

**Radionuclide Measurement
Comparisons of Los Alamos and
Viveash Area Forest Materials**

Presentation by Dave Englert

DOE OB

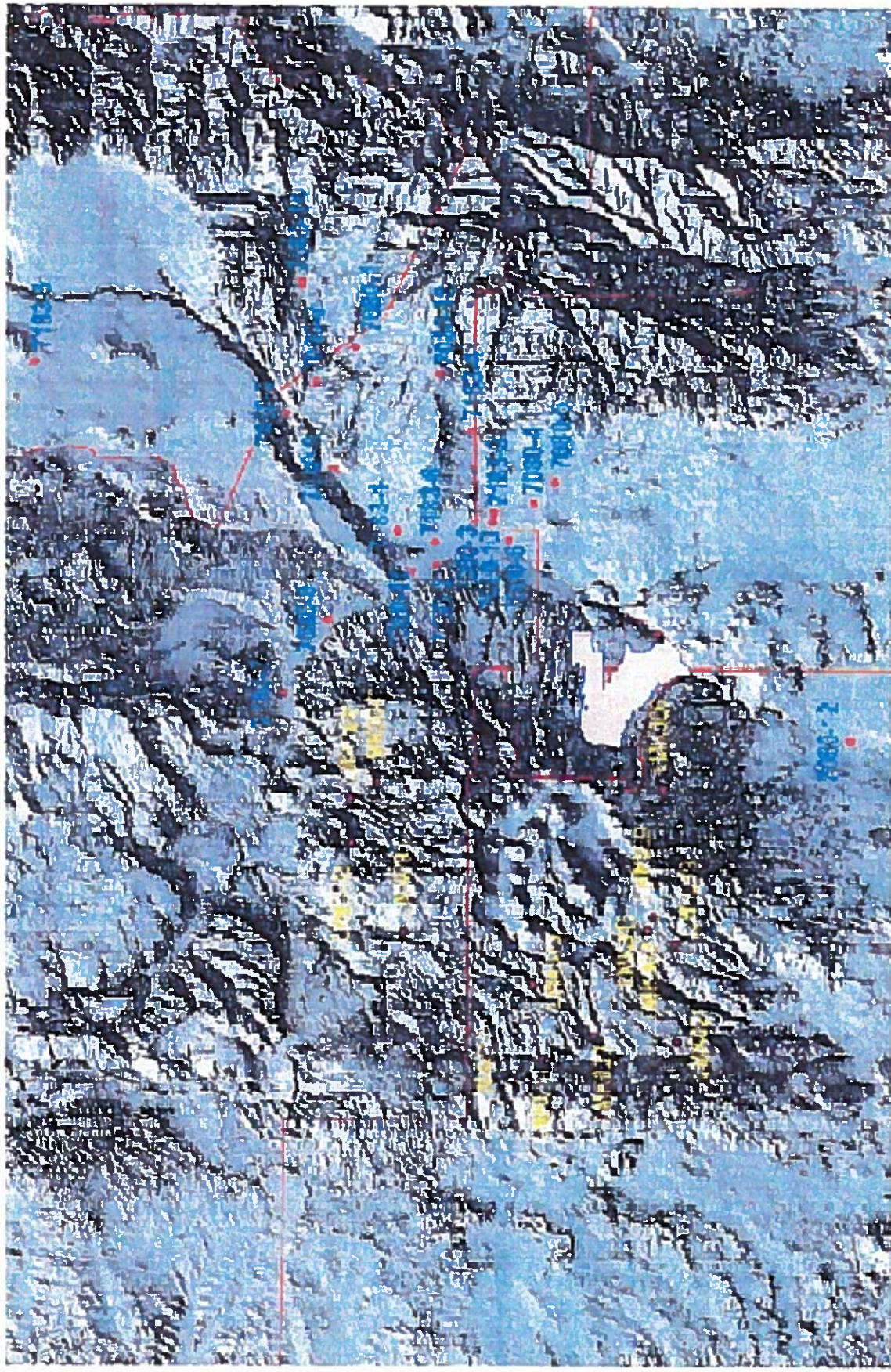
Sample Populations

- EPA Forest Samples collected in the Los Alamos and the Viveash (Pecos) Area
 - Wood Pulp
 - Bark
 - Ground Litter
- EPA sample results compared to:
 - Reference soils – Pre-Cerro Grande Fire on-site and off-site soils
 - Post-Cerro Grande Fire ash, and LANL areas and Viveash ash laden sediments

