

**EVALUATION OF ORGANOCLAY PERMEABLE ADSORPTIVE BARRIER
TO MANAGE DNAPL AND DISSOLVED PAHS IN GROUNDWATER SEEPAGE**

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An interim measures organoclay permeable adsorptive barrier (PAB) proved effective in containing creosote dense nonaqueous liquids (DNAPL) seeps into a nearby lake. In order to assess the organoclay as a full-scale measure, soil cores were obtained from the PAB and samples of groundwater and DNAPL were collected from the site to perform a bench-scale study. The study evaluated the interim PAB soil cores and three commercially available organoclays which may be used for a full-scale PAB. Laboratory data and mathematical modeling were used for preliminary design of a full-scale PAB to contain DNAPL migration and remove dissolved polycyclic aromatic hydrocarbons (PAHs). Soil cores were examined and batch tests were conducted to develop adsorption isotherms and to evaluate competitive effects. Column tests were conducted to evaluate DNAPL and aqueous-phase transport, and assess organoclay performance under flow-through conditions. Organoclays and sand-organoclay mixtures were evaluated in the column tests. Modeling of flow and transport was conducted to illustrate how the PAB may perform in the field. Results obtained from this study indicate that organoclays are effective in reducing permeability and containing DNAPL migration, and can also be effective in removing dissolved PAHs depending on the type of PAH and groundwater seepage velocity.

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