ATTACHMENT A

NIAGARA MOHAWK POWER CORPORATION

LICENSE NO. NPF-69

DOCKET NO. 50-410

Proposed Changes to Technical Specifications

Replace existing pages 3/4 4-1, 4-2, 4-3, 4-6, 4-7, 4-8, 4-9, B3/4 4-1, and B3/4 4-2 with the attached revised pages. These pages have been retyped in their entirety with marginal markings to indicate the changes.

Page 3/4 4-2 contains revisions submitted in NMP2L 1142 (TAC #68463) as a response to Generic Letter 87-09. An additional copy of page 3/4 4-2, without the revisions submitted in NMP2L 1142, is provided at the back of Attachment A.

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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 1.07 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 drive flow rate of the operating recirculation loop to ≤ 41,800** gpm.

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* See Special Test Exception 3.10.4.

** This value represents the volumetric recirculation loop drive flow which produces 100% core flow at 100% THERMAL POWER.

LIMITING CONDITIONS FOR OPERATION (Continued)

g) Perform Surveillance Requirement 4.4.1.1.2 if THERMAL POWER is ≤ 30%* of RATED THERMAL POWER or the jet pump loop flow in the operating loop is ≤ 50%* of rated jet pump loop flow.

2. Otherwise be in at least HOT SHUTDOWN within the next 12 hours.

b. With no reactor coolant system recirculation loops in operation, immediately initiate action to reduce THERMAL POWER such that it is not within the restricted zone of Figure 3.4.1.1-1 within two hours, and initiate measures to place the unit in at least STARTUP within six hours and in HOT SHUTDOWN within the next six hours.

c. With one or two reactor coolant system recirculation loops in operation and total core flow less than 45% but greater than 39%** of rated core flow and THERMAL POWER within the restricted zone of Figure 3.4.1.1-1:

1. Determine the APRM and LPRM*** noise levels per Specification 4.4.1.1.1:

   a) At least once per eight hours, and

   b) Within 30 minutes after the completion of a THERMAL POWER increase of at least 5% of RATED THERMAL POWER.

2. With the APRM or LPRM*** neutron flux noise levels greater than three times their established baseline noise levels, within 15 minutes initiate corrective action to restore the noise levels within the required limits within two hours by increasing core flow or by reducing THERMAL POWER.

d. With one or two reactor coolant system recirculation loops in operation and total core flow ≤ 39%** and THERMAL POWER within the restricted zone of Figure 3.4.1.1-1, within 15 minutes initiate corrective action to reduce THERMAL POWER to within the unrestricted zone of Figure 3.4.1.1-1 or increase core flow to > 39%** within 4 hours.

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* Final values were determined during Startup Testing based upon the actual THERMAL POWER and jet pump loop flow which will sweep the cold water from the vessel bottom head preventing stratification.

** Core flow which is equivalent to minimum core flow for 2 recirculation pumps at high speed with minimum flow control valve position.

*** Detector levels A and C of one LPRM string per core octant plus detectors A and C of one LPRM string in the center of the core should be monitored.

REACTOR COOLANT SYSTEM

RECIRCULATION SYSTEM

RECIRCULATION LOOPS

SURVEILLANCE REQUIREMENTS

4.4.1.1.1 With one reactor coolant system recirculation loop not in operation, at least once per 12 hours verify that:

a. Reactor THERMAL POWER is ≤ 70% of RATED THERMAL POWER,

b. The recirculation flow control system is in the Loop Manual (Position Control) mode,

c. The volumetric drive flow rate of the operating loop is ≤ 41,800 gpm,* and

d. Core flow is > 39%** when THERMAL POWER is within the restricted zone of Figure 3.4.1.1-1.

4.4.1.1.2 With one reactor coolant system recirculation loop not in operation, within no more than 15 minutes prior to either THERMAL POWER increase or jet pump loop flow increase, verify that the following differential temperature requirements are met if THERMAL POWER is ≤ 30%*** of RATED THERMAL POWER or the recirculation jet pump loop flow in the operating recirculation loop is ≤ 50%*** of rated jet pump loop flow:

a. ≤ 145°F between reactor vessel steam space coolant and bottom head drain line coolant,

b. ≤ 50°F between the reactor coolant within the loop not in operation and the coolant in the reactor pressure vessel, and

c. ≤ 50°F between the reactor coolant within the loop not in operation and the operating loop.

