ATTACHMENT A

NIAGARA MOHAWK POWER CORPORATION

LICENSE NO. DPR-63

Proposed Changes to Technical Specifications (Appendix A)

Replace existing pages 51, 52, 53, 54, 55, 56 and 163 with the attached revised pages. These pages have been retyped in their entirety with marginal markings to indicate changes to the text. Delete pages 53a, 160, 161 and 164.

3.1.4 CORE SPRAY SYSTEM

Applicability:

Applies to the operating status of the core spray systems.

Objective:

To assure the capability of the core spray systems to cool reactor fuel in the event of a loss-of-coolant accident.

Specification:

a. Whenever irradiated fuel is in the reactor vessel and the reactor coolant temperature is greater than 212°F, each of the two core spray systems shall be operable except as specified in Specifications b and c below.

b. If a redundant component of a core spray system becomes inoperable, that system shall be considered operable provided that the component is returned to an operable condition within 7 days and the additional surveillance required is performed.

c. If a redundant component in each of the core spray systems becomes inoperable, both systems shall be considered operable provided that the component is returned to an operable condition within 7 days and the additional surveillance required is performed.

4.1.4 CORE SPRAY SYSTEM

Applicability:

Applies to the periodic testing requirements for the core spray systems.

Objective:

To verify the operability of the core spray systems.

Specification:

The core spray system surveillance shall be performed as indicated below.

a. At each major refueling outage automatic actuation of each subsystem in each core spray system shall be demonstrated.

b. At least once per quarter pump operability shall be checked.

c. At least once per quarter the operability of power-operated valves required for proper system operation shall be checked.

LIMITING CONDITION FOR OPERATION

d. If Specifications a, b and c are not met, a normal orderly shutdown shall be initiated within one hour and the reactor shall be in the cold shutdown condition within ten hours.

e. During reactor operation, except during core spray system surveillance testing, core spray isolation valves 40-02 and 40-12 shall be in the open position and the associated valve motor starter circuit breakers for these valves shall be locked in the off position. In addition, redundant valve position indication shall be available in the control room.

f. Whenever irradiated fuel is in the reactor vessel and the reactor coolant temperature is less than or equal to 212°F, two core spray subsystems shall be operable except as specified in g and h below.

g. If one of the above required subsystems becomes inoperable, restore at least two subsystems to an operable status within 4 hours or suspend all operations that have a potential for draining the reactor vessel.

SURVEILLANCE REQUIREMENT

d. Core spray header ΔP instrumentation

check	Once/day
calibrate	Once/3 months
test	Once/3 months

e. <u>Surveillance with Inoperable Components</u>

When a component becomes inoperable its redundant component or system shall be demonstrated to be operable immediately and daily thereafter.

f. With a core spray subsystem suction from the CST, CST level shall be checked once per day.

g. At least once per month when the reactor coolant temperature is greater than 212°F, verify that the piping system between valves 40-03, 13 and 40-01, 09, 10, 11 is filled with water.

h. If both of the above required subsystems become inoperable, suspend core alterations and all operations that have a potential for draining the reactor vessel. Restore at least one subsystem to operable status within 4 hours or establish secondary containment integrity within the next 12 hours.

i. With the downcomers in the suppression chamber having less than 3 ft. submergence, two core spray subsystems and the associated raw water pumps shall be operable with the core spray suction from the condensate storage tanks (CST), and the CST inventory shall not be less than 300,000 gallons.

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The 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 2 subsystems having one pump set of a core spray pump and core spray topping pump. Both systems (at least one subsystem in each system) are required to operate to limit peak clad temperatures below 2200°F (10 CFR 50 Appendix K model) for the worst case line break (recirculation line break at the point where the emergency condenser return line connects to the recirculation loop). When a component/subsystem is in a LCO state, additional surveillance requirements are imposed for the redundant component/subsystem. Consequently, application of the single failure criteria to the redundant component/subsystem is not a design requirement during the LCO period.

Allowable outage time is specified to account for redundant components that become inoperable.

