Mechanisms of Nickel Adsorption on Pyrophyllite A. M. SCHEIDEGGER*, D. L. SPARKS, Univ. of Delaware, M. FENDORF, Univ. of California, Berkeley, and G. M. LAMBLE, Brookhaven National Laboratory.

Nickel adsorption on the edge swfaces of pyrophyllite was studied at various metal concentrations and ionic The adsorption behavior can be divided into two pH In the lower pH region (pH < 7) the relative nickel adsorption increased with decreasing ionic strength and initial nickel concentration. In the higher pH region (pH> 7), but still well below the pH where the formation of Ni-hydroxide would be expected according to the thermodynamic solubility product, Ni removal from solution increased sharply up to 100% and didn't exhibit any dependence on initial metal and salt concentrations. Short-term desorption experiments showed pronounced hysteresis. To determine whether the formation of surface precipitates might be responsible for the observed adsorption behavior, surface analytical techniques such as high-resolution transmission electron microscopy (HRTEM) and extended x-ray absorption fme structure (XAFS) spectroscopy were employed.