1.0 DEFINITIONS

1.1 Reactor Operating Conditions

The various reactor operating conditions are defined below. Individual technical specifications amplify these definitions when appropriate.

a. Shutdown Condition - Cold

(1) The reactor mode switch is in the shutdown position or refuel position. *
(2) No core alterations leading to an addition of reactivity are being performed.
(3) Reactor coolant temperature is less than or equal to 212F.

b. Shutdown Condition - Hot

(1) The reactor mode switch is in the shutdown position. **
(2) No core alterations leading to an addition of reactivity are being performed.
(3) Reactor coolant temperature is greater than 212F.

c. Refueling Condition

(1) The reactor mode switch is in the refuel position.
(2) The reactor coolant temperature is less than 212F.
(3) Fuel may be loaded or unloaded.
(4) No more than one operable control rod may be withdrawn.

d. Power Operating Condition

(1) Reactor mode switch is in startup or run position.
(2) Reactor is critical or criticality is possible due to control rod withdrawal.

e. Major Maintenance Condition

(1) No fuel is in the reactor.

* The reactor mode switch may be placed in the startup position to perform the shutdown margin demonstration. See Special Test Exception 3.7.1 .

** The reactor mode switch may be placed in the refuel position to perform reactor coolant system pressure testing, control rod scram time testing and scram recovery operations.

LIMITING CONDITIONS FOR OPERATION

3.7.1 Special Test Exception-
Shutdown Margin Demonstrations

Applicability:

Applies to shutdown margin demonstration in the cold shutdown condition.

Objective:

To assure the capability of the control rod system to control core reactivity.

a. The reactor mode switch may be placed in the startup position to allow more than one control rod to be withdrawn for shutdown margin demonstration, provided that at least the following requirements are satisfied.

(1) The source range monitors are operable in the noncoincident condition.

(2) The rod worth minimizer is operable per Specification 3.1.1b(3)(b) and is programmed for the shutdown margin demonstration, or conformance with the shutdown margin demonstration procedure is verified by a second licensed operator or other technically qualified member of the unit technical staff.

SURVEILLANCE REQUIREMENTS

4.7.1 Special Test Exception -
Shutdown Margin Demonstrations

Applicability:

Applies to periodic inspections required to perform shutdown margin demonstrations in the cold shutdown condition.

Objective:

To specify the inspections required to perform the shutdown margin demonstration in the cold shutdown condition.

a. Within 30 minutes prior to and at least once per 12 hours during the performance of a shutdown margin demonstration, verify that:

(1) The source range monitors are operable per Specification 3.5.1.

(2) The rod worth minimizer is operable with the required program per Specification 3.1.1b(3)(b) or a second licensed operator or other technically qualified member of the unit technical staff is present and verifies compliance with the shutdown margin demonstration procedure.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
(3) The continuous rod withdrawal control shall not be used during out-of-sequence movement of the control rods.	(3) No core alterations are in progress.
(4) No core alterations are in progress.	
b. With the requirements of the above specification not satisfied, immediately place the reactor mode switch in the shutdown or refuel position.	

BASES FOR 3.7.1 AND 4.7.1 SHUTDOWN MARGIN DEMONSTRATION

The shutdown margin demonstration has to be performed prior to power operation. However, the mode switch must be placed in the startup position to allow withdrawal of more than one control rod. Specifications 3.7.1 and 4.7.1 require certain restrictions in order to ensure that an inadvertent criticality does not occur while performing the shutdown margin demonstration.

The shutdown margin demonstration will be performed in the cold shutdown condition with the vessel head in place. The shutdown margin demonstration will be performed prior to the reactor coolant system pressure and control rod scram time tests following refueling outages when core alterations are performed. The shutdown margin demonstration is performed using the adjacent rod method.

