ATTACHMENT A

NIAGARA MOHAWK POWER CORPORATION

LICENSE NO. NPF-69

DOCKET NO. 50-410

Proposed Changes to Technical Specifications

Replace existing pages 2-1, B2-1, B2-3, and 3/4 4.1 with the attached pages 2-1, B2-1, B2-3, and 3/4 4.1. These pages have been retyped in their entirety with marginal markings to indicate the changes. Page 3/4 4.1 has been proposed for revision with Letter NMP2L 1186 dated 1/13/89 and NMP2L 1214 dated 11/9/89. A separate page 3/4 4.1 is included which shows the proposed changes incorporated in Letter NMP2L 1214 and the changes proposed with this submittal since these changes will be needed to support the unit restart from the spring 1990 refueling outage.

(7952G)

BASES TABLE B2.1.2-1

UNCERTAINTIES USED IN THE DETERMINATION

OF THE FUEL CLADDING SAFETY LIMIT*

QUANTITY	STANDARD DEVIATION (% OF POINT)
Feedwater Flow	1.76
Feedwater Temperature	0.76
Reactor Pressure	0.5
Core Inlet Temperature	0.2
Core Total Flow	
Two Recirculation Loop Operation	2.5
Single Recirculation Loop Operation	6.0
Channel Flow Area	3.0
Friction Factor Multiplier	10.0
Channel Friction Factor Multiplier	5.0
TIP Readings	
Two Recirculation Loop Operation	8.7
Single Recirculation Loop Operation	9.1
R Factor	1.6
Critical Power	3.6

* The uncertainty analysis used to establish the corewide Safety Limit MCPR is based on the assumption of quadrant power symmetry for the reactor core. The values herein apply to both two recirculation loop operation and single recirculation loop operation, except as noted.

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.1 SAFETY LIMITS

THERMAL POWER, Low Pressure or Low Flow

2.1.1 THERMAL POWER shall not exceed 25% of RATED THERMAL POWER with the reactor vessel steam dome pressure less than 785 psig or core flow less than 10% of rated flow.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With THERMAL POWER exceeding 25% of RATED THERMAL POWER and the reactor vessel steam dome pressure less than 785 psig or core flow less than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours and comply with the requirements of Specification 6.7.

THERMAL POWER, High Pressure and High Flow

2.1.2 The MINIMUM CRITICAL POWER RATIO (MCPR) shall not be less than 1.07 with two recirculation loop operation and shall not be less than 1.08 with single recirculation loop operation with the reactor vessel steam dome pressure greater than 785 psig and core flow greater than 10% of rated flow.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With MCPR less than 1.07, with two recirculation loop operation or less than 1.08 with single loop operation, the reactor vessel steam dome pressure greater than 785 psig, and core flow greater than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours and comply with the requirements of Specification 6.7.

REACTOR COOLANT SYSTEM PRESSURE

2.1.3 The reactor coolant system pressure, as measured in the reactor vessel steam dome, shall not exceed 1325 psig.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, and 4.

ACTION:

With the reactor coolant system pressure as measured in the reactor vessel steam dome above 1325 psig, be in at least HOT SHUTDOWN with reactor coolant system pressure less than or equal to 1325 psig within 2 hours and comply with the requirements of Specification 6.7.

