



## **Use of Electroresistivity, GPR and VLF in the Geophysical Characterization of the Camaçari Sanitary Landfill - Bahia.**

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### **Abstract**

The increase in the volume of solid waste resulting from human and industrial consumption makes urgent the continuous technological and scientific development applied to the management of discarded materials. The disposal of waste in sanitary landfills is the current legal protocol practice that covers the implantation project, the operation and the monitoring of the same. With all this development, cities will need more sanitary landfills and geophysics has applicable techniques both in the implementation and in the monitoring of these engineering works. The Camaçari landfill located at the Central de Logística Ambiental - CLAM, has received solid waste from urban and industrial areas since 1978, with both old and new waste. Thus, despite their diverse physicochemical constitution, in these environments geophysics is able to detect contrasts related to fluid saturation, gas accumulation and clayey cover layers at each end of the berm. In the proposed study, three geophysical methods were used: electroresistivity combined with VLF for macro characterization of the geometry and possible description of the geomechanical accommodation of the landfill and GPR for a more localized characterization, focusing on the hydrogeophysics of the landfill. The application of these geophysical methods had as main objective the production of the mentioned information, which were lost during administrative changes in the operation of the company over the years. Two electroresistivity and VLF profiles were carried out above the body of a landfill cell: transverse and longitudinal in order to identify the depth of the pit and geometry of the bottom of the landfill and 13 GPR profiles around the same cell, in order to identify possible percolation of fluids originating from decomposition and compaction due to waste overload. The geophysical assessment revealed anomalous, contrasting and interpretable zones in terms of the original rock and sediment environment.