

## **Mass Flux Measurements of Arsenic in Groundwater**

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Concentration trends of arsenic are typically used to evaluate the performance of remediation efforts designed to mitigate arsenic contamination in groundwater. A complementary approach would be to track changes in mass flux of the contaminant through the subsurface, for example, following the initiation of a bioremediation remedy or installation of a permeable reactive barrier (PRB). We have tested a discrete multi-level sampler (DMLS) to determine the depth-dependent mass flux of arsenic at a hazardous waste site. The DMLS unit contains diffusion cells loaded with an iron-based substrate for arsenic uptake. The DMLS rods are inserted into 2-inch PVC monitoring wells and estimates of arsenic flux can be made over the screened interval at vertical resolution of about 0.5 feet. In principle, flux can be determined by measuring the amount of arsenic taken up by the sorbent and normalizing by the exposure time and cross-sectional area of the well screen intersected by the DMLS cell. Results of laboratory-based batch testing to evaluate candidate sorbents for arsenic will be presented. In addition, initial field trials will be presented where the DMLS approach was used to estimate arsenic mass flux upgradient and within a granular iron PRB.

The presentation will cover aspects of laboratory and field based assessments. This is an abstract of a proposed presentation and does not necessarily reflect EPA policy.