THOR MINING PLC

Disruptive Innovation in Mining:

In-Situ Recovery Copper-Gold

Alford East, South Australia

Unlocking the significant mineral value of this oxide copper-gold mineralisation

AIM/ASX: THR
OTCQB: THORF

SMEG April 2022
Nicole Galloway Warland
Managing Director

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Competent Person Statement

The information in this report that relates to exploration results and exploration targets is based on information compiled by Nicole Galloway Warland, who holds a BSc in applied geology (Hons) and who is a Member of The Australian Institute of Geoscientists. Ms Galloway Warland is an employee of Thor Mining PLC. She has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which she is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Nicole Galloway Warland consents to the inclusion in the report of the matters based on her formation in the form and context in which it appears.

ESG - Environment – a sustainable focus

Environment

- World is transitioning to low carbon economy
- Low emission goals

Copper

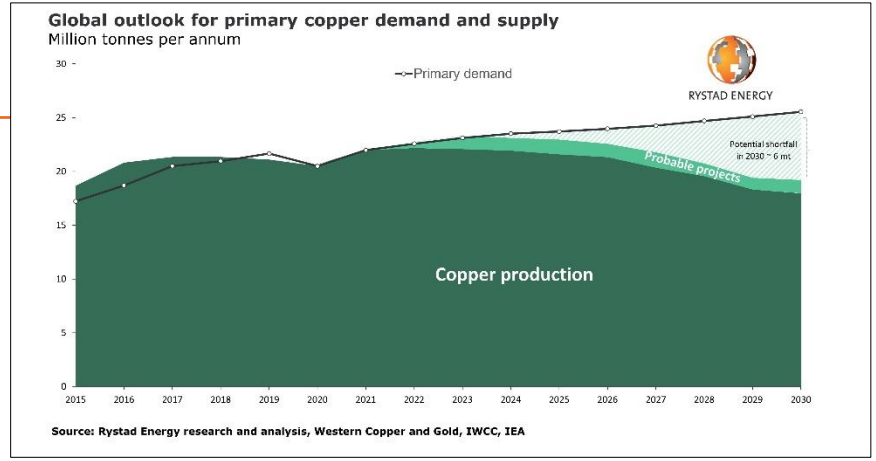
Global forecast – International Energy Agency (IEA) suggest world copper demand to double over the next 20 year

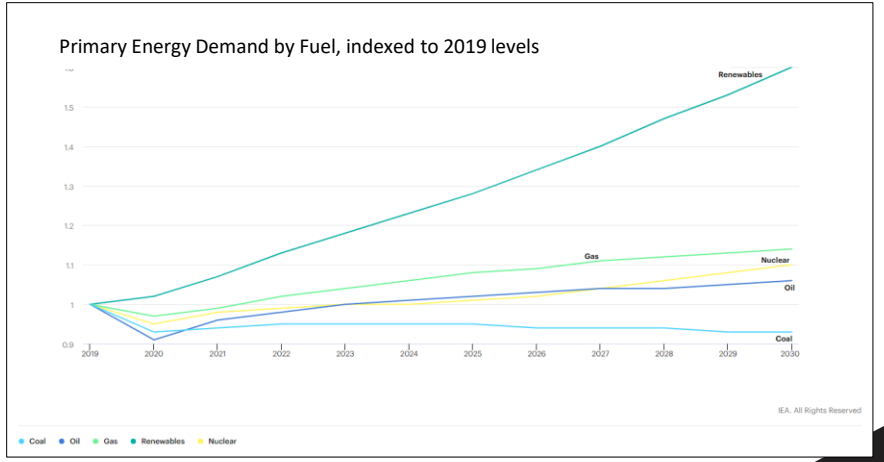
Supply deficit by 2030 – 250 mines operating (Chile – largest copper producer with qtr. of world reserves)

- Electronics
- Electrification
- Renewable Energy

Thor Mining

- Aiming to be a trusted global leader for sustainably mined copper-gold





Thor's Copper Interests

Projects

- **Alford East –** JV/Farm-in earning 80% direct interest

EnviroCopper Limited (ECL) – Thor holds 30% Equity Interest:

