

## **ELECTRICAL RESISTIVITY TOMOGRAPHY (ERT) FOR TIME-LAPSE MAPPING OF IN-SITU SELF-SUSTAINING TREATMENT FOR ACTIVE REMEDIATION**

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This study evaluates the use of time-lapse Electrical Resistivity Tomography

(ERT), a surface-based geophysical technique, as a complementary method to monitor the first full-scale application of Self-sustaining Treatment for Active Remediation (STAR) smouldering technology in real-time. A shallow treatment region (with ignition point at 2.4 meters below ground surface) was evaluated at an industrial site with coal tar contamination, and resistivity surveys were conducted before, during and after treatment to provide insight into the spatial extent of the STAR smouldering reaction, groundwater and gas mobility, influence of air flow and the capture zone of vapor extraction system. Results presented shows, qualitatively, a correlation between gas generated by smouldering and resistivity increases in the subsurface. Overall, the resistivity surveys provide continuous mapping of the entire treatment region, and the high-quality imagery show that ERT is a promising to evaluate in-situ STAR.