

CASE HISTORY



Application: **Mining and Minerals**

Technology: **Natural Gamma, Ultra-slim Gamma, Mini Winch**

Location: **Niobium Polymetallic Mine Exploration, Lambaréné region, Mabounié Valley, Gabon**

Background:

The Maboumine Mining company was preparing an industrial project to open a niobium polymetallic mine near to Lambaréné, in Gabon's Mabounié valley. This world-class deposit was found to contain significant quantities of strategic metals, including niobium, rare earth elements and significant quantities of phosphate, uranium, tantalum, scandium, titanium and iron.

Requirement:

Robertson Geo Services (RGS) was contracted by Soil Engineering Geoservices Ltd to conduct natural gamma surveys on 41 boreholes up to 50m in depth in difficult to access equatorial rain forest.

Equipment:

The following probes were deployed using a Robertson Geo Mini Winch:

Natural Gamma: to determine natural gamma levels indicative of uranium

Ultra-slim Gamma: specially commissioned probe to access a difficult casing environment

Mini Winch: to facilitate portable logging where vehicular access was impossible

Both probes underwent calibration and conformance checking prior to deployment on site.

Operations:

The logging equipment was air freighted to Gabon and the logging engineer flew in for the project as soon as the equipment had arrived. A 4x4 vehicle was provided by the client into which a portable winch was mounted. All the boreholes were cased with 50mm PVC piping as the formation was typically unstable. Due to the difficult terrain some boreholes could not be accessed by vehicle, requiring a portable set up. All equipment and probes were surface tested before operations commenced and depth was referenced to ground level.

Challenges and Solutions:

The main operational challenge arose when it was discovered that the PVC casing inserted in the boreholes had warped due to the extreme heat. The standard Natural Gamma probe with a diameter of 42mm and a length over 2m could not pass through the curved casing and the logs were coming up short in many cases. To overcome this issue Robertson Geo were able to fast track the development and production of a small 0.78m length and 27mm diameter Ultra-slim Gamma probe within a matter of days. When deployed this enabled the acquisition of full data coverage down to target depths.



End value to client:

The natural gamma data acquired was used successfully to identify uranium rich zones. The efforts Robertson Geo went to in order to solve the borehole issue ensured the success of the project.