Both core spray systems contain redundant supply pump sets and blocking valves. Operation of one pump set and blocking valve is sufficient to establish required delivery rate and flow path. Therefore, even with the loss of one of the redundant components, the system is still capable of performing its intended function. If a redundant component is found to have failed, corrective maintenance will begin promptly. Nearly all maintenance can be completed within a few days. Infrequently, however, major maintenance might be required. Replacement of principal system components could necessitate outages in excess of those specified. In spite of the best efforts of the operator to return equipment to service, some maintenance could require up to 6 months.

In determining the operability of a core spray system the required performance capability of its various components shall be considered. For example:

1. Periodic tests will demonstrate that adequate core cooling is provided to satisfy the core spray flow requirements used in the 10CFR 50 Appendix K analysis.

2. The pump shall be capable of automatic initiation from a low-low water level signal in the reactor vessel or a high containment pressure signal. The blocking valves shall be capable of automatically opening from either a low-low water signal or high containment pressure signal simultaneous with low reactor pressure permissive signal. (Section VII)*

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Instrumentation has been installed to monitor the integrity of the core spray piping within the reactor pressure vessel.

The testing specified for each major refueling outage will demonstrate component response upon automatic system initiation. For example, pump set starting (low-low level or high drywell pressure) and valve opening (low-low level or high drywell pressure and low reactor pressure) must function, under simulated conditions, in the same manner as the systems are required to operate under actual conditions. The only differences will be that demineralized water rather than suppression chamber water will be pumped to the reactor vessel and the reactor will be at atmospheric pressure. The core spray systems are designed such that demineralized water is available to the suction of one set of pumps in each system. (Section VII-Figure VII-1)*

The system test interval between operating cycles results in a system failure probability of 1.1×10^{-6} (Fifth Supplement, page 115) and is consistent with practical considerations. The more frequent component testing results in a more reliable system.

At quarterly intervals, startup of core spray pumps will demonstrate pump starting and operability. No flow will take place to the reactor vessel due to the lack of a low-pressure permissive signal required for opening of the blocking valves. A flow restricting device has been provided in the test loop which will create a low pressure loss for testing of the system. In addition, the normally closed power operated blocking valves will be manually opened and re-closed to demonstrate operability.

The intent of Specification 3.1.4i is to allow core spray operability at the time that the suppression chamber is dewatered which will allow normal refueling activities to be performed. With a core spray pump taking suction from the CST, sufficient time is available to manually initiate one of the two raw water pumps that provide an alternate core spray supply using lake water. Both raw water pumps shall be operable in the event the suppression chamber was dewatered.

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Based on the limited time involved in performance of the concurrent refueling maintenance tasks, procedural controls to minimize the potential and duration of leakage and available coolant makeup (CST) provides adequate protection against drainage of the vessel while the suppression chamber is drained.

Specification 3.1.4e establishes provisions to eliminate a potential single failure mode of core spray isolation valves 40-02 and 40-12. These provisions are necessary to ensure that the core spray system safety function is single failure proof. During system testing, when the isolation valve(s) are required to be in the closed condition, automatic opening signals to the valve(s) are operable if the core spray system safety function is required.

In the cold shutdown and refuel conditions, the potential for a LOCA due to a line break is much less than during operation. In addition, the potential consequences of the LOCA on the fuel and containment is less due to the lower reactor coolant temperature and pressures. Therefore, one subsystem of a core spray system is sufficient to provide adequate cooling for the fuel during the cold shutdown or refueling conditions. Therefore, requiring two core spray subsystems to be operable in the cold shutdown and refuel conditions provides sufficient redundancy.

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suppression chamber pool. Taking into account the reduced steam condensation capability and increased suppression chamber vapor pressure, the raw water cooling would not be required for more than 20 minutes for initial suppression chamber temperatures up to 110F. This assumes that all core spray systems fail. Therefore, manual initiation of the raw water system is acceptable.

Nearly all maintenance can be completed within a few days. Infrequently, however, major maintenance might be required. Replacement of principal system components could necessitate outages of more than 15 days. In spite of the best efforts of the operator to return equipment to service, some maintenance could require up to 6 months.

