

# Double offset Dipole-Dipole DODD

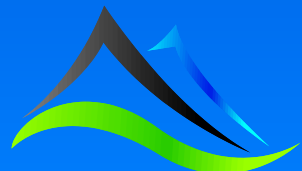
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Field Layout - Simplified Explanation

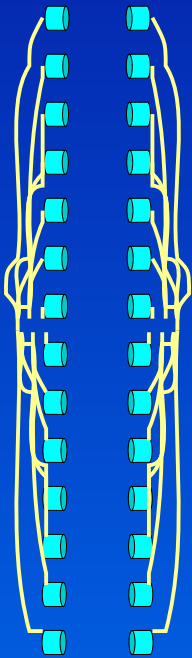
ExploreGeo Technical Note 1



ExploreGeo



# Receiver Array

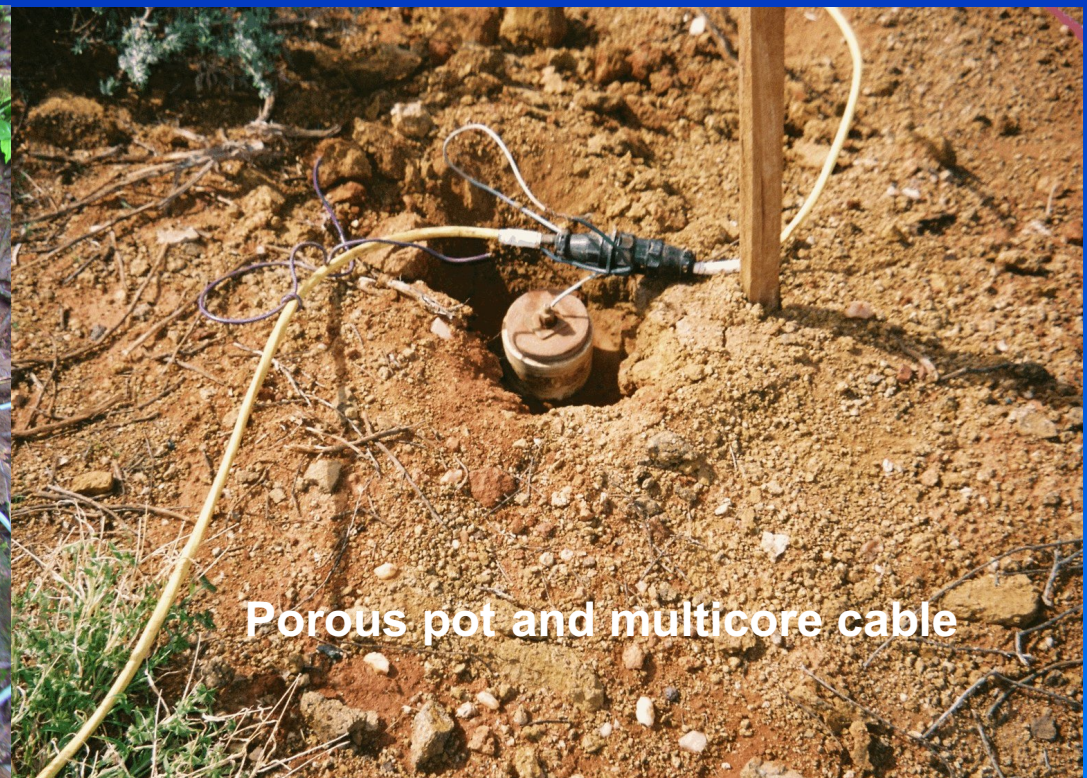


Consists of two parallel lines of potential electrodes ("pots"), wired using a multi conductor harness. The number of pots in each receiver line can vary but for optimum production should be a multiple of the core input for the receiver instrument or multicore cable used (Usually 15 or 16). The distance between the pots is called the dipole spacing. The two lines are spaced between 2 and 4 dipoles apart. The further apart the lines the poorer the near surface between line resolution.





Pots can be either good quality stainless steel stakes or ceramic porous pots filled with copper sulphate. They are placed in a small hole which is filled with water to improve coupling. Bentonite clay can be added to the water or directly to the ground to improve moisture retention.

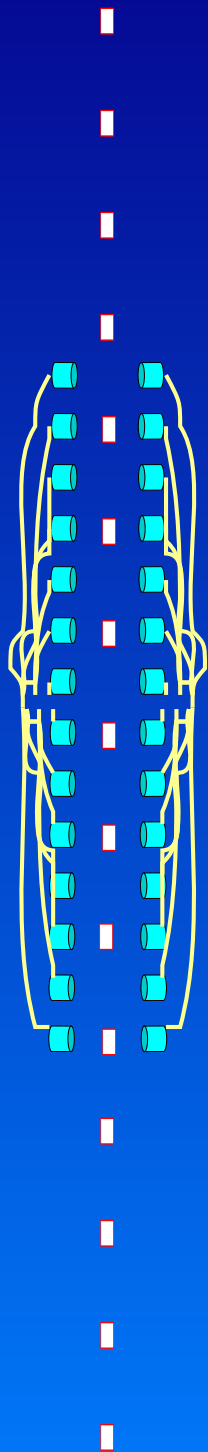




The wires from the pots are then run into a receiver or group of receivers. These are usually placed in the centre of the receiver array and controlled by the receiver operator. The receiver operator normally controls the survey. The receiver wires are low voltage and very low current and the whole receiver array is passive.







