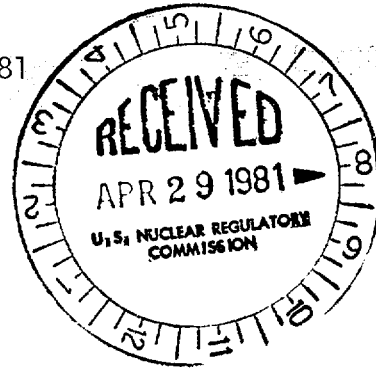


April 20, 1981

Docket No. 50-220



Mr. Donald P. Dise  
 Vice President - Engineering  
 Niagara Mohawk Power Corporation  
 300 Erie Boulevard West  
 Syracuse, New York 13202

Dear Mr. Dise:

SUBJECT: ORDER FOR MODIFICATION OF LICENSE CONCERNING PRIMARY COOLANT  
 SYSTEM PRESSURE ISOLATION VALVES

This letter transmits an Order for Modification of License which revises the Technical Specifications for Facility Operating License No. DPR-63 for the Nine Mile Point Nuclear Power Station, Unit 1. The change is a result of the information you provided in response to our 10 CFR 50.54(f) letter of February 23, 1980, regarding primary coolant system pressure isolation valves. Based upon our review of your response, as well as other previously docketed information, we have concluded contrary to our letter of August 12, 1980 that a WASH-1400 Event V valve configuration exists at your facility and that corrective action as defined in the attached Order is necessary.

Attached to the Order for Modification of License is the Technical Evaluation Report (TER) which supports the Order; and the plant Technical Specifications which will ensure public health and safety over the operating life of your facility. We are aware that there may be editorial corrections to the attached TER. Please note that the Technical Specifications correctly delineate the requirements for your facility.

In addition to Event V valve configurations, we are continuing our efforts to review other configurations located at high pressure/low pressure system boundaries for their potential risk contribution to an intersystem LOCA. Therefore, further activity regarding the broader topic of intersystem LOCA's may be expected in the future.

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OFFICE ▶	.....	.....	.....	.....	.....	.....	.....
SURNAME ▶	.....	.....	.....	.....	.....	.....	.....
DATE ▶	.....	.....	.....	.....	.....	.....	.....

Mr. Donald P. Dise

-2-

A copy of the enclosed Order is being filed with the Office of the Federal Register for publication.

Sincerely,

Thomas A. Ippolito, Chief  
Operating Reactors Branch #2  
Division of Licensing

Enclosure:  
Order for Modification  
of License

cc w/enclosure:  
See next page

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

April 20, 1981

Docket No. 50-220

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Vice President - Engineering  
Niagara Mohawk Power Corporation  
300 Erie Boulevard West  
Syracuse, New York 13202

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-2-

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Sincerely,

  
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Operating Reactors Branch #2  
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Enclosure:  
Order for Modification  
of License

cc w/enclosure:  
See next page

Mr. Donald P. Dise

cc:

Eugene B. Thomas, Jr., Esquire  
LeBoeuf, Lamb, Leiby & MacRae  
1333 New Hampshire Avenue, N. W.  
Suite 1100  
Washington, D. C. 20036

State University College at Oswego  
Penfield Library - Documents  
Oswego, New York 13126

Mr. Joseph J. Sunser, Manager  
System Security  
Niagara Mohawk Power Corporation (Security matters only)  
300 Erie Boulevard West  
Syracuse, New York 13202

Resident Inspector  
c/o U.S. NRC  
P. O. Box 126  
Lycoming, New York 13093

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of  
NIAGARA MOHAWK POWER CORPORATION  
(Nine Mile Point Nuclear Station,  
Unit 1)

)  
)  
)  
) Docket No. 50-220  
)  
)

ORDER FOR MODIFICATION OF LICENSE

I

The Niagara Mohawk Power Corporation (the licensee) holds Facility Operating License No. DPR-63, which authorizes the licensee to operate the Nine Mile Point Nuclear Station, Unit 1 (the facility) at power levels not in excess of 1850 megawatts thermal. The facility, which is located at the licensee's site in Oswego County, New York is a boiling water reactor (BWR) used for the commercial generation of electricity.

