UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 31, 2020

Mr. Joel P. Gebbie
Senior Vice President and Chief
Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNIT NOS. 1 AND 2 - ISSUANCE OF AMENDMENT NOS. 350 AND 331 TO REVISE TECHNICAL SPECIFICATION 5.5.5, "REACTOR COOLANT PUMP FLYWHEEL INSPECTION PROGRAM," IN ACCORDANCE WITH TSTF-421-A, REVISION 0 (EPID L-2019-LLA-0195)

Dear Mr. Gebbie:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment Nos. 350 and 331 to Renewed Facility Operating License Nos. DPR-58 and DPR-74, for the Donald C. Cook Nuclear Plant (CNP), Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications in response to your application dated August 27, 2019.

The amendments revise the CNP Technical Specification 5.5.5, "Reactor Coolant Pump [RCP] Flywheel Inspection Program," in accordance with Technical Specifications Task Force (TSTF) Change Traveler TSTF-421-A, "Revision to RCP Flywheel Inspection Program (WCAP-15666)," Revision 0.

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

Sincerely,

/RA/

Robert F. Kuntz, Senior Project Manager
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-315 and 50-316

Enclosure:
1. Amendment No. 350 to DPR-58
2. Amendment No. 331 to DPR-74
3. Safety Evaluation

cc: Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

INDIANA MICHIGAN POWER COMPANY

DOCKET NO. 50-315

DONALD C. COOK NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 350
License No. DPR-58

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

   A. The application for amendment by Indiana Michigan Power Company dated August 27, 2019, 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 Renewed Facility Operating License No. DPR-58 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 350, are hereby incorporated in this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Nancy L. Salgado, Chief
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility Operating License and Technical Specifications

Date of Issuance: January 31, 2020

ATTACHMENT TO LICENSE AMENDMENT NO. 350

DONALD C. COOK NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

DOCKET NO. 50-315

Renewed Facility Operating License No. DPR-58

Replace the following page of the Renewed Facility Operating License No. DPR-58 with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the area of change

INSERT	REMOVE
-3-	-3-

Technical Specifications

Replace the following page of the Renewed Facility Operating License, Appendix A, Technical Specifications, with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the area of change.

INSERT	REMOVE
5.5-4	5.5-4

and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument and equipment calibration or associated with radioactive apparatus or components; and

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not to exceed 3304 megawatts thermal in accordance with the conditions specified herein.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 350, are hereby incorporated in this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Less than Four Loop Operation

The licensee shall not operate the reactor at power levels above P-7 (as defined in Table 3.3.1-1 of Specification 3.3.1 of Appendix A to this renewed operating license) with less than four reactor coolant loops in operation until (a) safety analyses for less than four loop operation have been submitted, and (b) approval for less than four loop operation at power levels above P-7 has been granted by the Commission by amendment of this license.

(4) Fire Protection Program

Indiana Michigan Power Company shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee's amendment request dated July 1, 2011, as supplemented by letters dated September 2, 2011, April 27, 2012, June 29, 2012, August 9, 2012, October 15, 2012, November 9, 2012, January 14, 2013, February 1, 2013,

5.5 Programs and Manuals

5.5.5 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel.

A qualified in-place UT examination over the volume from the inner bore of the flywheel to the circle one-half of the outer radius or a surface examination (magnetic particle testing or penetrant testing, or combination of the two tests) of exposed surfaces of the removed flywheels shall be conducted at an interval not to exceed 20 years.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Reactor Coolant Pump Flywheel Inspection Program Surveillance Frequency.

5.5.6 DELETED

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

INDIANA MICHIGAN POWER COMPANY

DOCKET NO. 50-316

DONALD C. COOK NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 331
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 dated August 27, 2019, 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 Renewed Facility Operating License No. DPR-74 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 331, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Nancy L. Salgado, Chief
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility Operating License and Technical Specifications

Date of Issuance: January 31, 2020

ATTACHMENT TO LICENSE AMENDMENT NO. 331

DONALD C. COOK NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

DOCKET NO. 50-316

Renewed Facility Operating License No. DPR-74

Replace the following page of the Renewed Facility Operating License No. DPR-74 with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the area of change.

INSERT	REMOVE
-3-	-3-

Technical Specifications

Replace the following page of the Renewed Facility Operating License, Appendix A, Technical Specifications, with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the area of change.

