



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 75 TO FACILITY OPERATING LICENSE NO. DPR-63

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-220

1.0 INTRODUCTION

By application dated November 3, 1985, as supplemented and clarified by letter dated November 5, 1985, Niagara Mohawk Power Corporation (NMPC, the licensee) requested emergency changes to the Nine Mile Point Nuclear Station, Unit No. 1 Technical Specifications (TS) to permit operation of the facility on a temporary basis with one emergency cooling system continuously out of service. The TS request by the licensee became necessary because a design deficiency was identified which could result in a failure to close the DC operated steam supply isolation valves in the emergency cooling systems in the event of a steam supply line break in the emergency condenser. The circumstances leading to and more details of the action are provided in Section 3.0. The staff's evaluation of the licensee's amendment request is provided below.

2.0 EVALUATION

The proposed TS changes would allow operation during the remainder of Cycle 8 with one emergency cooling system placed in a continuously inoperable status. At the conclusion of Cycle 8, modifications will be performed on the inoperable emergency cooling system to place it back in service. This system is not relied upon to function as part of the emergency core cooling system (ECCS) and is not relied upon to satisfy the requirements of Appendix A of 10 CFR Part 50. That is, although the Technical Specifications currently require two isolation condenser cooling systems to be operable, the analyses supplied by the licensee showed the current loss-of-coolant accident (LOCA) analysis (which assumes both isolation condenser systems are not functioning) to be bounding with regard to peak clad temperature.

Each of the two emergency cooling systems serves as an alternate heat sink during reactor isolation from the turbine condenser. During normal and rapid shutdown, the turbine condenser is used for cooling. If the turbine condenser is lost, one emergency cooling system can more than adequately remove heat until the normal shutdown cooling system is brought into service to bring the plant to cold shutdown.

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The two emergency cooling systems can provide a source of additional cooling during certain postulated loss of coolant accidents and plant transients. In addition, at least one emergency condenser (EC) must be operable during a postulated loss of offsite power condition in which a postulated catastrophic fire in the turbine building electrically disables both sources of onsite AC electrical power (i.e., emergency diesel generators).

The licensee has indicated in his submittal that current cycle safety analyses have included cases in which both emergency condensers are assumed to be unavailable; that these cases show the specific acceptable fuel design limits are not violated under these conditions; and that administrative controls are provided to ensure timely initiation of EC operation, should remote control be lost during a fire in the turbine buildings.

The licensee has addressed the effect of both emergency condensers being unavailable during design basis plant transients and accidents in the current Cycle 8 safety analyses. The emergency condenser steam line break and recirculation line break accidents are normally analyzed without credit for operation of the emergency condenser as part of the ECCS system since one EC is disabled by the break itself and the other is assumed to fail concurrently. Conservative analyses of main steam line and feedwater line break accidents, which assumed both ECs failed, were performed in Cycle 8 safety analyses. The peak clad temperatures calculated for these cases were below the 2200 degree F temperature limit. Based on the above, the staff believes that the conclusion in the Nine Mile Point, Unit No. 1 Final Safety Analysis Report (FSAR) regarding transient and accident analyses remains valid for a temporary operating configuration in which the steam supply to EC Number 11 is isolated. Moreover, while EC-11 is isolated and therefore "inoperable," as that term is used in the Technical Specifications, EC-11 can be put into service if needed by manual operation of the appropriate isolation valves.

The licensee has indicated that a postulated catastrophic fire in the above ground portion of the turbine building concurrent with a loss of offsite power could, under worst case conditions, disable cabling for both diesel generators and the 12-VDC valve board which powers valves on EC Number 12. Loss of offsite AC power and on-site AC power from the emergency diesel generators would necessitate the use of emergency condensers. The staff believes that the simultaneous occurrence of an extended loss of offsite power and a fire on several floors of the turbine building (E1 261' to E1 281') which disable both diesel generators (E1 261') and the 12 DC valve board (E1 291') is unlikely and reflects a conservative assumption in the licensee's Appendix R Fire Protection Analysis. In addition, the staff feels it is more likely that a fire affecting the 12-VDC valve board would not disable the Number 12 EC. This is because the motor operated isolation valves in the steam supply to EC-12 are normally open and the normally closed air (DC Solenoid) operated discharge isolation valve in EC-12 fails open on loss of DC power or air. In the remote event that the fire caused these valves to fail in a position other than as designed, EC-12 could be put into service by opening these valves.



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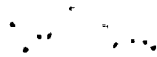
At the request of the staff the licensee has made a commitment to implement compensatory measures during the period of operation with the EG-11 steam supply isolated. The measures include the development and implementation of emergency procedures for normally opening the emergency condenser steam supply and condensate return line isolation valves to put either EC in service. All of these valves are located in the reactor building, outside primary containment and would be accessible during a severe fire in the turbine building. In addition, the licensee has established a fire watch patrol for the turbine building for these periods when the emergency condensers are inoperable. The establishment of the fire watch provides additional assurance that any fire in the turbine building would be quickly identified and brought under control, thus, further reducing the possibility of the postulated catastrophic fire.

The staff believes that the current safety analyses for Cycle 8 adequately address the consequences of postulated transients and accidents during operation with only one emergency condenser valved into service. These analyses, in conjunction with the compensatory measures proposed by the licensee for use during the period with EC-11 valved out, are sufficient justification for operation with the steam supply for emergency condenser Number 11 isolated for the balance of the current operating cycle.