II

The Reactor Safety Study (RSS), WASH-1400, identified in a PWR an inter-system loss of coolant accident (LOCA) which is a significant contributor to risk of core melt accidents (Event V). The design examined in the RSS contained in-series check valves isolating the high pressure Primary Coolant System (PCS) from the Low Pressure Injection System (LPIS) piping. The scenario which leads to the Event V accident is initiated by the failure of these check valves to function as a pressure isolation barrier. This causes an overpressurization and rupture of the LPIS low pressure piping which results in a LOCA that bypasses containment.

- 2 -

In order to better define the Event V concern, all light water reactor licensees were requested by letter dated February 23, 1980, to provide the following in accordance with 10 CFR 50.54(f):

1. Describe the valve configurations and indicate if an Event V isolation valve configuration exists within the Class I boundary of the high pressure piping connecting PCS piping to low pressure system piping; e.g., (1) two check valves in series, or (2) two check valves in series with a motor operated valve (MOV);
2. If either of the above Event V configurations exist, indicate whether continuous surveillance or periodic tests are being performed on such valves to ensure integrity. Also indicate whether valves have been known, or found, to lack integrity; and
3. If either of the above Event V configurations exist, indicate whether plant procedures should be revised or if plant modifications should be made to increase reliability.

In addition to the above, licensees were asked to perform individual check valve leak testing prior to plant startup after the next scheduled outage.

By letter dated March 19, 1980, the licensee responded to our February letter. Based upon the NRC review of this response as well as the review of previously docketed information for your facility, I have concluded in consonance with the attached Safety Evaluation (Attachment 1) that one or more valve configuration(s) of concern exist at the facility. The attached Technical Evaluation Report (TER) (Attachment 2) provides, in Section 4.0, a tabulation of the subject valves.

- 3 -

The staff's concern has been exacerbated due not only to the large number of plants which have an Event V configuration(s) but also because of recent unsatisfactory operating experience. Specifically, two plants have leak tested check valves with unsatisfactory results. At Davis-Besse, a pressure isolation check valve in the LPIS failed and the ensuing investigation found that valve internals had become disassembled. At the Sequoyah Nuclear Plant, two Residual Heat Removal (RHR) injection check valves and one RHR recirculation check valve failed because valves jammed open against valve over-travel limiters.

It is, therefore, apparent that when pressure isolation is provided by two in-series check valves and when failure of one valve in the pair can go undetected for a substantial length of time, verification of valve integrity is required. Since these valves are important to safety, they should be tested periodically to ensure low probability of gross failure. As a result, I have determined that periodic examination of check valves must be undertaken by the licensee as provided in Section III below to verify that each valve is seated properly and functioning as a pressure isolation device. Such testing will reduce the overall risk of an inter-system LOCA. The testing mandated by this Order may be accomplished by direct volumetric leakage measurement or by other equivalent means capable of demonstrating that leakage limits are not exceeded in accordance with Section 2.2 of the attached TEP.



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In view of the operating experiences described above and the potential consequences of check valve failure, I have determined that prompt action is necessary to increase the level of assurance that multiple pressure isolation barriers are in place and will remain intact. Therefore, the public health, safety and interest require that this modification of Facility Operating License No. DPR-63 be immediately effective.

### III

Accordingly, pursuant to Section 161i of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR Parts 2 and 50, IT IS HEREBY ORDERED THAT EFFECTIVE IMMEDIATELY, Facility Operating License No. DPR-63 is modified by the addition of the following requirements:

1. Implement Technical Specifications (Attachment 3) which require periodic surveillance over the life of the plant and which specify limiting conditions for operation for PCS pressure isolation valves.
2. If check valves have not been (a) individually tested within 12 months preceding the date of the Order, and (b) found to comply with the leakage rate criteria set forth in the Technical Specifications described in Attachment 3, the MOV in each line shall be closed within 30 days and quarterly Inservice Inspection (ISI) MOV cycling ceased until the check valve tests have been satisfactorily accomplished. (Prior to closing the MOV, procedures shall be implemented and operators trained to assure

- 5 -

- that the MOV remains closed. Once closed, the MOV shall be tagged closed to further preclude inadvertent valve opening.)
3. The MOV shall not be closed as indicated in paragraph 2 above unless a supporting safety evaluation has been prepared to determine whether closing the MOV results in an unreviewed safety question during plant operation. If the safety evaluation results in a determination that no unreviewed safety question exists as defined in 10 CFR 50.59(a)(2), the MOV shall be closed as indicated in paragraph 2 above. If the safety evaluation results in a finding that closing the MOV does present an unreviewed safety question pursuant to 10 CFR 50.59(a)(2), the facility shall be shut down within 30 days of the date of this Order and remain shut down until check valves are satisfactorily tested in accordance with the Technical Specifications set forth in Attachment 3.
  4. The records of the check valve tests required by this Order shall be made available for inspection by the NRC's Office of Inspection and Enforcement.

