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Tracing a buried pipeline using multi frequency Electromagnetic

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In this paper I describe the application of multi frequency broadband electromagnetic techniques to locate buried pipelines. At desert or arid areas, regular geophysical surveys usually are difficult to carry out. EM techniques could be the best among geophysical techniques to be used for this target. The EM survey was performed using a Geophysical Survey Systems, Inc. GEM-300 multi-frequency electromagnetic profiler. It is a handheld electromagnetic induction-type instrument that measures in-phase and quadrature terrain conductivity without electrodes or direct soil contact. 6 different frequencies have been used simultaneously. The slice maps for conductivity distribution at each frequency could help to trace the extension of the pipeline.

Two pipelines were traced successfully with 20 meters spacing of each others.

Keywords: EM, conductivity, pipelines