INSERT	REMOVE
5.5-4	5.5-4

radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument and equipment calibration or associated with radioactive apparatus or components; and

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not to exceed 3468 megawatts thermal in accordance with the conditions specified herein and in Attachment 1 to the renewed operating license. The preoperational tests, startup tests and other items identified in Attachment 1 to this renewed operating license shall be completed. Attachment 1 is an integral part of this renewed operating license.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 331, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Additional Conditions

(a) Deleted by Amendment No. 76

(b) Deleted by Amendment No. 2

(c) Leak Testing of Emergency Core Cooling System Valves

Indiana Michigan Power Company shall prior to completion of the first inservice testing interval leak test each of the two valves in series in the

5.5 Programs and Manuals

5.5.5 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel.

A qualified in-place UT examination over the volume from the inner bore of the flywheel to the circle one-half of the outer radius or a surface examination (magnetic particle testing or penetrant testing, or combination of the two tests) of exposed surfaces of the removed flywheels shall be conducted at an interval not to exceed 20 years.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Reactor Coolant Pump Flywheel Inspection Program Surveillance Frequency.

5.5.6 DELETED

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 350 AND 331 TO

RENEWED FACILITY OPERATING LICENSE NOS. DPR-58 AND DPR-74

INDIANA MICHIGAN POWER COMPANY

DONALD C. COOK NUCLEAR PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-315 AND 50-316

1.0 INTRODUCTION

By application dated August 27, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19241A242), Indiana Michigan Power Company (the licensee) submitted a license amendment request for the Donald C. Cook Nuclear Plant (CNP), Unit Nos. 1 and 2.

The proposed changes would extend the reactor coolant pump (RCP) motor flywheel examination frequency from the currently approved 10-year inspection interval to an interval not to exceed 20 years. These changes are based on the U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specifications Task Force (TSTF) Change Traveler TSTF-421, "Revision to RCP Flywheel Inspection Program (WCAP-15666)," that has been approved generically for the Westinghouse Standard Technical Specifications (TSs), NUREG-1431. A notice announcing the availability of this proposed TS change using the consolidated line item improvement process was published in the *Federal Register* on October 22, 2003 (68 FR 60422).

2.0 REGULATORY EVALUATION

The function of the RCP in the reactor coolant system of a pressurized-water reactor plant is to maintain an adequate cooling flow rate by circulating a large volume of primary coolant water at high temperature and pressure through the reactor coolant system. Following an assumed loss of power to the RCP motor, the flywheel, in conjunction with the impeller and motor assembly, provides sufficient rotational inertia to assure adequate primary coolant flow during RCP coastdown, thus resulting in adequate core cooling.

A concern regarding the overspeed of the RCP and its potential for failure led to the issuance of NRC Regulatory Guide (RG) 1.14, "Reactor Coolant Pump Flywheel Integrity," Revision 1, dated August 1975 (ADAMS Accession No. ML003739936). RG 1.14 describes a method acceptable to the NRC staff of addressing concerns related to RCP vibration and the possible effects of missiles that might result from the failure of the RCP flywheel. The need to protect components important to safety from such missiles are included in General Design Criterion

(GDC) 4, "Environmental and Dynamic Effects Design Basis," of Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," which is applicable to plants that obtained their construction permits after May 21, 1971.

The construction permits for CNP, Unit Nos. 1 and 2, were issued and the majority of construction was completed prior to issuance of 10 CFR 50, Appendix A GDC, in 1971 by the Atomic Energy Commission (AEC). CNP, Unit Nos. 1 and 2, were designed and constructed to comply with the AEC GDC as proposed on July 10, 1967. The application of the AEC proposed GDC to CNP, Unit Nos. 1 and 2, is contained in the Updated Final Safety Analysis Report Section 1.4, "Plant Specific Design Criteria (PSDC)." PSDC criterion 40 "Missile Protection" describes the missile protection criteria for CNP, Unit Nos. 1 and 2.