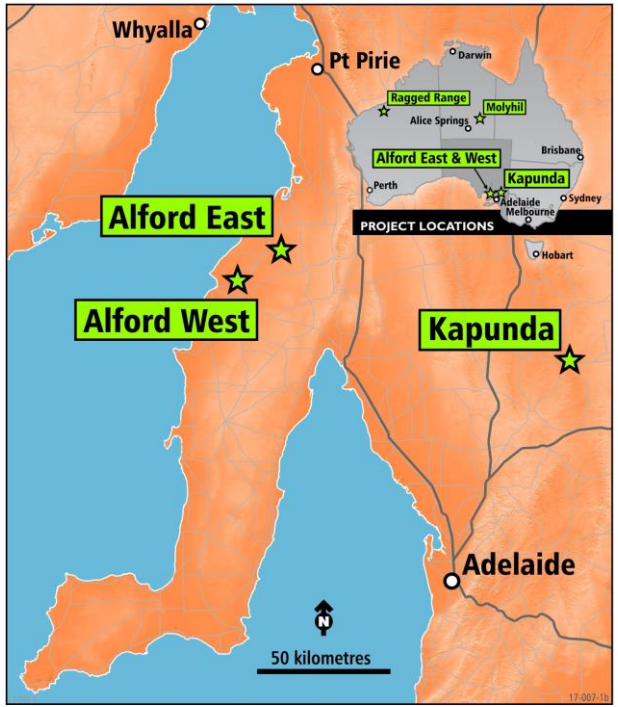
- **Kapunda** – ECL earning a 75% interest
- **Alford West** – ECL earning a 75% interest

Geology

- ~400,000 tonnes of contained copper
- Substantial near surface oxidised copper mineralisation, transitioning at depth to readily leachable chalcocite then primary chalcopyrite
- Leachable gold also present

Objective

- Low-cost production of copper – gold using low impact In-Situ Recovery techniques
- Protect environment with economic opportunities created
- Sustainably mined copper-gold



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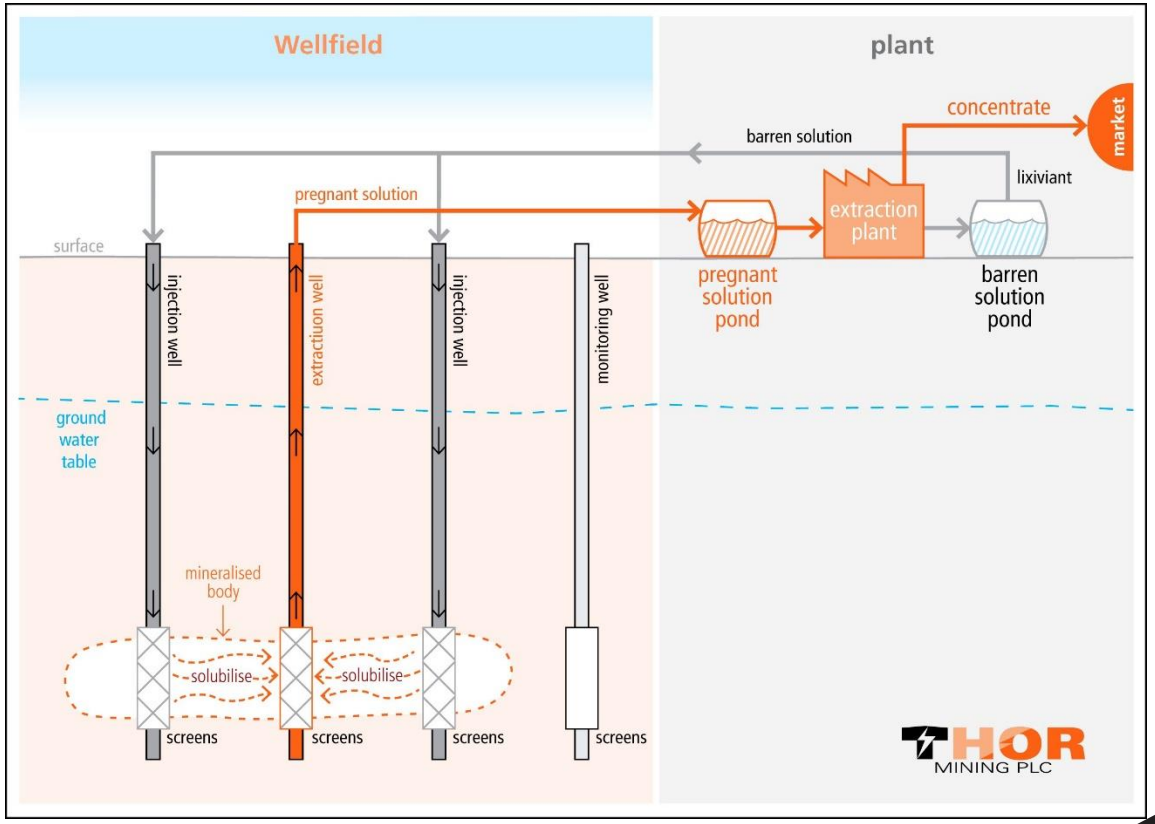
ENVIRO COPPER THE INVISIBLE MINE

