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Dockets Nos. 50-315
and 50-316

FEBRUARY 29 1980

Mr. John Dolan
Vice President, Indiana and Michigan
Electric Company
Post Office Box 18
Bowling Green Station
New York, New York 10004

Dear Mr. Dolan:

The Commission has issued the enclosed Amendment No. 36 to Facility Operating License No. DPR-58 and Amendment No. 18 to Facility Operating License No. DPR-74 for the Donald C. Cook Nuclear Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications and license conditions in response to your applications transmitted by letters dated October 25, 1979 and November 30, 1979.

These amendments 1) add a license condition to each license on implementation of a secondary water chemistry monitoring program, 2) delete Technical Specifications in each license on secondary water chemistry now covered by license conditions, and 3) delete the condition from the Unit 2 license on residual heat removal system low flow alarm.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Original Signed By

AS 2/29/80

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

GD

Enclosures:

1. Amendment No. 36 to DPR-58
2. Amendment No. 18 to DPR-74
3. Safety Evaluation
4. Notice of Issuance

CP
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no legal objection to form of amendment or FR notice
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S. TREBY
2/26/80

6284/8234/12531

cc: w/enclosures	ORB#1 ROR	ORB#1: DOR	C-ORP#1: DOR	A-AD-ORP: DOR	STSG: DOR
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SURNAME →	2/25/80	2/ /80	2/25/80	2/25/80	2/25/80
DATE →					



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

February 29, 1980

Dockets Nos. 50-315
and 50-316

Mr. John Dolan
Vice President, Indiana and Michigan
Electric Company
Post Office Box 18
Bowling Green Station
New York, New York 10004

Dear Mr. Dolan:

The Commission has issued the enclosed Amendment No. 36 to Facility Operating License No. DPR-58 and Amendment No. 18 to Facility Operating License No. DPR-74 for the Donald C. Cook Nuclear Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications and license conditions in response to your applications transmitted by letters dated October 25, 1979 and November 30, 1979.

These amendments 1) add a license condition to each license on implementation of a secondary water chemistry monitoring program, 2) delete Technical Specifications in each license on secondary water chemistry now covered by license conditions, and 3) delete the condition from the Unit 2 license on residual heat removal system low flow alarm.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

A handwritten signature in cursive script, appearing to read "A. Schwencer".

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Enclosures:

1. Amendment No. 36 to DPR-58
2. Amendment No. 18 to DPR-74
3. Safety Evaluation
4. Notice of Issuance

cc: w/enclosures
See next page

Mr. John Dolan
Indiana and Michigan Electric Company

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February 29, 1980

cc: Mr. Robert W. Jurgensen
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Honorable James Bemnek, Mayor
City of Bridgman, Michigan 49106

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Office of Radiation Programs (AW-459)
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Arlington, Virginia 20460

U. S. Environmental Protection Agency
Federal Activities Branch
Region V Office
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Chicago, Illinois 60604

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P. O. Box 30035
Lansing, Michigan 48909



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

INDIANA AND MICHIGAN ELECTRIC COMPANY

DOCKET NO. 50-315

DONALD C. COOK NUCLEAR PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 36
License No. DPR-58

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Indiana and Michigan Electric Company (the licensee) dated October 25, 1979, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and 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-58 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 36, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. In addition, the license is hereby amended to include the following paragraph:

"2.C.(3)(m) Secondary Water Chemistry Monitoring Program

The licensee shall implement a secondary water chemistry monitoring program to inhibit steam generator tube degradation. This program shall be described in the station chemistry manual and shall include:

1. Identification of a sampling schedule for the critical parameters and control points for these parameters;
 2. Identification of the procedures used to measure the values of the critical parameters;
 3. Identification of process sampling points;
 4. Procedure for the recording and management of data;
 5. Procedures defining corrective actions for off control point chemistry conditions; and
 6. A procedure identifying (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective actions."
4. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 29, 1980

ATTACHMENT TO LICENSE AMENDMENT NO. 36

FACILITY OPERATI' , LICENSE NO. DPR-58

DOCKET NO. 50-315

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided for document completeness.

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PLANT SYSTEMS

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

LIMITING CONDITION FOR OPERATION

3.7.2.1 The temperatures of both the primary and secondary coolants in the steam generators shall be $> 70^{\circ}\text{F}$ when the pressure of either coolant in the steam generator is > 200 psig.

APPLICABILITY: At all times.

ACTION:

With the requirements of the above specification not satisfied:

- a. Reduce the steam generator pressure of the applicable side to ≤ 200 psig within 30 minutes, and
- b. Perform an analysis to determine the effect of the overpressurization on the structural integrity of the steam generator. Determine that the steam generator remains acceptable for continued operation prior to increasing its temperatures above 200°F .

SURVEILLANCE REQUIREMENTS

4.7.2.1 The pressure in each side of the steam generator shall be determined to be < 200 psig at least once per hour when the temperature of either the primary or secondary coolant in the steam generator is $< 70^{\circ}\text{F}$.