Specific requirements to have an RCP flywheel inspection program consistent with RG 1.14 or previously issued relaxations from the regulatory guide are included in the Administrative Controls section of the TSs. The purpose of the testing and inspection programs defined in the TSs is to ensure that the probability of a flywheel failure is sufficiently small such that additional safety features are not needed to protect against a flywheel failure. The regulatory guide provides criteria in terms of critical speeds that could result in the failure of an RCP flywheel during normal or accident conditions. In addition to the guidance in RG 1.14, the NRC has more recently issued RG 1.174, Revision 2, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," May 2011 (ADAMS Accession No. ML100910006), which provides guidance and criteria for evaluating proposed changes that use risk-informed justifications.

A proposed justification for extending the RCP flywheel inspections from a 10-year inspection interval to an interval not to exceed 20 years was provided by the Westinghouse Owners Group in topical report WCAP-15666, "Extension of Reactor Coolant Pump Motor Flywheel Examination," transmitted by letter dated August 24, 2001 (ADAMS Accession No. ML012420149). The topical report addressed the proposed extension for all domestic Westinghouse plants. The NRC approved the topical report for referencing in license applications in a letter and safety evaluation dated May 5, 2003 (ADAMS Accession No. ML031250595).

The licensee has reviewed the NRC staff's model safety evaluation, which was published in the *Federal Register* on June 24, 2003 (68 FR 37590), as well as the information provided to support TSTF-421, including topical report WCAP-15666 and the related safety evaluation dated May 5, 2003. The licensee's evaluation concluded TSTF-421 and the model safety evaluation are applicable to CNP, Unit Nos. 1 and 2, and appropriate to incorporate into the CNP, Unit Nos. 1 and 2, TSs.

3.0 TECHNICAL EVALUATION

TS 5.5.5, "Reactor Coolant Pump Flywheel Inspection Program," requires an in place ultrasonic examination over the volume from the inner bore of the RCP flywheel to the circle of one half of the outer radius or an alternative surface examination (magnetic particle testing and/or liquid penetrant testing) of exposed surfaces defined by the volume of the disassembled flywheel. Currently, these examinations must be performed once every 10 years. The change proposed in this amendment application would revise the inspection interval to "an interval not to exceed 20 years." This change deviates slightly from TSTF 421, which uses "at 20 year intervals."

However, the change agrees with the phrasing in WCAP 15666 and is more conservative than the requirement as stated in TSTF 421.

The justification for the proposed change was provided in WCAP-15666, which the NRC staff accepted for referencing in license applications by a letter and safety evaluation dated May 5, 2003. The topical report addresses the three critical speeds defined in RG 1.14: (a) the critical speed for ductile failure, (b) the critical speed for non-ductile failure, and (c) the critical speed for excessive deformation of the flywheel. The NRC staff concluded that the methodologies in the topical report adequately addressed these issues and demonstrated that acceptance criteria, for normal and accident conditions defined in RG 1.14, would continue to be met for all domestic Westinghouse plants following an extension of the inspection interval. The topical report also provided a risk assessment for extending the RCP flywheel inspection interval. The NRC staff's review, documented in the safety evaluation for the topical report, determined that the analysis methods and risk estimates are acceptable when compared to the guidance in RG 1.174.

Based on the above, the NRC staff concludes that the regulatory positions in RG 1.14 concerning the three critical speeds are satisfied, and that the evaluation indicating that critical crack sizes are not expected to be attained during a 20-year inspection interval is reasonable and acceptable. The potential for failure of the RCP flywheel is, and will continue to be, negligible during normal and accident conditions. The changes are, therefore, acceptable and the TSs will continue to meet the requirements of 10 CFR 50.36(c)(5) by providing the guidelines necessary to assure operation of the facility in a safe manner.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of Michigan official was notified of the proposed issuance of the amendments on December 13, 2019. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change the requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes a surveillance requirement. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration in the *Federal Register* on October 8, 2019 (84 FR 53772), and there has been no public comment on such finding. Accordingly, the amendments 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 amendments.

6.0 CONCLUSION

The Commission 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) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: Robert Kuntz, NRR

Date of issuance: January 31, 2020

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNIT NOS. 1 AND 2 - ISSUANCE OF AMENDMENT NOS. 350 AND 331 TO REVISE TECHNICAL SPECIFICATION 5.5.5, "REACTOR COOLANT PUMP FLYWHEEL INSPECTION PROGRAM," IN ACCORDANCE WITH TSTF-421-A, REVISION 0 (EPID L-2019-LLA-0195) DATED JANUARY 31, 2020

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ADAMS Accession No.: ML19347B376 *via e-mail

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