

May 1, 1984

Docket No. 50-220

Mr. G. K. Rhode
Senior Vice President
Niagara Mohawk Power Corporation
300 Erie Boulevard West
Syracuse, New York 13202

Dear Mr. Rhode:

The Commission has issued the enclosed Amendment No. 59 to Facility Operating License No. DPR-63 for the Nine Mile Point Nuclear Station, Unit No. 1. The amendment consists of changes to the Technical Specifications in response to your request dated January 9, 1984.

The revision to the Technical Specifications revises the Limiting Conditions for Operation related to the minimum Critical Power Ratio (MCPR).

A copy of the Safety Evaluation is also enclosed.

Sincerely,

Robert A. Hermann, Project Manager
Operating Reactors Branch #2
Division of Licensing

Enclosures:

1. Amendment No. 59 to License No. DPR-63
2. Safety Evaluation

cc w/enclosures:
See next page

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At approximately 11:42 p.m., it was brought to the attention of the shift engineer that the reactor may have an abnormal rod pattern and that a similar occurrence had happened recently at another BWR. This other event resulted in the reactor being in an unanalyzed rod configuration. Based on this information, the Shift Engineer then gave the order to scram the reactor.

In the followup to this event it was identified that during the shutdown of Unit 3 on September 6-7, 1983, rods were also moved in four instances without the RSCS enforcing notch control.

In accordance with the NRC Enforcement Policy, 10 CFR Part 2, Appendix C, and pursuant to Section 234 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2282, PL 96-295, and 10 CFR 2.205, the particular violations and associated civil penalty are set forth below:

- A. Technical Specification 6.3.A requires that detailed written procedures be prepared, approved and adhered to for the startup and shutdown of the reactors.

Contrary to the above, a memorandum was issued to shift engineers on June 9, 1983, authorizing the use of the RONOR switch during controlled shutdowns for all units. These instructions were used on two occasions (September 6, 1983 and January 6, 1984) and were contrary to approved procedures GOI 100-12 and OI-85. The memorandum had not been approved by the Plant Operations Review Committee (PORC) or by the Plant Superintendent.

This is applicable to all three units.

- B. 10 CFR 50.59(a)(1) permits the holder of a license for a reactor facility to make changes in the procedures as described in the Safety Analysis Report without prior Commission approval unless the change involves a change in the Technical Specifications incorporated in the license or an unreviewed safety question.

10 CFR 50.59(b) requires the licensee to maintain records of changes in procedures as described in the Final Safety Analysis Report (FSAR) and include a written safety evaluation which provides the bases for the determination that the change does not involve an unreviewed safety question.

Contrary to the above, the licensee issued a memorandum on June 9, 1983, instituting use of the RONOR switch which rendered the Rod Sequence Control System (RSCS) inoperable below 20 percent rated power contrary to Technical Specification 3.3.B.3.a. Section 7.7 of the FSAR does not include in its shutdown procedure description the use of the RONOR switch above 50 percent rod density and below 20 percent power. The modification to procedures by issuance of the June 9th memorandum was made without seeking prior Commission approval and without conducting an evaluation of the safety significance of the change in order to determine whether a change to Technical Specifications or an unreviewed safety question was involved.

This is applicable to all three units.

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- C. Technical Specification 3.3.B.3.a requires that, whenever the reactor is in the startup or run modes below 20 percent rated power, the RSCS shall be operable.
1. Contrary to the above, on January 6, 1984, when Unit 1 reactor power was being reduced from 12 percent power, the RSCS was rendered inoperable by moving control rods with the RONOR switch. The following improper rod moves were performed:
 - a. Control Rod 30-59 was moved out from notch 22 to 24 with the remaining group rods at notches 30, 24, 30, 26 and 26.
 - b. Control Rods 30-03, 06-27, 54-27, and 06-35 were individually and continuously inserted from notch 24 to notch 0.
 2. Contrary to the above, on September 6, 1983 during a Unit 3 controlled shutdown below 20 percent reactor power, the RSCS was rendered inoperable by moving control rods with the RONOR switch. The following improper rod moves were performed:
 - a. Control Rod 34-31 was moved out from notch 26 to 28 with the other group rods at notch 24.
 - b. Control Rod 10-31 was moved in from notch 2 to 0 with group rod 26-47 at notch 4, and then rod 10-31 was moved to notch 2.
 - c. Control Rod 02-31 was moved from notch 8 to 4 with the other group rods at notch 8.
 - d. Control Rod 34-07 was moved from notch 6 to 2 with the other group rods at notch 6 and 4.
- D. Technical Specification 3.3.b.3.c requires that, when the reactor is in the startup or run modes below 20 percent rated power, the RWM shall be operable. When the RWM is inoperable, a second licensed operator shall be assigned the specific task of assuring adherence to the control rod program.