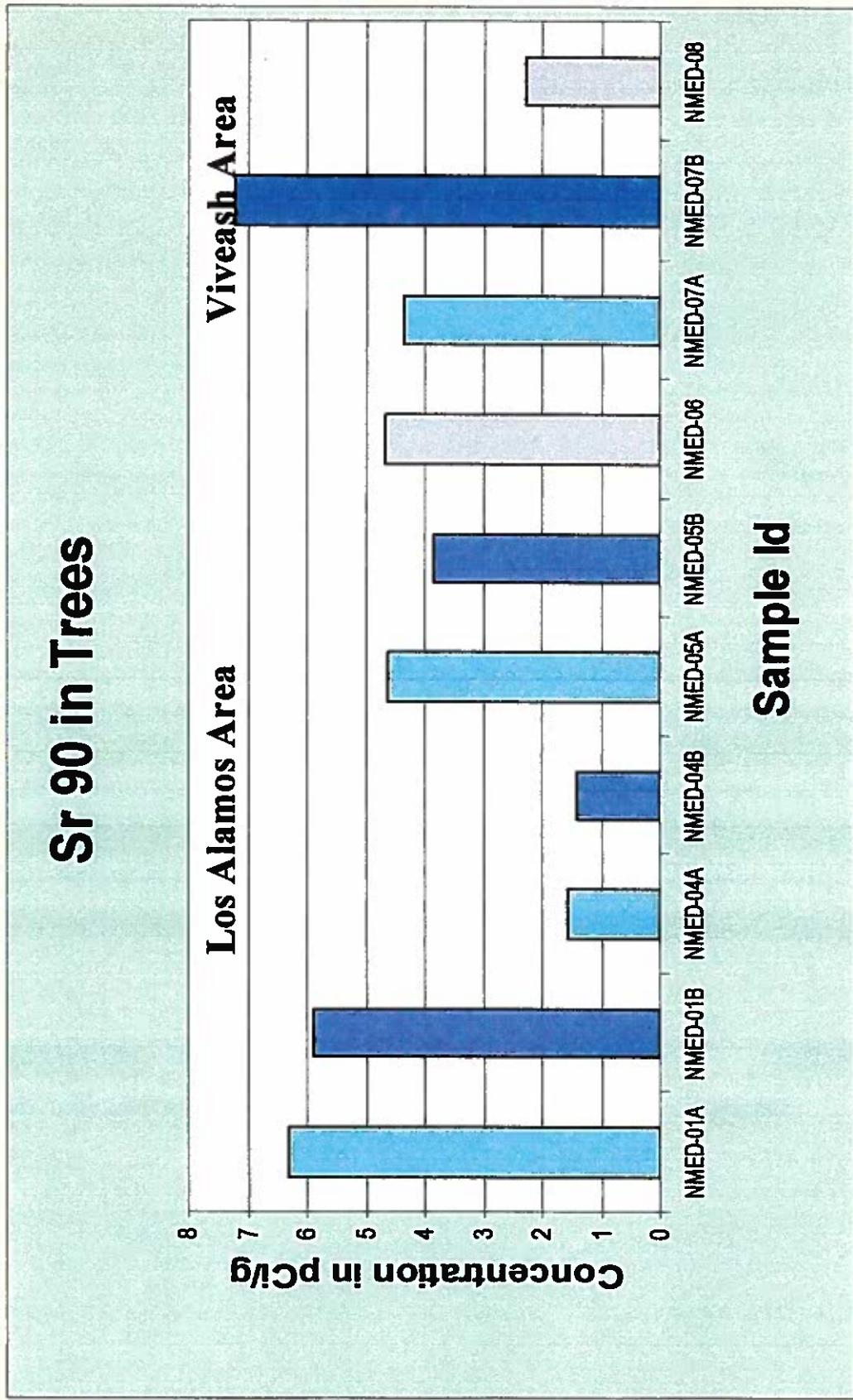
Sampling and Analytical Methods

- EPA Forest Samples includes variety of tree species and sizes
- Bark, Pulp, and Ground Litter separated
- Analytical Laboratory reduces mass of sample by incineration
- Analytical procedures same as methods used for Cerro Grande Samples

