Docket No. 50-315

AUG 18 1977

Indiana and Michigan Electric Company
Indiana and Michigan Power Company
ATTN: Mr. John Tillinghast
Vice President
P. O. Box 18
Bowling Green Station
New York, New York 10004

Gentlemen:

The Commission has issued the enclosed Amendment No. 21 to facility Operating License No. DPR-58 for the Donald C. Cook Nuclear Plant Unit No. 1. This amendment is in response to your requests dated October 24, 1975 and May 13, 1977, as supplemented by letter dated February 18, 1977. The amendment involves changes to the Appendix B Technical Specifications to delete the requirements to limit the rate of temperature change of the circulating water discharged to Lake Michigan and to eliminate three inconsistencies between the Appendix A and Appendix B Technical Specifications.

By letter dated October 24, 1975, and supplement dated February 18, 1977, you requested that the 8°F/hr upper limit for circulating water discharge temperature be deleted. The object of this specification was to minimize the potential for thermal shock to aquatic biota, mainly fishes of recreational and commercial importance by limiting the rate of change of discharge temperature during normal operation and, in particular, during startup and shutdown. The information you have submitted indicates that, not only does the lake thermocline move up to the level of the plant intake structure (24 feet deep) due to natural causes, but it can actually touch the surface. The fishes located in an area of the lake where this occurs would experience extreme rates of temperature change due to natural causes, probably in excess of 8°F/hr. Any aquatic biota in the D. C. Cook Plant vicinity must be able to withstand these extreme rates of temperature change as they have successfully evolved in this environment.

The impact on fish that would occur if the plant starts up or shuts down with rates of temperature change much larger than 8°F/hr is judged to be insignificant. This is because the time over which such a temperature change will occur is small and consequently the volume of water affected would be small. Fish in the vicinity of the plant discharge during such an occurrence are expected to temporarily

move out of the area and will not be endangered. Also, as stated in the D. C. Cook Plant Final Environmental Statement, dated August 1973, the high velocity discharge from the plant circulating water system will prevent fish from maintaining station in and acclimating to the high temperature zones. In many cases, this exclusion may be from preferred isotherms; thus the potential for cold shock during plant shutdowns is minimized.

We have also determined that the likelihood of a thermocline movement passing by the plant while a startup or shutdown is in progress is small because the thermocline does not frequently touch the lake surface. Thus no significant ecological impact from the reinforcing effects of both happening at the same time is expected.

On the basis of the foregoing, we have concluded that the removal of the rate of temperature change limit will not result in significant adverse impact on fish populations in the vicinity of the D. C. Cook Nuclear Plant and is acceptable.

By letter dated May 13, 1977, you proposed three changes to eliminate inconsistencies between the Appendix A and Appendix B Technical Specification requirements for administrative controls. We have determined that the proposed change to Technical Specification Section 1.1.1 to define an abnormal environmental occurrence as one that "results in noncompliance with, or is in violation of, the specification section of a limiting condition for operation" is consistent with current NRC practice and will make the reporting criteria for abnormal environmental occurrences compatible with the criteria for Appendix A reportable occurrences. Therefore, this proposed change is acceptable. We have also determined that your proposed change regarding the required times for submission of non-routine reports to the Commission is consisent with Regulatory Guides 10.1 and 4.8 and is acceptable. However, we have modified your proposed Technical Specification to eliminate reference to Regulatory Guide 1.16 which deals only with Appendix A requirements. This modification was discussed with and found acceptable by your staff.

The final change proposed in your May 13, 1977 letter, regarding review and audit of environmental matters, is still under review by our staff and, therefore, is not addressed in this amendment.

OFFICE➤						
SURNAME➤						
DATE➤						

We have evaluated the potential for environmental impact of plant operation in accordance with the enclosed amendment. 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.

Since the amendment applies only to administrative details and the deletion of a non-radiological monitoring requirement which is no longer necessary, it does not involve significant new safety information of a type not considered by a previous Commission safety review of the facility. It does not involve a significant increase in the probability or consequences of an accident, does not involve a singificant decrease in a safety margin, and, therefore, does not involve a significant hazards consideration. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by this action and such action will not be inimical to the common defense and security.

A copy of the related Notice of Issuance is also enclosed.

