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UraniumSA Ltd will press ahead with circulation trials and possibly ISR field trials on its Mullaquana project after achieving what it believes is a major breakthrough in extraction technology.

Managing director Russel Bluck chose Paydirt's Uranium Conference to announce to the market that research conducted by the company's metallurgical manager, Simon Hall, and a group of independent companies had provided evidence that uranium could be successfully extracted from hyper saline water, a process unachievable through conventional technology.

"The problem of saline water has been a challenge for some Australian uranium projects because of the intolerance of conventional resins to the chlorine in the water," Bluck said. "The results which UraniumSA has achieved are a world first. We have identified resins from several manufacturers which laboratory tests show perform as well in salt water as conventional resins in use everywhere in Australia and around the world do in fresh or formation water."

While it may have ramifications for the entire uranium industry, in the case of UraniumSA it removes one of the major doubts about the project's viability.

Discovered by the company in 2007, Mullaquanna – 20km south-west of Whyalla in South Australia – has enjoyed a rapid development journey.

Since its discovery the company has upgraded the Mullaquanna resource four times, most recently in April when it produced a resource of 40 mlb from two deposits; Blackbush and Plumbush. Speaking at the conference prior to the release of the resource update, Bluck said once the 40 mlb mark was reached thoughts would turn to development.

"We could keep growing the resource but we don't need to. The focus will not be on getting it out of the ground."

That is where the results of the testwork will come in. The salinity of the ground water has been a major hurdle for UraniumSA as it looks to develop Mullaquanna as an ISR operation. Salinity levels are 30,000 ppm total dissolved salts (TDS). Conventional resin technology has proven effective at extracting uranium from formation water at 2,000-10,000 ppm. At higher levels, the resins are less effective.

However, thanks to the breakthrough, the company is now confident it can head down the ISR track.

"The outcome for UraniumSA is that we will be able to use existing technologies to extract the uranium from the in-situ leach liquors at our Mullaquanna project."

The company has been working on the technology since 2008 when it received advice that chelating resins had potential for the extraction of uranium from saline solutions. In 2010, a comprehensive desktop study confirmed that several manufacturers held chelating ion exchange resins that had potential to be adapted for uranium recovery from acidic high salinity solutions.

At least five companies have achieved acceptable results with uranium loadings up to 30 g U/l resin being achieved.

Bluck said the testwork on the candidate resins would continue before the company made a final selection.

"We have commissioned the Australian Nuclear Science and Technology Organisation to conduct column tests on our typical mineralisation using our saline formation waters and will be trialling selected candidate resins against the resulting pregnant solutions."

Bluck said the breakthrough would have a major impact on the viability of Australian uranium projects that confronted saline groundwater. The company said the resins would be used in field trials in 2012 with production slated for 2013.