In Situ Recovery Model

Benefits over conventional open cut or underground mining

- Minimal surface disturbance
- No large open pits
- Minimal noise and dust
- No dewatering
- No waste dump
- No large tailings dams
- Lower CapEx and OpEx



In Situ Recovery

History:

- Extensively used in the uranium industry since 1959, with two ISR uranium operations in SA (local knowledge & regulatory system)
- ISR Copper historic trials – Mt Isa –crown pillar , Gunpowder – blasted ground - 1990s

ISR – ISCR Copper Projects (Arizona, USA)

- Florence Project, Taseko Mines
- Van Dyke Project, Copper Fox Metals
- Gunnison Project, Excelsior Mining Corp

Environmental:

- Minimal surface disturbance to conventional mining (no large pit / no crushing or grinding / no waste dumps etc).
- Ground water contamination is the critical factor requiring management

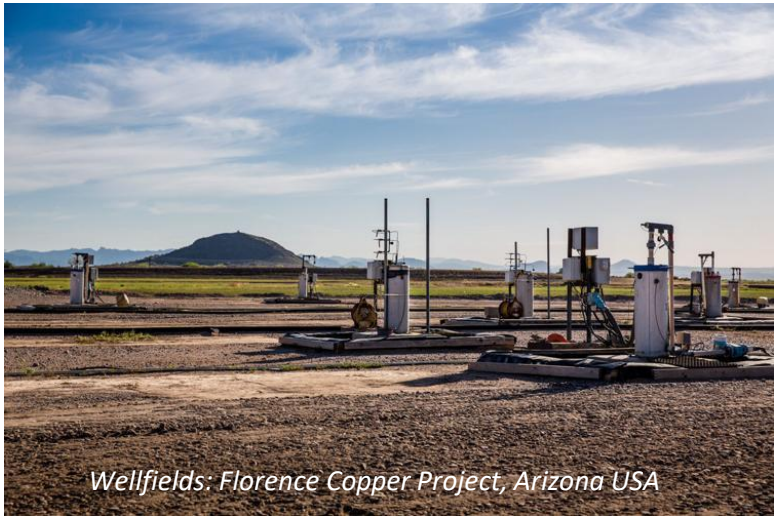
Economics:

- A chemical process rather than a high-cost mining operation
- Lower capex, early production with modular upscale ability and flexible production capacity
- Alford East funding:
  - ECL - Substantial Australian government & research body funding grant to fund technical feasibility $2.85M
  - THR - $0.3M funding through SA Government Accelerated Discovery Initiative

In Situ Recovery

Assessment parameters

- Geology – lithology/structures/mineralisation
- Hydrogeology – permeable environment
- Hydrometallurgy – ‘environmental’ lixiviant suitable to selective solubilise copper and gold
- Exploration and evaluation – metal recovery and cut-off
- Economics - CapEx and OpEx



Wellfields: Florence Copper Project, Arizona USA

ESG - Social License

The Alford-East Copper-Gold Project is investigating/assessing the geological, environmental, social and economic impacts of In-Situ Recovery (ISR) at Alford East, to unlock the significant mineral value of this oxide copper-gold mineral resource for SA.