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## IV

The licensee or any other person who has an interest affected by this Order may request a hearing on this Order within 25 days of its publication in the Federal Register. A request for hearing shall be submitted to the Secretary, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. A copy of the request shall also be sent to the Executive Legal Director at the same address, and to Eugene B. Thomas, Jr., Esquire, LeBoeuf, Lamb, Lieby and MacRae, 1333 New Hampshire Avenue, NW, Suite 1100, Washington, DC 20036, attorney for the licensee. If a hearing is requested by a person other than the licensee, that person shall describe, in accordance with 10 CFR 2.714(a)(2), the manner in which his or her interest is affected by this Order. ANY REQUEST FOR A HEARING SHALL NOT STAY THE IMMEDIATE EFFECTIVENESS OF THIS ORDER.

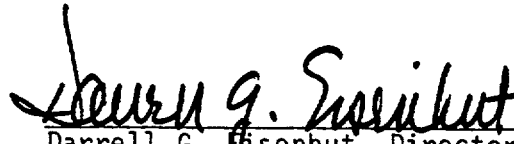
If a hearing is requested by the licensee or other person who has an interest affected by this Order, the Commission will issue an order designating the time and place of any such hearing. If a hearing is held, the issues to be considered at such a hearing shall be:

- (a) Whether the licensee should be required to individually leak test check valves in accordance with the Technical Specifications set forth in Attachment 3 to this Order.
- (b) Whether the actions required by Paragraphs 2 and 3 of section III of this Order must be taken if check valves have not been tested within 12 months preceeding the date of this Order.

- 7 -

Operation of the facility on terms consistent with this Order is not stayed by the pendency of any proceedings on this Order. In the event that a need for further action becomes apparent, either in the course of proceedings on this Order or any other time, the Director will take appropriate action.

FOR THE NUCLEAR REGULATORY COMMISSION



Darrell G. Eisenhut, Director  
Division of Licensing

Effective Date: April 20, 1981  
Bethesda, Maryland

## Attachments:

1. Safety Evaluation Report
2. Technical Evaluation Report
3. Technical Specifications



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

Attachment 1

SAFETY EVALUATION REPORT  
NINE MILE POINT NUCLEAR STATION, UNIT 1  
PRIMARY COOLANT SYSTEM PRESSURE ISOLATION VALVES  
(WASH-1400, EVENT V)

1.0 Introduction

The Reactor Safety Study (RSS), WASH-1400, identified in a PWR an intersystem loss of coolant accident (LOCA) which is a significant contributor to risk of core melt accidents (Event V). The design examined in the RSS contained in-series check valves isolating the high pressure Primary Coolant System (PCS) from the Low Pressure Injection System (LPIS) piping. The scenario which leads to the Event V accident is initiated by the failure of these check valves to function as a pressure isolation barrier. This causes an overpressurization and rupture of the LPIS low pressure piping which results in a LOCA that bypasses containment.

In order to better define the Event V concern, all light water reactor licensees were requested by 10 CFR 50.54(f) letter, dated February 23, 1980, to identify valve configurations of concern and prior valve test results, if any. By letter dated March 19, 1980, the licensee responded to our request and this information was subsequently transmitted to our contractor, the Franklin Research Center, for verification that the licensee had correctly identified the subject valve configurations.

2.0 Evaluation

In order to prepare the Technical Evaluation Report (TER) it was necessary that the contractor verify and evaluate the licensee's response to our February 1980 letter. The NRC acceptance criteria used by Franklin were based on WASH-1400 findings, probabilistic analyses and appropriate Standard Review Plan requirements. With respect to the verification of the licensee's response to our information request, the Franklin evaluation was based on FSAR information, ISI/IST site visit data, and other previously docketed information. The attached Franklin TER correctly identifies the subject valve configurations.

3.0 Conclusion

Based on our review of the Franklin TER, we find that the valve configurations of concern have been correctly identified. Since periodic testing of these PCS pressure isolation valves will reduce the probability of an intersystem LOCA we, therefore, conclude that the requirement to test these valves should be incorporated into the plant's Technical Specifications.

Dated: April 20, 1981

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