AREVA

NRC/TN Meeting
1030 Amendments 1 and 2
November 17, 2009

Transnuclear Inc.

AREVA

Scope of CoC 1030 Amendment 2 - Overview

- Increased fuel assembly weight, by 25 lbs
- Include additional fuel type, like BLEU
- Include additional control components, like WABA
- Increased shielding effectiveness of the HSM-H
- Depending on the outcome of the discussions between NRC and the NEI Dry Cask Storage Task Force, include in authorized contents the use of non-irradiated non-fuel hardware that would be used to provide additional fuel assembly structural support to allow handling of the Westinghouse fuel with thimble tube sleeves susceptible to intergranular stress corrosion cracking in the bulge joint area just below the top nozzle
  - classify the assembly as non-damaged fuel obviating the need for using damaged fuel end caps if allowed

Scope of CoC 1030 Amendment 2 – More Detail

- Increased fuel assembly weight, by 25 lbs
  - Total weight increased – 800 lbs. (25 x 32)
  - DSC Shell Assembly Structural Evaluations

Canister Type	Weight of basket and fuel assembly	Weight of basket and higher fuel assembly weight	Weight used in the existing evaluation	Remark
32PTH	79,010 lbs	79,810 lbs	81,000 lbs	No new analysis required
32PTH Type 1	80,700 lbs	81,670 lbs	83,000 lbs	No new analysis required

Scope of CoC 1030 Amendment 2 – More Detail

- Increased fuel assembly weight, by 25 lbs
  - Transfer Cask Structural Evaluations

Transfer Cask Type	Weight of DSC and fuel assembly	Weight of DSC and higher fuel assembly weight	Weight used in the existing evaluation	Remark
32PTH	107,200 lbs	108,000 lbs	115,000 lbs	No new analysis required
32PTH Type 1	109,500 lbs	110,300 lbs	115,000 lbs	No new analysis required

Scope of CoC 1030 Amendment 2 – More Detail

- Increased fuel assembly weight, by 25 lbs
  - Basket Structural Evaluations

Basket Type	Weight of fuel assembly	Weight of higher fuel assembly weight	Weight used in the existing evaluation	Remark
32PTH	1,585 lbs	1,610 lbs	1,585 lbs	Basket will be reanalyzed using the same methodology from CoC 1004 Amendment 10
32PTH Type 1	1,585 lbs	1,610 lbs	1,585 lbs	

Scope of CoC 1030 Amendment 2 – More Detail

- Increased fuel assembly weight, by 25 lbs
  - HSM-H Structural Evaluations

Canister Type	Weight of DSC and fuel assembly	Weight of DSC and higher fuel assembly weight	Weight used in the existing HSM –H evaluation	Remark
32PTH	107,200 lbs	108,000 lbs	110,000lbs	No new analysis required
32PTH Type 1	109,500 lbs	110,300 lbs	110,000 lbs	HSM-H support structures will be analyzed for the increased weight

Scope of CoC 1030 Amendment 2 – More Detail

- **Include additional fuel type, like BLEU**
  - **BLEU (Blended Low Enriched Uranium) material is likely to be included in the new fuel assembly designs which contains additional impurities not previously considered in the source term calculations**
  - **The source term calculations are revised to include the presence of BLEU material**
  - **Appropriate limits are calculated in the FQT to ensure that the design basis source terms are still bounding – e.g.: setting additional cooling time for fuel with BLEU material**

Scope of CoC 1030 Amendment 2 – More Detail

- Include additional control components, like WABA
  - Control Components are authorized for loading in the HD system and are listed in the Technical Specifications
  - Wet Annular Burnable Absorbers (WABA) and Flux Suppression Inserts (FSI) are not explicitly included among these Control Components
  - The list of Control Components will be expanded to include additional components and provide generic description (if applicable) for control components
  - No new calculations are required for these components as the analyses performed with the BPRAs will remain bounding

Scope of CoC 1030 Amendment 2 – More Detail

- **Increased shielding effectiveness of the HSM-H**
  - **Include small design changes to the HSM-H to enhance shielding effectiveness**
  - **These changes do not "significantly" affect the air flow at the vents / around the DSC or elsewhere in the HSM-H**
  - **Shielding and thermal sensitivity calculations will be performed to document the shielding effectiveness and quantify any impact on the HSM-H air flow**

Scope of CoC 1030 Amendment 2 – More Detail

- Depending on the outcome of the discussions between NRC and the NEI Dry Cask Storage Task Force, include in authorized contents the use of non-irradiated non-fuel hardware that would be used to provide additional fuel assembly structural support to allow handling of the Westinghouse fuel with thimble tube sleeves susceptible to intergranular stress corrosion cracking in the bulge joint area just below the top nozzle
  - Finite element analysis will be performed for the side drop loading which will model one row of the fuel assemblies including the fuel assembly structural support.
  - Criticality sensitivity analysis will be performed for this fuel assembly

Need for Amendments 1 and 2 - FPL

FPL Amendment 1 Need

- Dry Fuel Loading Campaign Scheduled at St. Lucie Nuclear Plant June 2010
- Eight Dry Shielded Canisters will be loaded (Three from PSL Unit 1 and Five from PSL Unit 2)
- Amendment 1 of CoC No. 1030 required to be approved and included in 10CFR72.214
  - Unit 1 – Metric Ton of Uranium per Assembly increased from 0.385 Amendment 0 limit to provide acceptable number of assemblies to load
  - Unit 2 – CE 16x16 fuel required as an allowable fuel type, as included in Amendment 1
- Work is proceeding assuming approval of Amendment 1 in March
- Seabrook Station – Letter of March 24, 2009 requesting Amendment 1 approval by June 15, 2009 for temperature monitoring (safety issue)

FPL Status

- FPL requires scheduled loading campaign to support full core reserve capability
- An Exemption Request may be submitted in parallel with the approval process of Amendment 1
- If Amendment 1 is not approved by March, all campaign related documentation must be revised to reflect the exemption request

Need for Amendments 1 and 2 - Dominion

- Dominion use of CoC 1030 for storage to date
  - Surry Power Station – Nine 32PTH canisters
    North Anna Power Station – Seven 32PTH Canisters
  - Next Loadings – Early summer 2010 for Surry and North Anna
- Amendment 1 benefits for Dominion
  - Changes to vacuum drying and helium backfill TS clarify LCO's, time limits, and provides more flexibility in operation
  - Additional non-fuel Control Components for storage
  - Removal of specified decay time for non-fuel Control Components
- Amendment 2 additions
  - Potential storage of assemblies susceptible to the thimble tube bulge joint cracking issue which may require additional skeleton structural support to allow handling
  - Inclusion of Flux Suppression Inserts as allowable non-fuel Control Components for storage

Timeline for CoC 1030 Amendment 2

- Submittal – presuming Amendment 1 effective in March 2010, the Amendment 2 submittal will be in June 2010
- Amendment 2 is straightforward, not complicated
- 8 to 9 months to get the preliminary CoC/SER
- 5 more months for amendment to become final with rulemaking process
- Currently working to firm up the need date