

September 20, 2006

Mr. Mano K. Nazar
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 (DCCNP-1 AND DCCNP-2) - USE OF A SUBSEQUENT EDITION OF AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) CODE FOR INSERVICE INSPECTION REQUIREMENTS (TAC NOS. MD2885 AND MD2886)

Dear Mr. Nazar:

By letter dated August 23, 2006, Indiana Michigan Power Company, LLC (I&M) submitted a request to use the 2001 Edition, no Addenda, to American Society of Mechanical Engineers (ASME) Code Section XI, for repair and/or replacement activities. The current inservice inspection (ISI) Code of record is the 1989 Edition for DCCNP-1 and DCCNP-2. The authorization of the subsequent edition and addenda of the ASME Code will allow qualification of the thermal metal removal process, avoiding the need to mechanically remove additional material from the processed areas that would be required under the current ISI Code of record.

Paragraph 50.55a(g)(4)(iv) of Title 10 of the *Code of Federal Regulations* (10 CFR) states that ISI of components and system pressure tests may meet the requirements set forth in subsequent editions and addenda of the ASME Code provided that they are incorporated by reference in 10 CFR 50.55a(b), subject to the limitations and modifications listed in 10 CFR 50.55a(b) and subject to Commission approval. Portions of editions or addenda may be used provided that all related requirements of the respective editions or addenda are met.

As set forth in the enclosed Safety Evaluation, the Nuclear Regulatory Commission staff concludes that the proposed request is acceptable and approves the use of the 2001 Edition, no Addenda, to ASME Code Section XI for the repair/replacement activities specified in the August 23, 2006, application, for the remainder of the current 10-year ISI intervals for DCCNP-1 and DCCNP-2. All other requirements of the ASME Code, Section III and XI for which relief has

M. K. Nazar

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not been specifically requested and approved remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Sincerely,

/RA/

Martin C. Murphy, Acting 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 w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST TO USE A SUBSEQUENT EDITION AND ADDENDA

TO AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) CODE

FOR REPAIR/REPLACEMENT ACTIVITIES

INDIANA MICHIGAN POWER COMPANY, LLC

DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2 (DCCNP-1 AND DCCNP-2)

DOCKET NOS. 50-315 AND 50-316

1.0 INTRODUCTION

By letter dated August 23, 2006 (Accession No. ML062430325), Indiana Michigan Power Company (the licensee) submitted a request to use the 2001 Edition, no Addenda, to American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Section XI for repair/replacement activities. The current inservice inspection (ISI) Code of record is the 1989 Edition for DCCNP-1 and DCCNP-2. Authorization of the subsequent edition and addenda of the ASME Code will allow qualification of the thermal metal removal process, avoiding the need to mechanically remove additional material from the processed areas that would be required under the current ISI Code of record.

The licensee submitted this request in accordance with the guidance provided in Nuclear Regulatory Commission (NRC) Regulatory Issue Summary (RIS) 2004-16, dated October 19, 2004. In this RIS, the NRC staff stated that licensees who wish to use provisions of subsequent editions and addenda of the ASME Code Section XI for activities, including repair/replacement activities, must receive prior NRC approval as required by Section 50.55a(g)(4)(iv) of Title 10 of the *Code of Federal Regulations* (10 CFR).

2.0 REGULATORY REQUIREMENTS

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. Section 50.55a(g)(4)(ii) requires that ISI examination of components and system pressure tests conducted during successive 120-month inspection intervals must 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) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein.

The repair, replacement, and modification of plant components are not explicitly mentioned in 10 CFR 50.55a(g)(4) and associated subparagraphs. However, these activities are specifically mentioned in ASME Code Section XI. The NRC staff maintains that these activities are not separate and distinct from, but are included under, inservice examinations. Therefore, the requirements of 10 CFR 50.55a(g)(4)(iv) are applicable to repair/replacement activities.

Section 50.55a(g)(4)(iv) states that inservice examination of components and system pressure tests may meet the requirements set forth in subsequent editions and addenda of the ASME Code provided that they are incorporated by reference in 10 CFR 50.55a(b), subject to the limitations and modifications listed in 10 CFR 50.55a(b), and subject to NRC approval. Portions of editions or addenda may be used provided that all related requirements of the respective editions or addenda are met. Currently, Section 50.55a(b)(2) incorporates by reference the ASME Code Section XI from the 1970 Edition through the 1976 Winter Addenda, and the 1977 Edition (Division 1) through the 2003 Addenda (Division 1).

3.0 TECHNICAL EVALUATION

3.1 ASME Code Component(s) Affected

The ASME Code components affected are the new 3/4 inch diameter piping nozzles and resistance temperature detector (RTD) thermowell bosses to be installed and the existing RTDs that will be modified in the reactor coolant system of both units.

3.2 Applicable Code Requirements

The current ASME Section XI Code of record for the DCCNP-1 and DCCNP-2 is the 1989 Edition. The applicable code requirements in the 1989 Edition for thermal metal removal processes are as follows:

IWA-4322, "Process Requirements for P-No. 8 and P-No. 43 Materials"

If thermal removal processes are used on P-No. 8 and P-No. 43 materials, a minimum of 1/16 in. shall be mechanically removed from the thermally processed area.

