



Groundwater Tracers Tennessee Products

Background

Groundwater migration is typically determined using injection and sampling wells with fluorescent dye tracers as the indicator compounds that are injected and then detected along a migration path. These tracers are determined in samples using synchronous scanning spectrofluorimetry. No separation is performed resulting in less specificity, possible false positives, and the presence of limiting matrix background signal.

Research

We have developed capillary electrophoresis/laser-induced fluorescence for the determination of tracers in samples using very simple separation conditions. The selectivity of the separation together with the selective detection provides a result that is more specific for regulatory purposes. This approach may be useful when background or other conditions require a more specific determination. Past work addressed fluorescein and tinopal dyes (488 nm and 354 nm excitations) at the Tennessee Products Superfund site in conjunction with spectrofluorimetry. Present work addresses eosin and rhodamine WT (514 nm and 528 nm excitations) using an Ar/Kr mixed gas laser as the excitation source.