

June 11, 2001

Mr. Robert P. Powers, Senior Vice President  
Indiana Michigan Power Company  
Nuclear Generation Group  
500 Circle Drive  
Buchanan, MI 49107

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNIT 2 - ISSUANCE OF AMENDMENT  
(TAC NO. MB1082)

Dear Mr. Powers:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 234 to Facility Operating License No. DPR-74 for the Donald C. Cook Nuclear Plant, Unit 2. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated January 19, 2001, as supplemented April 20 and May 9, 2001.

The amendment would change the TSs to extend surveillance intervals associated with the emergency diesel generator engines and station batteries that are currently required to be completed beginning June 27, 2001. The license amendment would allow these requirements to be performed during the next refueling outage, but no later than December 31, 2001. This would preclude the need for a mid-cycle shutdown of the unit.

A copy of our related safety evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

**/RA/**

John F. Stang, Senior Project Manager, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-316

Enclosures: 1. Amendment No. 234 to DPR-74  
2. Safety Evaluation

cc w/encls: See next page

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DATE	6/8/01	6/8/01	6/8/01	6/8/01

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Donald C. Cook Nuclear Plant, Units 1 and 2

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INDIANA MICHIGAN POWER COMPANY

DOCKET NO. 50-316

DONALD C. COOK NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 234  
License No. DPR-74

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Indiana Michigan Power Company (the licensee) dated January 19, 2001, as supplemented April 20 and May 9, 2001, 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 the addition of paragraph 2.C.(3)(x) to the license. The changes are indicated in the attachment to this license amendment.
3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Claudia M. Craig, Chief, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: June 11, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 234

FACILITY OPERATING LICENSE NO. DPR-74

DOCKET NO. 50-316

Replace the following page of the License with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

REMOVE

License Page -9-

INSERT

License Page -9-

(v) 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.

(w) The steam generator tube inspection surveillance maximum inspection interval of Technical Specification 4.4.5.3 is extended until the start of cycle 13, but no later than June 30, 2002.

(x) The emergency diesel generator engine inspection Technical Specification surveillance requirements 4.8.1.1.2.e.1 and 4.8.1.1.2.e.7 has been extended to allow its performance during refueling outage 13, but no later than December 31, 2001.

The station battery service testing Technical Specification surveillance requirements 4.8.2.3.2.d and 4.8.2.5.2.d have been extended to allow them to be performed during refueling outage 13, but no later than December 31, 2001.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 234 TO FACILITY OPERATING LICENSE NO. DPR-74  
INDIANA MICHIGAN POWER COMPANY  
DONALD C. COOK NUCLEAR PLANT, UNIT 2  
DOCKET NO. 50-316

1.0 INTRODUCTION

By application dated January 19, 2001, as supplemented April 20 and May 9, 2001, the Indiana Michigan Power Company (the licensee) requested an amendment to License No. DPR-74 for the Donald C. Cook Nuclear Plant (D.C. Cook), Unit 2. The proposed amendment would add a license condition to extend surveillance intervals associated with the emergency diesel generator (EDG) engines and station batteries that are currently required to be completed beginning June 27, 2001. The proposed license amendment would allow these surveillances to be performed during the next refueling outage, but no later than December 31, 2001. This would preclude the need for a mid-cycle shutdown of the unit.

The April 20 and May 9, 2001, supplemental letters, did not change the scope of the proposed action and did not change the Nuclear Regulatory Commission's (NRC's) preliminary no significant hazards consideration determination.

2.0 EVALUATION

2.1 TS Surveillance Requirement (SR) 4.8.1.1.2.e.1

This SR currently requires that at least once per 18 months, during shutdown, each EDG be subjected to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendation for this class of standby service.

The licensee has proposed to add a condition to Facility Operating License No. DPR-74 to allow an extension of the Unit 2 SR 4.8.1.1.2.e.1. The proposed change would allow this SR to be completed during the next refueling outage, but no later than December 31, 2001. The proposed change would extend the 18-month surveillance interval, which is permitted to be up to a maximum of 22.5 months to a one-time interval of less than 29 calendar months. The proposed change adds the following condition to Facility Operating License No. DPR-74:

ENCLOSURE



The emergency diesel generator engine inspection Technical Specification surveillance requirement 4.8.1.1.2.e.1 has been extended to allow its performance during refueling outage 13, but no later than December 31, 2001.

SR 4.8.1.1.2.e.1 can only be performed with the unit shut down. The SR was last completed for the AB and CD engines on August 11 and September 20, 1999, respectively. The SR must again be performed for these EDGs no later than June 27, 2001.

