

March 14, 2003

L-PI-03-025
10CFR50.55a(a)(3)(i)

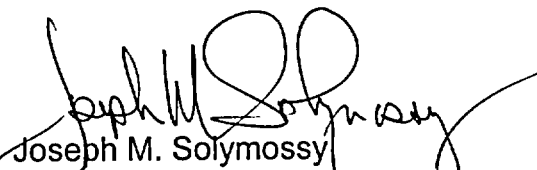
U S Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
DOCKET NOS. 50-282 AND 50-306
LICENSE NOS. DPR-42 AND DPR-60
RELIEF REQUEST TO USE VT-1 VISUAL EXAMINATION IN LIEU OF SURFACE
EXAMINATION OF REACTOR VESSEL HEAD CLOSURE NUTS

The purpose of this letter is to request Nuclear Regulatory Commission (NRC) authorization to utilize later, NRC approved, American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI requirements for examination of reactor vessel head closure nuts during the Prairie Island Unit 1 and 2 Third-Ten Year Inservice Inspection Intervals. We are requesting relief pursuant to 10 CFR Part 50, Section 50.55a(a)(3)(i) because the proposed alternatives would provide an acceptable level of quality and safety.

The details of the 10 CFR 50.55a(a)(3)(i) request are enclosed in the attached relief request for Prairie Island Unit 1 and Unit 2 (contained in one document). Prairie Island requests approval by September 1, 2003 to support the refueling outage on Unit 2. The proposed alternative was approved for the Perry Nuclear Power Plant by NRC letter dated February 15, 2001.

This letter contains no new commitments and no revisions to existing commitments. Please contact Jack Leveille (651-388-1121, Ext. 4142) if you have any questions related to this letter.


Joseph M. Solymossy
Site Vice President, Prairie Island Nuclear Generating Plant

cc: (see next page)

1047

USNRC
L-PI-03-025
Page 2

NUCLEAR MANAGEMENT COMPANY, LLC

cc: Regional Administrator, USNRC, Region III
Project Manager, Prairie Island Nuclear Generating Plant, USNRC, NRR
NRC Resident Inspector – Prairie Island Nuclear Generating Plant

Attachment: (one document, 2 pages)
Prairie Island Unit 1 – RELIEF REQUEST NUMBER: 15 (Rev. 0)
Prairie Island Unit 2 – RELIEF REQUEST NUMBER: 15 (Rev. 0)

Prairie Island Unit 1 - RELIEF REQUEST NUMBER: 15 (Rev. 0)

Prairie Island Unit 2 - RELIEF REQUEST NUMBER: 15 (Rev. 0)

Use of VT-1 in lieu of surface exam of reactor vessel head closure nuts

SYSTEM/COMPONENT(S) FOR WHICH RELIEF REQUEST WILL BE USED

Code Class:	Class 1
Reference:	ASME, Section XI, 1989 Edition with no Addenda
Examination Category:	B-G-1
Item Number:	B6.10
Description:	Reactor Vessel Closure Head Nuts.
Component Numbers:	All

CODE REQUIREMENTS:

Table IWB-2500-1, Examination Category B-G-1, Item Number B6.10, "Reactor Vessel Closure Head Nuts," requires that a surface examination of reactor vessel closure head nuts be performed.

PROPOSED ALTERNATIVE:

Pursuant to 10CFR50.55a(a)(3)(i), relief is requested from performing the Code-required surface exams. Alternative examinations are proposed in accordance with ASME Section XI, 1998 Edition with 2000 Addenda, Table IWB-2500, Examination Category B-G-1, Code Item Number B6.10.

Prairie Island Nuclear Generating Plant (PINGP) proposes the use of a later edition of ASME Section XI, as permitted by 10CFR50.55a(g)(4)(iv), to conduct a VT-1 visual examination in lieu of the surface examination of the reactor vessel closure head nuts.

The reactor vessel closure head nuts will be examined to the later Code requirements and any indications evaluated to the 1998 Edition, 2000 Addenda of the ASME Section XI Code. The VT-1 visual examination acceptance criteria of IWB-3517 in the 1998 Edition, 2000 Addenda of ASME Section XI includes the requirements for evaluation of crack-like indications and other relevant conditions requiring corrective action, such as deformed or sheared threads, localized corrosion, deformation of part and other degradation mechanisms.

BASIS FOR RELIEF REQUEST:

The inservice inspection of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (Code) and applicable addenda as required by 10CFR50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10CFR50.55a(g)(6)(i). 10CFR50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (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 10CFR50.55a(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 limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination 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 Section XI of the ASME Code incorporated by reference in 10CFR50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable ASME Code, Section XI, for the Prairie Island Nuclear Generating Plant, Units 1 and 2, third 10-year inservice inspection (ISI) interval is the 1989 Edition.

The proposed alternative provides a comprehensive assessment of the condition of the reactor vessel closure head nuts without the need for continual cleaning, re-examination, and handling required by the surface examination method.

The NRC staff has evaluated potential degradation of RPV closure nuts under different loading conditions in an aggressive environment. The primary degradation mechanisms leading to failure of nuts are corrosion, cracking, wear, and thread damage. These degradation mechanisms tend to initiate on the surface of the nut and, therefore, surface examination is required by the ASME Code, Section XI. However, detection of degradation can also be made by VT-1 visual examination in accordance with the ASME Code, Section V. Consequently the ASME Subcommittee XI determined that, for the intended purpose of the RPV closure nut exams, a VT-1 examination could replace the surface examination. This change in examination method has been incorporated into the 1998 Edition of ASME XI and has remained through the current Edition and Addenda of Section XI. In 10CFR50.55a(b)(2), the NRC has approved the use of ASME Section XI through the 1998 Edition with the 2000 Addenda without any limitations on the use of the Table IWB-2500-1, Category B-G-1 requirements.

IMPLEMENTATION SCHEDULE:

The proposed alternative is requested for the remainder of the 3rd 10 Year Interval of the Inservice Inspection Program for Prairie Island Nuclear Generating Plant Units 1 and Unit 2.

REFERENCE:

First Energy Nuclear Operating Company (the licensee), for Perry Nuclear Power Plant (PNPP), submitted a request for relief from the requirements of the ASME Code, Section XI, 1989 Edition, to use Code Case N-627 for the second 10-year inservice inspection interval at PNPP. The NRC Staff subsequently approved this relief request for use on February 15, 2001. The examination requirement for VT-1 in lieu of performing a surface examination in Code Case N-627 is similar to the requirements contained in ASME Section XI today. PINGP could not apply for relief to use the Code Case since the requirements of the Code Case have been adopted

into Section XI and the Code Case has since been annulled, in 2002.

Unit Name: PERRY

Submittal Date(s): 04/17/2000 08/11/2000 10/23/2000

Approval Date(s): 02/15/2001