

- **Site Characterization Effects Monitoring Program**
- **Thermal-Loading Ecosystem Studies**
- **Ecosystem Perspective in Environmental Studies**

Site Characterization Effects Monitoring Program

1. Location of Site Characterization Activities

- Site Characterization Plan (SCP) (DOE, 1988)**

2. Description of Activities (i.e., potential disturbances)

- Drilling and drill pad construction**
- Muck storage areas**
- Road construction, utility corridors**
- Vehicle traffic**

Site Characterization Effects Monitoring Program

- **Sites adjacent to existing disturbances that were expected to receive future activity were selected to be representative of typical disturbances expected during site characterization activity**
- **No effort was made to monitor the effects of different types of disturbances**
- **Treatment plots were selected randomly adjacent to existing disturbances. Control plots (>500 m from nearest disturbance) also were selected.**
- **The experimental design was a split-plot design blocked by vegetation association**
- **Indicator species and parameters were selected based on scientific literature and professional judgment**

Changes in Program Design

- **Monitor potential effects of site characterization activity only in the *Larrea-Lycium-Grayia* vegetation association**
- **Establish three experimental units: Exploratory Studies Facility area (treatment) and two control areas (one near-field and one far-field)**
- **Establish six sample plots within each experimental unit**
 - **Reduction in sample plots from 48 to 18**

Work Accomplished in 1994

(continued)

3. Implemented changes for the new experimental design

- Established new treatment study plots near the downslope side of the muck storage area, east of the north portal, and the south edge of the planned general support facility. Two existing plots in this area will continue to be used. A sixth plot will be near the south portal.**
- Located a far-field control area near Little Skull Mountain. Six sample plots established.**
- Existing six control plots will continue to be used as near-field control plots**

Thermal-Loading Ecosystem Studies Work Accomplished in 1994

- 1. Participated in discussions with the Nuclear Waste Technical Review Board regarding their concerns and recommendations**
- 2. Continued reviewing literature on plant-soil-water relationships**
- 3. Identified members of scientific community conducting soil heating studies, conducting plant ecological physiology studies, or developing ecosystem models applicable to questions at Yucca Mountain**
- 4. Met with USGS to discuss common information needs and existing data sets**
- 5. Developed study approach for Thermal-Loading Ecosystem Studies**

Ecosystem Perspective for Environmental Studies

- **DOE has determined that the appropriate information is being collected for assessing impacts from site characterization activities**
- **The vegetation-ecosystem model developed for thermal-loading ecosystem studies can be used to identify and evaluate other variables or parameters that may be useful for monitoring ecosystem change**
- **These models could serve as a basis for evaluating potential impacts to other trophic levels**