Project Level

- Landholders
- Community
- Local Employment
- Council – Barunga West & Copper Coast

Corporate Level

- Employees
- Shareholders

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Barunga West Council

ISR Explanatory Video

THOR - Exploring for high-value commodities in global demand

Diverse portfolio

Lithium/Gold - Australia

- Ragged Range Project, Pilbara WA
- Highly prospective lithium targets
- Surface geochemistry defined robust gold anomalies along structurally controlled 13km gold corridor

Uranium and Vanadium - USA

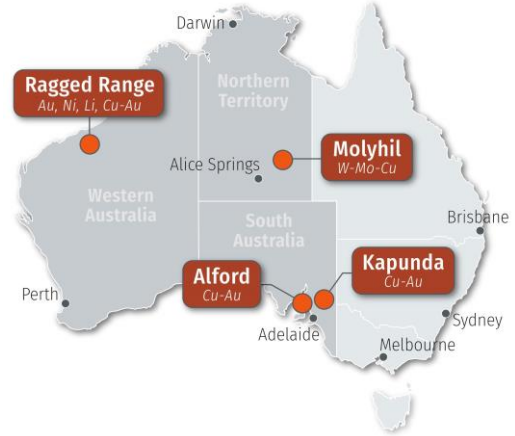
- Shallow high-grade targets in Uravan Mineral Belt

Copper – Australia (3 projects)

- Technical feasibility stage
- Interest in >400,000t copper
- Resource extension potential

Tungsten-Molybdenum - Australia

- Molyhil Deposit, NT
- Exciting drill intercepts/new discovery
- At development phase



Board and management

Mark Potter
Chairman Non-Executive

Over 15 years' experience in natural resources investments. Mr Potter currently serves as a Director and Chief Investment Officer of Metal Tiger Plc (AIM:MTR), a natural resources investment company quoted on the AIM market of the LSE. Former Director and Chief Investment Officer of Anglo Pacific Group, a London listed natural resources royalty company.
Mr Potter is currently Non-Executive Chairman of Artemis Resources Limited (ASX:ARV)

Nicole Galloway Warland
Managing Director

More than 25 years in mining & exploration in Australia, Eastern Europe & South America. Experience spans from grass roots exploration to project evaluation to open cut and underground mining with a commodity focus of gold, copper/ gold, nickel, uranium and lithium

Director- Australian Institute of Geoscientists (AIG) and Non-Executive Director of EnviroCopper

Mark McGeough
Non-Executive Director

An experienced geologist who has explored for gold, IOCG copper-gold, silver-lead-zinc and uranium. Involved in the discovery of the White Dam gold deposit in South Australia and the Theseus uranium deposit in WA

Career includes Chinova Resources, Toro Energy, Xstrata Copper, Mount Isa Mines and AGIP Australia. He was also the Manager of the SA Geological Survey

Alastair Clayton
Non-Executive Director

25 years' experience in in the mining and exploration industry, identifying, financing, and developing mineral, energy and materials processing projects in Australia, Europe and Africa.

Director -Artemis Resources Ltd

Ray Ridge
CFO,
Joint Company Secretary

A chartered accountant with over 20 years accounting and commercial management experience. Roles include Senior Audit Manager with Arthur Andersen, Divisional CFO with Elders Ltd, and GM Commercial & Operations at engineering and construction company Parsons Brinckerhoff