The differential temperature requirements of Specification 4.4.1.1.2 b. and c. do not apply when the loop not in operation is isolated from the reactor pressure vessel.

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* This value represents the volumetric recirculation loop drive flow which produces 100% core flow at 100% THERMAL POWER.

** Core flow which is equivalent to minimum core flow for 2 recirculation pumps at high speed with minimum flow control valve position.

*** Final values were determined during Startup Testing based upon the actual THERMAL POWER and jet pump loop flow which will sweep the cold water from the vessel bottom head preventing stratification.

REACTOR COOLANT SYSTEM

RECIRCULATION SYSTEM

JET PUMPS

LIMITING CONDITIONS FOR OPERATION

3.4.1.2 All jet pumps shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With one or more jet pumps inoperable, be in at least HOT SHUTDOWN within 12 hours.

SURVEILLANCE REQUIREMENTS

4.4.1.2 All jet pumps shall be demonstrated operable as follows:

a. Each of the above required jet pumps shall be demonstrated OPERABLE within 24 hours after THERMAL POWER exceeds 25% of RATED THERMAL POWER and at least once per 24 hours while greater than 25% of RATED THERMAL POWER, by determining jet pump loop flow, recirculation loop drive flow, flow control valve position, and diffuser-to-lower plenum differential pressure for each jet pump and verifying that no two of the following conditions occur when both recirculation jet pump loop indicated flows are in compliance with Specification 3.4.1.3.

    1. The indicated jet pump loop flow differs by more than 10% from the established* flow control valve position-jet pump loop flow characteristics.

    2. The indicated jet pump loop flow differs by more than 10% from the established* jet pump loop flow-recirculation loop drive flow characteristic for the loop.

    3. The indicated diffuser-to-lower plenum differential pressure of any individual jet pump differs from established* patterns by more than 20%.

b. During single recirculation loop operation, each of the jet pumps in the operating loop shall be demonstrated OPERABLE within 24 hours after THERMAL POWER exceeds 25% of RATED THERMAL POWER and at least once per 24 hours while greater than 25% of RATED THERMAL POWER, by determining jet pump loop flow, recirculation loop drive flow, flow control valve position, and diffuser-to-lower plenum differential pressure for each jet pump and verifying that no two of the following conditions occur:

    1. The indicated jet pump loop flow in the operating loop differs by more than 10% from the established* single recirculation loop control valve position-loop flow characteristics.

    2. The indicated jet pump loop flow differs by more than 10% from the established* jet pump loop flow-recirculation loop drive flow characteristic for the operating loop.

* Determined during the startup test program.

SURVEILLANCE REQUIREMENTS (Continued)

3. The indicated diffuser-to-lower plenum differential pressure of any individual jet pump differs from established* single recirculation loop patterns by more than 20%.

c. The provisions of Specification 4.0.4 are not applicable provided that this surveillance is performed within 24 hours after exceeding 25% of RATED THERMAL POWER.

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* Determined during the startup test program.

REACTOR COOLANT SYSTEM

RECIRCULATION SYSTEM

RECIRCULATION LOOP FLOW

LIMITING CONDITIONS FOR OPERATION

3.4.1.3 Jet pump loop flow mismatch shall be maintained within:

a. 5% of rated core flow with effective core flow* greater than or equal to 70% of rated core flow.

b. 10% of rated core flow with effective core flow* less than 70% of rated core flow.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2 during two recirculation loop operation.**

ACTION:

With the jet pump loop flows different by more than the specified limits, either:

a. Restore the jet pump loop flows to within the specified limit within 2 hours, or

b. Shut down one of the recirculation loops and take the ACTION required by Specification 3.4.1.1.