ATTACHMENT B

NIAGARA MOHAWK POWER CORPORATION
DOCKET NO. 50-220
LICENSE NO. DPR-63

Explanation Why Emergency Situation Occurred and Why It Could Not Be Avoided

BACKGROUND

The Nine Mile Point Unit 1 Technical Specification Surveillance Requirement 4.1.1c requires all operable control rods to be scram time tested after each major refueling outage and prior to power operation. In addition, Surveillance Requirement 4.1.1c requires the control rod scram time testing to be performed at reactor pressures above 800 psig. The control rod drive scram time testing is not permitted to be performed with the mode switch in the startup position as this would be considered entering the power operation condition. Therefore, the past practice has been to conduct scram time testing of control rods in conjunction with reactor coolant system pressure testing (system leakage and hydrostatic testing) in the shutdown condition-cold with the reactor mode switch in the refuel position. The refuel position is the only reactor mode switch position other than power operating conditions (startup or run) which allows a control rod to be withdrawn. The control rod scram time testing has also been performed in the past during reactor coolant system pressure testing because this is the only condition other than power operation where the required pressure of over 800 psig can be attained.

The actual test sequence is to pressurize the reactor coolant system to the required test pressure to conduct the reactor coolant system pressure test. After the system pressure test is completed, pressure is reduced to

approximately 850 psig with the reactor coolant system still "solid" (filled with water) to conduct control rod scram time testing.

The minimum temperature for pressurization during system pressure (hydrostatic) testing is approximately 192°F at a pressure of 850 psig (see Figure 3.2.2c and Table 3.2.2c of the Nine Mile Point Unit 1 Technical Specifications). The control rod scram time testing is conducted at 850 psig to assure reactor pressure is conservatively higher than the 800 psig minimum pressure required by Surveillance Requirement 4.1.1c.

Although the minimum temperature for pressurization during system pressure testing is less than 212°F for a pressure of 850 psig, the preferred test sequence is to conduct the control rod scram time testing after the integrity of the reactor coolant pressure boundary has been verified by system pressure testing. The minimum temperature for pressurization during system pressure testing is approximately 222°F at a pressure of 1050 psig (the system pressure test is conducted at 1050 psig to assure the reactor vessel is above the nominal operating pressure of 1035 psig). During the performance of the system pressure test, the reactor coolant temperature may continue to gradually increase as heat is added to the system from pressurizing the reactor coolant system, decay heat in the fuel and the operation of the recirculation pumps. Since the reactor coolant system is pressurized and isolated, there are no systems available to cool the reactor coolant system while in the system pressure test condition. Only ambient heat losses will tend to cool the reactor coolant system. Therefore, the reactor coolant temperature may continue to gradually increase during the hydrostatic test.

Even if the control rod scram time testing were performed prior to reaching the required test pressure (as the minimum temperature for pressurization during system pressure testing is approximately 192°F for a pressure of 850 psig), the temperature may not be maintained due to the addition of heat to the reactor coolant from pressurizing the reactor coolant system, decay heat in the fuel, and the operation of the recirculation pumps. Therefore, the reactor coolant temperature may exceed 212°F before completion of the control rod scram time testing even if the test was done prior to the system pressure test. Past experience has shown that it takes approximately four (4) hours to scram time test the one hundred and twenty-nine (129) control rods.

The above described test conditions can only be achieved in the shutdown condition-hot, as the reactor coolant temperature may be greater than 212°F. However, the current technical specification definition for shutdown condition-hot does not allow the reactor mode switch to be placed in the refuel position when the reactor coolant temperature is greater than 212°F. (The mode switch must be in the refuel position in order to be able to withdraw a control rod to perform scram time testing.)

EMERGENCY SITUATION

Niagara Mohawk submitted a technical specification change revising the definition of shutdown condition-hot to allow the reactor mode switch to be in the refuel position when the reactor coolant temperature is greater than 212°F. This change was submitted on February 5, 1988, to support the 1988 Refueling and Maintenance Outage which was originally scheduled to begin on

March 5, 1988. However, as a result of a feedwater transient at Nine Mile Point Unit 1 in December 1987, and the subsequent work that had to be performed prior to restart from this transient, a decision was made to start the refueling outage in January 1988. Therefore, the technical specification change is needed earlier than originally anticipated due to the early start of the outage.