Geology

Tenure

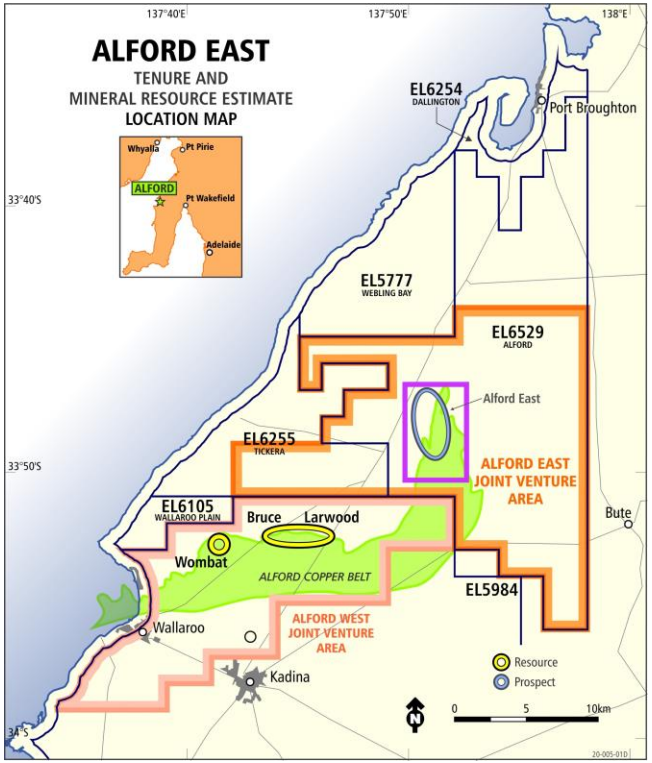
- **Alford East – JV/Farm-in earning 80% direct interest** from Spencer Metals
- Acquired project in December 2020

Geology

- Substantial near surface oxidised copper mineralisation, transitioning at depth to readily leachable chalcocite then primary chalcopyrite
- Leachable gold also present

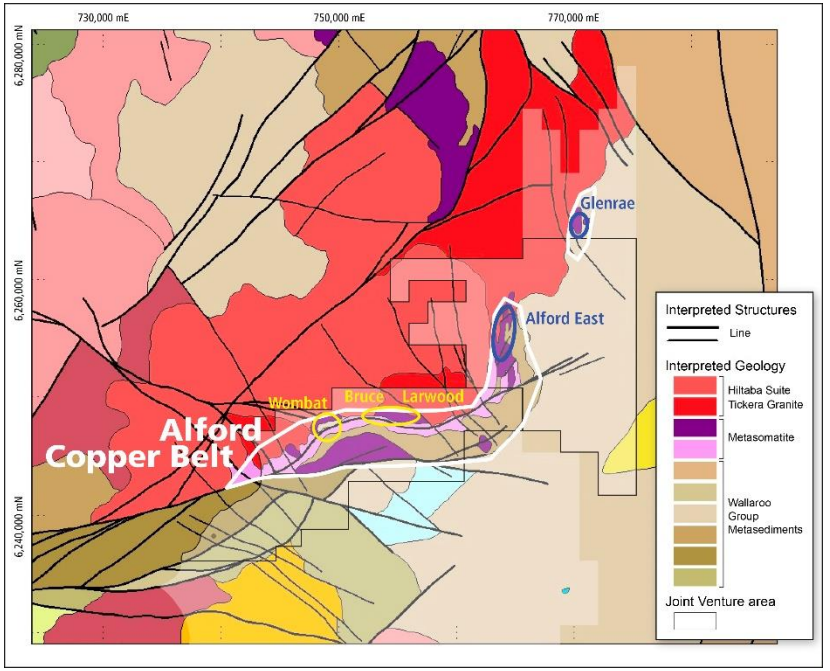
Objective

- Low-cost production of copper – gold using low impact In-Situ Recovery techniques
- Protect environment with economic opportunities created
- Sustainably mined copper-gold



Geology

- Olympic Domain, Gawler Craton
- Metamorphosed Palaeoproterozoic Wallaroo Group sediments and volcanics intruded by Tickera granitoids, syntectonically emplaced during Hiltaba event
- Cambrian and Tertiary cover <10m in depth
- Substantial near surface oxidised copper mineralisation, transitioning to readily leachable chalcocite, then primary chalcopyrite
- Alford Copper belt is a semi-coherent zone of oxide copper- gold mineralization within a structurally controlled trough of highly kaolinized, oxidised metasomatite, adjacent to the Tickera Granite-**origins unknown**



History

- Substantial drilling history since the early 1990s chasing IOCG style primary mineralisation targets, unveiling oxide mineralisation over several decades.
- Oxide mineralisation essentially ignored
- Thor & ECL first companies to solely focus on the oxide-copper-gold mineralisation

