

November 15, 1974

Docket No. 50-220

Niagara Mohawk Power Corporation  
ATTN: Mr. Philip D. Raymond  
Vice President - Engineering  
300 Eric Boulevard West  
Syracuse, New York 13202

Gentlemen:

The Directorate of Licensing has issued the enclosed Supplement No. 1 to the Safety Evaluation Report on your application for a full-term operating license for Unit 1 of your Nine Mile Point Nuclear Station.

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Sincerely,

Original Signed

George Lear, Chief  
Operating Reactors Branch #3  
Directorate of Licensing

Enclosure:  
Supplement No. 1 to  
Safety Evaluation Report

cc: See next page

*See earlier concurrence to OGC.*

SEE ATTACHED FOR OGC CONCURRENCE OF 11/13/74

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Original

November 15, 1974

cc: w/enclosure  
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MEMO ROUTE SLIP

REC-93 (Rev. May 14, 1947) AECM 0240

See me about this.

For concurrence.

For action.

Note any return.

For signature.

For information.

(Name and unit) B. BORDENICK OGC	INITIALS	REMARKS DRAFT SER SUPPLEMENT
	DATE	The attached SER Supplement on Nine Mile Unit Full =
(Name and unit)	INITIALS	Term License is for your
	DATE	review. The Blue Book Schedule is shown below.
(Name and unit)	INITIALS	REMARKS This version contains the
	DATE	results of review by G. Lear, BC and Karl G. H.
(Name and unit) G. Lear DeBevec	REMARKS	License proposed word "essentially" removed on 9/30
NO. 872	DATE 11-6-74	By B. Bordenick 11/13/74

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USE OTHER SIDE FOR ADDITIONAL REMARKS

SGP01 1971 0-422-304

FILE POINT 1

(CONTINUATION)

G-60220

	TARGET	ESTIMATE
27-94 INITIAL AD REVIEW OF DRAFT S.E. SUPPL. COMPLETE.....	11/01/74	Complete
27-95 INITIAL OGC REVIEW OF DRAFT S.E. SUPPLEMENT COMPLETE.....	11/08/74	11-13-74
27-96 INITIAL LPN REVISION OF DRAFT SUPPL. TO SAFETY EVAL. COMP.....	11/12/74	11-13-74
27-96 FINAL A.D. REVIEW OF DRAFT S.E. SUPPLEMENT COMP.....	11/14/74	
28 SUPPL. TO SAFETY EVALUATION ISSUED.....	11/15/74	



11-11-11

SUPPLEMENT NO. 1 TO THE SAFETY EVALUATION REPORT

BY THE DIRECTORATE OF LICENSING

U. S. ATOMIC ENERGY COMMISSION

IN THE MATTER OF

NIAGARA MOHAWK POWER CORPORATION

CONVERSION FROM PROVISIONAL OPERATING LICENSE

TO FULL-TERM OPERATING LICENSE

NINE MILE POINT UNIT 1

DOCKET NO. 50-220

NOVEMBER 15, 1974





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1.0 INTRODUCTION

The AEC Regulatory staff's Safety Evaluation Report (SER), in the matter of the Niagara Mohawk Power Corporation (herein referred to as NMPC or the licensee) application for conversion of Provisional Operating License No. DPR-17 to a full-term operating license for Nine Mile Point Unit 1 (NMP-1) was issued on July 3, 1974. Copies of this report were made available to the Advisory Committee on Reactor Safeguards (ACRS or Committee) to assist it in its review of this application. The Committee completed its review of the licensee's application in September 1974 and reported its findings to the Commission by letter dated September 10, 1974.

2.0 REPORT OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

A copy of the ACRS report to the Commission is included as Appendix A. We have considered the comments and recommendations made by the ACRS in this report and the actions which we have taken or will take relative to these comments and recommendations are described in the following paragraphs. The Committee identified three matters for further surveillance: these matters consist of maintaining leak tightness of main steam line isolation valves; possible improvements in accessibility for in-service inspection of the reactor pressure vessel to assure continued vessel integrity; and consideration to the possible advisability of additional backfitting where significant and practical safety improvements can be made. The Committee concluded that there



exists reasonable assurance that the Nine Mile Point Nuclear Station Unit 1 can continue to be operated at power levels up to 1850 MWt without undue risk to the health and safety of the public. Moreover, the Committee concurred in conversion of the present provisional operating license to a full-term operating license.

#### 2.1 Main Steam Line Isolation Valve Leakage

The Committee indicated its awareness of the difficulty that has been experienced at NMP-1 in maintaining the required leak tightness of the main steam line isolation valves (MSLIV) and stated that the Regulatory staff should continue to follow this matter closely. The licensee stated its belief that leakage through these valves will be maintained at acceptable rates below the Technical Specification limits as a result of changes in maintenance procedures involving the valve seats and plugs, initiated during the 1974 refueling shutdown. The next leakage rate test of the MSLIVs will be performed during the 1975 refueling shutdown. The Regulatory staff will follow this matter to confirm that the problem is corrected.

#### 2.2 Reactor Pressure Vessel In-Service Inspection

The Committee expressed its belief that additional means for assuring continued vessel integrity, including possible improvement in accessibility for inspection, should continue to be actively studied and implemented to the degree practical. The licensee has stated its interest to continue to seek possible improvements in the matter of vessel accessibility and to implement such



improvements to the degree practical. Our on-going review of the operating facility will monitor progress in this area.