During its preliminary review of this proposed change, the Nuclear Regulatory Commission staff expressed reservations about changing the definition of shutdown condition-hot and performing the control rod scram time tests immediately after the system pressure test with the reactor vessel full of water. Therefore, Niagara Mohawk is withdrawing its technical specification change request dated February 5, 1988, and submitting this application to address the staff's concerns. This technical specification change adds exceptions to Definitions 1.1a and 1.1b to allow control rod scram time testing to be performed in the shutdown condition-hot during the system pressure test. In addition, to alleviate the Nuclear Regulatory Commission staff's concern that an unintentional criticality could occur while performing control rod scram time testing in the shutdown condition, a Special Test Exception is being proposed. This proposed change will allow performance of the shutdown margin demonstration in the shutdown condition-cold prior to the conduct of the system pressure test and control rod scram time testing.

As discussed above, due to circumstances beyond Niagara Mohawk's control (i.e., the early start of the refueling outage and the time necessary for the technical resolution of issues regarding the performance of control rod scram

time testing), there is insufficient time for the Nuclear Regulatory Commission to publish the proposed technical specification change for 30 days for public comment. Therefore, Niagara Mohawk requests that this technical specification change be treated as an emergency situation since the system pressure test currently is scheduled to begin on or about April 30, 1988.

ATTACHMENT C

NIAGARA MOHAWK POWER CORPORATION
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Environmental Considerations

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. Niagara Mohawk has determined that the proposed 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 an individual or cumulative occupational radiation exposure. Niagara Mohawk has determined that this proposed amendment involves no significant hazards consideration. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), Niagara Mohawk has determined that no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

ATTACHMENT D

NIAGARA MOHAWK POWER CORPORATION
DOCKET NO. 50-220
LICENSE NO. DPR-63

Supporting Information and No Significant Hazards Consideration Analysis

The proposed technical specification change adds an exception to Definition 1.1a to allow the reactor mode switch to be placed in the startup position when in the shutdown condition-cold to perform the shutdown margin demonstration test. In addition, an exception is being added to Definition 1.1b to allow the mode switch to be placed in the refuel position to conduct system pressure and control rod scram time testing and to enhance scram recovery operations. In conjunction with this change, a new Special Test Exception section is being added to specify the requirements and surveillances for placing the reactor mode switch in the startup position when in the shutdown condition-cold to perform the shutdown margin demonstration test. The Table of Contents is also being revised to add the new section.

Control rod drive exercising and timing (normal control drive insertion and withdrawal adjustments) and shutdown margin demonstration tests will be conducted prior to the system pressure and control rod scram time tests to assure that the reactor cannot be made critical by the withdrawal of only one control rod. The shutdown margin demonstration will be performed by the adjacent rod method.

In order to conduct control rod scram time testing, the reactor mode switch must be in the refuel or power operating (startup or run) positions so that a rod may be withdrawn. Control rod scram time testing will be performed in

conjunction with the reactor coolant system pressure test with the reactor coolant pressure boundary "solid" (filled with water). Control rod scram time testing can only be performed during the system pressure test or during power operation with the reactor critical, as these are the only conditions under which the required pressure of 800 psig or higher can be achieved.

The system pressure (hydrostatic) testing curve for minimum temperature for pressurization can be utilized during scram time testing as it does not cause additional thermal stresses on the vessel. Minor pressure changes, as a result of individual control rod scram time testing, have no effect on fracture toughness considerations. The actual experience at Nine Mile Point Unit 1 has been that pressure changes of 5-10 psid occur during an individual rod scram.

