

Fractured Bedrock Characterization and Effective Remedy Selection in Region 4

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This presentation will provide a regional perspective on characterization of fractured bedrock aquifers and how that has aided in effective remedy selection. Generally, Appalachian tectonics caused a large region of fractured igneous and metamorphic aquifers in the central portion of Region 4. This tectonic deformation also caused the Valley and Ridge province to the west of the mountains resulting in fractured sedimentary aquifers. Characterization of these fractures is the key to understanding the hydrogeology of each site and each site's characterization needs its own approach formulated from a range of techniques. The general approach is to first understand the groundwater flow system and then understand the contaminant distribution. This base level of knowledge is necessary for effective remedy selection.

The Region 4 federal facilities with fractured bedrock are generally larger sites with multiple release locations and often large release amounts. Non-federal sites generally are smaller with smaller release amounts. The sites presented were evaluated as to the conceptual site model, type and degree of characterization and the possible or selected remedy. Preliminary conclusions will be presented as to which types of aquifer characterization aided in more effective remedy selection.

For the purpose of this presentation, this evaluation does not include evaluating the more purely karst regions of Kentucky, Tennessee and Florida and southern Georgia. Also, this evaluation focuses on CERCLA sites, not RCRA sites and there is limited evaluation of State lead sites.