



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 105 TO FACILITY OPERATING LICENSE NO. DPR-63
NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT NUCLEAR POWER STATION, UNIT NO. 1
DOCKET NO. 50-220

INTRODUCTION

The licensee, Niagara Mohawk Power Corporation (NMPC), by letter dated January 13, 1989, proposed Technical Specification (TS) changes which require two core spray systems (two spargers) to be operable when irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F. The Technical Specification change is proposed to comply with the assumption of two sparger operability used in the 10 CFR 50.46, Appendix K, analyses. In addition, the proposed TS provides new limiting conditions of operation for the core spray system in the cold shutdown condition. The proposed TS change provides surveillance requirements for water hammer in hot shutdown and power operation conditions. The proposed TS changes include new surveillance requirements when core spray is lined up to take suction from the condensate storage tank. The proposed TS proposes a new LCO action statement requiring suspension of operations that might drain the vessel with the core spray system inoperable. The proposed Technical Specification changes contain revisions to Sections 3.1.4 and 4.1.4 Core Spray System; Section 3.3.7 Containment Spray; and associated Bases for Sections 3.1.4, 3.3.7, and 4.1.4.

EVALUATION

The NMP-1 core spray system consists of two automatically actuated, independent systems capable of cooling reactor fuel for a range of loss-of-coolant accidents. Each of the two independent systems consists of a sparger in the Reactor Pressure Vessel (RPV) with 2 subsystems having one pump set of a core spray pump and core spray topping pump. Both spargers are assumed to be operable in the 10 CFR 50.46, Appendix K, analyses. The present Specification, LCO 3.1.4.d, allows plant operation with only one sparger. The proposed Technical Specifications will implement correctly the assumed conditions in the 10 CFR 50.46, Appendix K, analyses and hence the proposed changes are acceptable.

The core spray Technical Specifications are being revised to include less stringent Core Spray system operability requirements during Cold Shutdown and

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Refueling conditions. Only one core spray system consisting of its two subsystems of pumps is required to be operable during cold shutdown. This is consistent with Standard Technical Specification requirements for emergency core cooling system operation, and also with the fact that the probability and consequences of a loss-of-coolant accident are less during cold shutdown and refuel conditions. During Cold Shutdown and Refueling conditions, only one of the subsystems, though its single sparger, is required to provide sufficient water to adequately cool the core. Therefore the proposed change is acceptable.

A requirement is being added that the core spray pumps be lined up to take suction from the condensate storage tank (CST) with a minimum volume of 300,000 gallons available, in the event the normal core spray water source (torus) is not available. This would provide an approximate 60-minute supply of water for one core spray pump, during which time a raw water pump taking suction from Lake Ontario would be lined up and started. This would assure a continuous supply of make-up water for vessel inventory and is acceptable.

Specification 3.1.4f identified some of the potential methods of draining the reactor vessel when performing maintenance. This specification is replaced by Specifications 3.1.4g and 3.1.4h which require that all maintenance be suspended if it has the potential to cause reactor vessel drainage when a required core spray subsystem is inoperable. This is more restrictive than current specifications and is acceptable.

Because there is not a potential for a water hammer during Cold Shutdown or Refuel conditions, the change to require Surveillance Requirement 4.1.4g to be performed only when the reactor coolant temperature is greater than 212°F is acceptable.

A specific listing of the proposed changes is as follows:

1. T/S 3.1.4a is revised to indicate that this paragraph applies when the reactor coolant temperature is greater than 212°F. Paragraph d allowing for one core spray system to be out of service for seven days is deleted. Therefore reference to "d" is deleted. The proposed changes are acceptable.
2. T/S 3.1.4b is revised to reduce the period from 15 days to 7 days, a redundant component can be inoperable. This change is conservative and is in agreement with the Standard Technical Specifications Guidelines and hence is acceptable.
3. T/S 4.1.4a is revised to require both subsystems (not one) in each system to be tested for automatic actuation. This is a correction requiring all pumps to be tested during refueling outage. This is acceptable.
4. T/S 3.1.4d is deleted. This allowed plant operation with one core spray sparger out of service which was not in conformance with the assumption in the Appendix K analyses. The proposed deletion is acceptable.



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5. T/S 3.1.4e has been redesignated as 3.1.4d. Reference to 3.1.4d is deleted as 3.1.4d was deleted. The change is editorial and is acceptable. The second paragraph of e is deleted because activities impacting on vessel water level are not allowed when core spray system is inoperable.
6. T/S 3.1.4f is deleted because activities impacting on vessel water level are not allowed when core spray system is inoperable.
7. T/S 4.1.4f requires surveillance during control rod drive maintenance simultaneous with suppression chamber empty condition. This required hourly checks listed in 3.1.4f. These conditions are now deleted and will still be implemented with procedures. The changes are acceptable.

The revised 4.1.4f requires monitoring of condensate storage tank (CST) level once per day when a core spray subsystem takes suction from the CST. This is acceptable.

8. T/S 3.1.4f is deleted. The hourly checks listed will be performed by procedures. The changes are acceptable.
9. T/S 3.1.4g is 3.1.4e in the proposed version. The change is editorial and is acceptable.
10. T/S 4.1.4g is revised to require surveillance for water hammer only when coolant temperature is greater than 212°F.
11. T/S 3.1.4h is removed since its requirements are also included as a safety limit on specification 2.1.1e. 2.1.1e specifies the requirements during maintenance when the RPV level is lowered significantly. This is acceptable.
12. T/S 3.1.4i is a new specification requiring a minimum alternate core spray water inventory if the suppression chamber is dewatered. This is to assure a continuous supply of make-up water for vessel inventory. This is acceptable.
13. T/S Bases for 3.1.4 and 4.1.4 (P54) has been changed to define a core spray system and subsystem. The system design for core spray flow in both spray loops during a LOCA is identified. Application of single failure criteria is clarified. Surveillance of the core spray flow to meet 10 CFR Part 50, Appendix K, is identified. The changes are acceptable.
14. T/S Bases in 3.1.4 and 4.1.4 (P55) for the alternate core spray water source have been added. This paragraph also identifies that the back up raw water pumps be available as an infinite water source. The changes are acceptable.
15. T/S Bases for 3.1.4 and 4.1.4 (P56) first paragraph identifies that condensate in the condensate storage tanks is available when the suppression chamber is dewatered. Reference to control rod drive



maintenance is deleted. The last paragraph is changed due to deletion of 3.1.4h and to justify that flow in one core spray sparger is required during cold shutdown or refueling. The proposed changes are acceptable.

16. T/S pages 160, 161, 163, 164 requirements for the core spray system were inadvertently placed in the containment spray section when the 1974 full term operating license Technical Specifications were issued. The proposed deletions are administrative and therefore acceptable.

SUMMARY

As a result of our review, which is described in the evaluation, we conclude that the proposed Technical Specification changes are acceptable.

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 Part 20 and changes to the surveillance requirements. 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 Sec 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: May 16, 1989

PRINCIPAL CONTRIBUTOR:

G. Thomas



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