With the reactor mode switch in the refuel position, one control rod at a time may be withdrawn to perform scram time testing. An electrical interlock prevents more than one control rod from being withdrawn when the reactor mode switch is in the refuel position. The reactor vessel head will be in place and no refueling activities will be permitted. Therefore, there is no potential for a refueling accident.

In addition, to assure that an inadvertent criticality cannot occur by fully withdrawing one control rod, a technical specification change is being proposed to allow performance of shutdown margin demonstration in the shutdown condition-cold. The shutdown margin demonstration will ensure that the reactor cannot be made critical by the withdrawal of any one control rod. This will assure than an inadvertent criticality and potential pressure

transient does not occur with the reactor coolant pressure boundary "solid" (filled with water) during control rod scram time testing with the mode switch in the refuel position. Therefore, scram time testing at temperatures greater than 212°F does not place the plant in an unanalyzed condition as the shutdown margin demonstration assures that an inadvertent criticality cannot occur.

Since the reactor coolant system pressure test will be conducted at temperatures greater than 212°F, a break in the reactor coolant pressure boundary would result in water flashing to steam. However, all systems required to be operable by Technical Specifications for the operating conditions, such as core spray and containment spray, will be operable to mitigate the consequences of a loss of coolant accident. The core spray and containment spray systems are designed to mitigate the consequences of a loss of coolant accident under more severe operating conditions than would be obtained during the system pressure and control rod scram time testing. In addition, primary containment integrity will be maintained during the system pressure and control rod scram time testing.

In order to perform the system pressure and control rod scram time testing with the mode switch in the refuel position, jumpers have to be placed to bypass the high pressure, main steam isolation valve closure and low condenser vacuum scrams. If the system pressure test is conducted with the reactor mode switch in the shutdown position, additional jumpers would have to be placed to bypass the closure of the inside main steam isolation valves on low-low-low condenser vacuum. The inside reactor coolant isolation valves are open during the system pressure test as the entire reactor coolant pressure boundary up to

the second (outside) isolation valves is pressure tested. Therefore, conducting the system pressure test with the reactor mode switch in the refuel position will require the placement of fewer jumpers.

Technical Specification Section 3.6.2, Protective Instrumentation, and the associated tables have been reviewed to determine if the shutdown position of the reactor mode switch has any safety interlocks associated with it which the refuel position does not. As a result of this review, it was found that the following functions have to be operable when the mode switch is in the shutdown position:

1. Containment isolation on low-low reactor water level or high drywell pressure whenever the reactor coolant system temperature is greater than 215°F.

2. Emergency Cooling (EC) initiation on high reactor pressure or low-low reactor water level whenever the reactor coolant temperature is greater than 212°F.

3. Containment Spray initiation on high drywell pressure and low-low reactor water level whenever the reactor coolant temperature is greater than 215°F.

4. Automatic Depressurization System (ADS) on low-low-low reactor water level and high drywell pressure whenever reactor pressure is greater than 110 psig and the reactor coolant temperature is greater than the corresponding saturation temperature.

5. High Pressure Coolant Injection (HPCI) initiation on low reactor water level or automatic turbine trip.

Although Section 3.6.2, Protective Instrumentation, does not require the above functions to be operable when the mode switch is in the refuel position, the functions will be operable when the mode switch is placed in refuel mode with the following exceptions: High Pressure Coolant Injection, Automatic Depressurization, and Emergency Cooling Systems will not be operable during the system pressure test and subsequent control rod scram time testing. The reactor coolant system is isolated; therefore, the High Pressure Coolant Injection and Automatic Depressurization Systems cannot be operable. In addition, although the pressure will be above 110 psig, the reactor coolant temperature will not be at the corresponding saturation temperature (reactor coolant system will be subcooled). Therefore, the High Pressure Coolant Injection and Automatic Depressurization Systems are not required to be operable.