3.3 Proposed Subsequent Code Edition and Requirements

The licensee proposes to use the 2001 Edition, no Addenda, of the ASME Code Section XI for repair/replacement activities. This Code edition is approved for use pursuant to 10 CFR 50.55a(b)(2). The use of the 2001 Edition, no Addenda, will allow the licensee to qualify the thermal metal removal process to be used, electro-discharge machining, as an alternative to mechanical removal of additional material from the processed areas. The applicable requirements from the 2001 Edition of the ASME Code, Section XI, are as follows:

IWA-4461.3, "P-Nos. 8 and 43 Materials"

If thermal removal processes are used on P-No. 8 and P-No. 43 materials, at least 1/16 in. (1.6 mm) of material shall be mechanically removed from the thermally processed area.

IWA-4461.4, "Alternatives to Mechanical Processing"

Mechanical processing of thermally cut surfaces for materials identified in IWA-4461.3 is not required when the alternative of either IWA-4461.4.1 or IWA-4461.4.2 is used." (The licensee has elected to use the alternative of IWA-4461.4.1)

IWA-4461.4.1, "Qualification of Thermal Metal Removal Process"

Mechanical processing of thermally cut surfaces is not required when the thermal metal removal process is qualified as follows:

- (a) The qualification test shall consist of two coupons of the same P-No. material cut in production.
- (b) The qualification coupons shall be cut using the maximum heat input to be used in production.
- (c) The thermally cut surface of each coupon shall be visually examined at 10X and shall be free of cracks. The owner shall specify surface roughness acceptable for the application and shall verify that the qualification coupon meets the criterion.
- (d) Each qualification coupon shall be cross sectioned, and exposed surfaces shall be polished, etched with a suitable etchant, and visually examined at 10X. All sectioned surfaces shall be free of cracks.
- (e) Corrosion testing of the thermally cut surface and heat affected zone shall be performed if the cut surface is to be exposed to corrosive media. Alternatively, corrosion resistance of the thermally cut surface may be evaluated. The owner shall specify the acceptance criteria.

3.4 Related Requirements

In accordance with the limitations identified in 10 CFR 50.55a(b)(2), Section IWA-4461.4.2, "Evaluation of Thermally Cut Surfaces," of the 2001 Edition ASME Section XI Code will not be used. Section 50.55a(b)(2) of 10 CFR states:

As used in this section, references to Section XI of the ASME Boiler and Pressure Vessel Code refer to Section XI, and include the 1970 Edition through the 1976 Winter Addenda, and the 1977 Edition (Division 1) through the 2003 Addenda (Division 1), subject to the following limitations and modifications:

(xxiii) *Evaluation of Thermally Cut Surfaces.* The use of the provisions for eliminating mechanical processing of thermally cut surfaces in IWA-4461.4.2 of Section XI, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section is prohibited.

There are no other related requirement that apply to the thermal metal removal processes using the above identified portions of the 2001 Edition of ASME Code, Section XI, no Addenda.

3.5 NRC Staff Evaluation

The NRC staff evaluated the licensee's request using the criteria contained in 10 CFR 50.55a(g)(4)(iv), which states that inservice examination of components and system pressure tests may meet the requirements set forth in subsequent editions and addenda of the ASME Code provided certain criteria are satisfied.

The first criterion is that the proposed edition and addenda is incorporated by reference in 10 CFR 50.55a(b). Currently, Section 50.55a(b)(2) incorporates by reference the ASME Code Section XI from the 1970 Edition through the 1976 Winter Addenda, and the 1977 Edition (Division 1) through the 2003 Addenda (Division 1), which includes the 2001 Edition, no Addenda of the ASME Section XI Code proposed by the licensee. The NRC staff finds that the first criterion has been satisfied.

The second criterion is that the limitations and modifications listed in 10 CFR 50.55a(b) are satisfied for the specific use of the proposed subsequent Code edition and addenda. There is one restriction specified in 10 CFR 50.55a(b) for the portion of the 2001 Edition, no Addenda of the ASME Section XI Code that the licensee proposes to use. The restriction is contained in 10 CFR 50.55a(b)(2)(xxiii), *Evaluation of Thermally Cut Surfaces*, which states:

“The use of the provisions for eliminating mechanical processing of thermally cut surfaces in IWA-4461.4.2 of Section XI, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section is prohibited.”

The licensee stated in its August 23, 2006, submittal, that this restriction will be complied with. Therefore, the NRC staff finds that the second criterion has been satisfied.

The third criterion is that if portions of subsequent Code editions or addenda are used, all related requirements of the respective editions or addenda must be met. The NRC staff is satisfied that the licensee has listed all related requirements in the 2001 Edition, no Addenda of the ASME Section XI Code that are relevant to the stated repair/replacement activities.

Based on the above, the NRC staff finds that all of the criteria of 10 CFR 50.55a(g)(4)(iv) are satisfied and that the licensee's request to use the 2001 Edition, no Addenda, of the ASME Code Section XI for repair/replacement activities is acceptable.

4.0 CONCLUSION

The NRC staff concludes that the proposed request is acceptable and approves the use of the ASME Code Section XI, 2001 Edition, no Addenda, for the specified repair/replacement activities for the remainder of the current 10-year ISI intervals for DCCNP-1 and DCCNP-2. All other requirements of the ASME Code, Section III and XI for which relief has not been

specifically requested and approved remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: P. Patnaik

Date: September 20, 2006

Donald C. Cook Nuclear Plant, Units 1 and 2

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