SURVEILLANCE REQUIREMENTS

4.4.1.3 Jet pump loop flow mismatch shall be verified to be within the limits at least once per 24 hours.

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* Effective core flow shall be the core flow that would result if both jet pump loop flows were assumed to be at the smaller value of the two jet pump loop flows.

** See Special Test Exception 3.10.4.

REACTOR COOLANT SYSTEM

RECIRCULATION SYSTEM

IDLE RECIRCULATION LOOP STARTUP

LIMITING CONDITIONS FOR OPERATION

3.4.1.4 An idle recirculation loop shall not be started unless the temperature differential between the reactor pressure vessel steam space coolant and the bottom head drain line coolant is less than or equal to 145°F, and:

a. When both loops have been idle, unless the temperature differential between the reactor coolant within the idle loop to be started up and the coolant in the reactor pressure vessel is less than or equal to 50°F, or

b. When only one loop has been idle, unless the temperature differential between the reactor coolant within the idle and operating recirculation loops is less than or equal to 50°F and the operating jet pump loop flow is less than or equal to 50% of rated jet pump loop flow.

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

ACTION:

With temperature differences and/or jet pump loop flow rates exceeding the above limits, suspend startup of any idle recirculation loop.

SURVEILLANCE REQUIREMENTS

4.4.1.4 The temperature differentials and jet pump loop flow rate shall be determined to be within the limits within 15 minutes before startup of an idle recirculation loop.

3/4.4 REACTOR COOLANT SYSTEM

BASES

3/4.4.1 RECIRCULATION SYSTEM

The impact of single recirculation loop operation upon plant safety is assessed and shows that single-loop operation is permitted if the MCPR fuel cladding safety limit is increased as noted by Specification 2.1.2, APRM scram and control rod block setpoints are adjusted as noted in Tables 2.2.1-1 and 3.3.6-2, respectively, MAPLHGR limits are decreased by the factor given in Specification 3.2.1, and MCPR operating limits are adjusted per Section 3/4.2.3.

Additionally, surveillance on the volumetric drive flow rate of the operating recirculation loop is imposed to exclude the possibility of excessive core internals vibration. Drive flow is the flow rate for the recirculation pump in the operating loop. The surveillance on differential temperatures below 30% THERMAL POWER or 50% rated jet pump loop flow is to mitigate the undue thermal stress on vessel nozzles, recirculation pump and vessel bottom head during the extended operation of the single recirculation loop mode. Jet pump loop flow is the sum of the flows through the 10 jet pumps in one loop. Core flow is the sum of the two jet pump loop flows.

The objective of GE BWR plant and fuel design is to provide stable operation with margin over the normal operating domain. However, at the high-power/low-flow corner of the operating domain, a small probability of limit cycle neutron flux oscillations exists, depending on combinations of operating conditions (e.g., rod pattern, power shape). To provide assurance that neutron flux limit cycle oscillations are detected and suppressed, APRM and LPRM neutron flux noise levels should be monitored while operating in this region.

Stability tests at operating BWRs were reviewed to determine a generic region of the power/flow map in which surveillance of neutron flux noise levels should be performed. A conservative decay ratio of 0.6 was chosen as the basis for determining the generic region for surveillance to account for the plant-to-plant variability of decay ratio with core and fuel designs. This generic region has been determined to correspond to a core flow of less than or equal to 45% of rated core flow and a THERMAL POWER greater than that specified in Figure 3.4.1.1-1.

Plant-specific calculations can be performed to determine an applicable region for monitoring neutron flux noise levels. In this case, the degree of conservatism can be reduced since plant-to-plant variability would be eliminated. In this case, adequate margin will be assured by monitoring the region which has a decay ratio greater than or equal to 0.8.

Neutron flux noise limits are also established to ensure early detection of limit cycle neutron flux oscillations. BWR cores typically operate with neutron flux noise caused by random boiling and flow noise. Typical neutron

RECIRCULATION SYSTEM

3/4.4.1 (continued)

flux noise levels between 1% and 12% of rated power (peak-to-peak) have been reported for the range of low to high recirculation loop flow during both single and dual recirculation loop operation. Neutron flux noise levels which significantly bound these values are considered in the thermal/mechanical design of GE BWR fuel and are found to be of negligible consequence. In addition, stability tests at operating BWRs have demonstrated that when stability-related neutron flux limit cycle oscillations occur, they result in peak-to-peak neutron flux limit cycles of 5 to 10 times the typical values. Therefore, actions taken to reduce neutron flux noise levels exceeding three times the typical value are sufficient to ensure early detection of limit cycle neutron flux oscillations.

