

CASE HISTORY

Application: **Coal Mining**

Technology: **500m Winch, Density Gamma Probe**

Location: **Merthyr Tydfil, South Wales Coal Mine**

Requirement:

Robertson Geo Services (RGS) were contracted to conduct Density Gamma logging on more than 60 boreholes, up to 150m deep, requiring multiple visits over a period of three months. The information collected would be used to assist with mine development planning and the feasibility of further resource extraction.

Equipment:

The surface equipment used was a 500m winch with 3/16" 4-core cable mounted into the back of an in-house adapted 4WD vehicle, with a Micrologger2 surface acquisition system.



The deployed Density Gamma probe (Trisonde) offers a convenient alternative to the standard Formation Density probe whenever borehole diameter is restricted and qualitative density measurements are acceptable. One common application is for logging through drill pipe when unstable borehole conditions prevent the use of unprotected nuclear probes.

Operation:

Multiple drill rigs were used across the site with the engineers traversing the site to log the boreholes as soon as drilling was completed. Due to the risk of hole collapse, logging was conducted through the drill rods, protecting the attached nuclear source. Despite running through the drill string, the logs clearly showed the characteristic low natural gamma and very low density unique to coal deposits.

Challenges and Solutions:

The main challenge was the terrain where the logging was conducted as fields were often wet and muddy and at times snow covered. Access, even by 4WD vehicle, could therefore be difficult as the prospect was large with multiple vehicles continually requiring access. Off-road driver training undertaken by the engineers was invaluable for negotiating the worst of the conditions.

End value to client:

The Density Gamma probe was successfully deployed with 100% reliability and the mapping of coal seams was completed to the customer's satisfaction.