REACTOR VESSEL WATER LEVEL

2.1.4 The reactor water level shall be above the top of the active irradiated fuel.

2.1.0 INTRODUCTION

The fuel cladding, reactor pressure vessel, and primary system piping are the principal barriers to the release of radioactive materials to the environs. Safety Limits are established to protect the integrity of these barriers during normal plant operations and anticipated transients. The fuel cladding integrity Safety Limit is set so that no fuel damage is calculated to occur if the limit is not violated. Because fuel damage is not directly observable, a step-back approach is used to establish a Safety Limit so that the MCPR is not less than 1.07 for two recirculation loop operation and 1.08 for single recirculation loop operation. MCPR greater than 1.07 for two recirculation loop operation and 1.08 for single recirculation loop operation represents a conservative margin relative to the conditions required to maintain fuel cladding integrity. The fuel cladding is one of the physical barriers that separate the radioactive materials from the environs. The integrity of this cladding barrier is related to its relative freedom from perforations or cracking. Although some corrosion or use-related cracking may occur during the life of the cladding, fission product migration from this source is incrementally cumulative and continuously measurable. Fuel cladding perforations, however, can result from thermal stresses that occur from reactor operation significantly above design conditions and the Limiting Safety System Settings. Although fission product migration from cladding perforation is just as measurable as that from use-related cracking, the thermally caused cladding perforations signal a threshold beyond which still greater thermal stresses may cause gross rather than incremental cladding deterioration. Therefore, the fuel cladding Safety Limit is defined with a margin to the conditions that would produce onset of transition boiling, MCPR of 1.0. These conditions represent a significant departure from the condition intended by design for planned operation.

2.1.1 THERMAL POWER, Low Pressure or Low Flow

The use of GEXL correlation is not valid for all critical power calculations at pressures below 785 psig or core flows less than 10% of rated flow. Therefore, the fuel cladding integrity Safety Limit is established by other means. This is done by establishing a limiting condition on core THERMAL POWER with the following basis. Since the pressure drop in the bypass region is essentially all elevation head, the core pressure drop at low power and flows will always be greater than 4.5 psi. Analyses show that with a bundle flow of 28 x 10^3 lb/hr, bundle pressure drop is nearly independent of bundle power and has a value of 3.5 psi. Thus, the bundle flow with a 4.5-psi driving head will be greater than 28 x 10^3 lb/hr. Full-scale ATLAS test data taken at pressures from 14.7 psia to 800 psia indicate that the fuel assembly critical power at this flow is approximately 3.35 MWt. With the design peaking factors, this corresponds to a THERMAL POWER of more than 50% of RATED THERMAL POWER. Thus, a THERMAL POWER limit of 25% of RATED THERMAL POWER for reactor pressure below 785 psig is conservative.

3/4.4 REACTOR COOLANT SYSTEM

3/4.4.1 RECIRCULATION SYSTEM

RECIRCULATION LOOPS

LIMITING CONDITIONS FOR OPERATION

3.4.1.1 Two reactor coolant system recirculation loops shall be in operation with:

a. Total core flow greater than or equal to 45% of rated core flow, or
b. THERMAL POWER within the unrestricted zone of Figure 3.4.1.1-1.

APPLICABILITY: OPERATIONAL CONDITIONS 1* and 2*.

ACTION:

a. With one reactor coolant system recirculation loop not in operation:

  1. Within four hours:

    a) Place the recirculation flow control system in the Loop Manual (Position Control) mode, and

    b) Reduce THERMAL POWER to ≤ 70% of RATED THERMAL POWER, and,

    c) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Safety Limit by 0.01 to 1.08 per Specification 2.1.2, and,

    d) Reduce the Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) limit to a value of 0.81 times the two recirculation loop operation limit per Specification 3.2.1, and,

    e) Reduce the Average Power Range Monitor (APRM) Scram and Rod Block and Rod Block Monitor Trip Setpoints and Allowable Values to those applicable for single recirculation loop operation per Specifications 2.2.1, 3.2.2 and 3.3.6.

    f) Reduce the volumetric flow rate of the operating recirculation loop to ≤ 41,000** gpm.

* See Special Test Exception 3.10.4.

** This value represents the design volumetric recirculation loop flow which produces 100% core flow at 100% THERMAL POWER. The actual value will be established during the Startup Test Program.

3/4.4 REACTOR COOLANT SYSTEM

3/4.4.1 RECIRCULATION SYSTEM

RECIRCULATION LOOPS

LIMITING CONDITIONS FOR OPERATION

3.4.1.1 Two reactor coolant system recirculation loops shall be in operation with:

a. Total core flow greater than or equal to 45% of rated core flow, or
b. THERMAL POWER within the unrestricted zone of Figure 3.4.1.1-1.

