



November 21, 2003

L-PI-03-110
10CFR50.55(a)(3)(i)

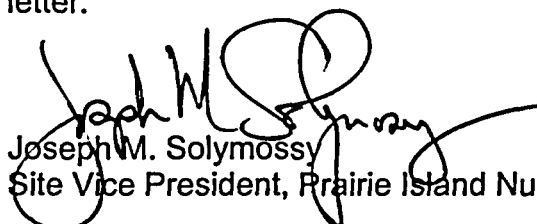
U S Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
DOCKET NOS. 50-282 AND 50-306
LICENSE NOS. DPR-42 AND DPR-60
SUBJECT: REVISED REQUEST TO USE VT-1 VISUAL EXAMINATION IN LIEU OF
SURFACE EXAMINATION OF REACTOR VESSEL HEAD CLOSURE
NUTS (TAC NOS. MB8027 AND MB8028)

The purpose of this letter is to submit a revised request for relief from 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 50.55(a)(3)(i) because the proposed alternative would provide an acceptable level of quality and safety.

The original request for relief was submitted by letter dated March 14, 2003. By letter dated July 2, 2003, the Nuclear Regulatory Commission (NRC) sent a Request for Additional Information (RAI) related to that request. This revised request for relief responds to the issues raised by the RAI and related concerns discussed by telephone with the NRC Staff.

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


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

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. 1)
Prairie Island Unit 2 – RELIEF REQUEST NUMBER: 15 (Rev. 1)

ATTACHMENT

Prairie Island Unit 1 – RELIEF REQUEST NUMBER: 15 (Rev. 1)
Prairie Island Unit 2 – RELIEF REQUEST NUMBER: 15 (Rev. 1)

Nuclear Management Company Letter L-PI-03-110

2 Pages Follow

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Prairie Island Unit 1 - RELIEF REQUEST NUMBER: 15 (Rev. 1)
Prairie Island Unit 2 - RELIEF REQUEST NUMBER: 15 (Rev. 1)

VT-1 Visual Examination of Reactor Vessel Closure Head 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), Prairie Island Nuclear Generating Plant proposes, as an alternative, to perform a direct VT-1 visual examination in lieu of the Code-required surface examination of the reactor vessel closure head nuts .

The reactor vessel closure head nuts will be VT-1 examined and evaluated to the acceptance criteria of IWB-3517.1 of the 1989 Edition of Section XI which includes 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 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(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 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 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 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, 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 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. Use of the VT-1 visual examinations of the reactor vessel closure head nuts as an alternative to performing the surface examination will not reduce quality or the margin of safety. Within the industry, there have been no failures of RPV closure nuts. Furthermore, the ASME Subcommittee XI determined that, for the intended purpose of the reactor vessel closure head nuts exams, a VT-1 examination could replace the surface examination. This change in examination method was incorporated into the 1989 Addenda of ASME XI and has remained through the current Edition and Addenda of Section XI. Within 10 CFR 50.55a(b)(2), the NRC has endorsed 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. 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.

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.