

January 27, 2006

Mr. Paul A. Harden
Site Vice President
Nuclear Management Company, LLC
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES NUCLEAR PLANT — REQUEST FOR AUTHORIZATION TO
EXTEND THE THIRD 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
FOR REACTOR VESSEL VISUAL EXAMINATION (TAC NO. MC6546)

Dear Mr. Harden:

Nuclear Management Company, LLC's (NMC's) letter of March 31, 2005, submitted a request for authorization to extend the third 10-year ISI interval for the visual examination of the reactor vessel interior attachments and the core support structure for one refueling cycle at Palisades Nuclear Plant. Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(ii), NMC requested authorization to use an alternative to the requirements of the American Society of Mechanical Engineers *Boiler and Pressure Vessel Code*, Section XI, Paragraph IWB-2412, "Inspection Program B," for the Palisades Nuclear Plant.

The staff has completed its review of NMC's request, and concludes that the proposed alternative is justified on the basis that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Furthermore, the staff concludes that NMC's proposed alternative provides reasonable assurance of structural integrity of the subject components. Therefore, NMC's request for relief is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) until the end of the fall 2007, refueling outage. Enclosed is our safety evaluation.

Sincerely,

/RA/

Timothy J. Kobetz, Acting Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-255

Enclosure: Safety Evaluation

cc w/encl: See next page

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Palisades Plant

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR AUTHORIZATION TO EXTEND THE THIRD

AMERICAN SOCIETY OF MECHANICAL ENGINEERS CODE, SECTION XI

10-YEAR INTERVAL FOR REACTOR VESSEL WELD EXAMINATION

NUCLEAR MANAGEMENT COMPANY, LLC

PALISADES NUCLEAR PLANT

DOCKET NO. 50-255

1.0 INTRODUCTION

Nuclear Management Company, LLC's (NMC's) letter of March 31, 2005, requested authorization to extend the third 10-year inservice inspection (ISI) interval for the visual examination of the reactor vessel (RV) interior attachments and the core support structure for one refueling cycle at Palisades Nuclear Plant (Palisades). Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(ii), NMC requested authorization to use an alternative to the requirements of the American Society of Mechanical Engineers *Boiler and Pressure Vessel Code* (ASME Code), Section XI, Paragraph IWB-2412, "Inspection Program B," for the Palisades Nuclear Plant.

2.0 REGULATORY REQUIREMENTS

Part 50.55a(g) requires that ISI of ASME Code Class 1, 2, and 3 components be performed in accordance with the applicable Edition of Section XI of the ASME Code and applicable Addenda, except where specific relief has been granted by the U.S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.55a(g)(6)(i). The regulation at 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the applicant demonstrates that: (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

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 preservice 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

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limitations of design, geometry, and materials of construction of the components. The regulations require that ISI of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of the ASME Code, Section XI 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 applicable ASME Code of record for the Palisades ISI program is the 1989 Edition, no addenda, of the ASME Code, Section XI. Palisades is currently in the third 10-year ISI interval, which began on May 12, 1995, and ends on December 12, 2006.

3.0 TECHNICAL EVALUATION

3.1 ASME Code, Section XI Requirement

The requirements of the 1989 edition of ASME Code, Section XI, Article IWB-2412, Inspection Program B, include a visual examination of the RV interior attachments and the core support structure identified in Table IWB-2500-1, once each 10-year ISI interval. In accordance with Articles IWA-2430(d) and IWA-2430(e), the Palisades third 10-year ISI interval is currently scheduled to conclude on or before December 12, 2006.

3.2 System/Component(s) for Which Relief is Requested

ASME Code, Section XI, Examination Category	ASME Code, Section XI, Item Number	Description
B-N-2	B13.50	Interior Attachments Within Beltline Region
B-N-2	B13.60	Interior Attachments Beyond Beltline Region
B-N-3	B13.70	Core Support Structure

3.3 Reason for Request (As stated)

An alternative is requested from the requirements of IWA-2432, Inspection Program B, that requires visual examination, of the reactor pressure vessel interior attachments and the core support structure, to be performed once each ten-year interval. Extension of the inspection interval for examination category B-N-2 and B-N-3 by one refueling cycle beyond the currently scheduled inspection is requested.

ASME Section XI requires that the visual exams of the reactor pressure vessel interior attachments and the core support structure, required by examination categories B-N-2 and B-N-3, be performed once every inspection interval. These exams are typically performed at the end of the interval during the same refueling outage as the reactor vessel mechanized exam. By letter dated March 31, 2005, NMC requested a one-cycle extension of the reactor vessel mechanized examination at Palisades Nuclear Plant. Both of these exams require that the fuel and the core barrel be removed from the reactor vessel.

NMC is currently planning a full core offload in 2007, to allow for replacement of the reactor vessel head at Palisades Nuclear Plant. Replacement of the reactor vessel head will require a hole to be cut in the containment building, which would require all of the fuel to be removed from the vessel. The deferral of these examinations will allow them to be performed during a planned full core offload, which would reduce the dose and risk of having to perform the full core offload twice.

