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Record Drilling Research Wells in the Karoo Basin

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The year 2015 has seen scientific drilling activities in the Karoo Basin. With funding of South Africa's Centre of Excellence for Integrated Mineral and Energy Resource Analysis (CIMERA) and multiple international industry sponsors, the Karoo Research Initiative (KARIN) operated and delivered successfully two fully cored research wells near the towns of Ceres (drilled to 670 meters) and Willowvale (drilled to 2380 meters). The main purpose of drilling these wells was to demonstrate world class drilling safety and to provide geoscience researchers in South Africa with fresh rock samples for investigation. The secondary objective of the campaign was to prove technical capabilities of South African drilling contractors. These capabilities were known for decades in igneous and hard rock geology of the Witwatersrand. However, in the sedimentary sections of the Karoo Basin very important choices had to be made in terms of well design, drilling and completion hardware selection, mud system type, and safe and environmentally sound operational procedures.



well site near Ceres, South Africa.

As with any technically complex activity, appropriate and timely planning helps to insure that set objectives can be safely achieved. This is particularly important in the sensitive Karoo Basin, where many eyes are focussing on a spotless environmental performance. The paper describes the project steps from well design, tender exercise to the actual drilling and data logging operations.

Figure 1: A spotless

The drilling operations at the Ceres site took place in July and August 2015, while the Willowvale well was drilled between September and December 2015. The combined core lengths of almost 3000 meters make these wells record breakers in the Karoo Basin. While successfully delivering the wells, Geoserve Drilling SA demonstrated that safe and cost effective drilling can be done by South African contractors. The drilled cores will help South African geoscientists understand the Karoo



geology better and provide a sound foundation for future decision making.

Figure 2: Pre-spud Willowvale well site with the containerized mud system (front, right).

