

Goshen, John

From: Goshen, John
Sent: Saturday, May 23, 2015 9:54 AM
To: Furio, Patricia S:(CCNPP) (patricia.furio@exeloncorp.com)
Subject: Emailing: CC RN LAR 1 RAI 2_
Attachments: CC RN LAR 1 RAI 2_.doc

Pat, we will be issuing "staggered RAI 2s". We have discussed some of these on a conference call previously. Please consider this the formal issuance. As standard practice, please provide your responses within 31 days or notify me if you need an extension. As always, call me if you have any questions.

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CALVERT CLIFFS INDEPENDENT SPENT FUEL STORAGE INSTALLATION

RENEWED MATERIALS LICENSE NO. SNM-2505

DOCKET NO. 72-8

LICENSE AMENDMENT REQUEST NO. 1

SECOND REQUEST FOR ADDITIONAL INFORMATION PART 1

By letter dated March 26, 2014, as July 25, October 10, and December 3, 2014, February 3, and March 10, 2015, Exelon Generation Company, LLC (Exelon Generation), submitted license amendment request (LAR) No. 1 to the U.S. Nuclear Regulatory Commission (NRC) for Renewed Materials License No. SNM-2505 (LAR 2505-1) for the Calvert Cliffs independent spent fuel storage installation (ISFSI).

Chapter 5 Structural and Materials Evaluation

RAI

- 5-1 Provide all applicable drawings associated with the NUHOMS® 32PHB Dry Shielded Canister (DSC) system.

The staff received drawings in response to a previous request (RSI 5-7 of Request for Supplemental Information), but is unsure if we possess all of them in a readable form. For example, vendor DWG Nos. NUH32PHB-03-3 sheet 2 of 2 and NUH32PHB-30-4 sheet 2 of 2 are presented as DWG No. 84239SH0002. The staff does not possess sheet 1 of 2 for either of these vendor drawings. DWG No. NUH32PHB-30-4 sheet 2 of 2 contains details and sections, but without sheet 1 of 2, the staff is unaware of the component from which the details and sections are taken. Ensure DWG No. NUH32PHB-30-5 is among the included drawings. Additionally, calculation No. NUH32PHB-0201, NUHOMS® 32PHB, "Weight Calculation of DSC/TC System," contains sketches in the appendix that appear to be excerpts from drawings. One of these sketches is a list of American Society of Mechanical Engineers (ASME) code exceptions for the DSC and the basket, but additional notes and the title block with the drawing number are cut off. These code exceptions do not appear anywhere in the proposed revision to the final safety analysis report (FSAR). Although Regulatory Guide 3.62 states that drawings on 8½ x 11 inches are preferred, the staff prefers the drawings be submitted on 11 x 17 inches so that the details are legible.

This information is needed to demonstrate compliance with 10 CFR 72.24.

- 5-2 Provided justification why the new canister lead gamma shielding is now a Category C material not in accordance with NUREG/CR-6407 guidance. Verify all remaining parts/components are in accordance with NUREG/CR-6407 and justification otherwise.

Enclosure

Drawing parts list provided as part of response to additional information states the new canister's lead gamma shielding is a category C material.

This information is needed to demonstrate compliance with 10 CFR 72.24 and 10 CFR 72.56.

- 5-3 Provide revised draft FSAR pages that incorporate the NUHOMS® 32 PHB DSC system into the renewed license aging management programs (AMPs) specifically relating to chloride induced stress corrosion cracking (SCC).

The licensee intends to incorporate the 32PHB DSC system in the AMP as part of ISFSI renewed license. The AMPs included in the Calvert Cliffs ISFSI FSAR do not currently include the 32PHB DSC system.

This information is needed to demonstrate compliance with 10 CFR 72.24 and 10 CFR 72.56.

Chapter 6 Thermal Evaluation

- RAI 6-1 Provide additional information and justification that forced cooling (FC) will be maintained during transport and is reliable for recovery action.

