

PERFORMANCE COMPARISON BETWEEN DIRECT-PUSH AND CONVENTIONAL DRILLED MONITORING WELLS

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ABSTRACT

A comprehensive evaluation of several monitoring well designs was conducted to determine the potential effectiveness of direct-push wells for long-term groundwater monitoring in alluvial sediments. Four clusters of five distinct well types were set into one test cell, while four clusters of three distinct well types were set into another test cell approximately 375 ft (114.3 m) downgradient within the same methyl tertiary butyl ether (MTBE) plume. Wells within each cluster were screened within the same short [(2 to 5 ft (0.6 to 1.5 m))] depth interval. Cluster footprints extend approximately 3 ft (1 m) in diameter. Screen depth ranges were selected based on piezocone data, constant head permeability tests, and water chemistry profiles generated prior to installations. It was assumed that preferential MTBE migration pathways correspond to zones of highest permeability within the semi-perched aquifer. Therefore, well screens were set into the most permeable zones in the upper and lower portions of the aquifer. MTBE concentrations from four rounds of groundwater sampling were evaluated. To date, no significant statistical differences were observed between the direct-push and drilled wells.

Technical Focus Area: Characterization/monitoring/verification