

February 22, 2005

MEMORANDUM TO: Carl J. Paperiello, Director  
Office of Nuclear Regulatory Research

FROM: Farouk Eltawila, Director */RA/*  
Division of Systems Analysis and Regulatory Effectiveness  
Office of Nuclear Regulatory Research

SUBJECT: TASK ACTION PLAN FOR THE TECHNICAL ASSESSMENT OF  
GENERIC SAFETY ISSUE 196, "BORAL DEGRADATION"

The attached Task Action Plan has been developed for the technical assessment of Generic Safety Issue (GSI) 196, "Boral Degradation." GSI-196 addresses the degradation of Boral neutron absorber plates under anticipated sequences of service conditions in spent fuel cask systems and any resulting increase in the potential for accidental criticality involving such systems. The issue applies to all existing and planned spent fuel casks and canisters in the U.S. that use Boral plates to help prevent nuclear criticality under normal, off-normal, and accident conditions. The issue affects all such storage and/or transport systems now in service or in various stages of licensing, fabrication, or pre-deployment. For questions or additional information on this proposed plan, please contact Harold Vandermolen, 301-415-6236.

Attachment: As stated

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**TASK ACTION PLAN**  
**GENERIC SAFETY ISSUE 196, "BORAL DEGRADATION"**

**WORK SCOPE**

The issue pertains to the degradation of Boral neutron absorber plates under anticipated sequences of service conditions in spent fuel cask systems and any resulting increase in the potential for accidental criticality involving such systems. The issue applies to existing and planned spent fuel casks or canisters in the U.S. that use Boral plates to help prevent nuclear criticality under normal, off-normal, and accident conditions. Included are such storage and/or transport systems now in service or in various stages of licensing, fabrication, or pre-deployment.

**STATUS**

This issue has passed the screening stage and is at the beginning of the technical assessment stage.

**System Applicability:** Existing and planned spent fuel casks or canisters in the U.S. that use Boral plates to help prevent nuclear criticality. A comprehensive listing of such spent fuel systems will be developed as part of the early technical assessment activities for this GSI.

**Task Manager:** Paulette Torres, RES/DSARE/ARREB

**GSI-196 Technical Assessment Plan**

The approach begins with information gathering and review activities to evaluate and summarize the existing knowledge base of test data and operating experience pertaining to Boral degradation effects in casks and related systems. If the GSI is found to be resolved without further information, no further assessment activities will be necessary and the GSI will be closed with appropriate documentation of the technical basis for resolution. The technical assessment plan is further detailed in the following task description.

Task A: Information Gathering and Evaluation

Overview: Gather, review, and summarize the information needed for evaluating Boral degradation effects in casks and their potential impacts on the estimated frequency of accidental criticality. This will entail the following three activities:

Task Resource and Schedule Estimates:

NRC effort: 2 staff-months

Contract funds: None

Earliest start date: 3/05

Duration: 4 months

Task Description: Gather, evaluate, and summarize the existing knowledge base of test data and operating experience pertaining to Boral degradation effects in casks and related systems. The information to be evaluated should include for example (a) any recent reports on Boral testing performed for cask vendors, the Boral vendor, the Electric Power Research Institute, or others; (b) U.S. and foreign event reports involving Boral in spent fuel pools, casks, or other relevant systems (e.g., December 2000 cask event in Spain); (c) NRC

inspection reports and associated correspondence (e.g., IR 72-1014/2003-101); (d) NRC Information Notices (e.g., IN 83-29); and (f) any related reports from past research conducted by the NRC or others (e.g., Idaho cask demonstration project; research from the late 1970s and early 1980s on Boral blistering and coverplate bulging in pools racks).

Task Deliverable: Summary report with a copy of each key reference

**Task B: Technical Evaluation of Safety Issue with Recommendations**

**Task Resource and Schedule Estimates:**

NRC effort: 3 to 6 staff-months

Contract funds: None

Duration: 3 months for interim reports, 3 months for draft final report, 4 months for ACRS/ACNW review and finalization, 3 months for closeout transmittal to EDO or recommendation for further evaluation.

Task Description: As warranted by the frequency estimates and screening results, close the issue or identify options and provide recommendations for resolving the safety issue. The staff should present a draft of the final evaluation and summary report to the ACRS and/or ACNW for review and comment, with comments to be addressed as necessary in the final report.

Task Deliverables: Interim and final staff reports on GSI-196 technical assessment.

**Summary of Preliminary Resource and Schedule Estimates for GSI-196 Task Action Plan**

<b>TASKS</b>	<b>NRC Staff-Months</b>	<b>Contract Funds (\$K)</b>	<b>Earliest Work Starts</b>	<b>Work Duration (months)</b>
A. Summarize existing information on Boral degradation effects	2	0	3/05	4
B. Provide interim and final technical evaluations of GSI-196 with recommendation	3 to 6	0	on finishing Task A	6