While the pot crew are laying the receiver lines a pit crew will be digging current electrode pits. In order to maintain signal level these are usually placed two dipoles apart. Added detail and data redundancy can be achieved by closing the separation down to one dipole spacing in the centre of the array. Pits vary in size depending on the ground conductivity but will generally be of the order of 2m x 2m x 20 cm deep. The electrode pits should extend at least 8 dipole spacings off the end of the receiver lines.



The pits are filled with water and lined with Alfoil to spread the current over a large area of the ground and thus make better electrical contact. Salt may be added to the water to make it even more conductive.

**A small pit and danger sign in Thailand**



**A quick pit using a roadside drain as a base.**

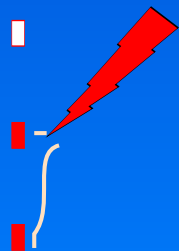
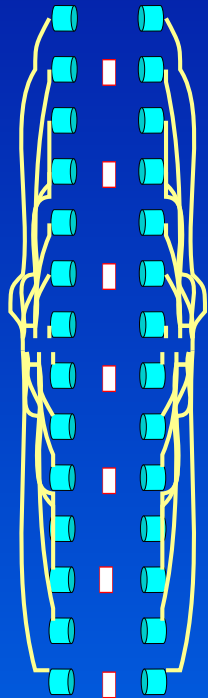




Instead of alfoil pits we can also use steel plates in post holes in some areas - requires good vehicle access.







When the receiver crew have set up, the receiver operator will ask the transmitter operator to wire up the first electrode pair and transmit into them. The currents transmitted into these pits vary from 2 Amps to 70 Amps with a driving potential of between 50 Volts and 4000 Volts. The more current, the stronger the signal at the receiver, high currents are therefore desirable for good data quality. The pits and the wires joining them carry lethal voltages at this stage.





Ideally the motor generator and transmitter are as close to the active pits as possible. However where access is restricted leads can be run from the transmitter to the active pits.



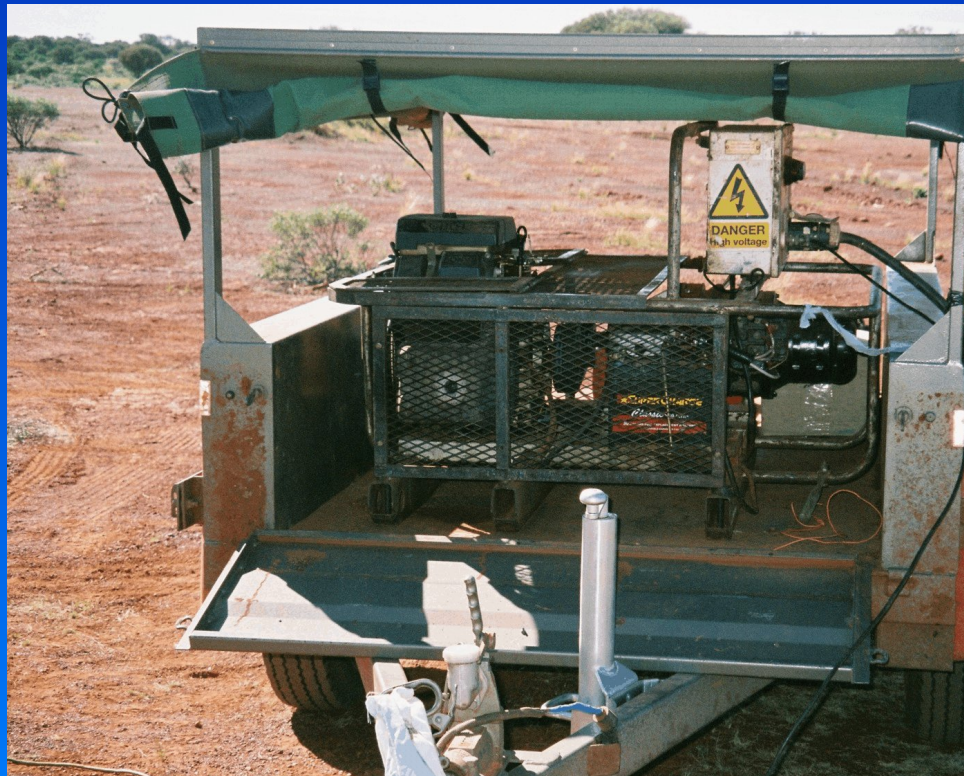
Motor Generator in trailer and transmitter under tarp - all slung into jungle by chopper



Motor Generator off picture, transmitter set up on packing box. Active pit in view between onlookers and vehicle.



For high powered surveys the motor generators are usually large and heavy and are best carried on a tray or trailer





When the receiver operator is satisfied with the readings for the first pair of electrodes he will instruct the transmitter operator to shut down and move up. This process is repeated until all electrode pairs have been recorded. A set of readings from a single current electrode pair can take anywhere from 15 minutes to 2 hours depending on the instrument, ground resistivity and ambient noise levels.

However in good conditions with open access it should be possible to record one 15 to 16 dipole array (as illustrated here) per day.