Sincerely,

Original signed by

Paul W. O'Connor

for Don K. Davis, Acting Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosures:
1. Amendment No. 21 to DPR-58
2. Notice

cc: See next page

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JBuchanan LPDR DDavis BJones (4) OPA CMiles
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DATE➤	8/5 /77	8/5 /77	8/12 /77	8/18 /77	8/9 /77

abnormal environmental occurrence as one that "results in noncompliance with, or is in violation of, the specification section of a limiting condition for operation" is consistent with current NRC practice and will make the reporting criteria for abnormal environmental occurrences compatible with the criteria for Appendix A reportable occurrences. Therefore this proposed change is acceptable. We have also determined that your proposed change regarding the required times for submission of non-routine reports to the Commission is consistent with Regulatory Guides 10.1 and 4.8 and is acceptable. However, we have modified your proposed Technical Specification to eliminate reference to Regulatory Guide 1.16 which deals only with Appendix A requirements. This modification was discussed with and found acceptable by your staff.

The final change proposed in your May 13, 1977 letter, regarding review and audit of environmental matters, is still under review by our staff and, therefore, is not addressed in this amendment.

We have evaluated the potential for environmental impact of plant operation in accordance with the enclosed amendment. 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.

Since the amendment applies only to administrative details and the deletion of a non-radiological monitoring requirement which is no longer necessary, it does not involve significant new safety information of a type not considered by a previous Commission safety review of the facility. It does not involve a significant increase in the probability or consequences of an accident, does not involve a significant decrease in a safety margin, and, therefore, does not involve a signficant hazards consideration. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by this action and such action will not be inimical to the common defense and security.

A copy of the related Notice of Issuance is also enclosed.

Sincerely,

Don K. Davis, Acting Chief
Operating Reactors Branch #2
Division of Operating Reactors

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Form AEC-318 (Rev. 9-53) AECM 0240

☆ U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

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Mr. Wade Schuler, Supervisor
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Honorable W. Mabry, Mayor
City of Bridgman, Michigan 49106

cc w/enclosures and cy of
I&MECo filings dtd. 10/24/75,
2/18/77 and 5/13/77
Executive Office of the Governor
Division of Intergovernmental
Relations
Lewis Cass Building, 2nd Floor
Lansing, Michigan 48913

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

INDIANA AND MICHIGAN ELECTRIC COMPANY

INDIANA AND MICHIGAN POWER COMPANY

DOCKET NO. 50-315

DONALD C. COOK NUCLEAR PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 21
License No. DPR-58

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Indiana and Michigan Electric Company and Indiana and Michigan Power Company (the licensees) dated October 24, 1975, supplemented by letter dated February 18, 1977, and May 13, 1977 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 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. 21, 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

Paul W O'Connor for

Don K. Davis, Acting Chief
Operating Reactors Branch #2
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 18, 1977

ATTACHMENT TO LICENSE AMENDMENT NO. 21

FACILITY OPERATING LICENSE NO. DPR-58

DOCKET NO. 50-315

Replace the following pages of the Technical Specifications contained in Appendix B of the above-indicated license with the attached pages bearing the same numbers. The changed areas on the revised pages are identified by a marginal line. The page numbers with an asterisk are unchanged overleaf pages that are provided to maintain document completeness.

1.1-1
1.1-2*
2.1-3
2.1-4*
5.4-5*
5.4-6

1 DEFINITIONS

The following terms are defined for uniform interpretation of these specifications.

1.1 ABNORMAL ENVIRONMENTAL OCCURRENCE (AEO)

An abnormal environmental occurrence is one that:

1.1.1 Results in noncompliance with, or is in violation of, the specification section of a limiting condition for operation (section 2),

1.1.2 Results in uncontrolled or unplanned release of chemical, radioactive, thermal, or other discharges from the Donald C. Cook Nuclear Plant in excess of the applicable regulations of governing agencies, or

1.1.3 Results in a significant adverse environmental impact.

1.2 ABSORPTION FIELD

The area where plant waste water which includes sewage plant effluent is discharged on the ground and absorbed into it with no surface water runoff. This area is shown as sanitary waste ponds and process waste waste pond in Figure 4.1.1.5-1.

1.3 AMBIENT LAKE WATER TEMPERATURE

The temperature of the water in the upper one meter in the vicinity of the Plant in the absence of any influence of Plant Operation. The method of estimating ambient lake water temperature is addressed in section 2.1.3.2.

1.4 APPARENT AVERAGE MONTHLY GROWTH

Used with periphyton. The average of replicate monthly samples of periphyton growth. Essentially an estimate of net productivity minus some loss by wave action and grazing by herbivores.

