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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 113 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 1, 1989, as amended June 15, 1989, Niagara Mohawk Power Corporation (the licensee) has requested a change to Nine Mile Point Unit 1 Technical Specifications Section 3.1.8 and the associated bases. By this change, one Feedwater Pump blocking valve in one High Pressure Coolant Injection train would be closed during reactor startup when core power is equal to or less than 25% of rated thermal power. This change results from the licensee's engineering review of the feedwater transient of December 1987 that resulted from failure of a flow control valve.

EVALUATION

The NRC staff's evaluation of the licensee's request is as follows:

The High Pressure Coolant Injection (HPCI) System at Nine Mile Point Unit 1 is not an engineered safety feature. The HPCI System is a mode of the Feedwater System.

HPCI flow is provided to the core through two of the three feedwater trains which are equipped with motor driven pumps. Each train is composed of a main feedwater line and a low flow bypass line. Each of these lines is equipped with a flow control valve and a blocking valve as shown in Figure 1 of the application. During plant startup and low flow condition, the low flow control valves are ineffective to control flow due to leakage through the main flow control valves. As a result, the main flow control valves are used during startup. The low flow condition during startup causes the main flow control valves to experience excessive wear due to high pressure drop and high flow velocity. The licensee proposes to close the main feedwater line blocking valve on the feedwater train which is in operation during the initial phases of startup and to reopen this blocking valve prior to exceeding 25% rated thermal power. This change will allow control of feedwater flow through the low flow control valve which is in parallel with the closed block valve during initial phases of startup. Upon HPCI initiation, the low flow bypass valve on the operating train would close and the operator would initiate manual opening of the closed blocking valve. It would take approximately 60 seconds for this valve to open. The other feedwater train with its blocking valve open would remain available and could supply 3800 gpm of feedwater upon automatic HPCI initiation at all reactor pressures.

The HPCI system at Nine Mile Point Unit 1 is not an engineered safety feature. The HPCI system is not required to meet the 10 CFR Part 50 Appendix K requirements. It is designed to provide a reliable high pressure injection capability in the event of a small line break and minimize the need to use the Auto Depressurization System (ADS) which is an engineered safety feature system. Under accident conditions the ADS depressurizes the reactor, if necessary, to allow the Core Spray System to perform its function. The Core Spray System is the design basis system which provides makeup water capability during a LOCA.

In response to the licensee's request, the staff concludes that one Feedwater Pump blocking valve in one HPCI pump train may be closed during reactor startup when core power is equal to or less than 25% of rated thermal power.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of the facility components located within the restricted areas as defined in 10 CFR 20. The staff has determined that this amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Section 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 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 these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: December 14, 1989

PRINCIPAL CONTRIBUTOR:

Daniele Oudinot