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10 CFR 50
10 CFR 51
10 CFR 54

RS-14-166

June 5, 2014

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Subject: Response to NRC Request for Additional Information, Set 25, dated May 19, 2014, related to the Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2, License Renewal Application

References: 1. Letter from Michael P. Gallagher, Exelon Generation Company LLC (Exelon) to NRC Document Control Desk, dated May 29, 2013, "Application for Renewed Operating Licenses"

2. Letter from Lindsay R. Robinson, US NRC to Michael P. Gallagher, Exelon, dated May 19, 2014, "Request for Additional Information for the Review of the Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2, License Renewal Application, Set 25 (TAC NOS. MF1879, MF1880, MF1881, and MF1882)"

In Reference 1, Exelon Generation Company, LLC (Exelon) submitted the License Renewal Application (LRA) for the Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2 (BBS). In Reference 2, the NRC requested additional information to support staff review of the LRA.

Enclosure A contains the response to this request for additional information.

Enclosure B contains updates to sections of the LRA affected by the response.

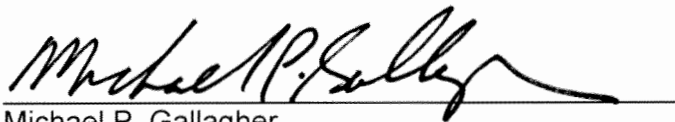
There are no new or revised regulatory commitments contained in this letter.

If you have any questions, please contact Mr. Al Fulvio, Manager, Exelon License Renewal, at 610-765-5936.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 06-05-2014

Respectfully,

A handwritten signature in black ink, appearing to read "Michael P. Gallagher", written over a horizontal line.

Michael P. Gallagher
Vice President - License Renewal Projects
Exelon Generation Company, LLC

Enclosures: A. Response to Request for Additional Information
B. Updates to affected LRA sections

cc: Regional Administrator – NRC Region III
NRC Project Manager (Safety Review), NRR-DLR
NRC Project Manager (Environmental Review), NRR-DLR
NRC Senior Resident Inspector, Braidwood Station
NRC Senior Resident Inspector, Byron Station
NRC Project Manager, NRR-DORL-Braidwood and Byron Stations
Illinois Emergency Management Agency - Division of Nuclear Safety

Enclosure A

**Byron and Braidwood Stations (BBS), Units 1 and 2
License Renewal Application**

Response to Request for Additional Information

RAI 3.5.2.3.15-1

RAI 3.5.2.3.15-1

Applicability:

Byron Station (Byron) and Braidwood Station (Braidwood), all units

Background:

License renewal application (LRA) Table 3.5.2-15, "Structural Commodity Group: Structural Commodity Group Summary of Aging Management Evaluation," includes two plant-specific aging management review (AMR) items: lead (Pb) penetrations seals that are exposed to (1) indoor uncontrolled air and (2) indoor air with borated water leakage. The LRA identifies that there are no aging effects that are applicable to the exposure of these seals to these environments. The AMR items cite generic Note J, which states that neither the component nor the materials and environment are evaluated in the Generic Aging Lessons Learned (GALL) Report. The AMR items also a reference a plant-specific Note 9 on the AMR table, which states:

This material and environment applies to the lead wool used for packing penetrations for radiation shielding. Operating experience has shown the air-indoor uncontrolled and air with borated water leakage environments to contain insignificant quantities of moisture, humidity, condensation, and contaminants during normal operation. Therefore, there are no aging effects associated with the lead material in the normal dry, air – indoor uncontrolled and air with borated water leakage environments.

Per Title 10 of the *Code of Federal Regulations* (10 CFR) 54.21(a)(3), the licensee is required to demonstrate that the effects of aging will be adequately managed during the period of extended operation for each structure or component that is scoped in for license renewal in accordance with the requirements in 10 CFR 54.4 and has been screened in for an AMR in accordance with the requirement in 10 CFR 54.21(a)(1). Since the applicant has identified "air with borated water leakage environment" as an applicable environment for these seal materials, the applicant must evaluate the seal materials applicable aging effects under exposure to the both containment air environment and postulated sources of borated water.

Issue:

The applicable plant-specific AMR item in LRA Table 3.5.2-15 identifies the "indoor air with borated water leakage" environment as an applicable environment for these containment penetration seals. However, plant-specific Note 9 for the AMR item only addressed the impacts of moisture, humidity, condensation and impurity contaminants in the containment air would have on the lead (Pb) seal materials (i.e., lead packing wool). The plant-specific Note for the AMR item did not address the impact that borated water would have on these seal materials if the borated water were to leak onto these penetration seal materials. It is not clear to the staff whether the aging effect of "loss of material due to boric acid corrosion" would not be considered if the lead packing wool is exposed to an "indoor air with borated water leakage" environment.