1.5 AQUATIC LIFE

1.5.1 Benthos - macroscopic aquatic invertebrate animals living on or in the sediment.

1.5.2 Macrophyte - rooted aquatic plant.

1.5.3 Periphyton - algae attached to a stable substratum.

1.5.4 Phytoplankton - small floating plant.

1.5.5 Zooplankton - small weakly swimming animals.

1.6 CHLORINE

1.6.1 Free Chlorine - A solution of hypochlorous acid (HOCL) and hypochlorite ion in equilibrium with each other; the solution can be formed by dissolving chlorine gas in water.

1.6.2 Combined Chlorine - Dissolved chlorine which has combined with ammonia or similar compounds in water; the products retain some oxidizing potential.

1.6.3 Total Residual Chlorine (or Chlorine Residual) - The total amount of free and combined chlorine without regard to type present.

1.7 CORROSION PRODUCTS

Dissolved or suspended products of the corrosion of Plant component surfaces exposed to condensate or feedwater.

1.8 DISCHARGES

Plant discharge - The release, emission, or removal of liquids, gases, or solids, including the heat contained therein, from the Plant to the environs.

1.8.1 Discharge Rate - The quantity per unit time of plant discharge.

1.9 FISH LIFE STAGES

1.9.1 Larvae - Starting with hatching from the egg and continuing until the larvae are less than 2.54 cm total length.

1.9.2 Young of the Year (YOY) - Fish in their first year of life, not larvae, defined in terms of total length for each species of fish depending on results of age and modal size class determinations.

1.9.3 Juveniles - Young fish more than 2.5 cm long but not yet adult.

1.9.4 Adults - Mature fish larger than juveniles which are capable of, or have, spawned. This will be determined by gross inspection of the gonads.

temperature drops below 35°F, the intake temperature will drop below 38°, and the limiting temperature will be established in terms of the condenser ΔT.

Operation with any malfunctioning circulating water pump out of service for either Unit will assure the ability to maintain the plant in operation for the relatively short period of time needed to reduce load to meet the specified maximum condenser ΔT and discharge temperature. The increased temperature will therefore be of short duration minimizing any adverse effects.

The temperature monitoring instruments located at each circulating pump discharge and at each condenser outlet will provide information sufficient for the determination of the condenser ΔT for each unit.

2.1.2 RATE OF CHANGE OF DISCHARGE TEMPERATURE

(Deleted)

2.1.3 DEICING OPERATION

2.1.3.1 Objective

The purpose of this specification is to limit possible adverse effects on the lake biota due to deicing operation, while allowing the prevention of ice buildup on the intake structural frames and trash grills.

2.1.3.2 Specification

1. The deicing procedure of pumping heated water to the off-shore intake structure may only be initiated when the intake temperature is 35°F or lower, or there is more than 1 foot of drawdown in the forebay (not caused by starting a pump).

2. Operation of the deicing mode shall be recorded and reported in the annual Operating Reports. The temperature when deicing was initiated shall be reported if it was above 35°F.

3. Deicing shall be terminated when the ambient lake temperature is 36° or higher for a period of seven consecutive days. The method for measuring or calculating ambient lake temperature shall be submitted to the Regulatory staff.

4. Reporting of violations shall be as specified in Sections 5.4.2.1 and 5.4.1.

2.1.3.3 Monitoring Requirements

Recording of intake temperatures shall be as specified in Section 2.1.1.3.

2.1.3.4 Basis

The period when deicing is permitted is controlled to limit thermal stress to aquatic biota at times of the year when deicing operation is not required to maintain free flow of cooling water.

The temperature limitation for initiation of the deicing procedure is intended to minimize stress to the lake biota.

The criterion of an intake temperature of 35°F or lower prior to starting deicing was established to allow the plant operators sufficient latitude in initiating this operation since local lake temperatures can vary significantly in a relatively short period of time. Also, it is known that the phenomenon of frazil ice buildup can occur at water temperatures above 32°F. Prevention of ice buildup rather than removal of ice is desirable, since, once ice formation has been initiated, subsequent buildup is rapid and there would be risk that flow would be interrupted or restricted.

i. Volumes

1. Quarterly sums, in liters, of total measured volume, prior to dilution, of liquid effluent released.

2. Quarterly sums of total determined volume, in liters, of dilution water used during the period of the report.

j. Solid Waste

The following information should be reported for shipments of solid waste and irradiated fuel transported from the site during the report period:

1. The semiannual total quantity in cubic meters and the semiannual total radioactivity in curies for the categories or types of waste.

   a) Spent resins, filter sludges, evaporator bottoms;
   b) Dry compressible waste, contaminated equipment, etc.;
   c) Irradiated components, control rods, etc.;
   d) Other (furnish description).

