



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

June 8, 2009

Mr. Joseph N. Jensen  
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 2 (CNP-2) – EVALUATION OF RELIEF REQUEST (ISIR-30) TO EXTEND THE THIRD 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL FOR VISUAL EXAMINATION OF THE REACTOR PRESSURE VESSEL INTERIOR ATTACHMENTS BEYOND THE BELTLINE REGION AND CORE SUPPORT STRUCTURE (TAC NO. ME0770)

Dear Mr. Jensen:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated February 27, 2009, Indiana Michigan Power Company (the licensee) submitted a request for relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure and Vessel Code, Section XI, Table IWB-2500-1, Categories B-N-2 and B-N-3, Item Numbers B13.60 and B13.70, for CNP-2. NRC approval was requested to extend the third 10-year ISI interval for examination of the reactor pressure vessel interior attachments beyond the beltline region and core support structure from 10 years to 20 years.

The NRC staff has completed its review of the proposed relief request. As documented in the enclosed safety evaluation, the staff concurs with the licensee's assertion that complying with the current requirement would result in hardship or unusual difficulty without a compensating increase in the level of safety. The staff concludes that the proposed alternative provides reasonable assurance of structural integrity. The staff authorizes the licensee's proposed alternative pursuant to 10 CFR 50.55a(a)(3)(ii) for the third 10-year ISI interval at CNP-2 until February 28, 2020.

If you have any questions, please contact Terry Beltz of my staff at (301) 415-3049.

Sincerely,

A handwritten signature in cursive script that reads "Lois M. James".

Lois M. James, Chief  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-316

Enclosure:  
Safety Evaluation

cc w/encl: Distribution via ListServ



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

INSERVICE INSPECTION PROGRAM

INDIANA MICHIGAN POWER COMPANY

DONALD C. COOK NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-316

1.0 INTRODUCTION

By letter dated February 27, 2009 (Agencywide Documents Access and Management System (ADAMS), Accession No. ML090630055), Indiana Michigan Power Company (the licensee) requested Nuclear Regulatory Commission (NRC) staff approval for an alternative to the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, Table IWB-2500-1 for the Donald C. Cook Nuclear Plant, Unit 2 (CNP-2). The alternative was requested pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(ii).

The licensee requested to extend the current and subsequent inservice inspection (ISI) intervals for examination of the interior attachments beyond the beltline region and core support structure, ASME Code Categories B-N-2 and B-N-3 components, Item Nos. B13.60 and B13.70. The proposed alternative would extend the third and fifth 10-year ISI intervals for these components from 10 years to 20 years, including future ISI intervals to the end of the facility's license.

2.0 REGULATORY REQUIREMENTS

In accordance with 10 CFR 50.55a(g)(4), the licensee is required to perform ISI of components and system pressure tests during the first 10-year interval and subsequent 10-year intervals that comply with the requirements in the latest edition and addenda of Section XI of the ASME Code, incorporated by reference in 10 CFR 50.55a(b), subject to the limitations and modifications listed therein.

For the current ISI interval at CNP-2, which is due to conclude on February 28, 2010, the code of record for ASME Code Class 1, 2, and 3 components is Section XI of the ASME Code 1989 Edition (with no addenda). The regulation in 10 CFR 50.55a(a)(3) states, in part, that the Director of the Office of Nuclear Reactor Regulation may authorize an alternative to the requirements of 10 CFR 50.55a(g). For an alternative to be authorized, as per 10 CFR 50.55a(a)(3)(ii), the licensee must demonstrate that compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

ENCLOSURE

### 3.0 TECHNICAL EVALUATION FOR RELIEF REQUEST (ISIR-30)

#### 3.1 Background

##### 3.1.1 Relief Request ISIR-29

The licensee submitted relief request ISIR-29 for CNP-2 (Reference 1), proposing to extend the ISI interval for category B-A and B-D reactor pressure vessel (RPV) welds from 10 to 20 years based upon Westinghouse Topical Report WCAP-16168-NP-A, Revision 2 (Reference 2), which was approved by the NRC by letter dated May 8, 2008 (included in Reference 2). This relief request was based on a 10 CFR 50.55a(a)(3)(i) alternative asserting that the alternative inspection interval of 20 years would provide an acceptable level of quality and safety, and the licensee identified 2020 and 2040 as the years in which the future intervals for the examination of Categories B-A and B-D RPV welds would end. The staff reviewed this relief request and authorized the proposed alternative for only the third 10-year ISI interval to February 28, 2020, as described in the associated safety evaluation (SE) (ADAMS Accession No. ML091260163).

##### 3.1.2 Relief Request ISIR-30

Relief request ISIR-30 is associated with ISI examination of the interior beltline region welds and core support structures, consisting of a visual inspection intended to discover whether flaws have initiated, whether pre-existing flaws have extended, and whether pre-existing flaws that may have been missed previously are discernable. The examinations are required to be performed at regular intervals as defined in Section XI of the ASME Code. The visual examination of these Category B-N-2 and B-N-3 components is generally performed during the same outage as the Category B-A and B-D RPV weld examinations, as both require the removal of the core support structure (called lower internals in Westinghouse-designed plants).

