

### 2.6.1.12 Stability of Foundations for Structures and Embankments

All exterior footings will be founded at a depth of no less than 30 inches below finished grade to provide protection against frost, in accordance with local code requirements. Interior footings in heated areas may be founded at shallower depths, if desired.

The minimum factor of safety against a bearing capacity failure due to static loads (dead load plus maximum live loads) is 3.0.

In accordance with the requirements of NUREG-75/087, Section 3.8.5, "Foundations," Section II.5, "Structural Acceptance Criteria," the recommended minimum factor of safety against overturning or sliding failure from static loads (dead load plus maximum live loads) is 1.5 and due to static loads plus loads from extreme environmental conditions, such as the design basis ground motion, is 1.1. In addition, it is recommended that a factor of safety of 1.1 be used to design footings against a bearing capacity failure from static loads plus loads due to the design basis ground motion.

If the factor of safety against sliding is less than 1 due to the design basis ground motion, additional analyses of the displacements the structure may experience are performed using the method proposed by Newmark (1965) for estimating displacements of dams and embankments during earthquakes to demonstrate that such displacements, if they did occur, would not have an adverse impact on the performance of the Important-to-Safety structures.

Recommended design earth pressure distributions are presented in Figure 2.6-7. Lateral earth pressures for determining driving forces shall be based on  $K_0$ , the at-rest earth pressure coefficient. These can be reduced to "active" earth pressures if the yield ratio exceeds 0.1%, where yield ratio,  $S/H$ , is defined as shown for the active case in Figure 2.6-8. In determining "passive" pressures resisting lateral movement, assume

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 In the matter of PPS  
 Staff \_\_\_\_\_ IDENTIFIED ✓  
 Applicant \_\_\_\_\_ RECEIVED J  
 Intervenor ✓ \_\_\_\_\_ REJECTED \_\_\_\_\_  
 Cont'g Off'r \_\_\_\_\_  
 Contractor \_\_\_\_\_ DATE 6/20/02  
 Other \_\_\_\_\_ Witness Bartley  
 Reporter G. Bern

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