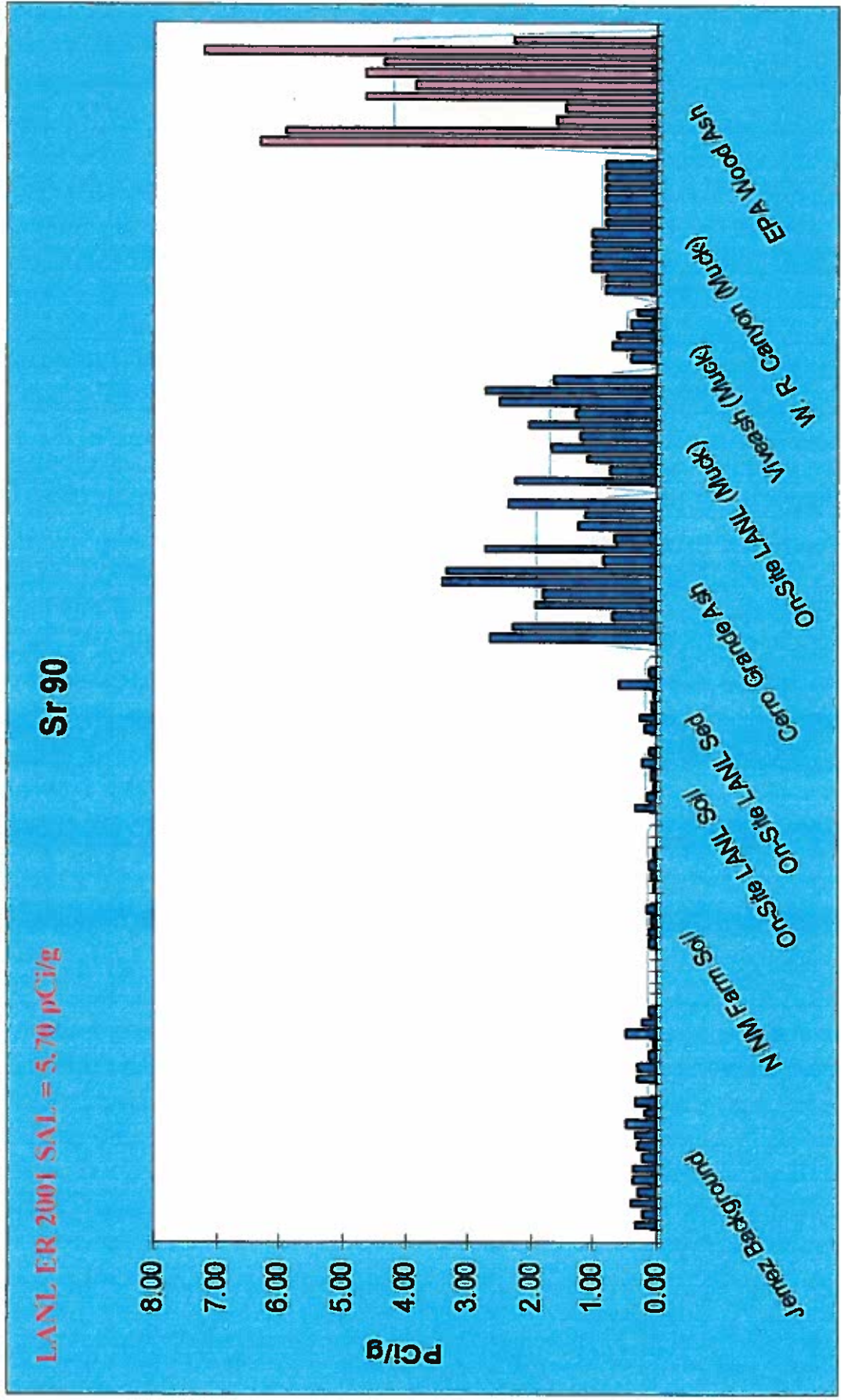
NNM Background and Farm Soil Locations



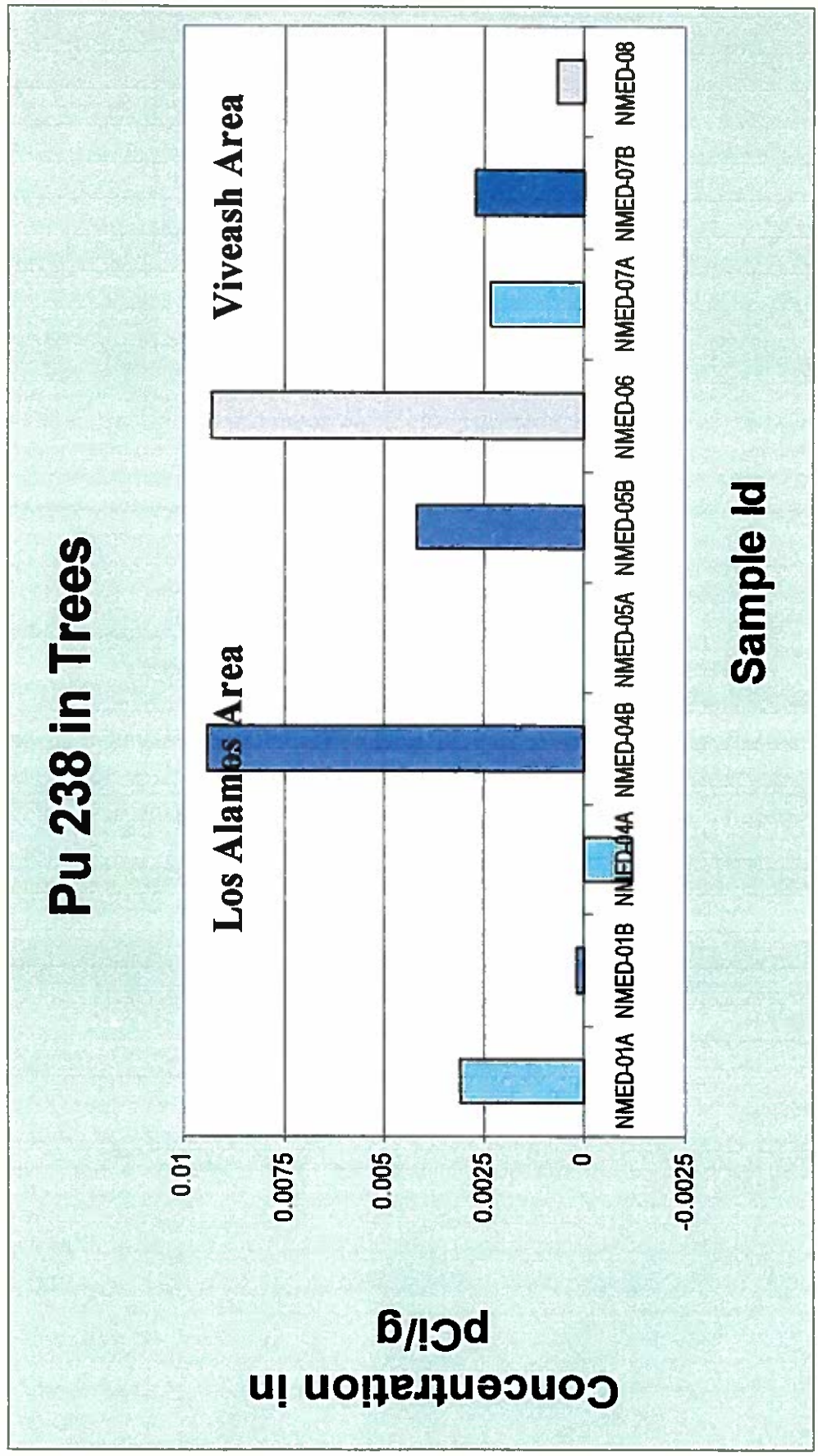
Sr 90 in Los Alamos and Viveash Forest Samples Pulp, Bark, and Ground Litter



