving overall system reliability.

The "≤" notation is provided to ensure that this setpoint is conservatively adjusted. Use of this notation is consistent with other setpoints specified in the Technical Specifications. The refrence to a setpoint tolerance for the RCIC high steam flow isolation is no longer applicable and is being deleted.

Based on the above evaluation, we conclude that the proposed Technical Specification changes are acceptable.