In conjunction with containment spray pump operation during each operating cycle, the raw water pumps and associated cooling system performance will be observed. The containment spray system shall be capable of automatic initiation from simultaneous low-low reactor water level and high containment pressure. The associated raw water cooling system shall be capable of manual actuation. Operation of the containment spray system involves spraying water into the atmosphere of the containment. Therefore, periodic system tests are not practical. Instead separate testing of automatic containment spray pump startup will be performed during each operating cycle. During pump operation, water will be recycled to the suppression chamber. Also, air tests to verify that the drywell and torus spray nozzles and associated piping are free from obstructions will be performed each operating cycle. Design features are discussed in Volume I, Section VII-B.2.0 (page VII-19*). The valves in the containment spray system are normally open and are not required to operate when the system is called upon to operate.

The test interval between operating cycle results in a system failure probability of 1.1×10^{-6} (Fifth Supplement, page 115*) and is consistent with practical considerations. Pump operability will be demonstrated on a more frequent basis and will provide a more reliable system.

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ATTACHMENT B

NIAGARA MOHAWK POWER CORPORATION

LICENSE DPR-63

DOCKET NO. 50-220

Supporting Information and No Significant Hazards Consideration Analysis

The proposed changes are: 1) to eliminate current Specification 3.1.7d, which allows operation up to seven days with an inoperable Core Spray system; 2) to indicate Specifications 3.1.4a, b, c, and d are applicable in the Hot Shutdown, Startup, and Run conditions (i.e., when reactor coolant temperature is greater than 212°F); 3) to add new Specifications 3.1.4f, g, h, and i to Section 3.1.4, which are applicable in the Cold Shutdown and Refuel Conditions; 4) to indicate that Surveillance Requirement 4.1.4g is applicable in Hot Shutdown and Power Operating conditions only; 5) to delete 3.1.7h; 6) to redesignate existing Specification 3.1.4g to be 3.1.4e; 7) to revise Specification 3.1.4f; and 8) to delete 3.3.7f.

The change to delete the section allowing operation with one Core Spray system inoperable is required because the current reload analysis requires both Core Spray systems (with one subsystem in each system) to be operable to meet Appendix K to 10 CFR 50 requirements. The Nine Mile Point Unit 1 design consists of two Core Spray systems each with two redundant loops or subsystems. The original design bases for the Core Spray required only one subsystem in one Core Spray system to be operable to provide sufficient flow to cool the core during a design basis accident. However, when the Nine Mile Point Unit 1 Emergency Core Cooling Systems (ECCS) were reanalyzed in 1975 for compliance with the then recently issued Appendix K to 10 CFR Part 50 requirements, it was assumed that a minimum of one subsystem in each Core Spray system would be operable to mitigate the consequences of the worst break accident. At that time there was no complete review of the impact of the Appendix K analysis on the Core Spray technical specifications. During the recent review of General Electric's reload 11 analysis, it was determined that a minimum of one subsystem in each Core Spray system is required to be operable. Therefore, the technical specification changes are herein proposed to require both Core Spray systems to be operable during Power Operation and Hot Shutdown conditions.

The reduction of 15 days to 7 days in Specification 3.1.4b reflects that two core spray systems are required to be functional.

Surveillance Requirement 4.1.4g is proposed to be changed to require this surveillance to be performed when core spray is required to be operable. The original Surveillance Requirement was added in Amendment No. 44 to the Nine Mile Point Unit 1 Technical Specifications. The purpose of this surveillance is to assure that the piping between the check valves 40-03 and 40-13 and the inside isolation valves is filled with water so that a water hammer does not occur during quarterly exercising of the inside isolation valves.

A water hammer might occur in the core spray piping if it is not full of water due to the pressure differences in the piping on either side of the inside isolation valves. The water hammer is most likely to occur during the quarterly surveillance test of the inside isolation valves when the core spray piping from the inside isolation valves to the reactor is at reactor pressure of approximately 1035 psig and the piping between the inside isolation valves and check valves 40-03 and 40-13 is drained.

