

**NATURAL ATTENUATION: EFFECTS OF HETEROGENEOUS SOIL  
ORGANIC MATTER**

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**ABSTRACT**

Natural attenuation of subsurface contamination is currently one of the most important topics in groundwater remediation. Phenanthrene was used as a model chemical to study the natural attenuation properties of Canadian River Alluvium. Organic petrology was used to characterize the organic matter present in different subsamples. Sorption equilibrium and kinetic properties were found to vary by orders of magnitude for the different organic matter types found in the same sample. Biodegradation was highly dependent on sorption properties of the organic matter types that demonstrated sorption and low diffusion.