Contrary to the above, on January 6, 1984, when Unit 1 power was being reduced from 12 percent power, the RWM was bypassed and rendered inoperable, and a second licensed operator did not assure adherence to the control rod program. Specifically, rod 30-59 was positioned at notch 22 versus required notch 24.

The violations described above are considered to be a Severity Level III problem. (Supplement I)
(Cumulative Civil Penalty of \$60,000 distributed equally among the violations.)

MAY 11 1984

Pursuant to the provisions of 10 CFR 2.201, Tennessee Valley Authority is hereby required to submit to the Director, Office of Inspection and Enforcement, USNRC, Washington, D. C. 20555, with a copy to this office, within 30 days of the date of this Notice a written statement or explanation, including for each alleged violation: (1) admission or denial of the alleged violations; (2) the reasons for the violations if admitted; (3) the corrective steps which have been taken and the results achieved; (4) the corrective steps which will be taken to avoid further violations; and (5) the date when full compliance will be achieved. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, the response shall be submitted under oath or affirmation.

Within the same time as provided for the response required above under 10 CFR 2.201, Tennessee Valley Authority may pay the civil penalty in the amount of Sixty Thousand Dollars (\$60,000) for the violations, or may protest imposition of the civil penalty in whole or in part by a written answer. Should Tennessee Valley Authority fail to answer within the time specified, the Director, Office of Inspection and Enforcement will issue an order imposing the civil penalty in the amount proposed above. Should Tennessee Valley Authority elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, such answer may: (1) deny the violations listed in this Notice in whole or in part; (2) demonstrate extenuating circumstances; (3) show error in this Notice; or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty in whole or in part, such answer may request remission or mitigation of the penalty. In requesting mitigation of the proposed penalty, the five factors addressed in Section IV(B) of 10 CFR Part 2, Appendix C should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate statements or explanations by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. Tennessee Valley Authority's attention is directed to the other provisions of 10 CFR 2.205 regarding the procedure for imposing a civil penalty.

Upon failure to pay the penalty due, which has been subsequently determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282.

FOR THE NUCLEAR REGULATORY COMMISSION

for R.C. Lewis
James P. O'Reilly
Regional Administrator

Dated at Atlanta, Georgia
this *11th* day of May 1984



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

NIAGARA MOHAWK POWER CORPORATION

DOCKET NO. 50-220

NINE MILE POINT NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 59
License No. DPR-63

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Niagara Mohawk Power Corporation dated January 9, 1984, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-63 is hereby amended to read as follows:

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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 59, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 1, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 59

FACILITY OPERATING LICENSE NO. DPR-63

DOCKET NO. 50-220

Revise the Appendix A Technical Specifications by removing and inserting the following pages:

<u>Existing Page</u>	<u>Revised Page</u>
64a	64a
70	70

The revised areas are indicated by marginal lines.

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENT

c. Minimum Critical Power Ratio (MCPR)

During power operation, the MCPR for all 8 x 8 fuel at rated power and flow shall be as shown in the table below:

LIMITING CONDITION FOR OPERATING MCPR

<u>Core Average Incremental Exposure</u>	<u>Limiting MCPR*</u>
BOC to EOC minus 2 GWD/ST	≥ 1.40
EOC minus 2 GWD/ST to EOC minus 1 GWD/ST	≥ 1.45
EOC minus 1 GWD/ST to EOC	≥ 1.50

If at any time during power operation it is determined by normal surveillance that these limits are no longer met, action shall be initiated within 15 minutes to restore operation to within the prescribed limits. If all the operating MCPRs are not returned to within the prescribed limits within two (2) hours, reactor power reductions shall be initiated at a rate not less than 10% per hour until MCPR is within the prescribed limits.

