

**Statement of Work**  
**Gen-Hua Shi**  
**November 16, 2000**

Provide technical assistance to (i) perform analysis to evaluate potential and size of rockfall of emplacement drift subjected to earthquake impact using key block theory to determine distribution of rockfall size with given fracture data, estimate extent of area affected by earthquake, and estimate vertical extent of rockfall; and (ii) perform drift stability analysis considering thermal loading, site specific fracture network, and rock bolt support to evaluate rock bolt performance and rock mass behavior using discontinuous deformation analysis (DDA) approach or Manifold Method of Material Analysis. The first items of work will generate input necessary for updating NRC rockfall model. The results of the second item will provide an independent assessment on DOE emplacement drift design analysis and assist the development of acceptance criteria and review methods in the related area.

**Statement of Work**  
**Dr. Gen-Hua. Shi**  
**November 27, 2001**

- Perform analysis to assess the size distribution of rock blocks in the four Topopah Spring thermal-mechanical units in which the repository will be located using a three-dimensional block generator
  - Using Monte Carlo technique to determine size distribution
- Provide technical guidance on thermal-mechanical modeling of Task 2: drift-scale heater test of the DECOVALEX III project
- Perform drift stability analysis considering thermal loading and rock bolt support
  - Parametric Investigation
  - Evaluate rock bolt performance
  - Evaluate rock mass behavior