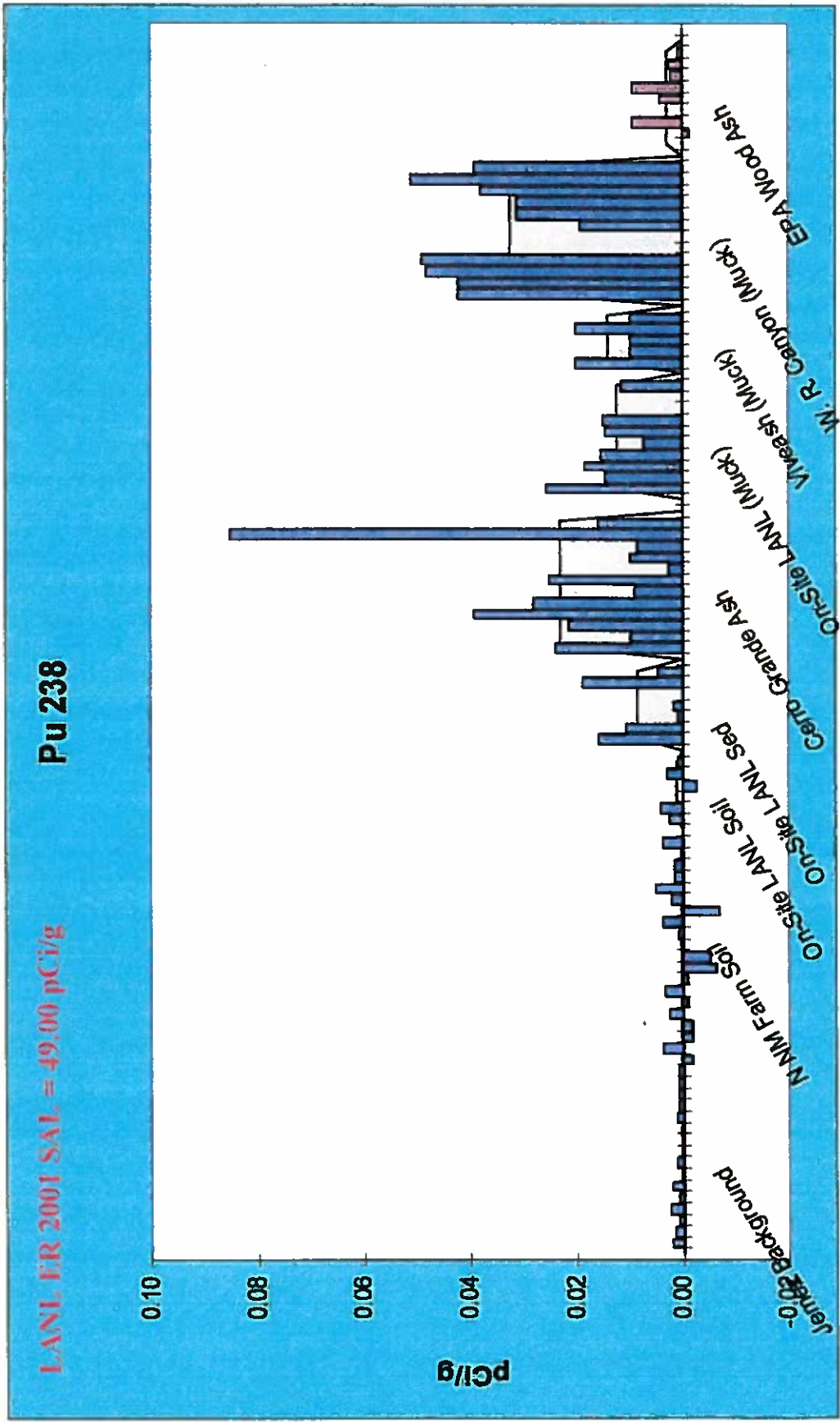
SR 90 in Forest Samples relative to Reference Soil, Cerro Grande, and Viveash Samples



