

A Case Study of Combining Geophysical Prospecting Techniques at a Dump slag Contaminated Site

*HsinChang Liu^{1,2}, TienHsing Tong³, TzuBin Wang^{3,2}, YiChieh Chen³

1.National Chiao Tung Univ., 2.Chien Hsin University of Science and Technology, 3.Geophysical Technology & Engineering Co., Ltd.

In pace with a growing focus on environmental protection, geophysical techniques to characterize abandoned hazardous sites contribute necessary information for remediation. Study of physical property distribution in the subsurface allows insight relevant to the successful investigation of such sites. Electrical Resistivity Image (ERI) is one of the most effective and stable geophysical techniques for contaminated land investigations where it is generally desirable to minimize ground disturbance. Unethical operators in the past dumping furnace slag, resulting in farmland water is blue. The site is located next to a low-density residential community and was previously considered unattractive. It is now being developed for domestic infrastructure and has to be cleaned. Records of dumping activities are poor. In order to estimate the budget of future remediation, ERI works were used to determine buried slag geometry such as the thickness of fill and the spread of waste carbide.

In this study, we presented the investigation outcomes of electrical resistivity tomography (ERT) and Electromagnetic (EM) at the illegal dump site. Evaluation of ERT/EM technique deployment in detecting slags buried and assessment of remediation efforts are also discussed. Results indicated zones with anomalously low resistivity to be associated with contaminated slags presence.

Keywords: Electrical Resistivity Image (ERI), Electromagnetic (EM), Slag