PLANT SYSTEMS

BASES

3/4.7.1.4 ACTIVITY (Continued)

10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 GPM primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the accident analyses.

3/4.7.1.5 STEAM GENERATOR STOP VALVES

The OPERABILITY of the steam generator stop valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and 2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the steam generator stop valves within the closure times of the surveillance requirements are consistent with the assumptions used in the accident analyses.

PLANT SYSTEMS

BASES

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on average steam generator impact values taken at +10°F and are sufficient to prevent brittle fracture.

3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the component cooling water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident analyses.

3/4.7.4 ESSENTIAL SERVICE WATER SYSTEM

The OPERABILITY of the essential service water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident conditions within acceptable limits.



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

INDIANA AND MICHIGAN ELECTRIC COMPANY

DOCKET NO. 50-316

DONALD C. COOK NUCLEAR PLANT UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 18
License No. DPR-74

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment by Indiana and Michigan Electric Company (the licensee) dated October 25, 1979 and November 30, 1979, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the applications, 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-74 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 18, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. In addition, the license is hereby amended to include the following paragraph:

"2.C.(7) Secondary Water Chemistry Monitoring Program

The licensee shall implement a secondary water chemistry monitoring program to inhibit steam generator tube degradation. This program shall be described in the station chemistry manual and shall include:

1. Identification of a sampling schedule for the critical parameters and control points for these parameters;
 2. Identification of the procedures used to measure the values of the critical parameters;
 3. Identification of process sampling points;
 4. Procedure for the recording and management of data;
 5. Procedures defining corrective actions for off control point chemistry conditions; and
 6. A procedure identifying (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective actions."
4. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 29, 1980

ATTACHMENT TO LICENSE AMENDMENT NO. 18

FACILITY OPERATING LICENSE NO. DPR-74

DOCKET NO. 50-316

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. Revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided for document completeness.

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PLANT SYSTEMS

BASES

3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 GPM primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the accident analyses.

3/4.7.1.5 STEAM GENERATOR STOP VALVES

The OPERABILITY of the steam generator stop valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and 2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the steam generator stop valves within the closure times of the surveillance requirements are consistent with the assumptions used in the accident analyses.

PLANT SYSTEMS

BASES

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on average steam generator impact values taken at +10°F and are sufficient to prevent brittle fracture.

3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the component cooling water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident analyses.

3/4.7.4 ESSENTIAL SERVICE WATER SYSTEM

The OPERABILITY of the essential service water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident conditions within acceptable limits.

3/4.7.5 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

The OPERABILITY of the control room EMERGENCY ventilation system ensures that 1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and 2) the control room will remain habitable for operations personnel during and following all credible accident conditions. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criteria 19 of Appendix "A", 10 CFR 50.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO.36 TO FACILITY OPERATING LICENSE NO. DPR-58
AND AMENDMENT NO. 18 TO FACILITY OPERATING LICENSE NO. DPR-74
INDIANA AND MICHIGAN ELECTRIC COMPANY
DONALD C. COOK NUCLEAR PLANT UNIT NOS. 1 AND 2
DOCKET NOS. 50-315 AND 50-316

Introduction

In response to NRC staff letter dated August 1, 1979, the Indiana and Michigan Electric Company, the licensee submitted, by letter dated October 25, 1979, a proposed license condition requiring implementation of a secondary side water chemistry monitoring and control program, and requested the present Technical Specification on secondary side chemistry, and the related surveillance requirements associated with those Technical Specifications, be deleted.

By letter dated November 30, 1979, the licensee submitted the control logic for an alarm designed to alert the reactor operator to possible loss of flow in the residual heat removal system. This submittal was to satisfy a license condition on the D.C. Cook Unit No. 2, Facility Operating License.

Discussion and Evaluation

Secondary Water Chemistry - Addition of a Licensing Condition in Place of Existing Technical Specifications

The NRC staff recognizes that different utilities use different secondary water treatment methods to limit steam generator tube corrosion. Moreover, we recognize that a licensee's choice of a particular water treatment method, including specific values of operating limits for chemistry parameters, is governed by plant and site characteristics that are unique to each facility. In addition, we do not believe at this time that sufficient service experience exists to conclude that any particular method is superior to another for controlling impurities that may be introduced into the secondary coolant. Such experience would be necessary before prescriptive Technical Specifications on secondary water chemistry could, with assurance, minimize tube degradation.

Restricting the amount of chemical additions to control the water chemistry parameters would not ensure the desired steam generator operating conditions. Realizing that meeting the secondary coolant water quality criteria would not

be possible during all periods of operation, it is necessary that the most effective procedure for reestablishing out-of-specification chemistry parameters be available without unduly restricting plant operations. This can be accomplished most rapidly by continuing to operate the unit so that chemical additives to the secondary water can be made to achieve a balanced chemistry.