Request:

Provide the technical basis as to why loss of material due to boric acid corrosion of the lead packing wool used in the penetration seals has not been identified as an aging effect requiring management for the applicable AMR item in LRA Table 3.5.2-15. Amend the application, accordingly, if it is determined that loss of material due to postulated boric acid corrosion is an applicable aging effect requiring management for these penetration seals.

Exelon Response:

The lead (Pb) material (i.e., lead packing wool) identified for penetration seals in LRA Table 3.5.2-15 was included to account for a description in UFSAR Section 12.3.2.3 related to the potential use of lead wool as one of a series of higher density materials that might be used for penetration shielding. However, based on further review of plant drawings and design specifications, as well as a review of over 10 years of operating experience at Byron and Braidwood, no instances were identified of lead packing wool used as a penetration seal material. As a result, LRA Section 3.5.2.1.15 is revised to remove lead material and LRA Table 3.5.2-15 is revised to remove the lead material for penetration seals with an intended function of 'Shielding', as shown in Enclosure B of this letter.

During this review of penetration seals, it was identified that elastomeric penetration seals in LRA Table 3.5.2-15 should also have included an intended function of 'Shielding'. Therefore, LRA Table 3.5.2-15 is also revised to add elastomer material to penetration seals with a 'Shielding' intended function, as shown in Enclosure B of this letter.

Enclosure B

**Byron and Braidwood Stations, Units 1 and 2
License Renewal Application (LRA) updates resulting
from the response to the following RAI:**

RAI 3.5.2.3.15-1

Note: To facilitate understanding, the original LRA pages have been repeated in this Enclosure, with revisions indicated. Existing LRA text is shown in normal font. Changes are highlighted with ***bolded italics*** for inserted text and ~~strikethroughs~~ for deleted text.

As a result of the response to RAI 3.5.2.3.15-1 provided in Enclosure A of this letter, LRA Section 3.5.2.1.15, Structural Commodity Group, page 3.5-19, is revised as shown below. Changes are highlighted with ~~strike-throughs~~ for deleted text.

3.5.2.1.15 Structural Commodity Group

Materials

The materials of construction for the Structural Commodity Group components are:

- Aluminum
- Aluminum Bolting
- Calcium Silicate
- Carbon Steel
- Carbon and Low Alloy Steel Bolting
- Ceramic Fiber
- Elastomer
- Fiberglass
- Foamed Plastic
- Galvanized Steel
- Galvanized Steel Bolting
- Glass
- Grout
- ~~Lead~~
- Mineral Fiber
- PVC
- Polymers
- Stainless Steel
- Stainless Steel Bolting

As a result of the response to RAI 3.5.2.3.15-1 provided in Enclosure A of this letter, LRA Table 3.5.2-15, Structural Commodity Group, pages 3.5-256 and 3.5-263, is revised as shown below. Changes are highlighted with ***bolded italics*** for inserted text and ~~strikethroughs~~ for deleted text.

Table 3.5.2-15 Structural Commodity Group (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Item	Table 1 Item	Notes
Penetration Seals	Shielding	<i>Elastomer</i>	<i>Air - Indoor Uncontrolled</i>	<i>Loss of Sealing</i>	<i>Structures Monitoring (B.2.1.34)</i>	<i>III.A6.TP-7</i>	<i>3.5.1-72</i>	<i>A</i>
			<i>Air with Borated Water Leakage</i>	<i>Loss of Sealing</i>	<i>Structures Monitoring (B.2.1.34)</i>	<i>III.A6.TP-7</i>	<i>3.5.1-72</i>	<i>A</i>
		Grout	Air - Indoor Uncontrolled	Cracking, Loss of Bond, and Loss of Material (Spalling, Scaling)	Structures Monitoring (B.2.1.34)	III.A3.TP-26	3.5.1-66	A, 8
			Air with Borated Water Leakage	Cracking, Loss of Bond, and Loss of Material (Spalling, Scaling)	Structures Monitoring (B.2.1.34)	III.A3.TP-26	3.5.1-66	A, 8
		Lead	Air - Indoor Uncontrolled	None	None	None	None	J, 9
			Air with Borated Water Leakage	None	None	None	None	J, 9

Plant Specific Notes: (continued)

9. ~~**Not Used.** This material and environment applies to the lead wool used for packing penetrations for radiation shielding. Operating experience has shown the air indoor uncontrolled and air with borated water leakage environments to contain insignificant quantities of moisture, humidity, condensation, and contaminants during normal operation. Therefore, there are no aging effects associated with the lead material in the normally dry, air - indoor uncontrolled and air with borated water leakage environments.~~