Soil water potential measurements in shallow buried waste. (A09-hubbell162135-Oral)

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Abstract:

Vadose zone monitoring and sampling sensors were emplaced in buried waste to provide data for developing conceptual models of fluid flow and contaminant transport from the waste. This study was conducted to determine the status of the moisture and contaminant concentrations in a shallow mixed low-waste radioactive burial site. Specially designed and constructed tensiometers, lysimeters, visual examination drive tubes, as well as gas sampling tools were driven into waste using the sonic drilling technique. Data from clear tubes provides direct visual evidence of the condition of the waste, the proportions of soil and waste, as well as the volume of voids. Water content sensors provide relative moisture content and are a sensitive measure of changes in water content over time. Tensiometers provide data for determination of direction of moisture flow and evidence of whether water flow is impeded by impermeable materials in the waste. Solution samplers and gas ports are sampled to provide concentrations of water and gas borne mobile constituents in the waste. Data from this suite of vadose zone monitoring instruments provide direct evidence of the status of contaminants in the waste that will be used to improve risk assessment at this site.

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Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 2:30 pm

Keywords:

soil water potential, tensiometer, monitoring