

# Kapunda ore-inspired

VALERINA CHANGARATHIL



**EnviroCopper's Leon and Philippa Faulkner on site at the old Kapunda copper mine site.**

Mining may resume at historic copper town

IN Australia's oldest commercial mining town, Kapunda, just north of Barossa Valley, geologist Leon Faulkner and a team of researchers are exploring new ways to extract copper from historic open-cut pits.

An estimated 119,000 tonnes of copper still remains at the home of Australia's first significant copper discovery in 1842.

Of this, up to 80,000 tonnes can potentially be extracted through in-situ recovery mining using a potential biodegradable solution.

Mr Faulkner's EnviroCopper business – in a joint venture with Terramin – is leading the research to explore the possibility of extracting copper at Kapunda in an environmentally low-impact way. EnviroCopper is supported by researchers from the University of Adelaide and the CSIRO, and a \$2.85m grant from the federal Co-operative Research Centre program until June.

This week, ASX-listed company Thor Mining increased its stake in EnviroCopper to 30 per cent as the latter moves to earn up to a 75 per cent equity interest in the Kapunda Copper Project.

Mr Faulkner said while ISR mining has been in use for more than 50 years, recent technical developments meant extraction of copper and gold could be low impact, and non-invasive. ISR will extract copper via a system of bores drilled into the ore body through which biodegradable solutions are injected. The resultant mineral-laden solution will be pumped to a processing plant off site.

"ISR produces around half the greenhouse gas emissions of conventional mining and has the potential to be an extremely cheap method of producing copper – a metal expected to remain high in demand as the world moves to greener forms of electrification," Mr Faulkner said.

Kapunda is an ideal test site as copper leaches naturally from the ground with plenty of historical drilling data and a significant amount of copper still in the old workings.

"As it involves no physical movement of rock, no open-cut pits, nor waste dumps or tailings dams, it has become amenable to social licence particularly, as in Kapunda's case, where it is contained within a historic mining site, which is also open to heritage and tourism access," Mr Faulkner said.

Kapunda is the testing ground for Australia's first attempt at using ISR mining for copper. The current owner of the mine site is the Light Regional Council.

While EnviroCopper looks at on-site tests and assessments, including for groundwater impacts, university researchers are developing an underground 3D model that includes the old workings, the natural geological fractures and likely fluid flow pathways that will influence the movement of copper solution.

The CSIRO is working on finding an optimal biodegradable solution that can extract copper and gold within existing natural pH levels, while maintaining current quality of the water table.

The CSIRO has also established environmental baselines of the Light River and surrounding area.

EnviroCopper director Philippa Faulkner, Leon's wife, said opening an office in Kapunda was giving the community a chance to discuss the research program and any concerns.

"Some (have come) in full support and excited for the employment opportunities this modern-era mining approach will create," she said. "But there are also those who have queried the effects ISR could have on the local water table and the impact mining activities might have on the town's tourism.

"It's all about listening to their issues and educating them – that's our core focus."

Subject to research completion and approvals, Enviro-Copper predicts a 6-7 year operation to extract the copper, creating about 25 full-time jobs.