

GROUND PENETRATING RADAR METHOD



Ground-penetrating radar (GPR) is a high-frequency electromagnetic method that GEOVision commonly applies to a number of engineering and environmental problems.

A GPR system radiates short pulses of high-frequency EM energy into the ground from a transmitting antenna. This EM wave propagates in the ground at a velocity that is primarily a function of the relative dielectric permittivity of subsurface materials. When this wave encounters the interface of two materials having different dielectric properties, a portion of the energy is reflected back to the surface, where it is detected by a receiver antenna and transmitted to a control unit for processing and display.

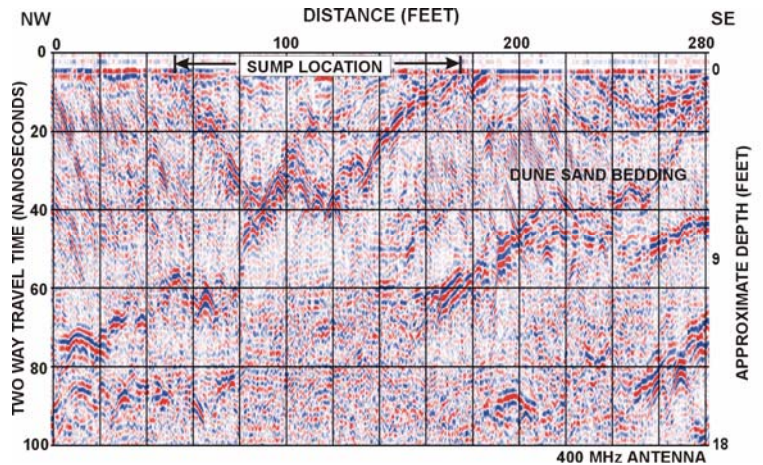
Depth penetration is a function of antenna frequency and the electrical conductivity of the soils in the survey area. Lower frequency antennas achieve greater depth penetration than higher frequency antennas but have poorer spatial resolution. Conductive soils, such as clays, attenuate the radar waves much more rapidly than resistive sand and rock.



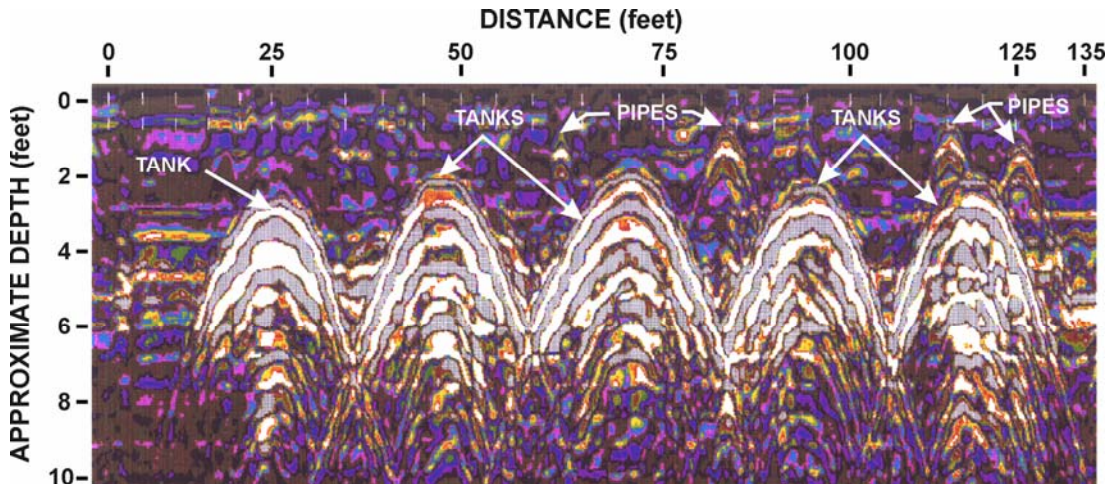
GEOVision geophysicists use the GPR method to:

- Locate and delineate underground storage tanks (metallic and non-metallic)
- Locate metallic and nonmetallic pipes and utility cables
- Map rebar in concrete structures
- Map landfill boundaries
- Delineate pits and trenches containing metallic and nonmetallic debris
- Locate sumps and mud pits
- Delineate leach fields and industrial cribs
- Delineate previously excavated and backfilled areas
- Map shallow groundwater tables
- Map shallow soil stratigraphy
- Map shallow bedrock topography
- Map shallow subsurface voids and cavities

GSSI SIR-10A GPR Unit



GPR Survey to Locate Oil Well Sump



GPR Survey to Locate Underground Storage Tanks