

From: [Jones, Heather](#)
To: [KUEMIN, JAMES L](#); [GUSTAFSON, OTTO W](#)
Cc: [Diaz-Sanabria, Yoira](#); [Chawla, Mahesh](#); [Tsao, John](#); [Lupold, Timothy](#)
Subject: Palisades Nuclear Plant - Revised Request for Additional Information - License Renewal Commitment - Nickel Alloy Aging Management Program
Date: Tuesday, February 07, 2012 5:25:00 PM

By letter dated March 13, 2008 (Agencywide Document Access and Management Systems Accession No. ML080770454), Entergy (the licensee) submitted its proposed Nickel Alloy Program (Procedure No. EM-09-22) to satisfy one of the commitments in its license renewal application for the Palisades Nuclear Plant. The staff reviewed the proposed Nickel Alloy program in accordance with aging management program (AMP) XI.M11B, Cracking of Nickel-Alloy Components and Loss of Material Due to Boric Acid-Induced Corrosion in Reactor Coolant Pressure Boundary Components (PWRs Only)” in the Generic Aging Lessons Learned (GALL) Report, NUREG-1801, Revision 2. Specifically, the staff compared the proposed Nickel Alloy Program against the 10 attributes of GALL AMP XI.M11B in NUREG-1801, Revision 2. To complete its review, the staff requested additional information which was discussed during a teleconference with the licensee on Thursday, February 2, 2012. Below is a revised request for additional information. Please arrange a teleconference to discuss the following information:

REQUEST FOR ADDITIONAL INFORMATION (RAI)

1. Title 10, Code of Federal Regulations, Part 50, 50.55a (10 CFR 50.55a) requires the use of three American Society of Mechanical Engineers (ASME) Code Cases that are related to the examination of nickel alloy components. (a) Code Case N-729-1, “Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds, Section XI, Division 1,” is incorporated with conditions in 10 CFR 50.55a(g)(6)(ii)(D). (b) Code Case N-722, “Additional Examinations for PWR Pressure Retaining Welds in Class 1 Components Fabricated with Alloy 600/82/182 Materials, Section XI, Division 1,” is incorporated with conditions in 10 CFR 50.55a(g)(6)(ii)(E). (c) Code Case N-770-1, “Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated With UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities, Section XI, Division 1,” is incorporated with conditions in 10 CFR 50.55a(g)(6)(ii)(F).

The proposed Nickel Alloy program does not reference these three code cases or corresponding conditions in 10 CFR 50.55a. (a) Discuss whether the proposed Nickel Alloy Program will be revised to incorporate these three code cases with associated conditions set forth in 10 CFR 50.55a. If yes, discuss how these code cases and corresponding paragraphs in 10 CFR 50.55a will be implemented in the proposed Nickel Alloy Program. If not, provide justification.

2. Section 2.1.3 of the Nickel Alloy Program identifies many components in the Palisades Nuclear Plant that are made of nickel alloy. Clarify whether the weld joining the safe end and the safety injection, shutdown cooling outlet and surge line nozzles in the primary coolant piping is made of Alloy 82/182 material and if the safe end is made of Alloy 600 material. Also, clarify whether the weld joining the safe end and the pressurizer spray, surge line, and relief valve nozzles is made of Alloy 82/182 and if the safe end is made of Alloy 600 material.

3. Section 5.2.3 of the proposed Nickel Alloy Program states that the mechanical stress improvement process has been applied at several nickel alloy locations. Section 5.2.3 further states that the details of the mitigation are contained in the Palisades 10-year Interval Master Inservice Inspection Plan for Class 1, 2, 3, Risk-Informed Defense-In-Depth and Augmented Examinations. (a) If this report has been submitted to the NRC, provide the date. If not, submit the report or provide a list of components that have been applied with the mechanical stress improvement process. (b) Discuss whether other mitigation methods such as weld overlay, onlay, or inlay have been applied to nickel alloy components. (c) Discuss any other repairs on nickel alloy components that have been completed.

4. Section 4.5 of the proposed Nickel Alloy Program discusses briefly how operating experience is identified. (a) Discuss any industry and plant-specific operating experience that has occurred in nickel alloy components since the issuance of NUREG-1871, "Safety Evaluation Report Related to the License Renewal of Palisades Nuclear Plant" (ADAMS Accession Number ML070600578) that would require changes to the Operating Experience section of the original Nickel Alloy program. (b) Discuss in details whether a record of operating experience has been maintained and how industry and plant-specific operating experience will be addressed under the proposed Nickel Alloy Program.

5. The licensee stated in its commitment as part of license renewal application that "... NMC will revise the Alloy 600 Program to update the PWSCC [primary water stress corrosion cracking] corrosion rate assessments and inspection program consistent with the latest NRC requirements and inspection program consistent with the latest NRC requirements and industry commitments (e.g., EPRI [Electric Power Research Institute] Report 1010087 "Materials Reliability Program [MRP]: Primary System Piping System Butt Weld Inspection and Evaluation Guidelines [MRP-139]," (August 2005)). The updated program will be submitted for NRC review and approval by March 24, 2008..." Please identify the revised portion of the updated Alloy 600 Program as compared to the original Alloy 600 program in the license renewal application and demonstrate that the updated Alloy 600 program satisfies the latest NRC requirements.

6. Since the time the proposed Nickel Alloy Program was submitted on March 13, 2008, the NRC has required examinations as discussed in Question No. 1 above. Depending on industry operating experience on Nickel-based alloy components, the NRC may impose requirements in the future, if needed. Please explain how the proposed Nickel Alloy Program will be maintained current from present to the end of the extended period of operation.