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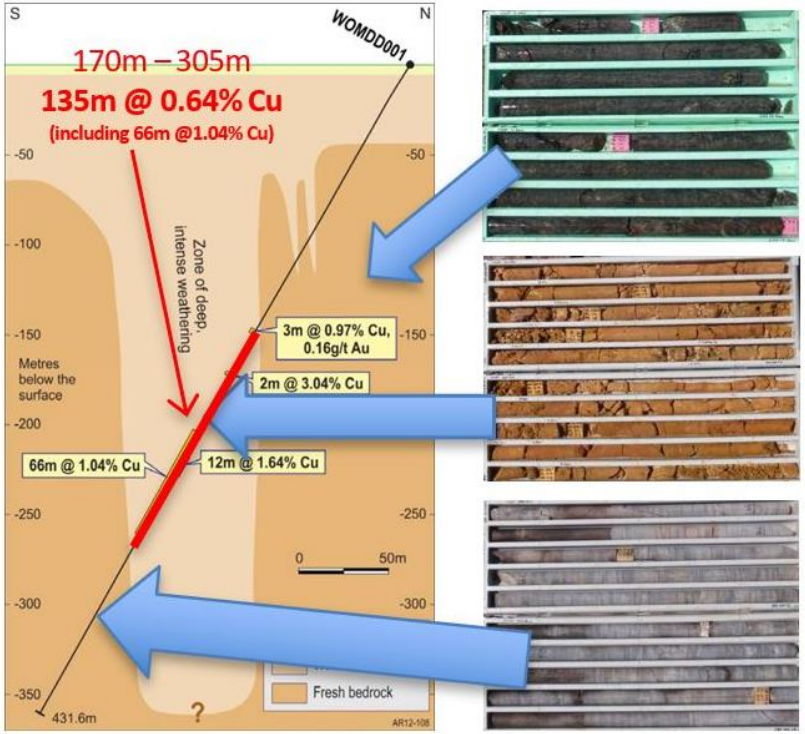
Geology

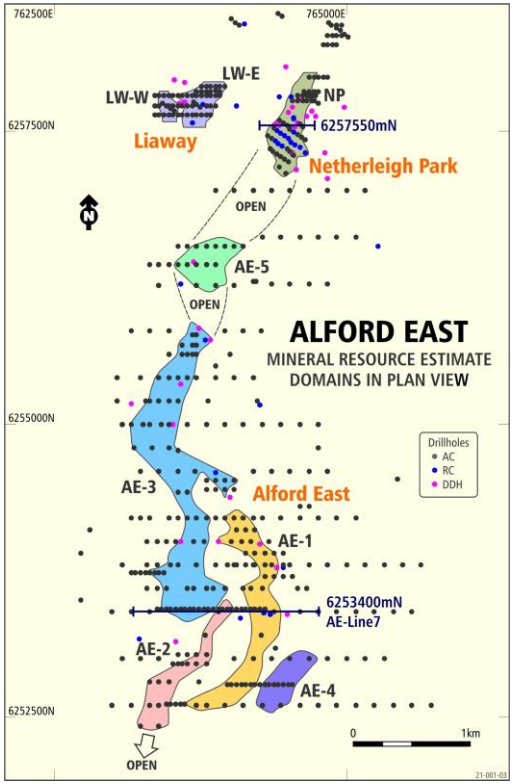
- Initial modelling of the historic drillhole data shows deeper depressions and troughs within the weathering profile generally host greater accumulations of oxidized copper and gold mineralisation
- Coherent zone of potentially ISR amenable copper and gold mineralisation in deeply weathered metasediments



Source: http://saemc.com.au/archive/2017/17drown.pdf

Inferred Mineral Resource Estimate – historic drilling (1982-2015)

Inferred Mineral Resource Estimate for the Alford East Project – 22nd January 2021 – 0.05% Cu cut-off (oxide material only) (ASX Jan 27 2021)					
Domain	**Tonnes (Mt)**	**Cu %**	**Au g/t**	**Contained Cu (t)**	**Contained Au (oz)**
AE 1-5	85.3	0.12	0.021	104,000	57,000
AE 8	31.3	0.19	0.008	61,000	8,000
AE 6-7	40.3	0.18	0.011	73,000	14,500
Total	**125.6**	**0.14**	**0.018**	**177,000**	**71,500**



