

KAROO DEEP DRILLING AND GEO-ENVIRONMENTAL BASE LINE PROGRAMME

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ABSTRACT

There is a paucity of data concerning the shale gas, mineral and/or geothermal economic potential of the Karoo, with the added potential threat of damage to the geo-environment, such as deep and shallow water resources, seismicity, soil chemistry, as well as gas emission. The Council for Geoscience (CGS) is therefore conducting a three-year scientific programme in an attempt to reach some quantitative scientifically-based conclusions on these issues. The programme includes the drilling of a deep vertical research borehole near Beaufort West coupled with a wide range of base line geoscientific investigations to better understand the impact any geo-resource exploration and exploitation activities (minerals, gas, deep ground water, geothermal) could have on the Karoo geo-environment. This CGS research programme is not linked to any exploration.

Beaufort West was selected because of its geo-resources potential and geo-environment (uranium, shale gas sweet spot, deep groundwater and geothermal energy), its special geological setting (between dolerite domain and Cape Fold Belt) and the absence of any deep boreholes within 60 km of the study area (and therefore the lack of knowledge on deep geology).

The borehole is planned to reach a depth of 3500 m and will meet different geo-environmental challenges:

Uranium enrichment in the first 100 m, dolerite sills and multiple fractured aquifers down to 1000m, thick and tight shale, gas-bearing carbonaceous shale of the Whitehill and Prince Albert Formations, deep ground water in the Dwyka Group and fractured Table Mountain Group sandstone.

The CGS is currently completing the base line study (regional, semi-regional and local) and drilling should start beginning of 2018.