

## 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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#### OUR RESEARCH PARTNERS



## 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.

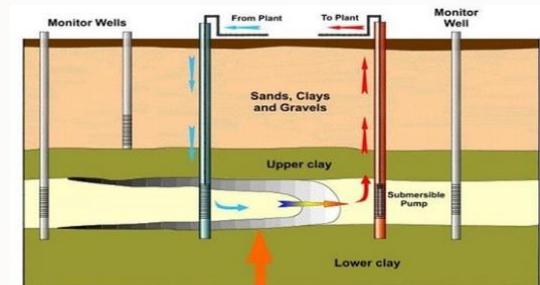
## GOVERNMENT RESEARCH GRANT (CRC-P):

- ✓ 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**