2.3 Possible Additional Backfit Improvements

The Committee recommended that the Regulatory staff and the licensee give further consideration to additional backfitting where significant and practical safety improvements can be made. The licensee has indicated that it has a continuing program of review to determine the conformance of NMP-1 with new Regulatory Guides as these are issued. The Regulatory staff will continue its on-going review of NMP-1, including consideration of backfitting where significant and practical safety improvements can be made.

3.0 QUALITY ASSURANCE (QA) PROGRAM

As stated in our SER, we have reviewed the licensee's QA Program and concluded that it is acceptable. The licensee's QA Program was described in four different submittals. This information was superseded by the licensee's submittal of August 28, 1974, entitled, "Tenth Supplement to the Final Safety Analysis Report" which consolidates and unifies the earlier submittals. We have reviewed and determined that the Tenth Supplement to the FSAR is the same as the QA Program which we had previously reviewed and found acceptable.

4:0 CONCLUSIONS

Our conclusions as stated in the Safety Evaluation Report remain unchanged.





APPENDIX A

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
UNITED STATES ATOMIC ENERGY COMMISSION  
WASHINGTON, D.C. 20545

September 10, 1974

OFFICE OF THE SECRETARY

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RECEIVED

Honorable Dixy Lee Ray  
Chairman  
U. S. Atomic Energy Commission  
Washington, D. C. 20545

Subject: REPORT ON NINE MILE POINT NUCLEAR STATION UNIT 1

Dear Dr. Ray:

At its 173rd meeting, September 5-7, 1974, the Advisory Committee on Reactor Safeguards completed a review of the application by the Niagara Mohawk Power Corporation for conversion of its Nine Mile Point Nuclear Station Unit 1 provisional operating license to a full-term operating license. The application also was considered at a Subcommittee meeting in Washington, D. C. on July 29, 1974. During its review, the Committee had the benefit of discussions with representatives of the Niagara Mohawk Power Corporation, General Electric Company, and the AEC Regulatory Staff. The Committee also had the benefit of the documents listed. The Committee previously discussed this project in an operating license report of April 17, 1969 and in subsequent reports dated June 16, 1970 and February 6, 1971.

In its review, the Committee evaluated the operation and performance of this unit with particular emphasis on the response of the applicant to past recommendations for improvements in safety related systems.

Unit 1 is a non-jet pump boiling water reactor of 1850 MW(t) rated power level. Commercial power operation of the plant was begun in December, 1969. The operating history of the unit has been generally satisfactory. However, a number of operating problems or design deficiencies have been encountered during the approximately five year period of power operation. Included among these are: cracking of a core spray nozzle safe end; development of cracks in the steam dryer assembly; control rod scram sluggishness; failure of some control rods to remain fully inserted after scram; increased control rod operating restrictions found necessary to assure protection for a postulated rod drop accident; feedwater control deficiency, with resultant flooding of steam lines; torus baffle dislocation by relief valve steam discharge into the torus; and, failure of a relief valve to reclose. All of these deficiencies appear to have been satisfactorily corrected. Reactor availability has averaged approximately 66%.



• • •

September 10, 1974

Difficulty also has been experienced in respect to repeated occurrences of excessive leakage rates of the main steam isolation valves under test conditions. The applicant now proposes to remachine the valve seats and plugs to an improved configuration and believes that this, together with the probable low levels of residual stresses now existing in these valves, will enable maintenance of acceptable leakage rates in the future. This matter should be followed closely by the Regulatory Staff.

A number of design improvements have been accomplished or committed to since operation began. Among the most significant of these from the point of view of safety are the following. The feedwater system has been modified also to serve as an additional emergency core cooling system for small breaks; emergency power for this system is supplied by an offsite source of hydroelectric power. A fuel cask drop protection system has been designed and approved, and installation will be completed before shipment of spent fuel is undertaken. A containment atmosphere dilution (CAD) system for combustible gas control will be installed and available for operation in 1976. An additional primary pressure boundary leak detection system has been added, and position indication in the control room for the containment vacuum breaker valves has been provided.

Approximately one-fifth of the reactor 7x7 fuel bundles have been replaced with 8x8 fuel; through additional reloads, the core eventually is to consist entirely of 8x8 fuel.

Because of the relatively limited accessibility for in-service inspection of the reactor pressure vessel, the Committee wishes to emphasize again its belief that additional means for assuring continued vessel integrity, including possible improvement in accessibility, should continue to be actively studied and implemented to the degree practical.

The Committee recommends that the Regulatory Staff and the applicant give further consideration to the possible advisability of additional backfitting of Unit 1 where significant and practical safety improvements can be made.

The Committee believes that, in view of the generally satisfactory operating experience to date and the improvements made in the plant as noted herein, and subject to the above comments and those in previous ACRS reports on this plant, there exists reasonable assurance that the Nine Mile Point Nuclear Station Unit 1, can continue to be operated at power levels up to 1850 MW(t) without undue risk to the health and safety of the public. The Committee concurs in conversion of the present provisional operating license to a full-term operating license.

Sincerely yours,



W. R. Stratton  
Chairman



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References:

1. Niagara Mohawk Power Company Technical Supplement to Petition for Conversion from Provisional Operating License to Full-Term Operating License dated July 1972.
2. Applicant's Environmental Report, Operating License Stage, Conversion to Full-Term Operating License, June 1972.
3. Amendments 1 through 3 to Application for Full-Term Operating License.
4. Directorate of Licensing Safety Evaluation Report dated July 3, 1974.
5. Directorate of Licensing letter dated July 3, 1974 concerning list of outstanding items in connection with their review of application for Full-Term Operating License.
6. Niagara Mohawk Power Corporation letter dated November 20, 1972 concerning Fuel Densification and its Effect on Reactor Operation Including Transients and Postulated Loss-of-Coolant Accident.



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