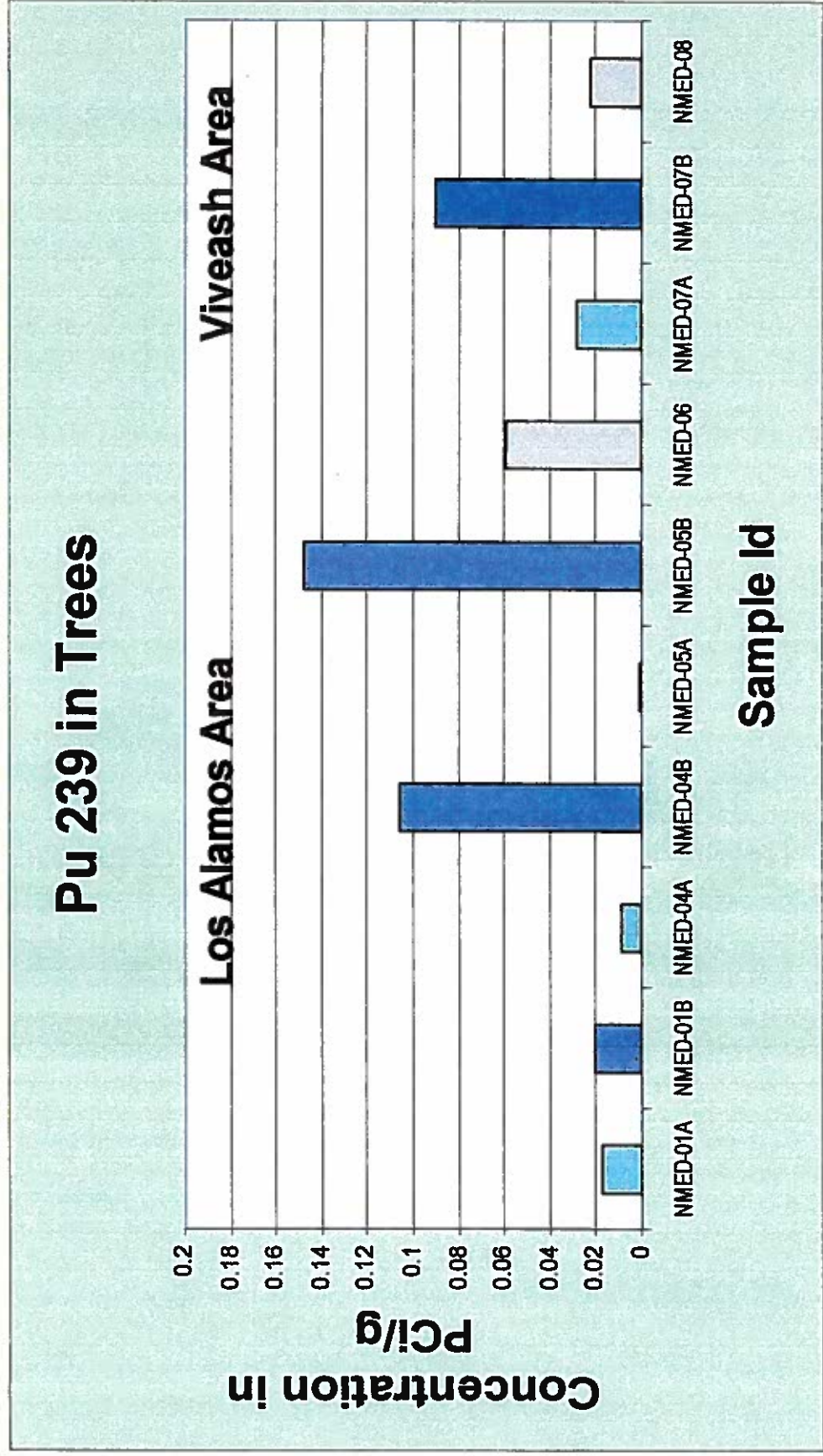
Pu 238 in Los Alamos and Viveash Forest Samples Pulp, Bark, and Ground Litter