The staff reviewed the response to RAI 6-2b and concluded that it lacks sufficient detail to verify that FC is always operable during transport or FC would be quickly recoverable in the event of failure. The staff performed an independent analysis of the transfer operation and determined that the peak cladding temperature limit of 752° F would be exceeded in the event that FC fails and is not quickly recoverable. Technical Specification (TS) 3.3.2.1 does not currently consider this scenario. Therefore, the staff needs additional information to assure FC will be operable during transport or justify why FC could be quickly recoverable in the event of a failure, or the staff requests that TS 3.3.2.1 be modified to incorporate appropriate actions to be taken in the event that FC cannot be maintained.

This information is required by the staff to determine compliance with 10 CFR 72.128(a)(4).

Chapter 9 Confinement Evaluation

- 9-1 Provide an explanation for the 10% fuel rod rupture assumption during the storage accident condition pressure calculation and confirm the structural integrity of the 32PHB DSC system under accident conditions, assuming 100% fuel rod failure.

Exelon's RSI 9-4 response assumed 10% of the fuel rods fail during the accident blocked vent storage condition. The response also quoted the NUREG-1536 guidance of assuming 100% fuel rod failure during an accident event but provided no justification for not following that guidance.

This information is needed to determine compliance with 10 CFR 72.122.

- 9-2 Provide an accurate description of the confinement boundary in the proposed FSAR pages in order to provide a complete description of the NUHOMS® 32PHB DSC system.
- a) The confinement boundary is a critical component of the NUHOMS® 32PHB DSC system. As requested in the previously submitted requests for supplemental information (RSI) 9-2 and 9-3, a description of the confinement boundary was presented, in text and figure formats. This description should be provided in proposed FSAR pages.
 - b) The RAI 9-3 response sketch of the confinement boundary appears to be different than the actual NUHOMS® 32PHB DSC system, as denoted in drawing NUH32PHB-30-3. The extent of the confinement boundary, especially near the shielding plug assembly and shell, is uncertain and therefore, an updated sketch should be provided.

This information is needed to determine compliance with 10 CFR 72.24.

- 9-3 Provide draft FSAR pages that clearly define that the confinement boundary, which includes the base metal of the components provided in the RSI 9-2 and 9-3 responses and the welds associated with those components, will be helium leak tested to the application's stated $1\text{E-}7$ atm cc/sec acceptance criterion of "leaktight", as defined by ANSI N14.5.

As stated in the staff's RAI 1 request, helium leakage testing of the entire confinement boundary to a $1\text{E-}7$ ref cc/sec acceptance rate is necessary to demonstrate a "leaktight" system so that release/leakage analyses would be unnecessary. However, parts of the supplied FSAR pages, such as page 13.1-63, indicate that only certain parts of the confinement boundary (e.g., closure welds) are tested to meet a "leaktight" criterion.

This information is needed to determine compliance with 10 CFR 72.122.

- 9-4 Clarify that the procedures for the helium leak tests in the field, such as during closure, are developed and implemented by an American Society of non-Destructive Testing (NDT) (ASNT) Level III certified in leakage testing.

Exelon's response to RSI 9-2 indicated that an ASNT non-destructive testing (NDT) Level III procedure would be developed to implement the helium leakage tests during

fabrication but that did not address the helium leakage tests required to be performed in the field.

This information is needed to determine compliance with 10 CFR 72.122.

- 9-5 Confirm that a non-reactive environment will exist within the NUHOMS-32PHB DSC system during the proposed 40-year license period and specify the fraction and the number of moles of volatile gases, fission gases, and fill gases used in the calculation spreadsheet.

- a) The spreadsheet presented in Enclosure 5 of the RSI 9-4 response indicated a helium backfill pressure of 18.2 psia, but there was no analysis to verify that a non-reactive environment would be maintained during the proposed 40-year license period.
- b) The previously submitted RSII 9-4 requested justification for the volatile and gas release fractions for the high burnup fuel but the explanation, and corresponding spreadsheet, did not discuss the differences associated with high burnup fuels.

This information is needed to determine compliance with 10 CFR 72.122.