



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

February 4, 2016

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, UNITS 1 AND 2 – REQUEST FOR USE  
OF ALTERNATIVE REL-PP1 ASSOCIATED WITH PUMP INSERVICE TESTING  
(CAC NOS. MF6548 AND MF6549)

Dear Mr. Gebbie:

By letter dated July 31, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15216A121), as supplemented by letter dated September 11, 2015 (ADAMS Accession No. ML15258A024), Indiana Michigan Power Company (I&M, the licensee) submitted a request for the use of an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of nuclear power plants (OM Code), associated with pump inservice testing (IST) for the Donald C. Cook Nuclear Plant (CNP), Units 1 and 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(z)(2), the licensee requested to use the proposed alternative in request REL-PP1 on the basis that the ASME OM Code requirements present an undue hardship without a compensating increase in the level of quality or safety. The ASME OM Code requires vibration measurements to be taken on each accessible pump-bearing housing for centrifugal pumps. The proposed alternative would allow vibration measurements to be taken at the outboard motor bearing for the boric acid storage tank transfer pumps at CNP Units 1 and 2.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the subject request and has determined, as set forth in the enclosed safety evaluation, that the proposed alternative provides reasonable assurance that the affected components are operationally ready. The staff concludes that compliance with the specified requirement results in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2), and is in compliance with the ASME Code requirements.

Therefore, the NRC staff authorizes the use of the alternative request REL-PP1 for CNP Units 1 and 2 for the fifth 10-year IST program interval, which will begin on July 1, 2016, and is scheduled to end on June 30, 2026.

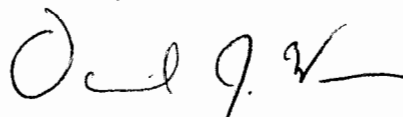
All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject request remain applicable.

J. Gebbie

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If you have any questions, please contact Allison W. Dietrich at 301-415-2846, or via e-mail at [Allison.Dietrich@nrc.gov](mailto:Allison.Dietrich@nrc.gov)

Sincerely,

A handwritten signature in black ink, appearing to read "David J. Wrona". The signature is fluid and cursive, with a prominent initial "D" and a long horizontal stroke at the end.

David J. Wrona, Chief  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-315 and 50-316

Enclosure: Safety Evaluation

cc: Distribution via ListServ



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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

ALTERNATIVE REQUEST REL-PP1

INDIANA MICHIGAN POWER COMPANY

DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-315 AND 50-316

1.0 INTRODUCTION

By letter dated July 31, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML15216A121), as supplemented by letter dated September 11, 2015 (ADAMS Accession Number ML15258A024), Indiana Michigan Power Company (I&M, the licensee) submitted a request for the use of an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), associated with pump inservice testing (IST) at the Donald C. Cook Nuclear Plant (CNP), Units 1 and 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(z)(2), the licensee requested to use the proposed alternative in request REL-PP1 on the basis that the ASME OM Code requirements present an undue hardship without a compensating increase in the level of quality or safety.

2.0 REGULATORY EVALUATION

10 CFR 50.55a(f), states, in part, that IST of certain ASME Code Class 1, 2, and 3 pumps and valves must be performed in accordance with the specified ASME OM Code and applicable addenda incorporated by reference in the regulations.

10 CFR 50.55a(z) states that alternatives to the requirements of paragraph (f) of 10 CFR 50.55a may be used, when authorized by the U.S. Nuclear Regulatory Commission (NRC), if the licensee demonstrates that (1) the proposed alternatives would provide an acceptable level of quality and safety or (2) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request and the Commission to authorize the alternative requested by the licensee.

Enclosure

3.0 TECHNICAL EVALUATION

3.1 Licensee's Alternative Request REL-PP1

The ASME OM Code, paragraph ISTB-3540, "Vibration," (a), states:

On centrifugal pumps, except vertical line shaft pumps, measurements shall be taken in a plane approximately perpendicular to the rotating shaft in two approximately orthogonal directions on each accessible pump-bearing housing. Measurement shall also be taken in the axial direction on each accessible pump thrust bearing housing.

The licensee requested to use an alternative to the applicable ASME OM Code requirements for the pumps listed in Table 1.