In addition to the above changes, the core spray technical specifications are being revised to include less stringent Core Spray system operability requirements during Cold Shutdown and Refuel conditions. 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 Refuel conditions, only one loop in one of the Core Spray systems is required to provide sufficient water to adequately cool the core.

In the event the normal core spray water source (torus) is not available, the requirement was added that the core spray pumps be lined up to take suction from the condensate storage tank with a minimum volume of 300,000 gallons 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.

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.

Specification 3.1.4h was removed since its requirements are also included as a safety limit on Specification 2.1.1e.

The change in the Bases for Sections 3.1.4 and 4.1.4 deleting the reference to the backup diesel generator power should have been made when Technical Specification Amendment 55 was issued. Amendment 55 restated the definition of "Operable" to conform to the NRC model Technical Specifications. "Operable" was stated to include not only the specific component/system, but necessary supporting requirements such as emergency power sources. This eliminated the need to call out supporting functions in the Bases.

Specification 3.3.7f was erroneously included in the containment spray Limiting Conditions for Operation when the full term operating license was issued in 1974. Containment spray is required to be operable when the reactor coolant temperature is greater than 215°F. Since the suppression chamber would only be dewatered when the reactor is in an outage, the requirements of 3.3.7f properly apply to the core spray system Specification 3.1.4i.

The other changes are the redesignation of previous specifications due to the addition of the new ones. These changes are considered administrative.

As an interim measure, a Technical Specification Interpretation has been issued to administratively require both Core Spray systems to be operable when irradiated fuel is in the reactor vessel and the reactor coolant temperature is greater than 212°F as specified in the proposed Technical Specification 3.1.4a.

10 CFR 50.91 requires that at the time a licensee requests an amendment, it must provide to the Commission its analysis using the standards in Section 50.92 about the issue of no significant hazards consideration. Therefore, in accordance with 10 CFR 50.91 and 10 CFR 50.92, the following analysis has been performed:

<u>The operation of Nine Mile Point Unit 1, in accordance with the proposed amendment, will not involve a significant increase in the probability or consequences of an accident previously evaluated</u>.

The change to require both Core Spray systems to be operable when irradiated fuel is in the reactor vessel and the reactor coolant temperature is greater than 212°F will assure that the plant will be operating in accordance with analyzed conditions to meet the requirements of Appendix K to 10 CFR 50. The change will assure compliance with the Nuclear Regulatory Commission Regulations. Therefore, it does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Since 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 will not increase the probability or consequences of an accident.

Since only one Core Spray system is required to provide adequate cooling to the core in the Cold Shutdown and Refuel conditions, requiring one system or two subsystems to be operable provides adequate redundancy to assure a core spray loop is available to mitigate the consequences of an accident. Therefore, the change to require one system or one subsystem in each Core Spray system to be operable during Cold Shutdown or Refuel conditions will not increase the probability or consequences of an accident previously evaluated.

The change to redesignate existing specifications is administrative in nature and has no impact on the probability or consequences of an accident previously evaluated.

<u>The operation of Nine Mile Point Unit 1, in accordance with the proposed amendment, will not create the possibility of a new or different kind of accident from any accident previously evaluated</u>.

The proposed changes do not involve any changes to the plant or changes in test practices. The changes will reduce allowable out-of-service times for the Core Spray system. The change to Surveillance Requirement 4.1.4g will allow the core spray keep fill system to be inoperable when the reactor coolant temperature is less than or equal to 212°F when it is not required to prevent an accident or transient. Therefore, the proposed changes cannot create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed change regarding the redesignation of specifications is administrative and will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The operation of Nine Mile Point Unit 1, in accordance with the proposed amendment, will not involve a significant reduction in a margin of safety.

The proposed changes are being made to assure that there is adequate redundancy in the Core Spray system operability to assure that a Core Spray system is available to mitigate the consequences of an accident. Therefore, the proposed amendment will not result in a reduction in a margin of safety. It assures that the existing margins of safety are maintained. The changes involving the redesignation of the existing technical specification sections are administrative in nature and have no impact on a margin of safety.