

Harve De Grace, Maryland

Performance Results

- Contaminant concentrations reduced 46% in 89 days.
- Up to 400 grams per day removed by in-well stripping

A Density Driven Convection (DDC) pilot study was conducted at a manufacturing plant in Havre de Grace, Maryland. Groundwater at the site has been impacted by methylene chloride and 1,2-dichloroethane. Groundwater occurs in two aquifer units: an unconfined unit about 25 feet thick and a lower unit about 15 feet thick. Soils in both aquifers consist of interbedded layers of silt, sand, and gravel. An upward gradient existed between the two units.

Early investigations suggested that most contamination was in the lower unit and the DDC well was designed for treatment below the water table. However, pilot study sampling showed that most of the contamination was in the upper unit. This data was not available before installation so the screened intervals of the DDC well were not ideal for the site conditions. However, DDC still proved to be effective in removing contamination.

DDC produced a reversal of the natural gradient. Overall contaminant concentrations decreased 46 percent during the study although final concentrations increased slightly. Contaminant concentrations in air emissions were related to the dissolved concentrations. In-well stripping efficiency of the DDC well was excellent, producing a contaminant removal rate of about 400 grams per day. The pilot DDC well remains in operation producing substantial contaminant removal. The site is currently being investigated to evaluate application of a full scale DDC system.

