



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

March 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 – RELIEF REQUEST
REL-002 ASSOCIATED WITH VALVE SEAT LEAKAGE TESTING (CAC
NOS. MF6546 AND MF6547)

Dear Mr. Gebbie:

By letter dated July 31, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15216A121), Indiana Michigan Power Company (I&M, the licensee), submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for relief from certain American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) requirements 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), Sections 50.55a(f)(5)(iii) and 50.55a(f)(6)(i), the licensee requested relief and to use alternative requirements for inservice testing items, on the basis that the code requirement is impractical.

The NRC staff has reviewed the subject request and concludes, as set forth in the enclosed safety evaluation, that I&M has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(f)(6)(i). The NRC staff determines that it is impractical for the licensee to comply with certain requirements of the ASME OM Code related to valve seat leakage testing. The proposed alternative of request REL-002 provides reasonable assurance that the affected valves will remain operationally ready.

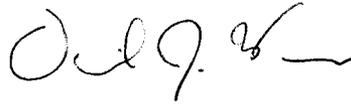
Therefore, the NRC staff grants relief for request REL-002 for the fifth inservice testing interval at CNP Units 1 and 2, which is currently scheduled to start July 1, 2016. All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject request remain applicable.

J. Gebbie

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If you have any questions, please contact Allison Dietrich at 301-415-2846.

Sincerely,

A handwritten signature in black ink, appearing to read "D. J. Wrona", with a horizontal flourish extending to the right.

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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UNITED STATES
NUCLEAR REGULATORY COMMISSION
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST REL-002

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 No. ML15216A121), Indiana Michigan Power Company (I&M, the licensee), submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for relief from certain American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) requirements 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), Sections 50.55a(f)(5)(iii) and 50.55a(f)(6)(i), the licensee requested relief and to use alternative requirements for in-service testing items, on the basis that the code requirement is impractical. This request is applicable to the fifth 10-year inservice testing (IST) program interval at CNP Units 1 and 2.

2.0 REGULATORY EVALUATION

10 CFR 50.55a(f), "Inservice Testing Requirements," requires, in part, that IST of certain ASME Code Class 1, 2, and 3 components must meet the requirements of the ASME OM Code and applicable addenda incorporated by reference in the regulations. Exceptions are allowed where alternatives have been authorized or relief has been granted by the NRC pursuant to paragraphs 10 CFR 50.55a(z)(1), 10 CFR 50.55a(z)(2), or 10 CFR 50.55a(f)(6)(i).

In proposing alternatives or requesting relief, the licensee must demonstrate that (1) the proposed alternatives provide an acceptable level of quality and safety (10 CFR 50.55a(z)(1)); (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety (10 CFR 50.55a(z)(2)); or (3) conformance is impractical for its facility (10 CFR 50.55a(f)(6)(i)). Section 50.55a allows the NRC to authorize alternatives and to grant relief from ASME OM Code requirements upon making the necessary findings.

The applicable Code Edition and Addenda for CNP Units 1 and 2 is ASME OM Code-2004 Edition, with Addenda through OM Code-2006.

Enclosure

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 grant, the relief requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 Licensee's Relief Request REL-002

ASME OM Code Requirement ISTC-3630(b) "Differential Test Pressure," states in part that "Valve seat tests shall be made with the pressure differential in the same direction as when the valve is performing its function."

Alternative testing is requested for the valves in Table 1.

Valve ID	Function	Category	Class
1-IMO-261	Refueling Water Storage Tank (RWST) Supply to Safety Injection (SI) Pumps Shutoff Valve, Unit 1	A	2
1-IMO-910	RWST to Chemical Volume and Control System (CVCS) Charging Pumps Suction Header Train "A" Shutoff Valve, Unit 1	A	2
1-IMO-911	RWST to CVCS Charging Pumps Suction Header Train "B" Shutoff Valve, Unit 1	A	2
2-IMO-261	RWST Supply to SI Pumps Shutoff Valve, Unit 2	A	2
2-IMO-910	RWST to CVCS Charging Pumps Suction Header Train "A" Shutoff Valve, Unit 2	A	2
2-IMO-911	RWST to CVCS Charging Pumps Suction Header Train "B" Shutoff Valve, Unit 2	A	2

The licensee stated the following as its reason for the request:

These valves are classified as Category 'A' valves requiring a seat leakage test due to concerns based on Information Notice 91-56, "Potential Radioactive Leakage to Tank Vented to Atmosphere."