Typically, neutron flux noise levels show a gradual increase in absolute magnitude as core flow is increased (constant control rod pattern) with two reactor recirculation loops in operation. Therefore, the baseline neutron flux noise level obtained at a specified core flow can be applied over a range of core flows. To maintain a reasonable variation between the low-flow and high-flow end of the flow range, the range over which a specific baseline is applied should not exceed 20% of rated core flow with two recirculation loops in operation. Data from tests and operating plants indicate that a range of 20% of rated core flow will result in approximately a 50% increase in neutron flux noise level during operation with two recirculation loops. Baseline data should be taken near the maximum rod line at which the majority of operation will occur. However, baseline data taken at lower rod lines (i.e., lower power) will result in a conservative value since the neutron flux noise level is proportional to the power level at a given core flow.

An inoperable jet pump is not, in itself, a sufficient reason to declare a recirculation loop inoperable, but it does, in case of a design-basis accident, increase the blowdown area and reduce the capability of reflooding the core; thus, the requirement for shutting down the facility when a jet pump is inoperable. Jet pump failure can be detected by monitoring jet pump performance on a prescribed schedule for significant degradation.

Jet pump loop flow mismatch limits are in compliance with the ECCS LOCA analysis design criteria for two recirculation loop operation. The limits will ensure an adequate core flow coastdown from either recirculation loop after a LOCA. In the case where the mismatch limits cannot be maintained during two loop operation, continued operation is permitted in a single recirculation loop mode.

In order to prevent undue stress on the vessel nozzles and bottom head region, the recirculation loop temperatures shall be within 50°F of each other before startup of an idle loop. The loop temperature must also be within 50°F of the reactor pressure vessel coolant teamperature to prevent thermal shock to the

LIMITING CONDITIONS FOR OPERATION (Continued)

g) Perform Surveillance Requirement 4.4.1.1.2 if THERMAL POWER is ≤ 30%* of RATED THERMAL POWER or the jet pump loop flow in the operating loop is ≤ 50%* of rated jet pump loop flow.

2. The provisions of Specification 3.0.4 are not applicable.

3. Otherwise be in at least HOT SHUTDOWN within the next 12 hours.

b. With no reactor coolant system recirculation loops in operation, immediately initiate action to reduce THERMAL POWER such that it is not within the restricted zone of Figure 3.4.1.1-1 within two hours, and initiate measures to place the unit in at least STARTUP within six hours and in HOT SHUTDOWN within the next six hours.

c. With one or two reactor coolant system recirculation loops in operation and total core flow less than 45% but greater than 39%** of rated core flow and THERMAL POWER within the restricted zone of Figure 3.4.1.1-1:

1. Determine the APRM and LPRM*** noise levels per Specification 4.4.1.1.1:

   a) At least once per eight hours, and

   b) Within 30 minutes after the completion of a THERMAL POWER increase of at least 5% of RATED THERMAL POWER.

2. With the APRM or LPRM*** neutron flux noise levels greater than three times their established baseline noise levels, within 15 minutes initiate corrective action to restore the noise levels within the required limits within two hours by increasing core flow or by reducing THERMAL POWER.

d. With one or two reactor coolant system recirculation loops in operation and total core flow ≤ 39%** and THERMAL POWER within the restricted zone of Figure 3.4.1.1-1, within 15 minutes initiate corrective action to reduce THERMAL POWER to within the unrestricted zone of Figure 3.4.1.1-1 or increase core flow to > 39%** within 4 hours.

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* Final values were determined during Startup Testing based upon the actual THERMAL POWER and jet pump loop flow which will sweep the cold water from the vessel bottom head preventing stratification.

