



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 30, 2016

COMSECY-16-0018

MEMORANDUM TO: Chairman Burns
Commissioner Svinicki
Commissioner Baran

FROM: Victor M. McCree /RA/
Executive Director for Operations

SUBJECT: PROPOSED CLOSURE OF REQUIREMENT FOR PERIODIC
UPDATES ON MATERIALS DEGRADATION UNDER SRM –
M040413

PLEASE RESPOND BY:
September 16, 2016

The purpose of this memorandum is to fulfill the staff requirements memorandum (SRM)-M040413, "Briefing on Research Programs, Performance, and Plans, 9:30 A. M., Tuesday April 13, 2004, Commissioners' Conference Room One White Flint North, Rockville, Maryland (Open to Public Attendance)," dated April 28, 2004 (Enclosure 1). The SRM requires the staff to keep the Commission currently informed on progress in the research on reactor material degradation issues.

As summarized in Enclosure 2, the staff is informing the Commission of progress in researching reactor material degradation throughout fiscal year (FY) 2016.

Over the last decade, the staff has fulfilled the 2004 SRM yearly requirement by identifying briefings or other information provided to the Commission. For example, the requirement was fulfilled in FY 2015 through a Commissioner Assistants Note, "Status Report on Progress of Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor Subsequent License Renewal." That note also fulfilled the requirement in "Staff Requirements – SECY-14-0016 – Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor Subsequent License Renewal on SECY-14-0016." In FY 2014, this request was fulfilled by the Subsequent License Renewal Briefing to the Commission on May 8, 2014.

The staff also provides the Commission with information on significant emergent materials issues. The staff provides this information in response to specific requests from the Commission and to fulfill its statutory obligation to keep the Commission fully and currently informed. The information conveyed on baffle-bolt cracking found in some pressurized water reactors is a recent example of such communications.

CONTACT: Ilka T. Berrios, RES/DE
301-415-2404

Through these communications, the staff keeps the Commission fully and currently informed on progress in the research on reactor material degradation issues as required by the law and Commission policy. In preparing this year's memo in response to the 2004 SRM, the staff considered whether there was a continuing need for the 2004 requirement and whether efficiency could be enhanced by ensuring the Commission continues to receive the requested information while eliminating the annual report. The staff concluded that the 2004 SRM reporting requirement does not provide information to the Commission that has not already been provided by the staff. Accordingly, the staff proposes that this 2004 requirement be eliminated.

This memorandum requests Commission approval on closing the action item in SRM-M040413.

SECY, please track.

Enclosures:
As stated

cc: SECY
OGC
OCA
OPA
CFO

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SECY, please track.

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IN RESPONSE, PLEASE
REFER TO: M040413

April 28, 2004

MEMORANDUM TO: William D. Travers
Executive Director for Operations

FROM: Annette Vietti-Cook, Secretary **/RA/**

SUBJECT: STAFF REQUIREMENTS - BRIEFING ON RESEARCH
PROGRAMS, PERFORMANCE, AND PLANS, 9:30 A.M.,
TUESDAY, APRIL 13, 2004, COMMISSIONERS'
CONFERENCE ROOM, ONE WHITE FLINT NORTH,
ROCKVILLE, MARYLAND (OPEN TO PUBLIC ATTENDANCE)

The Commission was briefed by the NRC staff from the Office of Nuclear Regulatory Research (RES) on the programs, performance, and plans for the office.

The staff should communicate research results, particularly those involving conservative bounding analyses, to the public using plain English and in a manner to facilitate better understanding of the context and limitations of the information presented. When research reports are misused and quoted out of context, the staff should respond promptly.

The staff should inform the Commission through the budget process about how specific recommendations in the Advisory Committee on Reactor Safeguards (ACRS) report, NUREG-1635, Volume 6, "Review and Evaluation of the Nuclear Regulatory Commission Safety Research Program," dated March 2004, were dispositioned by the staff.

