

Low-Flow Purging and Sampling of Ground Water Monitoring Wells with Dedicated Systems

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Abstract

A field study was conducted to assess purging requirements for dedicated sampling systems in conventional monitoring wells and for pumps encased in short screens and buried within a shallow sandy aquifer. Low-flow purging methods were used, and wells were purged until water quality indicator parameters (dissolved oxygen, specific conductance, turbidity) and contaminant concentrations (chromate, trichloroethylene, dichloroethylene) reached equilibrium. Eight wells, varying in depth from 4.6 to 15.2 m below ground surface, were studied. The data show that purge volumes were independent of well depth or casing volumes. Contaminant concentrations equilibrated with less than 7.5 L of purge volume in all wells. Initial contaminant concentration values were generally within 20 percent of final values. Water quality parameters equilibrated in less than 10 L in all wells and were conservative measures for indicating the presence of adjacent formation water. Water quality parameters equilibrated faster in dedicated sampling systems than in portable systems and initial turbidity levels were lower.