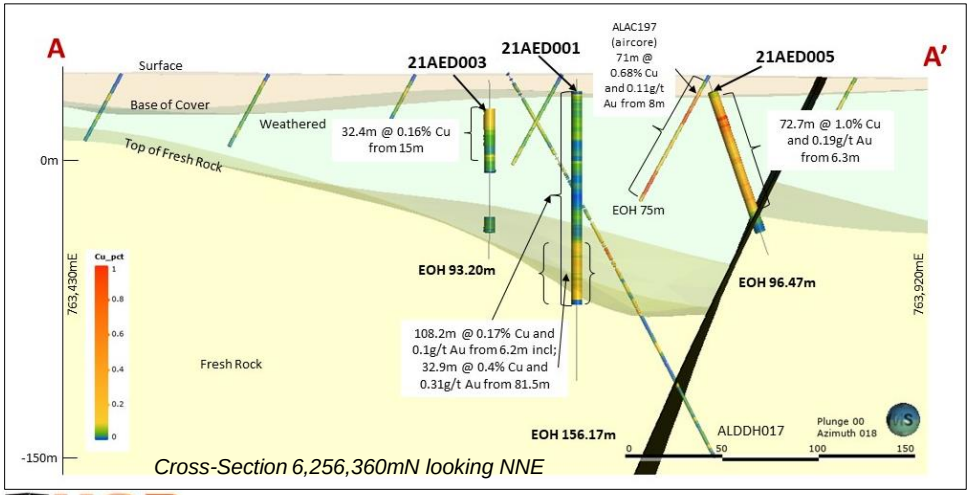
- *Thor Mining PLC to acquire 80% interest in the Alford East Project*
- *All figures are rounded to reflect appropriate levels of confidence. Apparent differences may occur due to rounding.*
- *The Company is not aware of any information or data which would materially affect this previously announced resource estimate, and all assumptions and technical parameters relevant to the estimate remain unchanged.*

Broad high-grade results

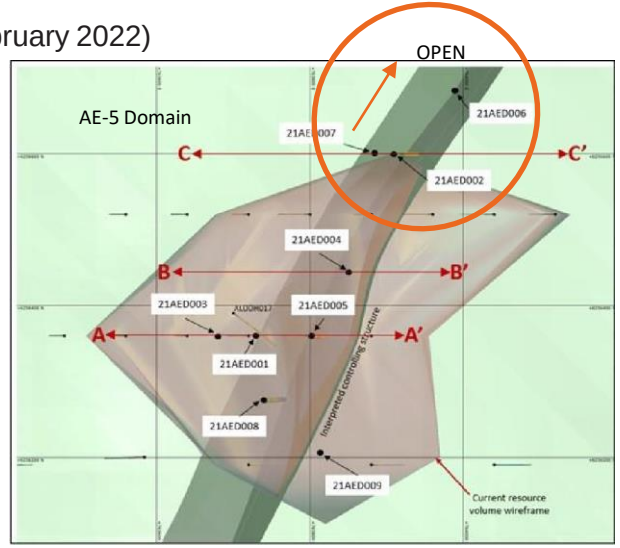
Broad high-grade copper-gold results – ideal for ISR

Diamond drilling Phase 1 completed (ASX: THR 31 August 2021)

- 21AED005: **72.7m @ 1.0 % Cu and 0.19g/t Au from 6.3m,** including:
  18.2m @ 2.0% Cu and 0.34g/t Au
- 21AED001: **32.9m @ 0.4% Cu and 0.31g/t Au from 81.5m**
- 21AED004: **55.9m @ 0.53% Cu from 7m**, including
  5.7m @ 1.23%Cu and 0.16g/t Au from 17.3m (ASX:THR 22 February 2022)