The Commission requested that the staff keep them currently informed on progress in the research on reactor material degradation issues.

cc: Chairman Diaz
Commissioner McGaffigan
Commissioner Merrifield
OGC
CFO
OCA
OIG
OPA
Office Directors, Regions, ACRS, ACNW, ASLBP (via E-Mail)
PDR

Enclosure 1

Summary of Products Associated with Reactor Materials Degradation Research in FY 2016

A. Products provided to Commission

1. [NRC-Department of Energy Commission Briefing](#) (June 2016) – ML16172A215
As part of this briefing, the staff briefed the Commission on NRC collaboration with the Department of Energy, including research on the four key technical issues related to nuclear plant operation beyond 60 years. These issues include materials degradation related to reactor pressure vessel embrittlement, aging of reactor internals, concrete and containment degradation, and electrical cable aging.
2. [Operating Reactors Business Line Briefing](#) (July 2016) – ML16189A231
As part of this briefing, the staff briefed the Commission on ongoing research activities related to materials degradation issues. This included ongoing research to ensure safety with an emphasis on the development of probabilistic piping integrity analysis tools and their use in risk-informed decision making.

B. Products provided to Advisory Committee on Reactor Safeguards (ACRS)

1. Briefed the [ACRS Plant License Renewal Subcommittee](#) on Subsequent License Renewal (SLR) technical issues and associated research (November 2015) – ML16011A228
The NRC staff briefed the ACRS on research involving materials degradation involving neutron fluence evaluations, reactor pressure vessel neutron embrittlement at high fluence levels, irradiation assisted stress corrosion cracking of reactor internals, concrete aging, and aging of electrical cables.
2. Briefed the [ACRS Metallurgy and Reactor Fuels Subcommittee](#) (May 2016) on Draft Regulatory Guide 1.230, “Regulatory Guidance on the Alternate Pressurized Thermal Shock Rule,” and draft NUREG-2163, “Technical Basis for Regulatory Guidance on The Alternate Pressurized Thermal Shock Rule” – ML16134A203
The NRC staff briefed the ACRS in detail on materials degradation research related to the public comments and corresponding revisions to the drafts of RG 1.230 and NUREG-2163 in preparation for final issuance of this guidance and supporting technical basis.
3. Briefed the [ACRS full committee](#) (July 2016) on Draft RG 1.230 and Draft NUREG-2163 – ML16209A213
The staff briefed the ACRS regarding an overview of the public comments and corresponding revisions to Draft Final RG 1.230 and Draft NUREG-2163 to support staff’s request for an ACRS letter supporting the staff’s proposal to issue the RG and NUREG as final.

C. Documents/Reports made publicly available

1. [NUREG-1925, Revision 3](#), "Research Activities FY 2015-FY 2017 (February 2016) – ML16060A414
This NUREG describes research being conducted by NRC's Office of Nuclear Regulatory Research across a wide variety of disciplines, including materials performance and materials degradation research. This is the fourth issuance of NUREG-1925 and this revision captures new research and updates ongoing research projects. The staff provided copies of this report to the Commission.
2. [NUREG-2191, Vol. 1 and Vol. 2](#), "Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report – Draft Report for Comment" (December 2015) – ML15352A084
This NUREG provides guidance for SLR applicants. This report contains the staff's generic evaluation of plant aging management programs (AMPs) and establishes the technical basis for their adequacy. It also contains recommendations on specific modifications for existing AMPs for the SLR operating period. This guidance is largely based on knowledge gained from operating experience and research on materials degradation.
3. [NUREG/CR-4513, Revision 2](#), "Estimation of Fracture Toughness of Cast Stainless Steels during Thermal Aging in LWR Systems (May 2016) – ML16145A082
This NUREG revises the procedure and correlations used for predicting the change in fracture toughness and tensile properties of cast austenitic stainless steel components due to thermal aging during service in light water reactors at 280–330°C (535–625°F). The report is based on current and relevant research on materials degradation performed by the NRC.
4. [Technical Letter Report](#), "Review of Aging Management Programs: Compendium of Insights from License Renewal Applications and from AMP Effectiveness Audits Conducted to Inform Subsequent License Renewal Guidance Documents." Public Report (1400 pages) - ML16167A076
This technical letter report provides the staff's observations from reviewing license renewal applications for the first round of license renewal reviews and from the AMP audits. The results of this effort expanded NRC's knowledge base related to materials degradation and provided valuable initial preliminary information to consider in developing guidance documents for SLR.