Regarding the Emergency Cooling System, it is normally an integral part of the system pressure test performed at Nine Mile Point Unit 1. During the test, the Emergency Cooling System steam supply piping and emergency condenser tube bundles are filled with water. In this condition, the Emergency Cooling System is not available to perform its intended function. Therefore, the requirements for Emergency Cooling System operability when the reactor coolant is greater than 212°F was requested to be modified to exempt this requirement during system pressure testing with the reactor not critical. This request was approved in Amendment No. 82.

By placing the reactor mode switch in the refuel position during system pressure testing, control rod scram time testing and scram recovery operations, additional safety interlocks such as one rod withdraw, scram, and refueling interlocks are required to be operational per Section 3.6.2.

There are no other differences in Reactor Protection System instrumentation caused by a change in the mode switch position from shutdown to refuel.

The change to allow the reactor mode switch to be placed in the refuel position when in the shutdown condition-hot will also facilitate scram recovery procedure. During a scram at Nine Mile Point Unit 1, the control rods are automatically inserted. However, some rods may rebound to position 02 or 04 after a scram. At Nine Mile Point Unit 1, placing the mode switch in the shutdown position prevents all manual rod motion. Control rods can neither be inserted nor withdrawn. In later BWR designs, control rods can be inserted in the shutdown position by using the emergency override switch. Nine Mile Point Unit 1 design does not allow this emergency override when the reactor mode switch is in the shutdown position. Consequently, placing the mode switch in the refuel position will enable the operator to insert those rods that did not settle to the full-in position ('00'). However, since the reactor coolant system temperature would normally be greater than 212°F immediately following a scram, this condition is not currently defined in the Technical Specifications.

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 about 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 1, 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 is requested to allow system pressure testing and scram time testing of control rods with the mode switch in the refuel position and the reactor coolant temperature greater than 212°F. While a leak in the reactor coolant pressure boundary may occur due to system pressure testing, the change to allow scram time testing has no effect on the probability or the consequences of a loss of coolant accident. The systems required to be operable to mitigate the consequences of a loss of coolant accident (core spray and containment spray) will be operable. Since the reactor coolant temperature will be less than during normal operation, this change will not increase the probability or consequences of a loss of coolant accident.

Since refueling activities will not be occurring and only one control rod can be withdrawn at a time in the refuel mode, the probability and consequences of a refueling accident are not changed. In addition, the placing of the reactor mode switch in the refuel position following a scram does not place the reactor in an unanalyzed condition. The reactor vessel head is in place. Therefore, a refueling accident cannot occur.

The change to allow shutdown margin demonstration will assure that the probability of an inadvertent criticality is not increased. In addition, only one control rod can be withdrawn at a time in the refuel mode. Therefore, the probability and consequences of a control rod drop accident are not increased. The proposed change will not increase the probability or consequences of a previously evaluated accident.

The change to revise the Table of Contents is administrative in nature and will not affect 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 only accident of a new or different kind identified is the potential for an inadvertent criticality occurring with the reactor coolant system "solid" (filled with water). However, the performance of the control rod exercising check and the shutdown margin demonstration test will assure that the reactor cannot be made critical with only one control rod withdrawn. This test, in conjunction with the interlock which prevents more than one control rod from being withdrawn with the mode switch in the refuel position, will assure an inadvertent criticality does not occur during the system pressure test. In addition, all safety systems required to be operational in the shutdown condition when reactor coolant temperature is greater than 212°F will be operational. Since the proposed changes will not place the plant in an

unanalyzed condition, there is not a possibility of creating a new or different kind of accident from any accident previously evaluated.

The change to revise the Table of Contents is administrative in nature 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 amendment is to allow control rod scram time testing to be performed prior to power operation. Since the reactor vessel head will be in place, primary containment integrity maintained and all systems required per the technical specifications will be operable, the proposed changes will not have any impact on any design bases accident or safety limit. Therefore, the proposed changes will not reduce a margin of safety.

The change to revise the Table of Contents is administrative in nature. Therefore, it has no affect on a margin of safety.