

SUMMARY

- A few fundamental principles were followed during this research project, resulting in some remarkable answers. These principles are simple and include the following:
 - Study the basic geology . Therefore understand the geological history and the evolution of the landscape.
 - Gather information concerning the structural geology..
 - Study air photography, LandSat imagery and regional aero-magnetic data to identify lineaments and correlate the lineaments with the structural data.
 - Field mapping; map prominent structures on site.
 - Capture gathered data on a GIS, including contour lines and drainage channels. Use the information to identify potentially high yielding sites.
- The granites are fairly uniform, but were exposed to various structural influences resulting in major shear zones.
- Structural events may be associated with the Wonderkop Fault, the Steelpoort Fault, Sekhukhune Fault and massive jointing in the granites.
- Shear zones can be identified using LandSat imagery, air photos and regional aero-magnetic data.
- Five prominent shear zone orientations could be identified: A (40° - 50°), B (80° - 90°), C (120° - 130°), D (140° - 150°) and E (170° - 180°). A(40° - 50°) being parallel to the Wonderkop Fault and C (120° - 130°) having the same strike as a prominent geophysical lineament.
- Targets were sited where shearing was prominent and marked as potentially high yielding sites (PHYS).
- Eight of the twelve sites identified using structural interpretation were successfully drilled for ground water extraction.
- Boreholes were tested and three aquifer types could be identified:
 - Fractured aquifer associated with major structures.
 - Fracture aquifer associated with dyke material.
 - Weathered aquifer resulted from weathering of major structures.
- Recovery in the aquifers associated with dyke material is poor.
- The chemical quality of aquifers associated with major structures are poor with



high fluoride values.

- The recovery of the weathered aquifers are fair and their chemical quality is also fair. These aquifers are however susceptible to organic pollution due to poor sanitation and poor land use.
- Ground water must not be ruled out as a water source on the Nebo Plateau. Boreholes should be carefully selected and exploration recommendations should be done accordingly.
- Home precipitation systems or filter systems can be implemented to minimize/resolve the fluoride problem. Simple solutions for a simple problem.
- Aquifers utilized should be closely monitored.