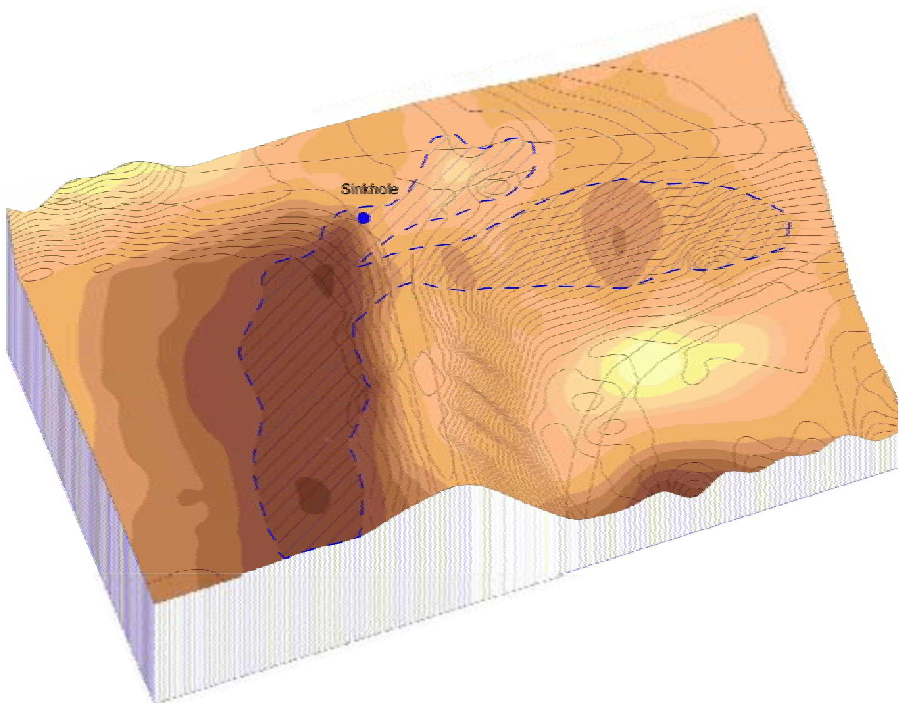
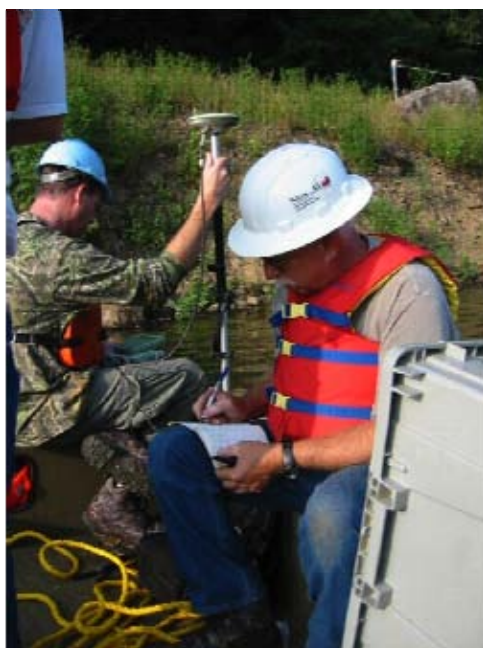


SELF-POTENTIAL SURVEYS



SP survey of a leaking dam showing SP contours draped over topography. Reservoir is on left, dam embankment in center. Interpreted seepage zone indicated by blue cross-hatched area.

Self-Potential refers to naturally occurring electrical potentials within the earth. These potentials can be produced by thermal gradients, oxidation-reduction associated with ore bodies, and the corrosion of buried metal objects. However, one of the primary sources is the movement of groundwater through porous materials. These potentials, referred to as streaming potentials (SP), can be measured at the ground surface or off-shore using lightweight, portable equipment. Contour maps of variations in SP can be interpreted to determine the locations and extent of seepage zones. 2D modeling techniques can be used to provide an estimate of the depth and relative magnitude of the seepage.



Self-Potential surveys are often used for the following applications:

- Delineate the location, lateral extent, and depth of concentrated seepage zones through earth-fill embankments
- Map groundwater flow patterns associated with landslides
- Determine the general direction of groundwater flow for contamination and groundwater development studies
- Ascertain the existence of a hydraulic connection between groundwater extraction wells and natural springs
- Map earthquake faults that act as barriers to groundwater migration