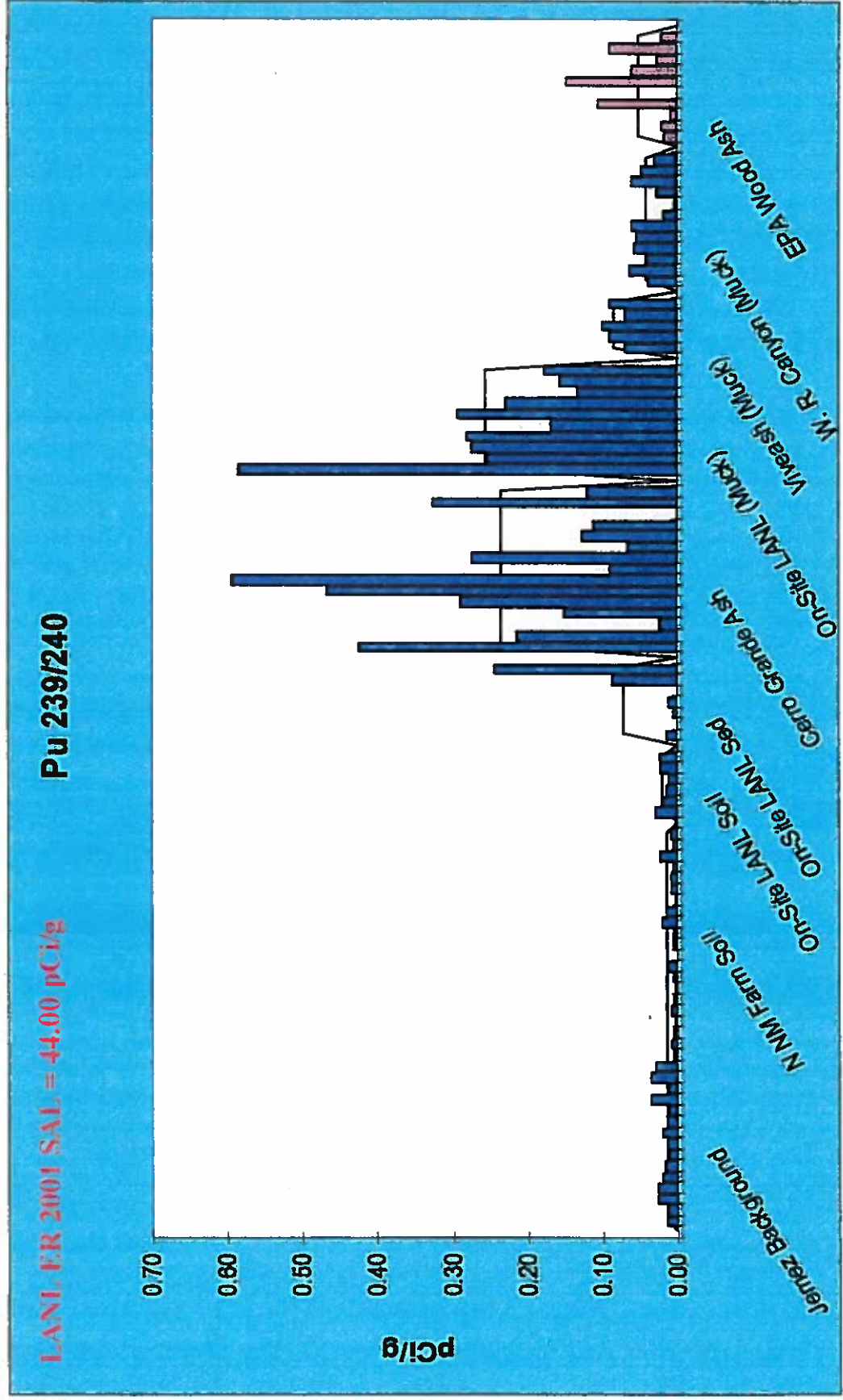
Pu 238 in Forest Samples relative to Reference Soil, Cerro Grande, and Viveash Samples



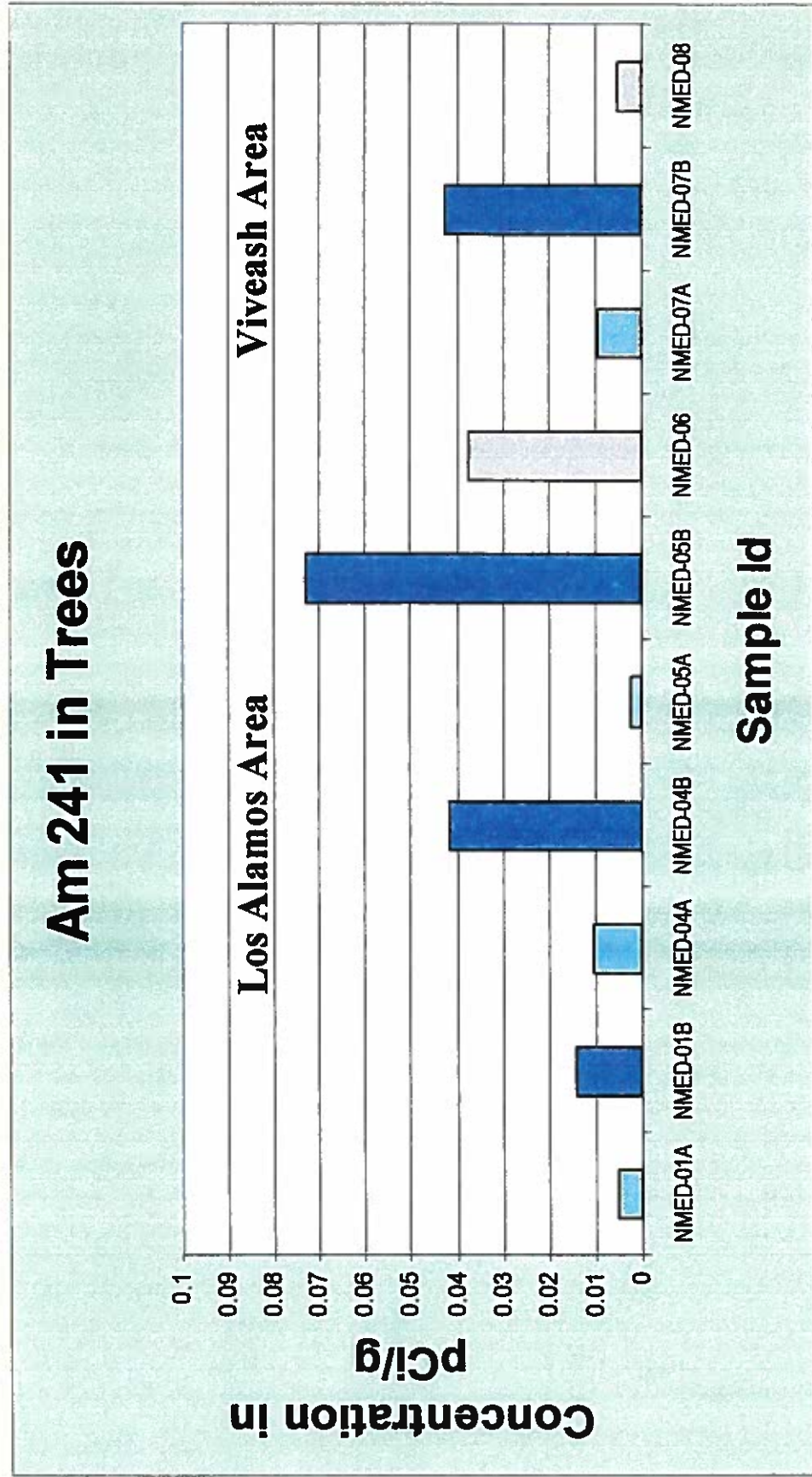
Pu 239/240 in Los Alamos and Viveash Forest Samples Pulp, Bark, and Ground Litter



