



OFFICE OF THE
INSPECTOR GENERAL

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

April 29, 2015

MEMORANDUM TO: Mark A. Satorius
Executive Director for Operations

FROM: Stephen D. Dingbaum */RA/*
Assistant Inspector General for Audits

SUBJECT: STATUS OF RECOMMENDATIONS: AUDIT OF NRC'S
OVERSIGHT OF SPENT FUEL POOLS (OIG-15-A-06)

REFERENCE: DEPUTY EXECUTIVE DIRECTOR FOR REACTOR AND
PREPAREDNESS PROGRAMS, OFFICE OF THE
EXECUTIVE DIRECTOR FOR OPERATIONS
MEMORANDUM DATED MARCH 18, 2015

Attached is the Office of the Inspector General's (OIG) analysis and status of recommendations 1, 2, 3, and 4 as discussed in the agency's response dated March 18, 2015. Based on this response, recommendations 1, 2, 3, and 4 are resolved. Please provide an updated status of the resolved recommendations by October 30, 2015. If you have questions or concerns, please call me at 415-5915, or Sherri Miotla, Team Leader, at 415-5914.

Attachment: As stated

cc: B. Dean, NRR
M. Galloway, OEDO
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Audit Report

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Status of Recommendations

Recommendation 1: Provide a generic regulatory solution for spent fuel pool criticality analysis by developing and issuing detailed licensee guidance along with the U.S. Nuclear Regulatory Commission (NRC) internal procedures.

Agency Response Dated
March 18, 2015:

The staff agrees with the recommendation.

In September 2011, the Office of Nuclear Reactor Regulation (NRR) published an interim staff guidance, DSS-ISG-2010-01, "Staff Guidance Regarding the Nuclear Criticality Safety Analysis for Spent Fuel Pools," regarding nuclear criticality safety analysis for spent fuel pools. The interim staff guidance was the first step in developing a more durable guidance document as described in NRR Action Plan, "On Site Spent Fuel Criticality Analyses." As a result of ongoing engagement with industry stakeholders, the Nuclear Energy Institute (NEI) volunteered to work with the NRC and industry to develop a detailed guidance document. The resulting document, NEI 12-16, "Guidance for Performing Criticality Analyses of Fuel Storage at Light Water Reactor Power Plants," is currently under NRC staff review. If the document is found to be acceptable, the NRC plan would be to endorse NEI 12-16 in a regulatory guide.

After publishing a final regulatory guide, the NRC will update NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," accordingly. Where appropriate, the updates to NUREG-0800 will inform corresponding revisions to the inspection guidelines for decommissioned reactors and for the Reactor Oversight Process. The Office of Nuclear Material Safety and Safeguards (NMSS) and the Division of Inspection and Regional Support (DIRS) within NRR are responsible for the inspection program governance documentation that could be affected by these changes to spent fuel pool oversight.

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Status of Recommendations

Recommendation 1 (cont.):

Planned Action: Upon a satisfactory conclusion to the NRC's review of NEI 12-16, the staff will incorporate this detailed guidance into NRC internal processes through a regulatory guide and through revisions to NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants."

Target date for completion: December 2017

CONTACT: Amrit Patel, NRR/DSS
(301) 415-5893

OIG Analysis:

The actions proposed by the agency meet the intent of the recommendation. This recommendation will be closed upon NRR's issuance of the regulatory guide and revisions to NUREG-0800.

Status:

Resolved.

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Status of Recommendations

Recommendation 2: Develop and implement spent fuel pool inspection guidance at operating reactors.

Agency Response Dated
March 18, 2015:

The staff agrees with the recommendation.

As described in the current version of Inspection Manual Chapter (IMC) 0308, "Reactor Oversight Process Basis Document," the NRC recognizes the importance of spent fuel pool safety during licensee refueling activities and its impact on operational safety at operating reactors. Accordingly, the NRC staff implements Baseline Inspection Procedure 71111.20, "Refueling and Other Outage Activities," to monitor refueling operations at operating reactors, including the adequacy of spent fuel cooling systems, fuel handling operations, and spent fuel pool storage.

To further enhance spent fuel pool oversight, NRR/DIRS staff will develop and implement discrete inspection procedure(s) that will describe how NRC inspectors should monitor spent fuel pool safety at operating reactors. The NRR/DIRS staff will coordinate this effort with the regional offices and various divisions within NRR and NMSS that are responsible for spent fuel pool oversight. In so doing, the staff will ensure technical consistency and alignment in the overall oversight strategy of spent fuel pool safety at both decommissioning and operating reactors.

Planned Action: The staff will develop and implement inspection procedure(s) discussed above.