In this relief request (ISIR-30), the licensee's proposed alternative would extend the third and fifth 10-year ISI intervals for the visual examination of B-N-2 and B-N-3, Item Nos. B13.60 and B13.70, from 10 years to 20 years to match the B-A and B-D weld examination intervals.

#### 3.2 Components for Which Relief is Requested

The affected components are the CNP-2 RPV interior attachments beyond the beltline region and the core support structure; specifically the following ASME Code, Section XI, examination categories and item numbers from Table IWB-2500-1:

##### Examination

<u>Category</u>	<u>Item No.</u>	<u>Description</u>
B-N-2	B13.60	Interior Attachments Beyond Beltline Region
B-N-3	B13.70	Core Support Structure

#### 3.3 Code Requirement for Which Relief is Requested

Relief is requested from the ASME Code, Section XI "Rules and Inservice Inspection of Nuclear Power Plant Components," 1989 Edition (no Addenda) requirements for the 10-year inspection interval for Item Nos. B13.60 and B13.70 components.

### 3.4 Licensee Proposed Alternative

The licensee proposed to perform the subject examinations for the fourth 10-year ISI interval on or before February 28, 2020. The subject examinations are currently scheduled to be performed during the spring 2009 refueling outage. The proposed alternative inspection would enable the subject examinations to be performed during the 2019 refueling outage with the risk-informed extension of the RPV ISI interval.

This alternative would align the B-N-2 and B-N-3 examinations with the B-A and B-D examinations, such that both would continue to be performed during the same outage and extend the current inspection interval for B-N-2 and B-N-3 examinations from 10 years to 20 years.

### 3.5 Licensee Basis for the Alternative

The licensee states the following in its application:

In accordance with 10 CFR 50.55a(a)(3)(ii), this interval extension is requested on the basis that performing the examination of the RPV interior attachments and core support structure separate in time from the RPV shell, head, and nozzle welds would result in hardship or unusual difficulty without a compensating increase in quality or safety. The full scope examination required by ASME examination categories B-N-2 and B-N-3 requires the removal of all the fuel and the core barrel from the RPV. An unnecessary risk is created by removal of the core barrel to perform a visual examination without a compensating increase in quality or safety. Further, the radiation exposure to establish the conditions for, and perform, the ASME examination categories B-N-2 and B-N-3 examinations would essentially double if the subject examinations were performed separate in time from the RPV shell, lower head, and nozzle weld examinations.

The licensee additionally cited a Calvert Cliffs Nuclear Power Plant precedent (Reference 4), a very similar request for extending the ISI interval for visual examination of Category B-N-2 and B-N-3 components, Item Nos. B13.50, B13.60, and B13.70.

### 3.6 NRC Staff Evaluation

The licensee demonstrated that there is no substantial risk in extending the ISI interval for Item Nos. B13.60 and B13.70 from 10 to 20 years. There have been no relevant indications found in these items at either CNP-1 or CNP-2, or in equivalent reactors throughout the nuclear fleet. Requiring the examinations to be performed according to the currently accepted schedule would impose a hardship on the licensee in the form of extra equipment and personnel costs, but more importantly increased personnel radiation exposure due to offloading fuel and core barrel removal. Therefore, the staff concludes that performing Category B-N-2 and B-N-3 inspections on a 10-year interval at CNP-2, as required by Section XI of the ASME Code, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

At the time of issuance of the WCAP-16168-NP SE, it was the intent of the NRC to establish a process by which licensees could receive approval to implement 20-year ISI intervals for the subject component examinations through the end of their facility's current operating license. This objective led to the provision established in the WCAP-16168-NP SE that licensees submit a license condition which would require the licensee to evaluate future volumetric ISI data in

accordance with the criteria in the draft and/or final alternative Pressurized Thermal Shock Rule, 10 CFR 50.61a. Since that time, however, further guidance from the NRC's Office of General Counsel (OGC) has resulted in a modification of this NRC position and is discussed below.

Based on OGC current guidance, the NRC staff will grant ISI interval extensions for the Category B-A and B-D components on an interval-by-interval basis (i.e., only a facility's current ISI interval will be extended for up to 20 years). To extend each subsequent ISI interval from 10 to 20 years, a licensee will have to resubmit the requested alternative for NRC review and approval. This position also pertains to extending the interval for Category B-N-2 and B-N-3 components, as this extension is being based on the Category B-A and B-D examination interval.

