

Title: Control of Localized Groundwater Contamination with Polymer Injection

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Objective:

Further research to determine the utility, feasibility, and safety of using polymer injection to contain, divert or remove contaminated groundwater.

Procedures:

We have identified five major issues that must be addressed before any decision on the use of polymers to deal with groundwater contamination incidents can be made. These are:

1. Injection - How and at what rate does the polymer mixture spread beyond the point of injection?
2. Stability - How does the polymer mixture, once emplaced, interact with the groundwater flows moving past it?
3. Removal - How, and to what degree, can the polymer mixture be recovered and removed after it has been placed in the ground?
4. Reaction - How does the polymer interact with contaminants likely to be present in groundwater contamination incidents?
5. Toxicity - How safe are polymer-water mixtures for human exposure or consumption?

These issues will be addressed with laboratory scale groundwater systems experiments and studies using pure polymer-water mixtures.

Expected Results:

This research will lead to the development of design specifications for the actual use of polymers in containing, diverting and removing contaminated groundwater. The research results will also be appropriate for use by the DEQE in evaluating the acceptability and safety of injecting these polymers into natural groundwater systems.

Costs: \$41,000