

Department of Environmental Science

Pamela Cole

Mentors: Martin Stute and Alison Keimowitz

### Demobilization of Arsenic by Sulfate Reduction at a Landfill Site

Due to the reducing effects of organic material from a landfill in Winthrop, Maine, the groundwater in the area has been contaminated with increasing levels of arsenic. Naturally occurring arsenic in the sediment beneath the landfill has become soluble due to reducing conditions; the oxidation reduction potential is less than 100 mV. This incubation experiment monitored the bacterially induced changes of a simulated arsenic contaminated aqueous environment. By providing the bacteria in the aquifer with a carbon source, conditions became sufficiently reducing to precipitate arsenic sulfide compounds.