Target date for completion: September 2015

CONTACT: Juan Peralta, NRR/DIRS
(301) 415-2858

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Status of Recommendations

Recommendation 2 (cont.):

OIG Analysis: The actions proposed by the agency meet the intent of the recommendation. This recommendation will be closed upon NRR's issuance of updated inspection procedures addressing spent fuel pools.

Status: Resolved.

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Status of Recommendations

Recommendation 3: Develop an enforceable neutron-absorbing material aging management program.

Agency Response Dated
March 18, 2015:

The staff agrees with the recommendation.

For the past decade, aging management of neutron-absorbing materials has been a focus of the NRC's oversight of spent fuel pools. For example, the NRC staff developed guidance on the elements that should be included in an adequate neutron-absorbing material aging management program. This guidance was incorporated into NUREG-1801, "Generic Aging Lessons Learned Report." The NRC staff also began to require enforceable monitoring programs for credited neutron-absorbing materials for all new license amendment requests associated with spent fuel pool criticality, either through a technical specification program or a license condition. These monitoring programs ensure the existence of a minimum standard by which the licensee must comply within their aging management program. The NRC staff also approached the industry's Technical Specifications Task Force to discuss the development of a "traveler" (i.e., a standard technical specification change) that adds monitoring of neutron-absorbing materials in spent fuel pools to the standard technical specifications.

For licensees that have not submitted a request to change their spent fuel pool licensing basis in recent years, imposing an enforceable neutron-absorbing material aging management program would constitute a backfit, subject to the provisions in Title 10 of the *Code of Federal Regulations* 50.109. In order to address this issue on an industrywide basis, the staff is in the process of finalizing a generic letter for issuance to all licensees that operate spent fuel pools. This generic letter will request the information necessary to enable the staff to evaluate each site's neutron-absorbing material aging management program for regulatory compliance. This

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Status of Recommendations

Recommendation 3 (cont.):

information will also allow NRC staff to determine what regulatory actions may be needed to ensure continuing compliance with NRC requirements, including any backfitting implications. The staff expects to issue the generic letter this fiscal year. A full evaluation of the responses and initiation of any necessary regulatory actions is not expected to be completed for about one year after all of the licensee responses have been received.

The staff will communicate any relevant insights from the collected information to NRR/DIRS and NMSS for potential incorporation into future revisions of inspection program governance documents.

Planned Action: The staff will use the generic letter process to collect information and determine what regulatory actions are necessary to ensure compliance with NRC requirements, then initiate the regulatory actions.

Target date for completion: May 2017

CONTACT: Scott Krepel, NRR/DSS
(301) 302-0399

OIG Analysis:

The actions proposed by the agency meet the intent of the recommendation. This recommendation will be closed when NRR completes its analysis of the generic letter responses and develops an enforceable neutron-absorbing material aging management program based on the analysis.

Status:

Resolved.

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Status of Recommendations

Recommendation 4: Update Inspection Manual Chapter 2561 and Inspection Procedure 60801.

Agency Response Dated
March 18, 2015:

The staff agrees with the recommendation.

NMSS staff initiated a review of IMC 2561, "Decommissioning Power Reactor Inspection Program," in 2013 and began the revision process in 2014. The staff has completed approximately 30 percent of the review and update of the approximately 40 inspection procedures associated with IMC 2561. The targeted completion date for this project is the end of calendar year 2015. NMSS has been coordinating the revision of the inspection manual chapter and inspection procedures with the regional offices and the program offices (NRR, NMSS, and the Office of Nuclear Security and Response). NMSS is coordinating the revision of Inspection Procedure (IP) 60801, "Spent Fuel Pool Safety at Permanently Shut down Reactors," with NRR/DIRS to ensure that the new revision, and any associated changes to IMC 2561, aligns with the new IP being generated for spent fuel pool inspections at operating reactors. NMSS will issue the revised IP 60801 within the same timeframe as the rest of the IMC 2561 revision project unless further review or coordination is needed with NRR to address ongoing changes to spent fuel pool criticality analyses and inspection requirements and guidelines or neutron-absorbing material aging management considerations.

Planned Action: NMSS will continue to manage the revision of IMC 2561 and implement inspection procedures (including IP 60801) as planned and scheduled.

Target date for completion: December 2015

CONTACT: Bruce Watson, CHP, NMSS/DUWP
(301) 415-6221

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Status of Recommendations

Recommendation 4 (cont.):

OIG Analysis: The actions proposed by the agency meet the intent of the recommendation. This recommendation will be closed when NMSS issues the revised versions of IMC 2561 and IP 60801.

Status: Resolved.