The licensee states that extending the required completion date for SR 4.8.1.1.2.e.1 from June 27, to December 31, 2001, would result in approximately 6 additional starts and approximately 11 additional hours of run time for performance of monthly surveillance tests. The licensee indicated that surveillance histories for the EDGs indicate that EDGs typically accumulate from approximately 70 to 230 hours of run-time between SR 4.8.1.1.2.e.1 inspections. The licensee further indicates that approximately 11 additional hours of run time for performance of monthly surveillance tests would result from the extension and would not cause the accumulated run-time between performance of the SR inspections to fall outside the typical range. In addition, the licensee states that SR inspection is conducted on a much higher frequency, with respect to operating hours, than the original equipment manufacturer requires for engines of this design. The licensee states that the vendor technical manual for this type of engine recommends inspections at 1000, 4000, and 8000 hours, and that these intervals are significantly greater than the 230 hour maximum normal interval occurring at D.C. Cook.

The licensee conducts quarterly analysis of the engine lubricating oil. The results of these analyses provide an indicator of the condition of the EDG. The lubricating oil is tested for water content, which is an indication of an internal EDG leak, and various metal particulate, which would indicate excessive parts wear or a bearing problem. The results of the previous four years do not indicate any previous anomalies.

The licensee will continue all other TS SR requirements, such as monthly test, fuel level checks, and fuel transfer checks. All periodic preventive and predictive maintenance activities will continue during the remainder of the operating cycle. This will provide an ongoing opportunity to promptly identify and correct conditions that may impact EDG operation, and provide assurance on EDG performance and reliability.

The current reliability of both Unit 2 EDGs is 99 percent (there has been only one failure in the last 100 demand for both Unit 2 EDGs). The current unavailability times for the previous 24 months are 22 and 20 hours for the AB and CD EDGs respectively. The unavailability goal selected for the maintenance rule program is 432 hours in a 24-month period.

Based on the above information, the NRC staff concludes that the proposed change to permit a one-time extension of SR intervals for SRs 4.8.1.1.2.e.1 from 22.5 months to a maximum one-time interval of less than 29 calendar months would have no significant impact on EDGs performance and the design of the onsite AC power system for D.C. Cook will continue to comply with the requirements of General Design Criterion (GDC) 17," Electric Power Systems." Therefore, the proposed change is acceptable.

## 2.2 SR 4.8.1.1.2.e.7

This SR currently requires that EDG be run at least once every 18 months during shutdown for a minimum of eight hours at a power factor less than or equal to 0.86. During this test, the EDG is loaded to 3500 kW. After completing the 8-hour test, the EDG is stopped and within 5 minutes restarted from existing conditions and verified that it achieves voltage and frequency of 4160 volts and 60 Hertz within 10 seconds.

The licensee has proposed to add a condition to Facility Operating License No. DPR-74 to allow an extension of the Unit 2 SR 4.8.1.1.2.e.7. The proposed change would allow this SR to be completed during the next refueling outage, but no later than December 31, 2001. The proposed change would extend the 18-month surveillance interval, which is permitted to be up to a maximum of 22.5 months, to a maximum one-time interval of less than 29 calendar months.

The AB EDG was successfully last tested on September 14, 1999, and the CD EDG was successfully tested on October 8, 1999. The required dates for the testing to be performed are July 31 and August 24, 2001, respectively. These dates include the 25 percent allowance allowed by TS 4.0.2.

The current reliability of both Unit 2 EDGs is 99 percent (there has been only one failure in the last 100 demand for both Unit 2 EDGs). The current unavailability times for the previous 24 months are 22 and 20 hours for the AB and CD EDGs respectively. The unavailability goal selected for the maintenance rule program is 432 hours in a 24-month period.

Additionally, the licensee will continue all other TS SR requirements, such as monthly test, fuel level checks, and fuel transfer checks. All periodic preventive and predictive maintenance activities will continue during the remainder of the operating cycle. This will provide an ongoing opportunity to promptly identify and correct conditions that may impact EDG operation, and provide assurance on EDG performance and reliability.

Based on the above information, the NRC staff concludes that the proposed change to permit a one-time extension of SR intervals for SRs 4.8.1.1.2.e.7 from 22.5-months to a maximum one-time interval of less than 29 calendar months would have no significant impact on EDGs' performance and the design of the onsite AC power system for D.C. Cook will continue to comply with the requirements of GDC 17. Therefore, the proposed change is acceptable.

## 2.3 SR 4.8.2.3.2.d and SR 4.8.2.5.2.d

These surveillances currently require that train AB, train CD, and train N battery banks be demonstrated operable at least once per 18 months by performing a battery service test during shutdown. These tests are performed with the battery charger disconnected and the voltage of the battery under test must be greater or equal to 210 volts throughout the test.

