

Maptek Vulcan™ and the search for uranium in South Australia

Curnamona Energy Limited is using the power of Maptek Vulcan™ to add another dimension to its roll-front uranium exploration in South Australia. The targets for many of the explorers in the region are the Tertiary palaeochannels which host deposits where uranium is trapped.



THE VULCAN ADVANTAGE

- Brings historical data back to life for resource studies
- Dynamic 3D displays reveal optimum drill locations
- Calculate accurate resource tonnages quickly

The Curnamona region, 400 km northeast of Adelaide, is blanketed by Recent and Tertiary sediments. At the base of this sequence, and cut into underlying old Proterozoic basement rocks, are porous sand channels up to 1 km wide and 35 m thick. These channels contain the uranium accumulations, and are attractive targets as they can be readily mined by low-cost and environmentally benign solution mining.

In the 1970s, the area was subject to widespread reconnaissance drilling for both base metals and uranium. Fortunately, much of this data, albeit in 'paper format', is available from the Department of Primary Industries South Australia, archived as pdf files and Microsoft® Access™ databases of drillhole summaries.

These can be loaded into a Vulcan drillhole database where they are instantly available in 3D to assist in detection of the subtle structural nuances which may indicate where uranium could have accumulated.

The historic data contains paper copies of old downhole gamma logging. These logs can be individually linked to each drillhole, with minimum effort, to bring this valuable old data back to life.

Similarly, geophysical data, ranging from gravity and magnetics to airborne EM data, can be displayed to highlight the complex spatial relationships.

By carefully interpreting all of the available data, the Vulcan user can piece together the Tertiary landscape and model the location of the meandering ancient river channel. This is mapped in Vulcan and can then be used to plan drill sites.

The information is transmitted to the field crew who drill and gamma log each hole. This new data is directly loaded back into the Vulcan database, becoming immediately available for refining the search.

Stratigraphy and downhole gamma traces can be dynamically displayed in 3D to show the optimum drill locations.

Once a body of uranium-bearing sand is discovered, an accurate uranium resource tonnage can be calculated quickly and easily in Vulcan. Detailed structure contour modelling and grid manipulation enhance understanding of the depositional controls on the uranium accumulation.