

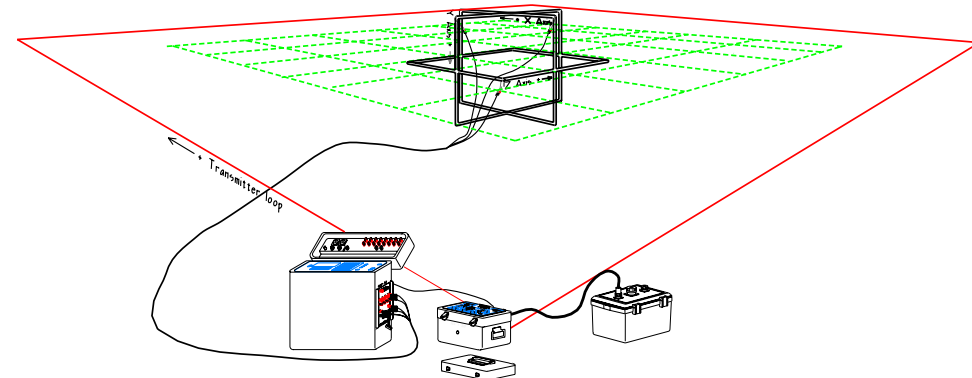


NanoTEM

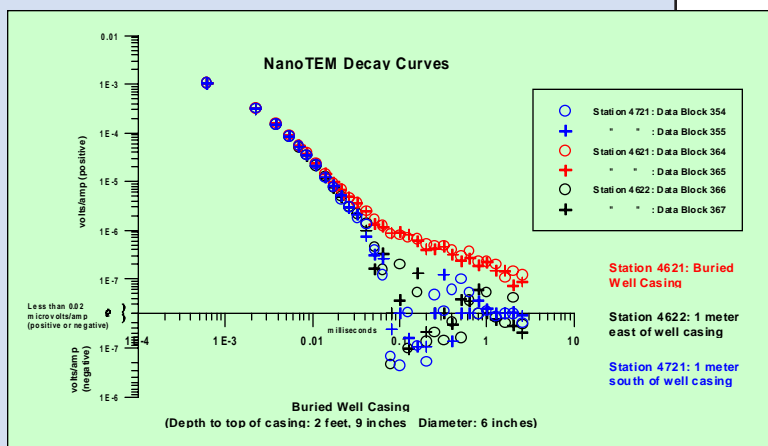


A Very Fast Turn-Off TEM System

One traditional limitation of transient electromagnetic sounding methods is the long turn-off times of the transmitted signals. For shallow soundings, and highly resistive areas, this has prevented effective use of the method. This limitation has been overcome in the newest series of Zonge transmitters, the NT-20. These transmitters complete the current flow turn-off into a 20 meter loop in about 1.5 microseconds. This rapid turn-off, and the high speed analog-to-digital conversion in the GDP-32 receiver, allows data collection at depths less than 2 meters and in areas with electrical resistivities in excess of 20,000 ohm-meters.

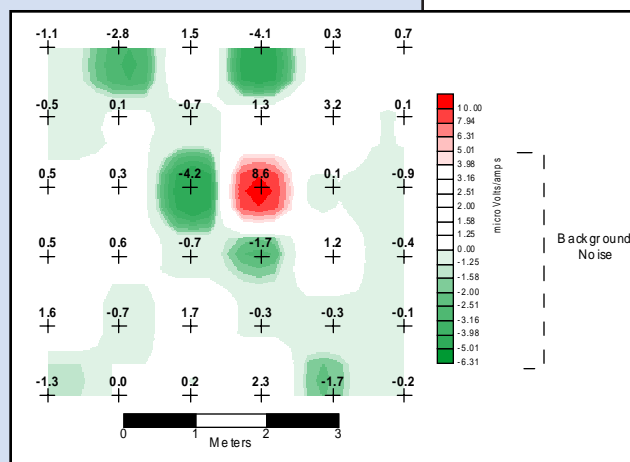


Setup Diagram of NanoTEM System

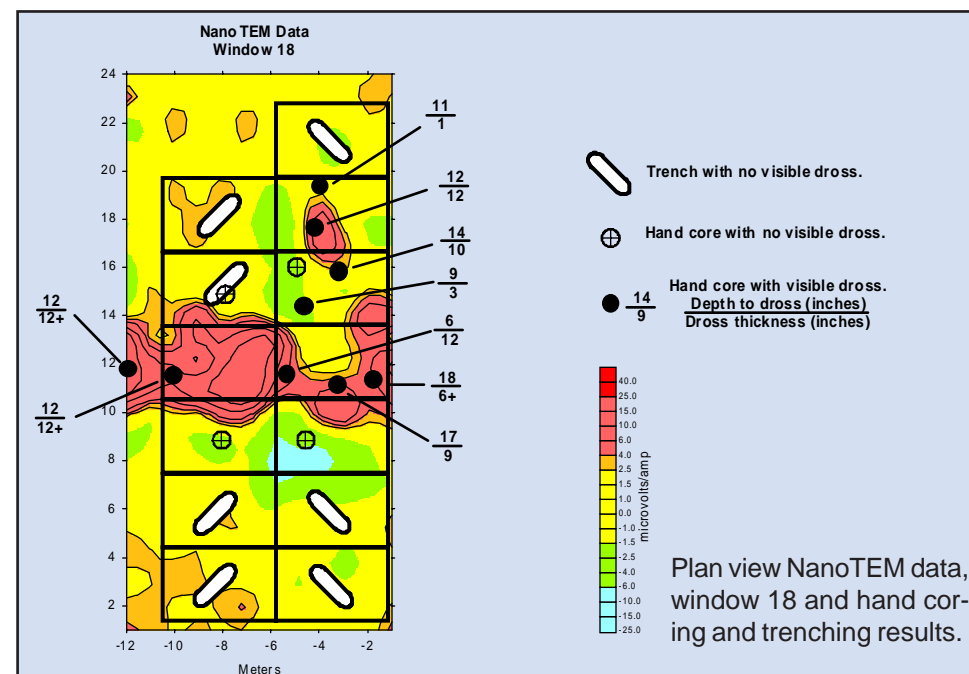


Decay Curves over and near well casings

One application of this technology has been to search for abandoned wells in areas previously drilled for oil. This survey was designed to detect the resistivity changes generated either by the casings or saline fluids migrating up the abandoned well bore. Notice that at times greater than .1 millisecond there is a significant change in the observed vertical magnetic field directly above the well casing, and within 1 meter this effect is no longer apparent.



Plan view of NanoTEM data, window 13.



Plan view NanoTEM data, window 18 and hand coring and trenching results.

Another use for NanoTEM has been the detection of contaminants or buried conductors. NanoTEM was used to determine the location and extent of aluminum cross deposits. Excellent correlation was seen between the NanoTEM data collected and the hand drilling and trenching used during remediation.