** Core flow which is equivalent to minimum core flow for 2 recirculation pumps at high speed with minimum flow control valve position.

*** Detector levels A and C of one LPRM string per core octant plus detectors A and C of one LPRM string in the center of the core should be monitored.

ATTACHMENT B

NIAGARA MOHAWK POWER CORPORATION

LICENSE NO. NPF-69

DOCKET NO. 50-410

INTRODUCTION

Section 3/4.4.1 of the Technical Specifications provides the Limiting Conditions for Operation and Surveillance Requirements for the Recirculation System recirculation loops. The term recirculation loop, as it is used throughout Section 3/4.4.1 in relation to flow, requires revision to identify which component of the recirculation loop flow is being addressed, drive flow or jet pump flow. Section 4.4.1.2, Surveillance Requirements to demonstrate jet pump operability, requires revision to make the requirements more sensitive to jet pump malfunction and to reduce a potential negative impact on plant availability.

DISCUSSION

The recirculation system consists of two parallel external loops, each containing a recirculation pump and motor, suction and discharge block valves, flow control valve, and the connecting piping to the reactor vessel. Each external recirculation loop takes suction from the vessel downcomer annulus via the recirculation pump and delivers drive flow to multiple nozzles on the vessel shell from which internal piping conducts the flow to the jet pump inlets. This driving flow will cause the jet pumps to pump additional water from the vessel annulus. The combined flow will then pass through the reactor core. Feedwater introduced near the top of the vessel downcomer annulus mixes with the water leaving the steam separators to subcool the water being delivered to the reactor recirculation pumps.

The term recirculation loop flow used throughout Section 3/4.4.1 has been used to identify both recirculation loop drive flow and jet pump loop flow. The dual use of the term can and has caused considerable operator confusion. This proposed Technical Specification amendment uniquely identifies recirculation loop flow components throughout Section 3/4.4.1 to differentiate between loop drive flow and jet pump loop flow. The Bases of Section 3/4.4.1 has also been proposed for revision to clarify the terminology used for the various flow parameters.

Section 4.4.1.2 provides the surveillance requirements for demonstrating that all jet pumps are operable. Verification of jet pump operability is required to verify that operation is consistent with the licensing basis. In this case, the assumption used in the licensing basis is that the jet pumps are intact since they contribute to the reflood to two-thirds core height following a postulated recirculation line break. The floodable inner volume of the reactor vessel is established up to the level of the jet pump suction inlet. From the standpoint of safety, verification of jet pump operability provides assurance that the reflood to two-thirds requirement is intact. This

verification also allows the operators to recognize problems as soon as possible in order to minimize equipment damage, thereby minimizing outage repair time and increasing plant availability and capacity factor.

In order to determine jet pump operability, it is necessary to perform certain performance measurements, compare these measurements against established nominal data, and look for a deviation from nominal as an indication of a potential problem. These performance measurements (Surveillance Requirements) are designed to detect the significant degradation in jet pump performance that would precede failure. Shutdown of the plant would be required if, after evaluation of the performance deviation, it is concluded that the condition is reasonably expected to cause a jet pump failure. While an inoperable jet pump is not, in itself, a sufficient reason to declare a recirculation loop inoperable, it does, in case of a design basis accident, increase the blow down area and reduce the capability of reflooding the core, thus the requirement for shutdown when a jet pump is inoperable.

Surveillance Requirements 4.4.1.2.a.2 and 4.4.1.2.b.2 compare indicated total core flow against established core flow derived from recirculation loop drive flow measurements, with a differential of 10% or greater being unacceptable. This performance measurement has been determined by General Electric testing (Service Information Letter No. 330, dated June 9, 1980) to be relatively insensitive to jet pump degradation. This Technical Specification amendment proposes to revise the requirement to compare indicated jet pump loop flow to the established jet pump loop flow-recirculation pump drive flow characteristic with a differential of 10% or greater being unacceptable. Surveillance Requirement 4.4.1.2.a.2 applies this criterion to both loops while in two-loop operation, and 4.4.1.2.b.2 applies the criterion to the operating loop while in single recirculation loop operation.