APPLICABILITY: OPERATIONAL CONDITIONS 1* and 2*.

ACTION:

a. With one reactor coolant system recirculation loop not in operation:

   1. Within four hours:

      a) Place the recirculation flow control system in the Loop Manual (Position Control) mode, and

      b) Reduce THERMAL POWER to ≤ 70% of RATED THERMAL POWER, and,

      c) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Safety Limit by 0.01 to 1.08 per Specification 2.1.2, and,

      d) Reduce the Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) limit per Specification 3.2.1, and,

      e) Reduce the Average Power Range Monitor (APRM) Scram and Rod Block and Rod Block Monitor Trip Setpoints and Allowable Values to those applicable for single recirculation loop operation per Specifications 2.2.1, 3.2.2 and 3.3.6.

      f) Reduce the volumetric flow rate of the operating recirculation loop to ≤ 41,000** gpm.

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* See Special Test Exception 3.10.4.

** This value represents the design volumetric recirculation loop flow which produces 100% core flow at 100% THERMAL POWER. The actual value will be established during the Startup Test Program.

ATTACHMENT B

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Supporting Information and No Significant Hazards Consideration Analysis

Nine Mile Point Unit 2, during fuel cycle 2 commencing after the planned Spring 1990 refueling outage, will reload with some General Electric prepressurized fuel bundles designated as GE8X8NB. General Electric obtained NRC review and approval of the GE8X8NB type fuel in Topical Report "General Electric Standard Application for Reactor Fuel" (GESTAR II) NEDE-24011-P-A-9-US. NEDE-24011-P-A-US requires that the Safety Limit Minimum Critical Power Ratio (MCPR) to be increased from 1.06 to 1.07 because of intra-assembly power peaking distribution. In addition, the Safety Limit MCPR is required to be increased by 0.01 when the plant is operating with one recirculation loop. Therefore the single recirculation loop Safety Limit MCPR must be increased from 1.07 to 1.08.

The change proposed for cycle 2 operation is the same as that required for the initial core bundles that will be reused in cycle 2. This increase in the Safety Limit MCPR is required because of increase in uncertainty values used in the calculational model for TIP readings and R Factor (local bundle power peaking factor).

Compliance with the revised Safety Limit MCPR's will assure the validity of the statistical determination that 99.9 percent of the fuel rods would not be expected to experience transition boiling during transient events.

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 10 CFR 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.

The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not involve a significant increase in the probability or consequences of an accident previously evaluated.

This change in the Safety Limit MCPR maintains the original design margins for transient events during fuel cycle 2 as for the initial core. The reload fuel design using GE 8X8NB fuel type was reviewed and approved by the NRC staff with a requirement to increase the Safety Limit MCPR so that 99.9 percent of the fuel rods would not be expected to experience transition boiling for any analyzed transient. The increase in the Safety Limit MCPR for GE 8X8NB fuel is consistent with the limit that would be proposed for the initial core fuel bundles that will be reused in cycle 2.

Since the change maintains the margins available in the original analysis, there is no increase in the probability or consequences of an accident previously evaluated.

The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes assure that fuel cycle 2 will have the same safety margins as the initial core. In addition the design of the new reload fuel (GE 8X8NB) has been reviewed and approved for use in Boiling Water Reactors by the NRC. Consequently, the use of the new type fuel in cycle 2 does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not involve a significant reduction in a margin of safety.

The proposed revision to the Technical Specifications maintains the original fuel design safety margins for operational excursions resulting from transient events. Since the original margins are conservative and are being maintained, there is no reduction in a margin of safety resulting from the use of GE8X8NB type fuel.

Based on the above analysis, there is no reduction in nuclear safety as a result of implementing these proposed Technical Specification changes.