NRR-PMDAPEm Resource

From: Mozafari, Brenda
Sent: Monday, February 24, 2014 11:51 AM
To: Nicely, Ken M.:(GenCo-Nuc) (ken.nicely@exeloncorp.com)
Cc: Purnell, Blake
Subject: FW: DRAFT REQUEST FOR ADDITIONAL INFORMATION FOR USE OF NEUTRON ABSORBING INSERTS IN SPENT FUEL POOL STORAGE RACKS (TAC NOS. MF2489 AND MF2490)

Follow Up Flag: Follow up
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Recipient	Read
Nicely, Ken M.:(GenCo-Nuc) (ken.nicely@exeloncorp.com)	
Purnell, Blake	Read: 2/24/2014 12:01 PM

Subject: DRAFT REQUEST FOR ADDITIONAL INFORMATION FOR USE OF NEUTRON ABSORBING INSERTS IN SPENT FUEL POOL STORAGE RACKS (TAC NOS. MF2489 AND MF2490)

By letter dated July 16, 2013, (Agencywide Documents Access and Management Systems Accession Number [ADAMS] ML13199A037), Exelon Generation Company, LLC. (the licensee), submitted a license amendment request to revise the Quad Cities Nuclear Station, Units 1 and 2 Technical Specifications to support use of neutron absorbing inserts in spent fuel pool. (Supplements to the application were provided on September 18, 2013, and January 22, 2014)

The NRC staff has reviewed the information the licensee provided and determined that additional information is needed in order to complete the review. The requested additional information is provided herein.

REFERENCE

Letter from David M. Gullott, Exelon Generation Company, LLC (EGC) to Nuclear Regulatory Commission (NRC) Documents Control Desk, "License Amendment Request (LAR)– Use of Neutron Absorbing Inserts in Units 1 and 2 Spent Fuel Pool Storage Racks" at Quad Cities Nuclear Power Station (QCNPS), July 16, 2013. (ADAMS Accession No.: ML13199A037)

EMCB-RAI-1

Section 3.4.4 of Evaluation of Proposed Changes (Attachment 1 of the Reference) indicates that the 41.5 lbf (pound-force) retention force is adequate to maintain the inserts in their required position under the Safe Shutdown Earthquake (SSE) conditions based on seismic accelerations present at the QCNPS location. Since the QCNPS design basis seismic event has a vertical acceleration less than 1.0g; the licensee has noted that the reduction in retention force due to stress relaxation is acceptable. Please provide the calculation and/or analysis that support the determination that the stress relaxation is acceptable.

EMCB-RAI-2

Section 3.5 of Evaluation of Proposed Changes of the Reference indicates that the test results from the demonstration program, noted in the LAR, and the corresponding minimum retention force criteria (i.e., 100 pounds minimum), confirm that sufficient horizontal and vertical restraint exist to prevent the inserts from displacing during normal plant operations or a design basis seismic event. The inserts are considered to be integral with the spent fuel pool (SFP) storage racks. These statements in Section 3.5 of Attachment 1 appear to contradict with the information provided in Sect 3.4.4 of Attachment 1 of the Reference, as noted in the RAI above. Please provide an explanation for this apparent contradiction.

EMCB-RAI-3

Section 9.1.2.3 “Safety Evaluation,” of the QCNPS Updated Final Safety Analysis Report (UFSAR) states, in part, that, “For the mechanical design of the spent fuel modules, two sets of criteria have been evaluated. The first established requirements to ensure that adjacent racks will not impact during the safe shutdown earthquake (SSE), assuming the lower bound value of

the pool surface friction coefficient. This criterion required that a safety factor against tilting be 1.5 for the operating basis earthquake (OBE) and 1.1 for the SSE. The second set of criteria established requirements to ensure that loading combinations and stress allowables are in accordance with Section III, Subsection NF, of the American Society of Mechanical Engineering (ASME) 1980 Edition." Provide information confirming that all applicable design basis requirements applicable to the existing QCNPS SFP racks, as stipulated by the provisions of Subsection NF of the ASME Code, will remain satisfied following installation of the neutron absorbing inserts. Specifically, confirm that normal and abnormal operating condition loads, including deadweight, thermal and seismic loads, are bounded by those used in the existing analysis of record such that the resulting margins of safety are positive and will continue to satisfy the requirements of the ASME Code.

Let me know whether a call is needed. Unless I hear otherwise, I will expect these questions to be responded to by March 24, 2014.

Brenda L. Mozafari
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Dresden 2/3 and QuadCities 1/2
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"Purnell, Blake" <Blake.Purnell@nrc.gov>
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"Nicely, Ken M.:(GenCo-Nuc) (ken.nicely@exeloncorp.com)" <ken.nicely@exeloncorp.com>
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MESSAGE	4395	2/24/2014 11:51:00 AM

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