#### 4.0 CONCLUSION

Based on the above review and evaluation, the NRC staff concludes that the licensee's request for relief provides reasonable assurance of structural integrity. Extending the ISI interval for the B-N-2 and B-N-3 examinations at CNP-2 from 10 years to 20 years would match the interval authorized by the staff for the B-A and B-D welds, and that requiring the examination of these items to be conducted according to the current 10-year ISI interval would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety. Therefore, proposed alternative to extend the current ISI interval for Category B-N-2 and B-N-3 components is therefore authorized pursuant to 10 CFR 50.55a(a)(3)(ii) until the end of the current extended ISI interval to February 28, 2020.

The licensee requested approval for use of the alternative to extend the current ISI interval from 10 years to 20 years, and through the end of the facility's operating license in 2037. The NRC staff is only authorizing the alternative for the current ISI interval through February 28, 2020. Mr. Michael Scarpello of your staff agreed to this effect during a phone conversation with NRC staff on March 13, 2009, during which the NRC staff provided verbal authorization for extension of the proposed alternative (ADAMS Accession No. ML090720704).

All other requirements of the ASME Code, Section XI not specifically included in the request for relief and approved via this SE remain in effect.

#### 5.0 REFERENCES

1. Letter from L. J. Weber, Indian Michigan Power Company, to USNRC Document Control Desk, re: Donald C. Cook Nuclear Plant Unit 2, "Request for Relief to Extend the Unit 2 Inservice Inspection Interval for the Reactor Vessel Weld Examination (ISIR-29) and Request for License Amendment for Submittal of ISI Information and Analysis," AEP-NRC-2009-41, dated October 9, 2008 (ADAMS Accession No. ML082980354).
2. Topical Report WCAP-16168-NP-A, Revision 2, "Risk-Informed Extension of Reactor Vessel In-Service Inspection Interval," dated June 13, 2008 (ADAMS Accession No. ML082820046).
3. Letter from Ho K. Nieh, USNRC, to Gordon Bischoff, Westinghouse Owners Group, re: "Final Safety Evaluation for Pressurized Water Reactor Owners Group (PWROG) Topical Report (TR) WCAP-16168-NP, Revision 2, "Risk-Informed Extension of The Reactor Vessel In-Service Inspection Interval" (TAC No. MC9768)," dated May 8, 2008 (ADAMS Accession No. ML081060051).

4. Letter from M.D. Flaherty, Constellation Energy, to USNRC Document Control Desk, re: "Revised Request to Extend the Inservice Inspection Interval for Reactor Vessel Weld Examinations - Relief Request (ISI-020 and ISI-021)," Docket No. 50-318, dated October 1, 2008 (ADAMS Accession No. ML082760282).

Principal Contributor: Daniel Widrevitz

Date: June 8, 2009

June 8, 2009

Mr. Joseph N. Jensen  
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 2 (CNP-2) – EVALUATION OF RELIEF REQUEST (ISIR-30) TO EXTEND THE THIRD 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL FOR VISUAL EXAMINATION OF THE REACTOR PRESSURE VESSEL INTERIOR ATTACHMENTS BEYOND THE BELTLINE REGION AND CORE SUPPORT STRUCTURE (TAC NO. ME0770)**

Dear Mr. Jensen:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated February 27, 2009, Indiana Michigan Power Company (the licensee) submitted a request for relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure and Vessel Code, Section XI, Table IWB-2500-1, Categories B-N-2 and B-N-3, Item Numbers B13.60 and B13.70, for CNP-2. NRC approval was requested to extend the third 10-year ISI interval for examination of the reactor pressure vessel interior attachments beyond the beltline region and core support structure from 10 years to 20 years.

The NRC staff has completed its review of the proposed relief request. As documented in the enclosed safety evaluation, the staff concurs with the licensee's assertion that complying with the current requirement would result in hardship or unusual difficulty without a compensating increase in the level of safety. The staff concludes that the proposed alternative provides reasonable assurance of structural integrity. The staff authorizes the licensee's proposed alternative pursuant to 10 CFR 50.55a(a)(3)(ii) for the third 10-year ISI interval at CNP-2 until February 28, 2020.

If you have any questions, please contact Terry Beltz of my staff at (301) 415-3049.

Sincerely,  
**/RA/**  
Lois M. James, Chief  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-316

Enclosure:  
Safety Evaluation

cc w/encl: Distribution via ListServ

Distribution:

PUBLIC RidsOgcRp Resource RidsNrrDorlLpl3-1 Resource  
LPL3-1 R/F RidsNrrDciCpnb Resource RidsRgn3MailCenter Resource  
RidsNrrLABTully Resource RidsAcrcsAcnw\_MailCTR Resource SCampbell, EDO RIII  
RidsNrrPMTBeltz Resource DWidrevitz, NRR

ADAMS ACCESSION NUMBER: **ML091320549** \* memo dated 04/29/2009

OFFICE	LPL3-1/PM	LPL3-1/LA	CPNB/BC	OGC/ NLO w/comments	LPL3-1/BC
NAME	TBeltz	THarris	MMitchell *	BHarris	LJames
DATE	05/22/09	05/21/09	04/29/09	5/27/09	06/08/09

OFFICIAL RECORD COPY