3.4 Proposed Alternative and Basis for Use (As stated)

The third inspection interval for Palisades started on May 12, 1995, and will end on December 12, 2006. This inspection interval includes credit for the IWA-2430(d) allowed one-year extension and an IWA-2430(e) allowed 215-day extension. The subject examinations are scheduled to be performed in the Spring 2006 refueling outage. The proposed inspection date is one refueling cycle beyond the Code-allowed inspection interval. In accordance with 10 CFR 50.55a(a)(3)(ii), this interval extension is requested on the basis that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Examinations required by categories B-N-2 and B-N-3 involves removing all of the fuel and the core barrel from the reactor. Records indicate that when this was performed during the 1995 refueling outage, approximately 5.0 Rem of exposure was required for this exam. These visual exams of the reactor pressure vessel interior attachments and the core support structure have been performed several times at Palisades with no relevant indications noted during the examinations. These exams were last performed during the 1995 refueling outage with acceptable results. Additionally, review of industry surveys indicate that these exams have been performed many times by the industry without any reportable findings.

During the 2006 refueling outage, Palisades will be performing the ASME category B-N-1 visual examination. This includes the space above and below the reactor core that is made accessible for examination by the removal of components during normal refueling outages. This examination is required one each period and will provide reasonable assurance of structural integrity.

Therefore, in accordance with 10 CFR 50.55a(a)(3)(ii), this one-cycle interval extension is requested on the basis that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

3.5 NRC Staff Evaluation

Palisades is currently in the third 10-year ISI interval, which is 19 months beyond the original end date for the third 10-year ISI interval mandated by the ASME Code, Section XI, Article IWA-2432. Palisades previously invoked two provisions in the ASME Code, Section XI that allow for the 19-month extension in the third 10-year ISI interval. The first extension, permitted by Article IWA-2430(d) of the ASME Code, Section XI, is for 1 year beyond the original end date for the third 10-year ISI interval. The second extension, permitted by Article IWA-2430(e) of the ASME Code, Section XI, is for 215 days beyond the first 1-year extension. Therefore,

the current third 10-year ISI interval for Palisades, which began on May 12, 1995, and will end on December 12, 2006, includes both of the extensions allowed by the ASME Code, Section XI.

NMC has requested to extend the third 10-year ISI interval by one refueling cycle beyond the current end date of December 12, 2006. The requested extension applies only to the affected ASME Code, Section XI examination categories and item numbers shown in the table above. Currently, these items, which include RV interior attachments, both within the beltline region and beyond the beltline region, as well as the core support structure, are scheduled for the ASME Code-required visual examinations during the spring 2006 refueling outage. NMC proposed that these visual examinations occur during the fall 2007 refueling outage, one refueling cycle beyond the end of the inspection interval. The third 10-year ISI interval would end at the conclusion of the fall 2007 refueling outage for the subject exams.

NMC indicated that the ASME Code-required visual examinations of the item numbers listed above would involve removing all of the fuel and the core barrel from the reactor. A full-core offload is currently planned for the fall 2007 refueling outage to facilitate replacing the RV head at Palisades. Therefore, performing the required visual examinations for the subject items during the originally-scheduled spring 2006 refueling outage would result in the need for core offloading during two consecutive refueling cycles. NMC stated that its records from the 1995 refueling outage, during which these visual examinations were last performed, indicate that approximately 5.0 Rem of exposure was required for the examinations. Performing the required visual examinations for the subject items during the originally-scheduled spring 2006 refueling outage would, therefore, likely result in relatively high accumulated dose during two consecutive refueling cycles.

NMC indicated that visual examinations of the RV interior attachments and the core support structure have been performed several times at Palisades with no relevant indications. These examinations provided acceptable results the last time they were performed during the 1995 refueling outage. Furthermore, NMC indicated that these visual examinations have been performed many times by the industry without any reportable findings.

Palisades will be performing the ASME Code, Section XI Examination Category B-N-1 visual examinations during the as-scheduled spring 2006 refueling outage. This examination will cover the regions of the RV that are accessible during normal refueling outages. It will include the areas above and below the reactor core. The ASME Code, Section XI requires this examination once each inspection period.

Based on the above considerations, the NRC staff concludes that performing these examinations as currently scheduled would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Previous examination of these components, the performance of Category B-N-1 examinations during the current third 10-year ISI interval, and NMC's proposed schedule to perform these examinations no later than the end of the fall 2007 refueling outage, collectively provide reasonable assurance of structural integrity of the subject components.

4.0 CONCLUSION

The NRC staff concludes that the ASME Code, Section XI, requirements, which set the end of the third 10-year ISI interval on December 12, 2006, pose a hardship or unusual difficulty without a compensating increase in the level of quality and safety for the subject ASME Code, Section XI, Examination Category B-N-2 and B-N-3 components. Furthermore, the staff concludes that NMC's proposed alternative provides reasonable assurance of structural integrity of the subject components. Therefore, NMC's request for relief is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) until the end of the fall 2007 refueling outage. All other requirements of the ASME Code, Section 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: C. Sydnor

Date: January 27, 2006