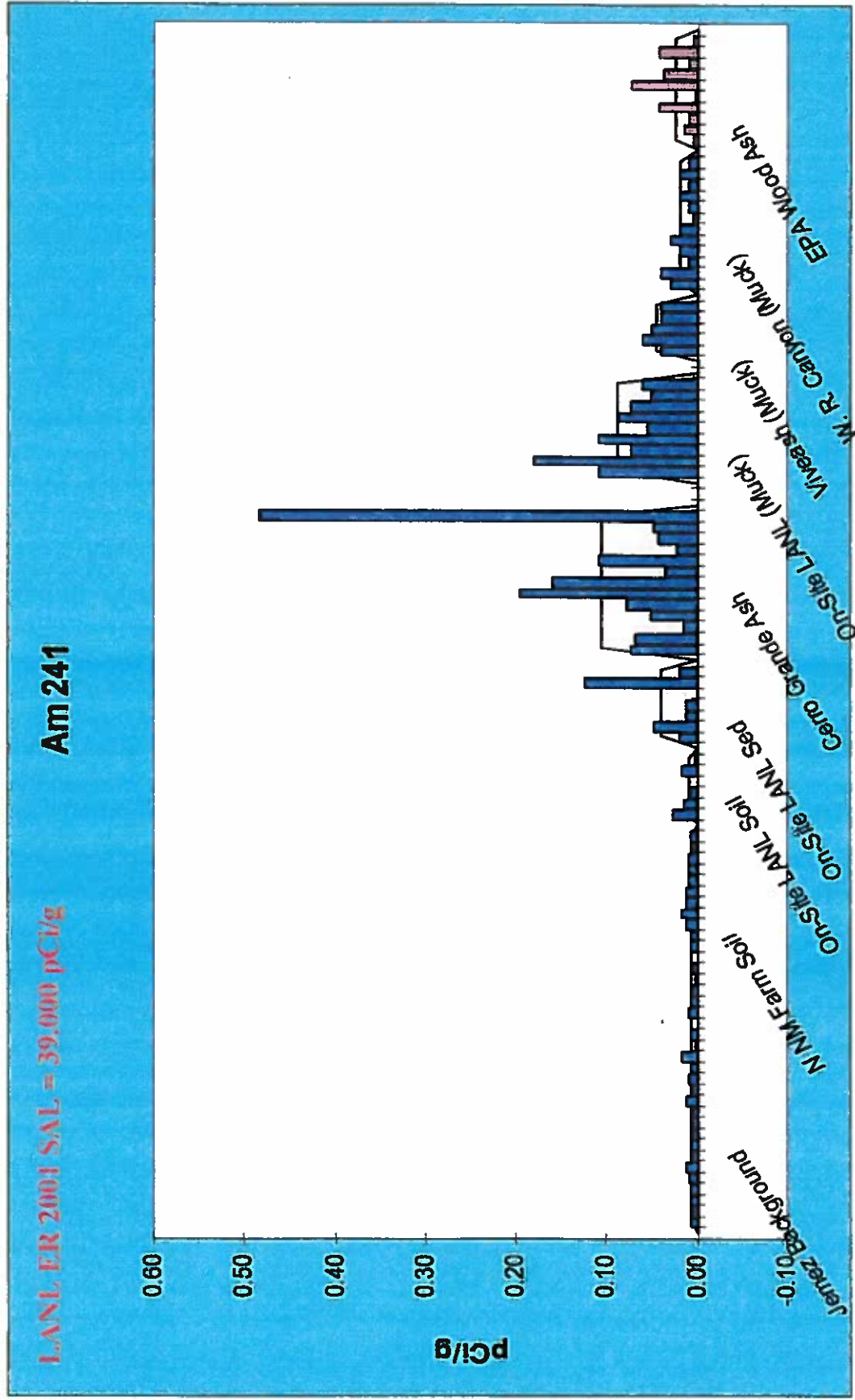
Pu 239/240 in Forest Samples relative to Reference Soil, Cerro Grande, and Viveash Samples



