REQUEST FOR ADDITIONAL INFORMATION
Volume 2 – Preclosure
Chapter 2.1.1.7 - Design of Structures, Systems and Components Important to Safety and Safety Controls
Set 3 (RAI #1 - #7)

The following questions pertain to DOE's aging facility design described in SAR Sections 1.2.2 and 1.2.7. This information is needed to assess whether or not DOE has demonstrated compliance with 10 CFR 63.112(f), which requires DOE to describe and discuss design of surface and subsurface facilities of the geologic repository operations area, including the design bases and design criteria and the relationship between design criteria and the requirements of §63.111(a) and (b). In addition to the SAR, these questions also refer to other references in the LA and on the docket. Unless otherwise specified, references cited in the following RAIs are from SAR Section 1.2.2.

RAI #1

Provide the elevation and layout areas of the aging pads, including cross-sections showing planned slopes around the aging facility (SAR Section 1.2.7), to demonstrate that the aging casks are protected from the probable maximum flood (SAR Section 1.2.2.1.6).

RAI #2

Provide the technical basis to demonstrate that the response of a small area of mat selected for the finite-element analysis is representative of a response of the aging facility (1302 ft x 1180 ft) with 1250 casks, including the area with horizontal aging modules (BSC 2007e).

RAI #3

Justify the assumption that the mat will experience the peak ground acceleration during a seismic event, and that effects of the soil-structure-interaction, including mat flexibility, are not significant (BSC 2007e).

RAI #4

Provide the technical basis for selecting the coefficient of friction of 0.35 between aging casks and mat concrete to limit the cask horizontal forces on mat during a seismic event (BSC 2007e).

The coefficient of friction (COF) between mat concrete and aging casks steel depends on the surface conditions, and may be as high as 0.8. The higher COF will result in design forces that are greater than the current mat design seismic forces, and may adversely affect the mat design (BSC 2007e).

RAI #5

Provide the technical basis for using the mesh size of 3 ft x 3 ft in modeling the aging facility mat as shell elements for the static analysis, and address the potential effects of mesh size variation on the mat design forces (BSC 2007e).

RAI #6

Provide the technical basis for considering a single value of soil material property in the finite-element analysis of the aging facility mat (Section 6.2 of BSC 2007e), and address the potential effects of the variation of soil material properties on the mat design forces (BSC 2007e).

RAI #7

Verify that the amount and spacing of shear reinforcement provided in the aging facility mats (Section 6.6 of BSC 2007e) meet ACI 349 Code provisions in Section 11.5.4.1.