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

September 26, 2018

OMB Control No. 3150-0231

Mr. Joseph W. Shea
Vice President, Nuclear Regulatory Affairs
and Support Services
Tennessee Valley Authority
Sequoyah Nuclear Plant
1101 Market Street, LP 4A
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 – CLOSEOUT OF GENERIC LETTER 2016-01, "MONITORING OF NEUTRON-ABSORBING MATERIALS IN SPENT FUEL POOLS" (CAC NOS. MF9418 AND MF9419; EPID L-2016-LRC-0001)

Dear Mr. Shea:

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 (NAMs) in wet storage systems for reactor fuel at power and non-power reactors.

The generic letter requested that licensees provide information to allow the NRC staff to verify continued compliance through effective monitoring to identify and mitigate any degradation or deformation of NAMs credited for criticality control in spent fuel pools (SFPs).

By letter dated December 19, 2016 (ADAMS Accession No. ML16354B569), Tennessee Valley Authority (the licensee), responded to GL 2016-01 Sequoyah Nuclear Plant, Units 1 and 2 (Sequoyah-1 and 2). In the licensee's response to GL 2016-01, the licensee stated that, for Sequoyah-1 and 2, the licensee credits Boral for criticality control and has an established NAM monitoring program. The NRC staff's review determined that the provided response sufficiently addressed the five areas of information described in Appendix A of GL 2016-01 for Boral. In particular, the described monitoring program for the Boral includes the following key 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 not to exceed 10 years.

- Acceptance criteria to ensure maintenance of the 5-percent subcriticality margin for the SFP.

The NRC staff found that the licensee intends to continue monitoring the condition of its NAMs as described in its response.

In the licensee's response to GL 2016-01, the licensee also stated that some deformation has been identified as part of their Boral monitoring program. Further, the licensee stated that a criticality evaluation was performed to determine the effect of blisters on the Boral panels for the flux trap SFP cells installed at Watts Bar Nuclear Plant, Units 1 and 2 (WB-1 and 2). The conclusions from that evaluation were determined to bound the Sequoyah SFP configuration; however, no additional information regarding the evaluation was provided. Therefore, the NRC requested additional information from the licensee regarding evaluation of the criticality impact due to blistering at WB-1 and 2. By letter dated May 31, 2018 (ADAMS Accession No. ML18158A330), the licensee stated that the observed deformation for WB-1 and 2 is bounded by the criticality studies documented in Electric Power Research Institute (EPRI) document 3002013119, "Evaluation of the Impact of Neutron Absorber Material Blistering and Pitting on Spent Fuel Pool Reactivity," May 2018 (ADAMS Accession No. ML18226A292).

EPRI Report 3002013119 documents a series of sensitivity studies performed on representative SFP rack configurations to demonstrate that the amount of observed pitting and blistering would not be expected to have a significant reactivity impact. Preliminary conclusions are obtained based on the estimated reactivity impact from EPRI Report 3002013119 for pitting and blistering dimensions that go well beyond that observed by the licensee's monitoring program.

The NRC staff notes that the studies documented in EPRI Report 3002013119 are intended to be generic analyses and were not provided as site-specific analyses. Therefore, the results of the analyses, or any part of those analyses, have currently not been shown as directly applicable to WB-1 and 2 or Sequoyah-1 and 2. In addition, the NRC staff did not review whether the EPRI Reports could be used to justify equipment operability, design basis changes, or licensing changes requested pursuant to Title 10 of the *Code of Federal Regulations,* Section 50.90, "Application for amendment of license, construction permit, or early site permit." However, the NRC staff's review determined that the EPRI report does provide the information required to satisfy the request in GL 2016-01 for Boral at this time.

For Sequoyah-1 and 2, the NRC staff's review determined that the information provided sufficiently addressed the five areas of information described in Appendix A to GL 2016-01. Based on the review of the information provided, the NRC staff concludes no further information is requested regarding GL 2016-01.

Sincerely,

/RA/

Douglas A. Broaddus, Chief
Special Projects and Process Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

cc: Listserv

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 – CLOSEOUT OF GENERIC LETTER 2016-01, "MONITORING OF NEUTRON-ABSORBING MATERIALS IN SPENT FUEL POOLS" (CAC NOS. MF9418 AND MF9419; EPID L-2016-LRC-0001) DATED SEPTEMBER 26, 2018

DISTRIBUTION:
PUBLIC
PM File Copy
RidsACRS_MailCTR Resource
RidsNrrDirsIrgb Resource
RidsNrrDmlrMccb Resource
RidsNrrDorlLpl2-2 Resource
RidsNrrDorlLspb Resource
RidsNrrDssSnpb Resource
RidsNrrLAJBurkhardt Resource
RidsNrrLABClayton Resource
RidsNrrPMSequoyah Resource
RidsRgn2MailCenter Resource
BBenney, NRR
SKrepel, NRR
SWall, NRR

ADAMS Accession No.: ML18249A383 ***via email**

OFFICE	NRR/DORL/LSPB/PM	NRR/DORL/LPL2-2/PM	NRR/DORL/LAiT	NRR/DORL/LSPB/LA
NAME	SWall	AHon	PTalukdar	JBurkhardt
DATE	9/25/18	9/25/18	9/11/18	9/17/18
OFFICE	NRR/DMLR/MCCB/BC*	NRR/DIRS/IRGB/BC*	NRR/DSS/SNPB/BC*	NRR/DORL/LSPB/BC
NAME	SBloom	BPham	RLukes	DBroaddus
DATE	9/25/18	9/25/18	9/19/18	9/26/18

OFFICIAL RECORD COPY