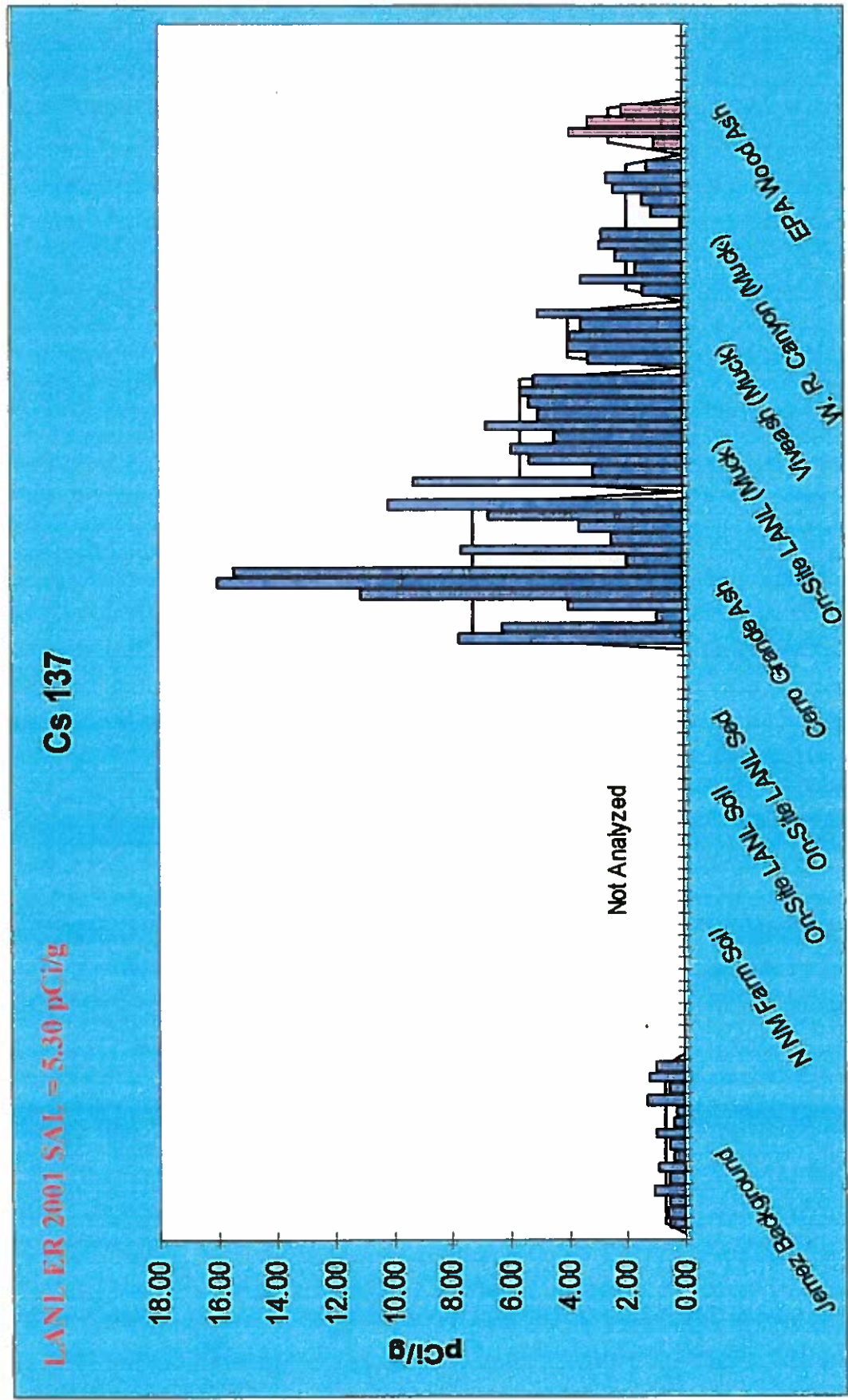
Am 241 in Los Alamos and Viveash Forest Samples Pulp, Bark, and Ground Litter



Am 241 in Forest Samples relative to Reference Soil, Cerro Grande, and Viveash Samples



CS 137 in Forest Samples relative to Reference Soil, Cerro Grande, and Viveash Samples



Summary

- Sr 90 values are greater in Forest Samples than Cerro Grande and Reference Soil Samples
 - Pulp values generally greater than the bark, but little difference seen between Viveash and Los Alamos Areas
- Pu 238, Pu 239/240, Am 241, and Cs 137 values in the Forest Samples are smaller than Cerro Grande Samples but greater than the Reference Samples
 - Pu 239/240 and Am 241 pulp values less than bark, but little difference seen between Viveash and Los Alamos Area. Pu 238 and Cs 137 values were to variable to discern differences.

What Does It Mean?

- Radionuclides existing in Forest Materials are concentrated when the biota mass is reduced, whether by incineration by forest fires or burning in fireplaces
 - These materials re-enter the biosphere as nutrients
- Are there radiological health risks associated by exposure to these ash materials?