



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 32 TO FACILITY OPERATING LICENSE NO. DPR-63

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-220

INTRODUCTION

By letter dated May 29, 1979 the Niagara Mohawk Power Corporation (licensee) requested an amendment to the Technical Specifications appended to Operating License No. DPR-63 for the Nine Mile Point Nuclear Station, Unit No. 1. The proposed amendment would (1) extend the applicability of the safety limit on minimum reactor vessel water level by including all modes of operation and specifically including a low-low-low water level limit which presently is the lowest point at which level in the reactor vessel can be monitored, and (2) add a Safety Limit and Limiting Condition for Operation (LCO) to require that at least two recirculation loops remain open during all modes of operation except when the reactor vessel is flooded to the level of the main steam line nozzle. This LCO assures hydraulic communication between the reactor core region and the annulus thereby ensuring indicative water level monitoring in the core region.

BACKGROUND INFORMATION

The licensee's request was initiated as a result of his review of a loss-of-feedwater transient that was experienced at the Oyster Creek Nuclear Power Plant.¹

On May 2, 1979, during the performance of the isolation condenser automatic actuation surveillance test, a false reactor high pressure scram occurred at the Oyster Creek Nuclear Generating Station. Subsequently, a turbine trip occurred on low load. This initiated an automatic transfer of power to the startup transformers. Startup transformer SA provides the power for the A feedwater train, and startup transformer SB provides power for the B & C feedwater and condensate pumps. However, SB was out of service for maintenance. When the main turbine generator tripped, power to the B & C feedwater pumps was lost. The A feedwater pump tripped because of the hydraulic transient caused by the loss of the B & C condensate. Therefore, a loss-of-feedwater transient occurred.

During the loss-of-feedwater transient all five of the recirculation loop pump discharge valves were closed and all of the two inch bypass lines were open. These

¹The staff's review and evaluation of this transient and required corrective actions is appended to letter NRC (Eisenhut), to JCP&L (Finfrock), Docket No. 50-219, dated May 30, 1979, and Safety Evaluation Supporting Amendment No. 36 to DPR-16, dated May 30, 1979.

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five bypass lines did not allow a large enough flow of water from the outside of the core region, the annulus, to the core region. As a result, the water was boiling away in the core region faster than it was being returned through the bypass lines and the water level above the core decreased below the low-low-low level alarm. When one of the recirculation loop pump discharge valves was reopened, the water flow from the annulus to the core region compensated for the water boil off in the core region increasing the water level above the low-low-low level alarm.

EVALUATION

As a result of the analysis of the May 2, 1979 event at Oyster Creek it was recognized by the licensee of the Nine Mile Point Facility that the low-low-low water level safety limit should be applied to all modes of operation when the reactor vessel contains fuel. The basis for the current Technical Specifications limit was to assure adequate margin for removing decay heat from the fuel during periods when the reactor is shutdown and corresponds to the lowest reactor vessel water level that can be monitored. The basis for the new safety limit during operation is to assure adequate margin for core heat removal during anticipated transients. It is necessary to have a measurable water level limit for the safety limit for all modes of operation. Therefore, the licensee requested that the Technical Specifications be modified to make the low-low-low water level (7 feet 11 inches below minimum normal water level) a safety limit applicable to all modes of operation. During staff review of the licensee's request, we recommended that a limiting safety system setting on low-low-low water level be included also. This was discussed with the licensee and he agreed. These changes more clearly define the safety limit and limiting safety system settings for reactor vessel water level for all modes of operation; the low-low-low water level limit is not changed; therefore, the proposed change as modified by the staff is acceptable.

The licensee also proposed to add a LCO to require that during all modes of operation except when the reactor is flooded to a level above the mainsteam nozzles or when steam separators and dryers are removed at least two (2) recirculation loop suction valves and their associated discharge valves will be in the full open position. This will assure that at all appropriate times the water in the core and in the annulus will be in hydraulic communication to preclude occurrence of an event similar to the May 2, 1979 event at Oyster Creek resulting from different levels between these regions. In order to provide appropriate action in the event that such a valve configuration is not maintained, we have also made the proposed condition a safety limit.

The event at Oyster Creek resulted in a substantial decrease in core water level because of partial isolation of all recirculation lines during the transient. The major concern is that the reactor core can be effectively isolated from its source of coolant in the annulus region. We have reviewed analysis of natural circulation through loops similar to those at Nine Mile Point (reference 1) and have also evaluated the specific Nine Mile Point forced circulation loop and reactor vessel intervals configurations. Based on our evaluation we have concluded that the proposed Technical Specification will assure adequate communication between the annulus and the core during all modes of operation including transients, and therefore, is acceptable.

¹ibid, page 1



ENVIRONMENTAL CONSIDERATIONS

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 this 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.

Dated: June 11, 1979



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