

## Hydrology - Open-File Report 27

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### Ground Water Prospecting in Fractured Slate, Using DC Resistivity and the VLF-Based Wadi System -- Kershaw County, South Carolina

By  
Joseph A. Gellici  
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#### SUMMARY

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- The Bethune Rural Water Company requested the assistance of the South Carolina Water Resources Commission in helping them locate a favorable public-supply well site.
- Surface geophysical techniques were employed at four potential sites in an effort to locate water in fractured slate.
- Direct-current resistivity and the VLF-based WADI system were used at each site.
- Resistivity data collected from the Wenner array did not sufficiently penetrate the slate to produce meaningful results.
- Resistivity data collected from the Schlumberger array suggests the possibility of a fracture zone at one of the four sites.
- WADI profiles indicate the presence of subsurface and surface conductors at each of the sites. However, it is unclear whether these conductors represent fracture zones.
- Although no fractures are clearly discernible, there are sites that are more promising than others. Listed from best to worst, these are: Site 3 (the "cut-down" site); Site 1 ("Ned's Creek" site); Site 4 (the farmer's land); Site 2 (the "church" site).

Copies of this report are available in the SCDNR's Columbia office.