3.0 EMERGENCY CIRCUMSTANCES

The emergency cooling system consists of two redundant systems or loops. Each loop has an AC and DC motor-operated isolation valve in the steam supply line. These isolation valves and motor operators will be replaced during the Spring 1986 refueling outage. In conducting the preliminary engineering for this modification, the licensee found that the cables routed to the existing DC motor operators for isolation valves 39-07 and 39-08 are of too small a gauge for the application. This results in a voltage drop at the DC motor operator. This condition was reported to Niagara Mohawk Power Corporation Licensing Group for evaluation under 10 CFR Part 21. The information initially provided indicated that if the valves did close they would do so "slowly." The preliminary evaluation indicated the condition was not reportable under Part 21 because a similar condition had been previously evaluated (i.e., emergency cooling system line rupture without isolation) and found to be within the design bases of the plant.

However, when the preliminary Part 21 evaluation was reported to management for approval, it was determined that this condition could result in a failure to meet Technical Specification requirements for valve closure in a maximum time of 38 seconds. Preliminary notification was made, on October 15, 1985, to the Nuclear Regulatory Commission Operations Center. Subsequently, the valve motor operator vendor performed calculations which indicated that under worst case conditions, with a differential pressure of 1250 psig across the valve, enough current could not be drawn to fully seat the valves (i.e., valves would not close beyond approximately 80% of full closure). On November 1, 1985, valves 39-07 and 39-08 were declared inoperable by the licensee and the Nuclear Regulatory Commission staff was informed of the status of valves 39-07 and 39-08.



There was cable on site of the correct gauge (with a low enough resistance/length) for modifying the cable supplying DC motor operated valve 39-08 to assure it closes in the required time frame. However, there was no cable of the required gauge at the site for modifying the cable supplying DC motor operated valve 39-07.

Valve 39-07 requires a cable with a lower resistance/length as the cable run is approximately twice as long as for valve 39-08 (1100 versus 500 feet) and may require physical modifications to allow installation of the new cable. Therefore, the licensee recabled the controls to DC motor-operated valve 39-08, and committed to modify the system at the March 1986 refueling outage.

The operation of the facility with one emergency cooling system continuously out of service would be contrary to the current Technical Specifications. Technical Specification 3.2.7.b indicated that "In the event any isolation valve becomes inoperable the system shall be considered operable, provided at least one valve in each line having an inoperable valve is in the mode corresponding to the isolated condition." However, if Technical Specification 3.2.7.b is complied with, this would make the emergency cooling system with DC motor-operated valve 39-07 inoperable. Therefore, a Limiting Condition for Operation (LCO) would be entered under Technical Specification 3.1.3.b which requires an inoperable emergency cooling system to be returned to an operable condition within 7 days. The facility is currently shutdown and requires an emergency change to the Technical Specifications so that resumption of power would not occur with a system in an LCO condition. The staff believes this constitutes an emergency situation since resumption of operation would be precluded if this action were not taken.

3.1.1 No Significant Hazards Consideration Determination

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards considerations if operation of the facility in accordance with the amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety.

The information in Section 2.0 above provides the basis for evaluating this license amendment against these criteria. Since the requested operational mode is acceptable and the plant operating conditions, the physical status of the plant, and dose consequences of potential accidents are the same as without the requested change, the staff concludes that:

(1) The proposed amendment, in accordance with the operation of Nine Mile Point, Unit No. 1, will not involve a significant increase in the probability or consequences of an accident previously evaluated since the proposed change to allow operation for the remainder of Cycle 8 with one emergency cooling system loop inoperable would not increase the probability of any accident previously evaluated. Since the DC motor-operated isolation valve in emergency cooling system loop No. 11 may not isolate under worst case conditions, an isolation valve will be closed and the system declared inoperable. This will ensure system isolation in the event of a pipe break in the emergency condenser steam line. It will not increase the probability of a pipe break.

(2) The proposed amendment, in accordance with the operation of Nine Mile Point, Unit No. 1, will not create the possibility of a new or different kind of accident from any accident previously evaluated since the bounding analyses for Cycle 8 were performed considering both emergency condensers out of service.

(3) The proposed amendment, in accordance with the operation of Nine Mile Point, Unit No. 1, will not involve a significant reduction in a margin of safety for the following reasons. Although the Technical Specifications currently require two isolation condenser cooling systems to be operable, the analyses supplied by the licensee showed the current loss-of-coolant accident (LOCA) analysis (which assumes both isolation condenser systems are not functioning) to be bounding with regard to peak clad temperature. Therefore, we find that continued operation in Cycle 8 does not represent a significant reduction in the margin of safety.

Based on the above analysis, the proposed amendment involves no significant hazards consideration.

3.2 State Consultation

In accordance with the regulations of New York, consultation was held with the State of New York by telephone. The State expressed no concern either from the standpoint of safety or of no significant hazards consideration determination, in view of the interim nature of the amendment and the compensatory measures.

4.0 ENVIRONMENTAL CONSIDERATIONS

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the 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 made a final no significant hazards consideration finding with respect to this amendment. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9).



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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.

5.0 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.

Principal Contributor: M. Caruso, V. Rooney and R. Hermann

Dated: November 8, 1985



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