Core flow is essentially the sum of the jet pump loop flows. A greater than 10% deviation in one jet pump loop flow could be overlooked in the summing process to determine total core flow as required by the present Surveillance Requirements. The proposed amendment, by looking at individual jet pump loop flows, provides a more sensitive performance measurement for determining jet pump operability, particularly during two-loop operation.

Surveillance Requirements 4.4.1.2.a.3 and 4.4.1.2.b.3 compare the indicated diffuser--to--lower plenum differential pressure of any individual jet pump to established patterns with a differential of 10% being unacceptable. The 10% allowable differential currently in the Technical Specifications is incorrect and is not in conformance with the guidelines of General Electric Service Information Letter No. 330. The Service Information Letter recommends that an allowable differential of 20% be used when comparing individual jet pump diffuser differential pressure to established normal patterns. Jet pump flow measurements are developed by taking the square root of the differential pressure signal provided by the jet pump differential pressure transmitters. The 10% allowable differential for jet pump flow measurements referenced in 4.4.1.2.a.1, 4.4.1.2.a.2 (existing and proposed), 4.4.1.2.b.1 and 4.4.1.2.b.2 (existing and proposed) corresponds to a 20% differential in jet pump diffuser differential pressure (e.g., the square root of 1.20 is approximately equal to 1.1). Continued use of the 10% differential figure could provide incorrect evidence of jet pump degradation resulting in an unwarranted shutdown, thus having a negative impact on plant availability and capacity factor.

Certain parameters specified in Section 3/4.4.1 were preliminary and the final values were to be confirmed or established during the Startup Test Program. Specifically, there were:

1)	Volumetric recirculation loop flow for 100% core flow at 100% THERMAL POWER.	Sections 3.4.1.1.a.1.f) and 4.4.1.1.1.c
2)	Threshold THERMAL POWER and recirculation loop flow which will sweep the cold water from the vessel bottom head preventing stratification.	Sections 3.4.1.1.a.1.g) and 4.4.1.1.2
3)	Minimum core flow for 2 recirculation pumps at high speed with minimum flow control valve position.	Sections 3.4.1.1.c and 4.4.1.1.1.d

The limit on volumetric recirculation loop flow (loop drive flow) for 100% core flow at 100% THERMAL POWER (100%, 100% operating point) protects against vessel internals flow induced vibration. The current limit of 41,000 gpm was conservative and resulted from the design estimate for two loop operation at the 100%, 100% operating point. Startup tests have determined the 100%, 100% loop drive flow to be 41,800 gpm. An analysis, using startup test data, has shown no internals flow induced vibration in excess of design limits occurs in either loop below 45,000 gpm.

Threshold values for recirculation (jet pump) loop flow and thermal power which prevent stratification provide assurance against undesirable step increases in the water temperature adjacent to the RPV bottom head penetrations. Due to differences in thermal expansion between reactor penetrations and the reactor bottom head, crack initiation and growth could result from repeated step temperature changes. The limits of $\leq$ 30% of rated thermal power and $\leq$ 50% of rated jet pump loop flow during single loop operation were shown in the startup tests to be adequate to prevent thermal stratification in the vessel bottom head region. Single loop operation at $\leq$ 30% of rated thermal power or $\leq$ 50% of rated jet pump flow requires additional monitoring to detect potential thermal stratification. This is conservative since test data showed no indication of stratification at power levels as low as 4% and jet pump loop flows as low as 27%.

Minimum forced circulation flow is defined as two recirculation pumps at rated (high) pump speed with flow control valves at their minimum position. Due to possible core thermal hydraulic instabilities, operation below minimum forced circulation flow and above the 80% rod line is prohibited. In addition, operation between the minimum forced circulation flow and 45% of rated core flow, above the 80% rod line, requires additional monitoring for increased neutron noise levels. Technical Specification Figure 3.4.1.1-1 shows this area of restricted operation. These requirements are consistent with the requirements of SIL No. 380, Rev. 1, "BWR Core Thermal Hydraulic Stability," dated February 10, 1984. The minimum forced circulation flow determined from test data is 39.2% of rated core flow. Thus, startup test data demonstrates that the existing value of 39% is representative of minimum forced circulation flow.

