Attachment 4

Description of Control of Changes to Fuel Specifications Under 72.48

CONTROL OF CHANGES TO FUEL SPECIFICATIONS UNDER 10 CFR 72.48

If the level of detail presented in the guidelines is contained in the Safety Analysis Report, then changes to the design of a DCSS or to the fuel contained in the DCSS can be controlled under the requirements of 10 CFR 72.48. Some examples follow that show how changes could fall within the authority of the DCSS vendor to implement without prior NRC review and approval, as well as examples of changes that would require prior NRC review and approval prior to implementation.

Examples of Changes That Would Not Require Prior NRC Review and Approval

- The DCSS vendor is supplying a DCSS to utility XYZ for storage of 17x17 fuel utilized in a Westinghouse reactor. The utility has SNF that it wishes to store that has a fuel design from a different vendor that is compatible with fuel assembly designs that are currently enveloped in the SAR criticality safety analyses, but has an improved cladding material and improved fuel grids. The computational model used by the DCSS vendor in performing criticality safety analyses is used to perform bounding studies for the new fuel design. These analyses demonstrate that the new fuel design is bounded in all aspects by an existing analyzed fuel type approved for storage in the DCSS. The 10 CFR 72.48 analysis of this change would show that it may be implemented without prior NRC review and approval, since no methodology changes resulted, subcriticality of the DCSS with the new design was maintained, and no Technical Specification change was required.
- A DCSS vendor has selected a different fabricator for the borated neutron absorbers used in the fuel canister design. The manufacturing and testing processes that the fabricator uses to control product specifications and verify minimum boron content are improved to where the criticality analyses can assume 90% of the minimum B^{10} content as opposed to 75% as assumed in the NRC reviewed and certified DCSS. The DCSS vendor wants to revise the borated neutron absorber specifications to reduce the amount of material required for each absorber plate that would be installed in the canister as a result of this improvement. The criticality analyses performed by the vendor show that the revised specifications do not cause the conclusions of the analyses to change. The 10 CFR 72.48 analysis of this change would show that it may be implemented without prior NRC review and approval, since no methodology changes resulted, subcriticality of the DCSS with the new design was maintained, and no Technical Specification change was required. [NOTE: This example was predicated on NRC's planned issue of an ISG that allows 90% instead of 75% minimum as specified in NUREG-1536]
- During review of the SNF assembly configurations contained in the spent fuel pool that are planned to be loaded into a certified DCSS, it is discovered that several fuel assemblies contain secondary neutron sources that were not identified and analyzed as approved for storage in the DCSS. Criticality analyses are performed using the approved methodology by the DCSS vendor that account for the presence of these source pins, and it is determined that their presence is bounded by current criticality analyses. The 10 CFR 72.48 analysis of this change would show that it may be implemented without prior NRC review and approval, since no methodology changes

resulted, subcriticality of the DCSS with the new design was maintained, and no Technical Specification change was required.

Examples of Changes That Would Require Prior NRC Review and Approval

- A site-specific licensee assumes ownership of a DCSS and seeks to establish an in-house capability for performing criticality safety analyses for SNF to be stored in its DCSS. The performance of the criticality calculations using a different computational platform than that used by the DCSS vendor but using the same computational methodology results in a gain in margin (i.e., the results are not "essentially the same") for the limiting criticality case (e.g., calculated K_{eff} is reduced). This would be a non-conservative change, or a departure from a method that would require prior NRC review and approval under the requirements of 10 CFR 72.48.
- A DCSS vendor wishes to add a more reactive fuel type to the SNF to be stored, and compensate for the increased reactivity by increasing the minimum B^{10} content in the borated neutron absorbers. The increased B^{10} content results in a material configuration change that impacts the models used in the criticality analyses; the model change results in a non-conservative change in calculated K_{eff}. This would be a departure from a method that would require prior NRC review and approval under the requirements of 10 CFR 72.48.
- A DCSS vendor wishes to add a more reactive fuel type to the SNF to be stored, and compensate for the increased reactivity by removing the conservatism used in the assumptions for the model by accounting for fuel assembly hardware (grid spacers, end fittings, etc.) that was not accounted for in the approved and certified analysis. Although the criticality safety analyses reflect no change in K_{eff} for the new fuel type, K_{eff} for other fuel types would decrease, thus increasing the margin in a non-conservative direction; this change in assumption would constitute a departure from a method that would require prior NRC review and approval under the requirements of 10 CFR 72.48.