

**From:** Chawla, Mahesh  
**Sent:** Friday, September 02, 2011 2:40 PM  
**To:** KUEMIN, JAMES L; GUSTAFSON, OTTO W  
**Cc:** Thomas, George; Khanna, Meena; Pascarelli, Robert; Lingam, Siva; Boyle, Patrick; Lee, Brian; Anderson, Shaun; Dozier, Jerry  
**Subject:** Request for Additional Information - Palisades - LAR to extend the Containment Type A Leak Rate Test Frequency to 15 years - ME5997

The NRC staff has reviewed the license amendment request (LAR) submitted by Entergy Nuclear Operations Inc. by letter dated April 6, 2011 (ADAMS Accession No. ML110970616). The LAR requests to revise Technical Specification 5.5.14, "Containment Leak Rate Testing Program," by replacing the reference to RG 1.163, "Performance-Based Containment Leak-Test Program," with a reference to Topical Report NEI 94-01, Revision 2-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," as the implementation document for the 10 CFR 50 Appendix J, Option B, performance-based containment leak rate testing program at the Palisades Nuclear Plant (PNP). This amendment would allow PNP to extend its performance-based containment integrated leakage rate test (ILRT or Type A test) interval up to 15 years. The staff has identified areas where additional information is needed to complete the review of the LAR.

**Request for Additional Information:**

**RAI 1**

In Section 4.3, "Supplemental Inspection Requirements," of the license amendment request (LAR), Table 4.3-1, "PLP Containment Inservice Inspection Periods (IWE/IWL)," only provides the typical inspection schedule that is based on Subsection IWE of the ASME Code, Section XI, and applies to the Class MC containment metallic liner and its attachments. Please provide a similar schedule of inspections, in a tabular format similar to that of Table 4.3-1, for a typical 15-year interval (between the last Type A test in refuel outage 1R15 and the proposed next Type A test in refuel outage 1R24) that were or will be performed on the containment concrete surfaces in accordance with Subsection IWL and/or other and explain how it meets the requirements in Section 9.2.3.2 of NEI 94-01, Revision 2-A (i.e., one inspection prior to each Type A test and at least three (3) other inspections between Type A tests for a total of four (4) inspections, if the Type A test interval is extended to 15 years), and Condition 2 in Section 4.1 of the NRC Safety Evaluation for topical report NEI 94-01, Revision 2-A.

**RAI 2**

Condition 3 in Section 4.1 of the NRC Safety Evaluation (SE) for NEI 94-01, Revision 2-A, requires that licensees address the areas of the containment structure potentially subject to degradation (Refer to SE Section 3.1.3). Section 3.1.3 of the NRC SE, in part, states that licensees referencing NEI 94-01, Revision 2, in support of a request to amend their TS should also explore/consider such inaccessible degradation-susceptible areas in plant-specific inspections, using viable, commercially available NDE methods (such as, boroscopes, guided wave techniques, etc.– see Report ORNL/NRC/LTR-02/02, "Inspection of Inaccessible Regions of Nuclear Power Plant Containment Metallic Pressure Boundaries," June 2002 (ADAMS Accession No. ML061230425) for recommendations) to support plant-specific evaluations.

The NRC staff's intent of this statement in the SER is that licensees should explore and consider NDE techniques, such as those discussed in the reference or other state-of-the-art

methods for inspections of inaccessible degradation-susceptible areas of the containment pressure boundary, in a proactive manner to support plant-specific evaluations of inaccessible areas, as these advanced technologies become commercially available and viable for implementation in practice in the future. The issue related to inaccessible areas is especially important in light of several instances of significant through-wall containment liner degradations (corrosion) that have been identified in the last decade in US operating nuclear plants, where the corrosion initiated at the inaccessible concrete-steel interface. While recognizing that these techniques may not be fully commercially viable at the present time, in order to fully address Condition 3 in Section 4.1 of the NRC SE, the licensee is requested to provide the following plant-specific information:

- a) Identify the specific areas of the PNP containment pressure boundary (both concrete and steel) that are inaccessible and susceptible to degradation.
- b) Acknowledge that NDE technologies (such as those described in the reference or others) would be explored in a proactive manner and considered in the future for the examination of inaccessible degradation-susceptible areas of the containment, as these technologies become commercially viable for implementation in practice. Include information of activities (such as participation in applicable cognizant owner's groups, code committees, professional societies, etc. in the field) that the licensee is proactively participating in or plans to participate in for tracking applicable ongoing technology developments, operating experience and contributing towards achieving this goal.
- c) Provide information of instances, if any, during implementation of the containment ISI program at PNP in accordance with IWE/IWL where existence of or potential for degraded conditions in inaccessible areas of the concrete containment structure and metallic liner were identified and evaluated based on conditions found in accessible areas, as required by 10 CFR 50.55a(b)(2)(viii)(E) and 10 CFR 50.55a(b)(2)(ix)(A). If there were any instances of such conditions, please discuss the findings and actions taken.

### RAI 3

In order to adequately address Condition 4 in Section 4.1 of the NRC Safety Evaluation for Topical Report NEI 94-01, Revision 2-A, the licensee is requested to provide information that will demonstrate its understanding of: (a) the post-modification pressure testing and examination required to be performed prior to return to service following "major" containment modifications; and (b) the distinction between major and minor containment modifications. The NRC staff position is that the pressure testing performed prior to return to service following any "major" containment modification should demonstrate both structural integrity and leak-tight integrity of the containment. In responding to this RAI, please refer to Section 3.1.4 of the NRC Safety Evaluation for Topical Report NEI 94-01, Revision 2-A, and the regulatory condition in paragraph 10 CFR 50.55a(b)(2)(ix)(J) and its statement of considerations in the final rule published on June 21, 2011 in the Federal Register, Vol. 76, No. 119, pp 36232 thru 36279 (76 FR 36232-36270).

### RAI 4

Please address whether bellows used on penetrations through containment pressure-retaining boundaries at PNP. If so, since degradation of bellows is a source for potential leakage, please provide information on their type (single-ply or two-ply), location, inspection, testing and operating experience with regard to detection of leakage through penetration bellows.

Reference: Letter No. PNP 2011-018 dated April 6, 2011, from Thomas P. Kirwin, Entergy Nuclear Operations Inc – Palisades Nuclear Plant, to USNRC regarding License Amendment Request to Extend Containment Type A Leak Rate Test Frequency to 15 years (ADAMS Accession No. ML110970616)