Introduction

Until a few decades ago, most of the studies of Geology and Mineral Prospecting methods under various categories such as economic geology, petrology, sedimentology and was limited. But with the advancement of science and the creation of new branches of science and the use of more advanced equipment and basic necessities as the Geophysical any mining projects are considered. Different ways depending on the mineral geophysical and geological conditions can provide valuable basic information about the location, size and grade of mineral deposits professionals are approximate. Geophysical methods can be used to study bituminous minerals include gravity, electromagnetism, and Geo-electrics (resistivity) due to regional geological geophysical methods were used to harvest Geo-electrics. One of the best types of two-dimensional impression of the area harvested Geo-electrics or in other words, is a two-dimensional Electrical Illustration with different electrode arrays (Wenner, Schlumberger, dipole - dipole, pole-dipole, pole - pole, gradients, etc) could be performed. Studies have shown that the electrode array dipole - dipole region heterogeneity in the study will yield the best results. The sensitivity of this array heterogeneity makes the best option for geophysical studies in the area is mining.

Electrical resistivity tomography (ERT)

Electrical Resistivity Tomography (ERT) is an advanced geophysics method used to determine the subsurface’s resistivity distribution by making measurements on the ground surface. ERT data are rapidly collected with an automated multi-electrode resistivity meter. ERT profiles consist of a modeled cross-sectional (2-D) plot of resistivity (\(\Omega\cdot m\)) versus depth. ERT interpretations, supported by borehole data or alternate geophysical data, accurately represent the geometry and lithology and/or hydrology and/or petrology of subsurface geologic formations. ERT measures resistivity. Resistivity, measured in \(\Omega\cdot m\), is the mathematical inverse of conductivity. It is a bulk physical property of materials that describes how difficult it is to pass an electrical current through the material. Resistivity measurements can be made with either an alternating current (AC) or a direct current (DC). As resistivity measurements are frequency dependant, care must be taken when comparing resistivity values collected using different techniques.

Clay materials, metallic oxides, and sulphide minerals are the only common sedimentary materials that can carry significant electrical current through the material itself. As such, the resistivity of most near surface sedimentary materials is
primarily controlled by the quantity and chemistry of the pore fluids within the material. Any particular material can have a broad range of resistivity responses that is dependant on the level of saturation, the concentration of ions, the presence of organic fluids (such as non aqueous phase liquids, NAPLs), faulting, jointing, weathering, etc. The general principals that ERT is based on have been in use by geophysicists for almost a century. Recent advances to field equipment and data processing procedures have made rapid 2D surveys routine and 3D surveys possible. Old-style 1D resistivity surveys are still common and are useful on many occasions, but encounter interpretation problems in areas of complex 2D or 3D geology.

Inversion of electrical resistivity pseudo-sections of the 2D profiles (1) is illustrated in Figure 4. The vertical axis represents depth in sub-section shown along the horizontal axis shows the line profiles. The resistivity scale is shown in the following sub-sections. This profile was chosen over 130 meters in depth profiles of about 25 meters.

At the beginning of the profiles and about 15 meters high resistivity anomaly is an anomaly that is approximately 85 m profiles also contain a great extent, this is the surface area of the sample profiles has occurred. Given the depth and spread good set of anomalies over this region was proposed exploratory drilling of exploratory drilling results showed very good agreement with geophysical profiles. Layers of marl, gypsum, and limestone are also visible profiles traceable did well in the region. It should be noted that the sub-grade ore from yellow to red colors have been identified.
In order to match geophysical studies and drilling holes, 6 holes (15 m) with a total of 90 meters in the first phase of drilling subsurface geophysical sections during excavation. Under the first four holes on geophysical profiles have been identified are listed.

Conclusions and recommendations
1. The results obtained by the interpretation of electrical resistivity in the range of bituminous mine mentioned that using this method, combined with geophysical and exploration drilling, geological data and field visit could be used as a reliable method to explore bituminous.
2. There are juicy layers according to the geoelectric sections and exploratory drilling in the area was almost certain they should be considered when extracting.
3. Remember always set Conclusive bituminous mine exploration well drilling exploratory geophysical time series is needed.

Resources
Dr. M.H.Loke(2011) Tutorial. 2-D and 3-D electrical imaging surveys. E-books.