In particular, we have concluded that the Technical Specification on secondary water chemistry does not provide adequate flexibility to allow desired water conditions to be achieved gradually or ensure long-term tube integrity. In addition, these specifications may not limit specific types of severe tube degradation, particularly "denting." Furthermore, the possible adverse effects of any secondary water parameter limits on the steam purity that could lead to potential failure of rotating turbine components must also be considered before specific limits are required.

We believe that other methods for reducing the impurity concentration in the steam generator such as periodic chemical cleaning for long-term solution, fluxing or free surface boiling for an intermediate term solution, or the use of chelating agents for the control of secondary water purity are more practical. These methods are likely to be more effective in limiting corrosion than specific Technical Specifications that may lack the flexibility needed for proper control of secondary water chemistry. The NSSS vendors are now considering these alternate methods in lieu of restrictive secondary water chemistry limits for assuring steam generator tube integrity. We proposed that the licensee implement a secondary water chemistry monitoring program to inhibit steam generator tube degradation. By letter dated October 25, 1979, the licensee agreed to the program and applied for a license amendment to so condition the license.

In addition, other existing Technical Specification limiting conditions for operation and surveillance requirements for secondary water monitoring requirements provide assurance that steam generator tube integrity will not be reduced below an acceptable level for adequate margins of safety. These specifications are:

1. Technical Specification 3.7.1.4 - Secondary Water Activity Monitoring Requirements.
2. Technical Specification 3.4.6.2 - Primary to Secondary Leakage Rates.
3. Technical Specification 3.4.5 - Steam Generator Tube Surveillance and Plugging Criterion

Based on the above, we conclude that a license condition requiring a secondary water chemistry monitoring program is an acceptable replacement for Specifications 3.7.1.6 and 4.7.1.6 and Tables 3.7-3 and 4.7-3 of the existing Technical Specifications.

Residual Heat Removal System Low Flow Alarm - Removal of License Condition

The D.C. Cook Unit No. 2 residual heat removal (RHR) system includes a single suction line with isolation valves in series. During the original review of

the Unit 2 Facility Operating License application, it was determined that inadvertent closure of one of these valves during RHR operation would result in loss of RHR flow and possible failure of the RHR pump. Since the RHR system provides normal core cooling during shutdown and long-term cooling following an accident, the integrity of the RHR system is important.

To protect against the possible loss of the RHR pump, the applicant proposed an alarm to alert the operator to loss of RHR flow. A license condition was added to the Facility Operating License No. DPR74 reflecting the licensee's proposed actions and commitments. The license condition is as follows:

2.C(3)(1) "Residual Heat Removal System Low Flow Alarm

Indiana and Michigan Power Company shall prior to startup, following the first regularly scheduled refueling outage, develop and submit for Commission review and approval the control logic for an alarm designed to alert the reactor operator to possible loss of flow in the residual heat removal system. Following initial startup and prior to installation of the alarm, Indiana and Michigan Power Company shall station an operator at a local panel to monitor cool-down flow when the residual heat removal system is in operation and the vessel head is in place."

On November 30, 1979, the licensee submitted the control logic for the alarm as required by the license condition. The alarm was installed and tested prior to October 4, 1979. The alarm will be actuated if either or both RHR pump(s) is (are) operating and if the RHR flowrate should drop below 2000 gallons per minute. The alarm which has been described is acceptable to satisfy the commitment in the license condition, and with this commitment satisfied, the D.C. Cook Unit 2 plant may be released from the requirement to provide a dedicated operator to monitor cooldown flow when the RHR system is in operation and the vessel head is in place. Accordingly, the license conditions have been met and the license condition 2.C(3)(1) on Residual Heat Removal System Low Flow Alarm may be removed from the Unit 2, Facility Operating License.

Environmental Consideration

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in significant environmental impact. Having made this determination, we have further concluded that the amendments involve 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 these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the

probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Date: February 29, 1980

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NOS. 50-315 AND 50-316INDIANA AND MICHIGAN ELECTRIC COMPANYNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 36 to Facility Operating License No. DPR-58, and Amendment No. 18 to Facility Operating License No. DPR-74 issued to Indiana and Michigan Electric Company (the licensee), which revised Technical Specifications for operation of Donald C. Cook Nuclear Plant, Unit Nos. 1 and 2 (the facilities) located in Berrien County, Michigan. The amendments are effective as of the date of issuance.

The amendments (1) add a license condition to each license on implementation of a secondary water chemistry monitoring program, 2) delete Technical Specifications in each license on secondary water chemistry now covered by license conditions, and 3) delete the condition from the Unit 2 license on residual heat removal system low flow alarm.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

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The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of these amendments.

For further details with respect to this action, see (1) the applications for amendments dated October 25, 1979 and November 30, 1979, (2) Amendment Nos. 36 and 18 to License Nos. DPR-58 and DPR-74, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the Maude Reston Palenske Memorial Library, 500 Market Street, St. Joseph, Michigan 49085. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 29th day of February, 1980.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief
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