Realization of enhanced geothermal systems (EGS) prescribes the need for novel technology to monitor the created reservoir. Magnetotellurics (MT) is a passive electromagnetic method that characterizes geoelectric structure by exploiting the Earth’s response to natural magnetic fields. Measuring the MT response before, during and after fluids are injected into the reservoir provides a tool to delineate reservoir boundaries at depth as MT is sensitive to electrical conductivity changes. This is important as electrical conductivity can change by a few orders of magnitude making a conductive fluid in resistive host rock a viable MT target at depth. Forward modelling suggests changes in the MT response of a proposed reservoir at 3.5km depth will be on the order of a few percent, advising an accurate and precise base geoelectric be collected. A test case from Paralana, South Australia will be presented illustrating results of MT responses before and after fluids are injected.