



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

February 24, 2017

Mr. Jack Boyle  
Director, Nuclear Decommissioning  
Entergy Nuclear Operations, Inc.  
Vermont Yankee Nuclear Power Station  
Vernon, VT 05354

SUBJECT: CLOSEOUT OF GENERIC LETTER 2016-01, "MONITORING OF  
NEUTRON-ABSORBING MATERIALS IN SPENT FUEL POOLS"

On April 7, 2016, the U.S. Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2016-01, "Monitoring of Neutron-Absorbing Materials in Spent Fuel Pools" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16097A169), to address the degradation of neutron-absorbing materials in wet storage systems for reactor fuel at power and non-power reactors.

GL 2016-01 requested licensees provide information to allow the NRC staff to verify continued compliance through effective monitoring to identify and mitigate any degradation or deformation of neutron-absorbing materials credited for criticality control in spent fuel pools.

To facilitate each licensee's response, GL 2016-01 established four categories (Category 1, Category 2, Category 3, and Category 4). The categories were established to identify situations where a detailed response to GL 2016-01 would not be required. The categorization criteria were generally based on whether a licensee credits neutron-absorbing materials for criticality control, or if a licensee has, or will soon have, an approved monitoring program for neutron-absorbing materials in the plant technical specifications or as a license condition. A full description of the categories can be found in the enclosure to this letter.

Entergy Nuclear Operations, Inc. submitted a response to GL 2016-01 for the Vermont Yankee Nuclear Power Station (VY) on October 4, 2016 (ADAMS Accession No. ML16286A236). The NRC staff has completed its review of this response. The NRC staff performed a thorough review of the licensee's response, any documents referenced therein, and other applicable licensing basis documents. In the response, the licensee stated that they met the criteria for Category 3 based on a license condition to incorporate a neutron-absorbing materials monitoring program into the Updated Final Safety Analysis Report. The NRC staff does not agree with this interpretation of the Category 3 criteria, because the monitoring program was not explicitly incorporated as a technical specification change or a license condition. However, the NRC staff reviewed the VY license renewal application and its supplements, as referenced in Entergy's October 4, 2016, response, and determined that the information provided was sufficient to meet the intent of responding to GL 2016-01.

In particular, supplement 2 to the license renewal application provides an adequate description of an effective neutron-absorbing materials monitoring program for VY that includes the following features:

- Neutron attenuation testing of coupons.
- Established processes to ensure that the licensee will take the appropriate corrective actions if any potentially non-conforming material is discovered.
- A testing frequency of no less than once every 10 years.
- Acceptance criteria to ensure maintenance of the 5-percent sub-criticality margin for the spent fuel pool.

Based upon the information submitted by the licensee in response to GL 2016-01, the NRC staff has determined that the submission appears to address the information requested in GL 2016-01, and no further information or action is requested regarding this matter.

Sincerely,

***/RA/***

Bruce A. Watson, CHP, Chief  
Reactor Decommissioning Branch  
Division of Decommissioning, Uranium Recovery,  
and Waste Programs  
Office of Nuclear Material Safety and Safeguards

Docket No. 50-271

Enclosure:

List of GL 2016-01 Categories

cc: Distribution via Listserv

J. Boyle

Closeout of Generic Letter 2016-01, "Monitoring of Neutron-Absorbing Materials in Spent Fuel Pools" – February 24, 2017

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**\*via email**

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## **LIST OF GL 2016-01 CATEGORIES**

- Category 1: Power reactor addressees that do not credit neutron-absorbing materials other than soluble boron in the analysis of record (AOR). In some cases, no neutron-absorbing material is present in the spent fuel storage racks, and in other cases, credit for the neutron-absorbing material has been removed through a regulatory action (e.g., approved license amendment). Those addressees may submit a response letter confirming that no neutron-absorbing materials are currently credited to meet U.S. Nuclear Regulatory Commission (NRC) subcriticality requirements in the spent fuel pool (SFP).
- Category 2: Power reactor addressees that have an approved license amendment to remove credit for existing neutron-absorbing materials and that intend to complete full implementation no later than 24 months after the issuance of this Generic Letter. Licensees may request extensions to this implementation timeframe if there are extenuating circumstances. Those addressees may submit a response letter affirming that they will implement the approved license amendment request within the specified time. However, they must still provide information equivalent to Category 3 or Category 4 for any other neutron-absorbing material credited in the SFP criticality AOR after the license amendment has been fully implemented.
- Category 3: Power reactor addressees that have incorporated their neutron-absorbing material monitoring programs into their licensing basis through an NRC-approved Technical specification (TS) change or license condition. Those addressees may submit a response letter referencing their approved TS change or license condition and affirming that no change has been made to their neutron-absorbing material monitoring program, as described in the referenced license amendment request. If a change has been made since NRC approval of the reference, the response letter should also describe any such changes. (Licensees with a monitoring program approved as part of a license amendment request or license renewal application that was not incorporated as a TS change or license condition are considered to belong in Category 4.)
- Category 4: All other power reactor addressees. The NRC seeks information in five areas depending upon the type of neutron absorber material used by the licensee in the spent fuel pool.

Enclosure