For core flows other than rated the MCPR limits shall be the limits identified above times K_f where K_f is as shown in Figure 3.1.7-1.

d. Power Flow Relationship During Operation

The power/flow relationship shall not exceed the limiting values shown in Figure 3.1.7.aa.

*These limits shall be determined to be applicable each operating cycle by analyses performed utilizing the ODYN transient code.

c. Minimum Critical Power Ratio (MCPR)

MCPR shall be determined daily during reactor power operation at >25% rated thermal power.

d. Power Flow Relationship

Compliance with the power flow relationship in Section 3.1.7.d shall be determined daily during reactor operation.

e. Partial Loop Operation

Under partial loop operation, surveillance requirements 4.1.7.a,b,c, and d above are applicable.

BASES FOR 3.1.7 AND 4.1.7 FUEL RODS

Average Planar Linear Heat Generation Rate (ALPHGR)

This specification assures that the peak cladding temperature and the peak local cladding oxidation following the postulated design basis loss-of-coolant accident will not exceed the limits specified in 10CFR50, Appendix K.

The peak cladding temperature following a postulated loss-of-coolant accident is primarily a function of the average heat generation rate of all the rods of a fuel assembly at any axial location and is only dependent secondarily on the rod-to-rod power distribution within an assembly. Since expected local variations in power distribution within a fuel assembly affect the calculated peak clad temperature by less than + 20 F relative to the peak temperature for a typical fuel design, the limit on the average linear heat generation rate is sufficient to assure that calculated temperatures are within the 10CFR50, Appendix K limit. The limiting value for APLHGR is shown in Figure 3.1.7. These curves are based on calculations using the models described in References 1, 2, 3, 5, 6 and 13.

The Reference 13 LOCA analysis is sensitive to minimum critical power ratio (MCPR). In that analysis MCPR values of 1.30 for 5 loop operation and 1.36 for 4 and 3 loop operation, were assumed. If future transient analyses should yield a MCPR limit below either of these values the Reference 13 LOCA analysis MCPR value would become limiting. The current MCPR limit is ≥ 1.40 .

Linear Heat Generation Rate (LHGR)

This specification assures that the linear heat generation rate in any rod is less than the design linear heat generation even if fuel pellet densification is postulated (Reference 12). The LHGR shall be checked daily during reactor operation at $\geq 25\%$ power to determine if fuel burnup or control rod movement has caused changes in power distribution.

Minimum Critical Power Ratio (MCPR)

At core thermal power levels less than or equal to 25%, the reactor will be operating at a minimum recirculation pump speed and the moderator void content will be very small. For all designated control rod patterns which may be employed at this point, operating plant experience and thermal-hydraulic analysis indicated that the resulting MCPR value is in excess of requirements by a considerable margin. With this low void content, any inadvertent core flow increase would only place operation in a more conservative mode relative to MCPR. During initial startup testing



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 59 TO FACILITY OPERATING LICENSE NO. DPR-63

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-220

1.0 Introduction

By letter dated January 9, 1984 Niagara Mohawk Power Corporation (the licensee) proposed changes to the Technical Specifications (TS) of Facility Operating License No. DPR-63 for the Nine Mile Point Nuclear Station, Unit No. 1. The revisions to the Technical Specifications addressed in this Safety Evaluation regard a change to the Minimum Critical Power Ratio (MCPR) limits.

2.0 Evaluation

As a part of the reload for the spring 1984, the licensee performed analyses to determine the bounding limits established to support a reload. For the fuel arrangement to be utilized for the upcoming cycle, the licensee determined that the operating limits of the Critical Power Ratio (CPR) must be changed to assure the safety limit MCPR is not exceeded. Based on the results of its analyses, the licensee has proposed to increase the operating limit MCPR to 1.40 for beginning-of-cycle (BOC) to end-of-cycle (EOC) minus 2 gigawatt days per short ton (GWD/ST) and to 1.45 for EOC minus 2 GWD/ST to EOC minus 1 GWD/ST. The MCPR limit from EOC minus 1 GWD/ST to EOC would remain unchanged at 1.50.

The changes in the operating limit MCPR values are being requested in order to bound values that may be required in future cycles. Since the values are being increased the margin between the operating limit and the safety limit is being increased. This is a conservative change and is, therefore, acceptable.

3.0 Environmental Considerations

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

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4.0 Conclusion

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Reviewer: W. Brooks

Dated: May 1, 1984