

December 16, 2011

MEMORANDUM TO: Patrick Hiland, Director
Division of Engineering
Office of Nuclear Reactor Regulation

Melanie Galloway, Acting Director
Division of License Renewal
Office of Nuclear Reactor Regulation

FROM: Michael J. Case, Director */RA/*
Division of Engineering
Office of Nuclear Regulatory Research

SUBJECT: ISSUANCE OF TECHNICAL LETTER REPORT, "COMPARISON OF DEGRADATION SCENARIOS IN THE PROACTIVE MATERIALS DEGRADATION ASSESSMENT (PMDA) AND THE GENERIC AGING LESSONS LEARNED (GALL) REPORT"

In Task 1 of User Need Request 2010-013, "User Need Request Related to Proactively Managing Materials Degradation," the Office of Nuclear Reactor Regulation (NRR) requested that the Office of Nuclear Regulatory Research (RES) review the degradation scenarios characterized as highly or moderately likely in NUREG/CR-6923, "Expert Panel Report on Proactive Materials Degradation Assessment," and determine which are not fully addressed in NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," Revision 1. NUREG/CR-6923 evaluated passive components in the primary, secondary, and some tertiary systems, the failure of which could lead to a release of radioactivity, or could affect the functionality of the safety systems. Under contract to RES, Pacific Northwest National Laboratory conducted this review, and the results of which formed the basis of the attached Technical Letter Report. The results of the comparison are intended to help NRR determine if changes may be appropriate for future revisions to the GALL Report, including the need for interim staff guidance.

A degradation scenario in NUREG/CR-6923 includes the following elements: component, material, environment, and degradation mechanism. Corresponding elements are found in the GALL Report. For this report, instances where identified in which one or more elements of a degradation scenario in NUREG/CR-6923 was not included in the GALL Report. For example, if NUREG/CR-6923 identified that a component is susceptible to general corrosion in water and air, whereas the GALL Report only recognizes general corrosion of that component in water, this would be noted as a difference between NUREG/CR-6923 and the GALL Report.

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A total of 384 degradation scenarios were characterized as highly or moderately likely in NUREG/CR-6923. Comparison with the GALL Report revealed potential differences for 91 of these 384 scenarios, 22 of which relate to highly-likely degradation scenarios, and 69 of which relate to moderately-likely degradation scenarios. These results have been discussed with NRR staff and it was concluded that no immediate action was warranted. NRR also reviewed the results considering Revision 2 of the GALL Report which was published in December 2010, after the present study was underway.

In a related activity, RES initiated the Expanded Materials Degradation Analysis (EMDA), in response to UNR 2010-006, "Request for Office of Nuclear Regulatory Research to Support in Developing Technical Information to Support Evaluating the Feasibility of License Renewal Beyond 60 Years." The EMDA will consider degradation for an operating period of 80 years for and a broader range of plant structures, systems, and components than NUREG/CR-6923. As identified in UNR 2010-006, the results of the EMDA will be integrated with other information to enable the staff to develop guidance related to subsequent renewal of plant operating licenses for 80 years of operation.

We wish to acknowledge the support provided by Kenneth Karwoski and Allen Hiser of your staffs for reviewing the draft. Their comments and suggestions have been addressed in the final report. If you have questions, please do not hesitate to contact me or Greg Oberson of my staff.

Enclosure:
As stated

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