2. An estimate of the major nuclide composition in the categories of waste above.

3. The disposition of solid easte shipments. (Identify the number of shipments, the mode of transport, and the destination.)

4. The disposition of irradiated fuel shipments. (Identify the number of shipments, the mode of transport, and the destination.)

k. Radiological Impact on Man

Potential doses to individuals and populations should be calculated using measured effluent and meteorological data. A semiannual summary report should be submitted containing the following information:

1. Total body and significant organ doses to individuals in unrestricted areas from receiving-water-related exposure pathways.

2. Total body and skin doses to individuals exposed at the point of maximum offiste ground-level concentrations of radioactive materials in gaseous effluents.

3. Organ doses to individuals in unrestricted areas from radioactive iodine and radioactive material in particulate form from all pathways of exposure.

4. Total body doses to individuals and populations in unrestricted areas from direct radiation from the facility.

5. Total body doses to the population and average doses to individuals in the population from all receiving-water-related pathways.

6. Total body doses to the population and average doses to individuals in the population gaseous effluents to a distance of 50 miles from the site. If a significantly large population area is located just beyond 50 miles from the site, the dose to this population group should be considered.

1. Meteorological Data

The report should include the cumulative joint frequency distribution of wind speed, wind direction, and atmospheric stability for the stability for the quarterly periods. Similar data should be reported separately for the meteorological conditions during batch releases.

Monthly reports on fish impingement (Section 4.1.2.1.2) shall be submitted to the Office of Nuclear Reactor Regulation.

5.4.2 NON-ROUTINE REPORTS

5.4.2.1 Abnormal Environmental Occurrence (AEO)

In the event of an AEO as defined in Section 1.1 a prompt report shall be made within 24 hours by telephone or telegraph to the Director, Region III, Office of Inspection and Enforcement, followed by a written report within 10 days to the Director, Region III, Office of Inspection and Enforcement (cc to Director of Office of Nuclear Reactor Regulation). The written report, and to the extent possible the preliminary telephone and telegraph report, shall: (a) describe, analyze and evaluate the AEO, including extent and magnitude of the impact, (b) describe the cause of the AEO and (c) indicate the corrective action (including any significant changes made in procedures) taken to preclude repetition of the AEO and to prevent similar AEOs involving similar components or systems.

Those events not requiring prompt reports shall be reported within 30 days by a written report to the Director, Region III, Office of Inspection and Enforcement (cc to Director of Office of Nuclear Reactor Regulation).

5.4.2.2 Changes

When a change to the plant design, to the plant operation, or to the procedures described in Section 5.3 is planned which involves an environmental matter or question not previously reviewed and evaluated by the NRC, a report on the change shall be made to the Office of Nuclear Reactor Regulation prior to implementation. The report shall include a description and evaluation of the change.

Changes or additions to permits and certificates required by Federal, State, local and regional authorities for the protection of the environment shall be reported. When the required changes are submitted to the

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-315

INDIANA AND MICHIGAN ELECTRIC COMPANY
INDIANA AND MICHIGAN POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 21 to Facility Operating License No. DPR-58, issued to Indiana and Michigan Electric Company and Indiana and Michigan Power Company (the licensees), which revised the Technical Specifications for operation of the Donald C. Cook Nuclear Plant Unit No. 1 (the facility), located in Berrien County, Michigan. The amendment is effective as of the date of its issuance.

The amendment changed the Appendix B Technical Specifications to delete the requirement to limit the rate of temperature change of circulating water discharged to Lake Michigan and to eliminate inconsistencies between the Appendix A and Appendix B Technical Specifications for the facility.

The applications for the amendment comply 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 amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment 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 the amendment.

For further details with respect to this action, see (1) the October 24, 1975 and May 13, 1977 applications for amendment and supplement dated February 18, 1977, and (2) Amendment No. 21 to License No. DPR-58. Both 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 Preston Palenske Memorial Library, 500 Market Street, St. Joseph, Michigan 49085. A single copy of item (2) 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 18th day of August, 1977.

FOR THE NUCLEAR REGULATORY COMMISSION

Paul W O'Connor

Paul W. O'Connor, Acting Chief
Operating Reactors Branch #2
Division of Operating Reactors