[CNP Units 1 and 2] were constructed and licensed prior to the concern about back-leakage to the RWST being identified. As a result, the system in which these valves are located is not designed and constructed to allow accident-direction testing.

There are no isolation valves between these valves and the RWST. There is no practical means to measure seat leakage with pressure applied in the accident direction.

System modifications to allow for leakage determination tests that would meet code provisions would involve installing a minimum of one eight-inch isolation valve and test/vent connection in order to test 1[2]-IMO-261 and an eight-inch isolation valve for 1[2]-IMO-910 and 911 leakage tests. Another option would

require addition of a 24-inch isolation valve on the RWST outlet header which would shut off flow to all of the Emergency Core Cooling System [ECCS] pump suction from the RWST.

The licensee proposed the following alternative:

These valves will be tested in a reverse flow direction using the static head from the RWST. The proposed testing of the gate valves, combined with the leakage testing of the check valves in series with them, provides reasonable assurance that the system leakage requirements will be met under accident conditions.

Indiana Michigan Power Company proposes to test the valves in reverse direction (the test pressure differential is opposite to the pressure differential that would exist when the valve is performing its isolation function) using the static head from the RWST. Testing the wedge at low line pressures (12-17 pounds per square inch differential (psid)) using static head of the RWST will mainly test the seal created by the mechanical wedging force alone, thus providing an indication of the degree of degradation of the seating surfaces. The increased line pressure under accident conditions (122 psid for IMO-910 and IMO-911, 195 psid for IMO-261) will act to further seat the sealing face closest to the RWST, so the proposed test at lower pressure in the opposite direction will test this seating surface without the additional service pressure that would tend to diminish leakage by pressing the disk into the seat with greater force. Therefore; the proposed seat leakage test provides reasonable assurance of the operational readiness of the valves to isolate the RWST from back leakage during the loss of coolant accident recirculation phase.

3.2 NRC Staff Evaluation

Per the ASME OM Code, valves that have a seat leakage requirement to be limited to a specific amount in the closed position to fulfill their required function are classified as Category A type valves. Category A valves must meet the requirements of ASME OM Code section ISTC-3600 "Leak Testing Requirements." ASME OM Code section ISTC-3630(b) "Leakage Rate for Other Than Containment Isolation Valves – Differential Test Pressure" states in part that "Valve seat tests shall be made with the pressure differential in the same direction as when the valve is performing its function."

The valves listed in Table 1 are 8-inch, 150 pound flexible wedge gate valves. Original design and analysis concluded that these valves did not have a need to specify leakage criteria and were listed in the IST program as Category B valves. However, Information Notice 91-56, "Potential Radioactive Leakage to Tank Vented to Atmosphere," prompted the licensee to re-evaluate the valve categorization, with the conclusion that the valves needed to be upgraded to Category A. The existing system design does not allow a means of pressurizing the valves to satisfy the requirement of applying a differential pressure in the same direction as when the valve is performing its function. A system modification would require an extended out-of-service time for ECCS. This would be a significant burden to implement and result in a non-standard system configuration. Therefore, the NRC staff concludes that it is impractical for the licensee to comply with the Code requirement to conduct leakage tests for the subject valves in the accident direction.

The licensee has proposed an alternative to test the valves in the reverse direction using the static head of the RWST. This proposed alternative was requested and authorized for use during the previous IST interval. The NRC staff confirmed with the licensee that there have been no modifications to the existing components or system configuration and that testing remains the same. The safety evaluation completed for the previous interval for this proposed alternative (ADAMS Accession No. ML063340516) is still applicable. The proposed seat leakage test provides reasonable assurance of the operational readiness of the valves to isolate the RWST from back leakage during a loss of coolant accident recirculation phase.

4.0 CONCLUSION

As set forth above, the NRC staff determines that it is impractical for the licensee to comply with certain requirements of the ASME OM Code for the valves listed in Table 1. The proposed alternative in relief request REL-002 provides reasonable assurance that valves listed in Table 1 will remain operationally ready.

Granting relief pursuant to 10 CFR 50.55a(f)(6)(i) is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject request remain applicable.

Therefore, the NRC staff grants relief for request REL-002 for the fifth IST interval at CNP Units 1 and 2, which is currently scheduled to start July 1, 2016.

Principal Contributor: Michael Farnan, NRR

Date: March 4, 2016

J. Gebbie

- 2 -

If you have any questions, please contact Allison Dietrich at 301-415-2846.

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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