049. NICKEL SORPTION KINETICS/MECHANISMS ON THE CLAY FRACTION OF A SOIL: AN XAFS STUDY. D. R. Roberts[1], A. M. Scheidegger[2] and D. L. Sparks[1]. [1]Department of Plant and Soil Sciences, University of Delaware, Newark, DE 19717-1303, [2]Waste Management R+D, Paul Scherrer Institute, Villigen, Switzerland.

Soil mineral surfaces are capable of sorbing and retaining heavy metal ions and are therefore important in assessing the fate of heavy metal contaminants in the soil environment. Most x-ray absorption fine structure (XAFS) spectroscopic studies of heavy metal sorption have focused on pure components, with less emphasis placed on mixed systems. However, soil clay fractions in natural environment are rarely, if ever, composed of only one pure mineral component. This study examines Ni(II) sorption kinetics/mechanisms on the clay fraction (<0.002mm) of a Matapeake silt loam at different reaction conditions using XAFS. The data suggests that it is possible to propose sorption mechanisms responsible for Ni uptake in the soil clay fractions based on the XAFS analysis, the mineral composition of the clay fractions and an understanding of the sorption mechanisms in pure components.