The service test of a battery is a special test to demonstrate the battery capability, as found, to satisfy the design requirements of the direct current (DC) electrical power system. The rate of discharge and the test length correspond to the design duty cycle. The 18-month frequency of the test is consistent with the recommendation of Regulatory Guide (RG) 1.32 "Criteria for Safety - Related Electric Power Systems for Nuclear Power Plants" and RG 1.129,

“Maintenance, Testing and Replacement of Large Lead Storage for Nuclear Power Plants,” which state that battery service testing should be performed during refueling operations or at some other outage, with intervals between tests not to exceed 18 months.

The service tests at D.C. Cook were completed for the AB train on August 11, 1999, for the CD train on September 15, 1999, and for train N on August 13, 1999. The service test for these banks must again be performed not later than June 27, August 1, and June 29, 2001, respectively. These dates include 25 percent extension as per TS 4.0.2.

The requested change would allow the licensee to perform the service tests during the next refueling outage, but not later than December 31, 2001. The proposed change would add the following condition to Facility Operating License No. DPR-74.

The station battery inspection and service testing Technical Specification surveillance requirements 4.8.2.3.2.d and 4.8.2.5.2.d have been extended to allow them to be performed during refueling outage 13, but no later than December 31, 2001.

The batteries at D.C. Cook were installed on the following dates:

Battery 2AB in September, 1994  
Battery 2N in May, 1988  
Battery CD in November, 1997

Based on the results of the capacity testing performed on these batteries (Battery 2AB and 2N in August 1999, and Battery 2CD in September 1999), the current capacity of Battery 2AB is 105.67 percent, the capacity of the 2N Battery is 101.75 percent, and the capacity of the 2CD Battery is 106.30 percent. All batteries passed their service tests successfully.

The D.C. Cook batteries are relatively new except for Battery 2N, which was installed in May 1988. The 2N Battery demonstrated a capacity decrease rate of 1.4 percent/year during the period from April 1996 and August 1999. The approximate age and estimated capacity of the 2N Battery at the end of 2001 are 13.5 years and 98 percent capacity. This estimated capacity at the end of the requested extension period is above the 80 percent capacity assumed in sizing calculation of the 2N Battery.

As shown on the aging curve supplied by the manufacturer (percent capacity vs equivalent life years) it is not expected that batteries capacities will decrease substantially.

Additionally, in 1999, each battery at D.C. Cook was subjected to a Modified Performance Test. The test was a simulation of the actual 4-hour load duty cycle followed by a discharge at the rated 4-hour current until the battery terminal voltage reached 210 volts. The battery terminal voltages at the simulated 4-hour load duty cycle were as follows:

Battery 2AB 221.5 volts  
Battery 2CD 217.3 volts  
Battery 2N 227.6 volts

D.C. Cook TS acceptable value is 210 volts. The staff believes that although the above data shows that the batteries are healthy, additional monitoring of the batteries is needed during the

proposed time extension of the SR interval to assure that degradation of batteries is promptly detected. Subsequently, in a letter dated May 9, 2001, the licensee committed to perform the following:

- 1) Battery 2AB, cell #2 will be designated as a pilot cell during the performance of weekly surveillance tests in accordance with Unit 2 TS SRs 4.8.2.3.2.a.
- 2) Unit 2 TS SRs 4.8.2.3.2.b for batteries 2AB, 2CD and 4.8.2.5.2.b for 2N will be decreased from quarterly to monthly.

Additionally, the licensee proposed to revise the license condition in the previous letter dated January 19, 2001, to more accurately reflect the requested change. The proposed license condition would read as follows:

The station battery service testing Technical Specification surveillance requirement 4.8.2.3.2.d and 4.8.2.5.2.d have been extended to allow them to be performed during the refueling outage 13, but not later than December 31, 2001.

The NRC staff concludes that, based on the previous test results and performance of the required weekly and quarterly battery surveillances, there is reasonable assurance that the batteries will perform their intended function during the extension period and the design of the onsite D.C. Cook power system will continue to comply with the requirements of GDC 17. In addition, the licensee committed to perform the TS required quarterly test on a monthly basis. In view of the above, the proposed change is acceptable.

### 3.0 SUMMARY

Based on the above, the staff recommends that the licensee's request to modify the D.C. Cook, Unit 2 operating license to allow the performance of the above SRs during the refueling outage 13, but no later than December 31, 2001, is acceptable.

### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Michigan State official was notified of the proposed issuance of the amendment. The State official had no comments.

### 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (66 FR 15926). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 6.0 CONCLUSION

The staff has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: S. Saba  
O. Chopra

Date: June 11, 2001