CONCLUSION

Nine Mile Point Unit 2 can be safely operated with the changes proposed by this Technical Specification amendment. The clarification of terminology in regard to recirculation loop drive flow and jet pump loop flow will eliminate misinterpretation of Technical Specification requirements.

The changes to increase the sensitivity of the performance measuring requirements for determining jet pump operability will increase the probability of detecting any problems with the jet pumps that could have a negative impact on their ability to maintain reflood at two-thirds core height following a postulated recirculation line break. The increase in allowable variance for diffuser--to--lower plenum differential pressure from 10% to 20% will increase plant availability and capacity factor with no negative impact on safe operation of Nine Mile Point Unit 2.

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 10 CFR 50.92 concerning the issue of no significant hazards consideration. Therefore, in accordance with 10 CFR 50.91, 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.

The proposed amendment involves the changing of recirculation loop flow terms to provide the operators a clearer understanding of the Technical Specification requirements. The implementation of a more sensitive method of determining jet pump operability provides a more reliable indication of the jet pumps' ability to provide a refloodable volume. The increase in allowable deviation for the differential pressure of any individual jet pump is consistent with the allowable deviation for jet pump flow specified in other surveillances.

The proposed amendment provides assurance that the jet pumps are intact and able to contribute to reflood to two-thirds core height. Thus, the consequences of a recirculation line break are not affected. The increase in loop drive flow for the 100% power, 100% flow operating point is within the core flow limit beneath which no unacceptable core flow induced vibrations were observed. Startup test data has confirmed the previously analyzed thermal power and core flow values required to prevent stratification, as well as minimum forced circulation flow. In summary, 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.

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.

Clarification of recirculation loop flow terminology will not change the Reactor Recirculation System and jet pumps' response to previously evaluated accidents. The proposed changes to the performance monitoring criteria for

determining jet pump operability will assure the Reactor Recirculation System and jet pumps' response to previously evaluated accidents remain within previously evaluated limits of pressure and temperature. The revised recirculation loop drive flow is below the limit established for possible flow induced vibrations.

The proposed amendment does not involve any hardware or operational changes to the plant. Thus, all safety-related systems and components remain within their applicable design limits. In addition, the environmental qualification of plant equipment is not adversely affected by this proposed amendment. Thus, system and component performance is not adversely affected by this change, thereby assuring that the design capabilities of those systems and components are not challenged in a manner not previously assessed so as to create the possibility of a new or different kind of accident from any previously evaluated.

<u>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</u>.

The proposed changes in recirculation loop flow terminology will not affect the existing Technical Specification operational limits or system performance criteria.

The proposed change to monitor jet pump loop flow in lieu of total core flow provides a more sensitive indication of jet pump degradation. As such, it will provide an increase in the margin of safety provided by the surveillance.

The proposed change to the allowable percent deviation from average nominal values for individual jet pump diffuser--to--lower plenum differential pressure from 10% to 20% is required to bring this jet pump performance measurement into conformance with the performance measurements that are looking at jet pump loop flows. Jet pump loop flow is the sum of the individual jet pump flows within the loop. Jet pump flow is the square root of the jet pump diffuser--to--plenum differential pressure signal. A 10% deviation for jet pump loop flow is equivalent to a 20% deviation for jet pump differential pressure. Therefore, the proposed surveillance criteria for jet pump differential pressure is consistent with the criteria for jet pump loop flow. Thus, the margin of safety established by these surveillances has not been reduced.

The limit on loop drive flow provides assurance against vessel internals flow induced vibration. Testing has demonstrated no unacceptable core flow induced vibration occurs in either loop below 45,000 gpm. Thus, a limit of 41,800 gpm provides adequate assurance against unacceptable flow induced vibrations and also establishes an equivalent margin of safety. The remaining recirculation system parameters were confirmed as conservative by startup test data, and no change to the Technical Specifications or corresponding margin of safety is required.

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