Table 1

Pump Number	Pump Name	ASME OM Code Group	Pump Type
1-PP-46-1	Boric Acid Storage Tanks Transfer Pump #1	A	Centrifugal
1-PP-46-2	Boric Acid Storage Tanks Transfer Pump #2	A	Centrifugal
2-PP-46-3	Boric Acid Storage Tanks Transfer Pump #3	A	Centrifugal
2-PP-46-4	Boric Acid Storage Tanks Transfer Pump #4	A	Centrifugal

The CNP Units 1 and 2 fifth 10-year IST program interval will begin on July 1, 2016, and is scheduled to end on June 30, 2026. The applicable ASME OM Code edition and addenda for the CNP Units 1 and 2 fifth 10-year IST program interval is the 2004 Edition through the 2006 Addenda.

3.2 Reason for Request

In the submittal dated July 31, 2015, the licensee stated, in part:

By design, the only accessible point for taking axial vibration measurements is the outboard motor bearing. It is unsafe to monitor the axial direction vibration on the inboard pump bearing due to the proximity of the rotating shaft, and there is no position in monitoring the outboard pump bearing housing because of the presence of heat tracing. Modifications to the coupling shield to allow access were attempted. However; the modified shield did not provide sufficient clearance to allow individuals performing the measurement to safely place their hands near the rotating shaft.

### 3.3 Proposed Alternative

The licensee requests to measure axial vibration at the outboard motor bearing for the pumps listed in Table 1. The vibration limits contained in ASME OM Code Table ISTB-5121-1 will be applied to the vibration levels monitored at the outboard motor bearing during both the Group A and comprehensive test.

The licensee stated that although the axial vibration measurement would now include the noise from the motor, that contribution would be minimal because the pump is directly coupled to the motor, and all significant axial contributors to vibration should originate from the pump.

### 3.4 NRC Staff Evaluation

The boric acid storage tanks transfer pumps have a safety requirement to pump a boric acid solution from the boric acid storage tank to the suction of the charging pumps. The ASME OM Code requires that the vibration measurements for centrifugal pumps be taken in two orthogonal directions on each accessible pump bearing housing. The licensee states that access to the inboard pump bearing is impeded by heat tracing. Modifications to the coupling shield were attempted to allow access, but they were not successful in providing sufficient clearance to allow individuals taking vibration measurements to safely place their hands near the rotating shaft. This condition is considered to be a hardship with regard to performing the OM Code-required vibration measurement.

The licensee proposes to take axial vibration measurements on the outboard motor bearing, and apply the vibration acceptance criteria given in ASME OM Code Table ISTB-5121-1. Although the axial vibration measurement would now include noise from the motor, that contribution would be minimal, considering that the pump is directly coupled to the motor and all significant axial contributors to vibration should originate from the pump.

It is noted that the NRC staff previously authorized this alternative request for CNP Units 1 and 2 for the fourth 10-year IST interval in a letter dated June 28, 2006 (ADAMS Accession No. ML061730175).

The NRC staff finds that the proposed location to take axial vibration measurements, along with the continued use of the vibration acceptance criteria given in ASME OM Code Table ISTB-5121-1, provides reasonable assurance that the pumps listed in Table 1 are operationally ready.

### 4.0 CONCLUSION

As set forth above, the NRC staff determined that the proposed alternative provides reasonable assurance that the affected components are operationally ready. The staff concludes that the compliance with the specified requirement results in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2) for this proposed alternative. Therefore, the staff authorizes the use of alternative request REL-PP1 for CNP Units 1 and 2 for the fifth 10-year IST program interval, which will begin on July 1, 2016, and is scheduled to end on June 30, 2026.

All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject request remain applicable.

Principal Contributor: Robert Wolfgang, NRR

J. Gebbie

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If you have any questions, please contact Allison W. Dietrich at 301-415-2846, or via e-mail at [Allison.Dietrich@nrc.gov](mailto:Allison.Dietrich@nrc.gov)

Sincerely,

*/RA/*

David J. Wrona, Chief  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-315 and 50-316

Enclosure: Safety Evaluation

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**ADAMS Accession No.: ML16032A031**

\*via memorandum

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