

ECR's Kapunda Copper Research Project

- ❖ Studies indicate that more than 100,000 tonnes of copper remain in the historic Kapunda mine.
- ❖ Due to the proximity to town and the heritage of the site, further conventional open-pit or underground mining of the available copper resource is not practical.
- ❖ ISR (In Situ Recovery) mining is a possible solution to extracting this remaining copper.
- ❖ ISR accelerates the existing naturally leaching copper process.
- ❖ With a low environmental footprint and little permanent infrastructure, the extraction method presents a viable modern mining solution.
- ❖ ECR Pty Ltd has received a Federal Government-backed CRC-P Research Grant to investigate the potential Copper ISR at Kapunda.
- ❖ As part of the research, extensive environmental studies will be initiated, under the regulation of the State Government, and Mining and Environment Protection Acts.
- ❖ ECR is committed to making a positive contribution to the Kapunda community, and delivering on our social, environmental and legal obligations throughout our research.

Join the conversation at

The Kapunda Copper Voice

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ENVIRONMENTAL COPPER RECOVERY



*Developing Australia's
first In-Situ Recovery
Copper Mine*



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Kapunda's rich mining history grew from Australia's first ever commercial copper mine in the 1840's. The open-pit mine ceased production in 1912. Successive mining companies have looked since at recovering the mine's remaining copper.

ECR Pty Ltd, in association with its partner, Terramin Exploration, estimates a resource of 119,000 tonnes of copper remaining.

With the backing of the Federal Government, CSIRO and University of Adelaide, ECR's focus on successfully researching, developing and applying modern In-Situ Copper Recovery methods at Kapunda puts the region at the forefront of technology within the mining industry and will be a first for Australia.

The proposed ISR copper extraction solution means

- No further excavation of the historic open pit or need to dig underground
- No need to move large masses of rock, avoiding dust and noise issues, *and*
- No large-scale impacts on the existing mine environment.

A modern Kapunda ISR copper mine can

- Provide direct and indirect jobs, particularly benefit the town and region's business, tourism and heritage sectors, *and*
- Improve the condition, safety and future expanded use of the historic tourist mine workings.

ISR – An environmental mining solution delivering Kapunda an Australian first

COPPER IN-SITU RECOVERY (ISR)

Conventional mining, open cut and underground methods, can pose challenges when they are located close to existing communities.

Mining copper using the ISR method **extends application of mining technology** proven for more than 50 years and that has a substantially lower environmental footprint than conventional mining.

WHAT IS ISR MINING AND ITS BENEFITS :

- ✓ Also known as in-situ "leaching" or solution mining, its decades old application in mineral extraction has largely been confined to uranium and phosphate until now.
- ✓ Recent advances in technology allow ISR to be applied to copper and gold resources that were previously un-mineable.
- ✓ ISR copper mining potentially accelerates what is naturally happening within the Kapunda bedrock and water table.
- ✓ ISR mining requires a shallow resource and a high-water table, both present at Kapunda (and other historic mine sites).
- ✓ There is no rock movement, no dust, little noise, no new open cut pits.
- ✓ There is little visual impact, minimal infrastructure and low impact on the environment.

PROCESS FOR ISR:

- ✓ Wells or bores are drilled into the historic Kapunda ore body.
- ✓ Benign solution (with a pH comparable to a drink of Coke or lemon juice) is then pumped underground to dissolve the remaining copper from the ore body.
- ✓ This copper containing solution is then pumped out to a small-scale recovery plant to separate and process the metal for market.

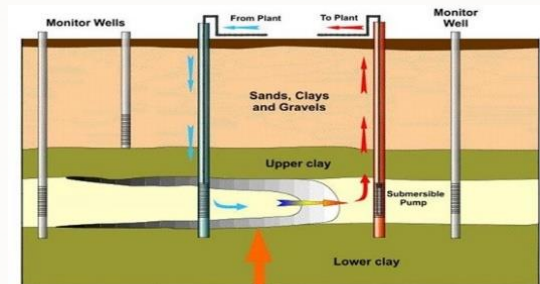
GOVERNMENT RESEARCH GRANT (CRC-P):

- ✓ Partnering with the Uni of Adelaide and CSIRO will investigate :-
 - Environmental baseline measurements for risk mitigation
 - ISR copper mining economics
 - Community engagement around a new modern-era mining future



Significant oxidised copper naturally leaching on the pit walls

... SOLUTION MINING



Copper deposit



Australian Government
Department of Industry,
Innovation and Science

Business
Cooperative Research
Centres Program

Research Grant Duration
August 2018 to December 2020