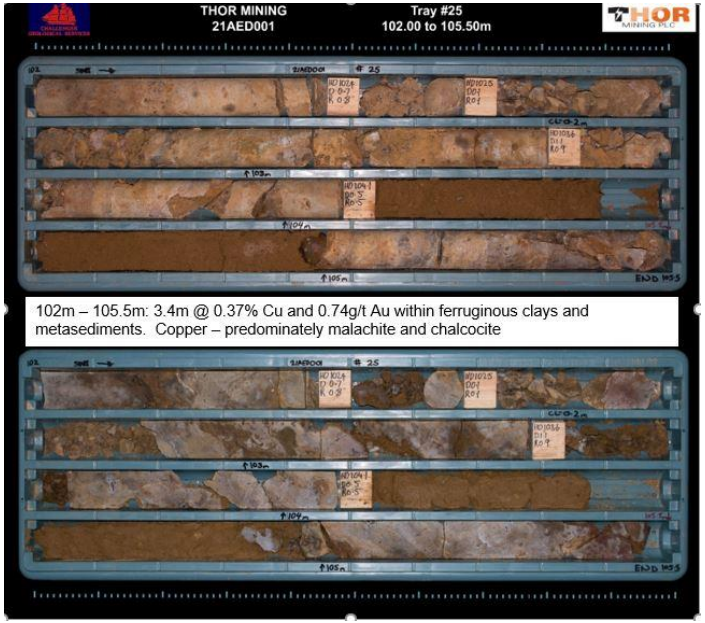


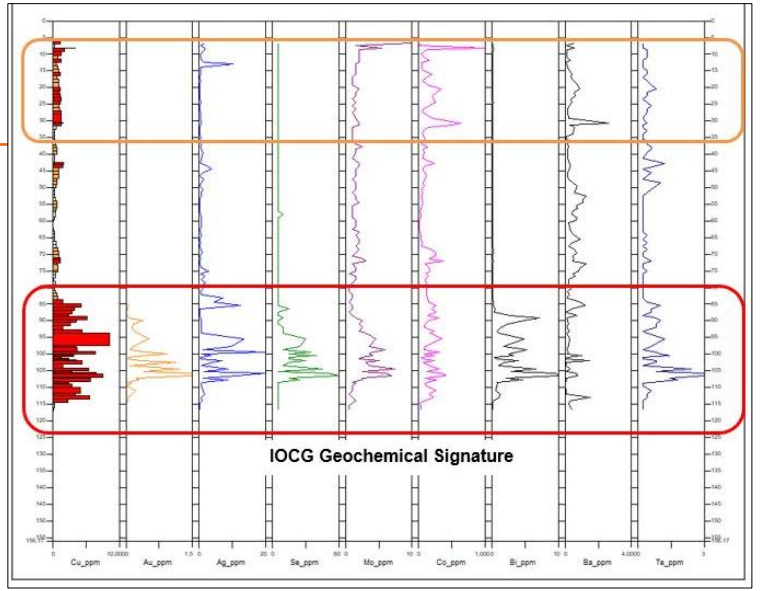
Cross-Section 6,256,360mN looking NNE

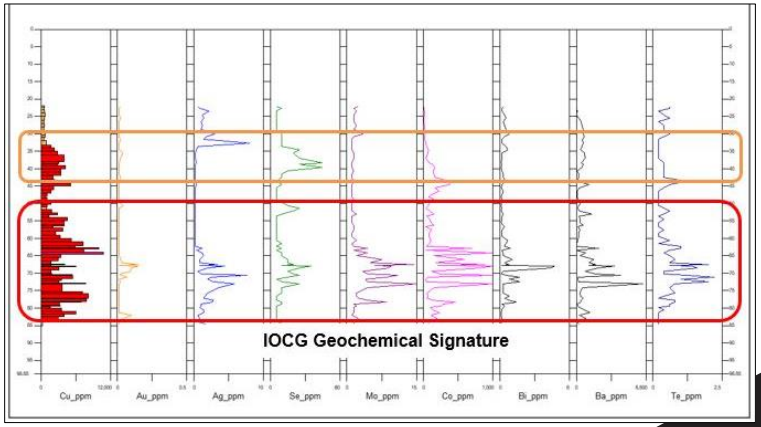


Oxide Zone – Saprolite

- Upper Zone (supergene)
- Lower zone (oxide IOCG Primary –with gold)
- Copper: predominately malachite and chalcocite with minor atacamite and native copper, transitioning into chalcopyrite





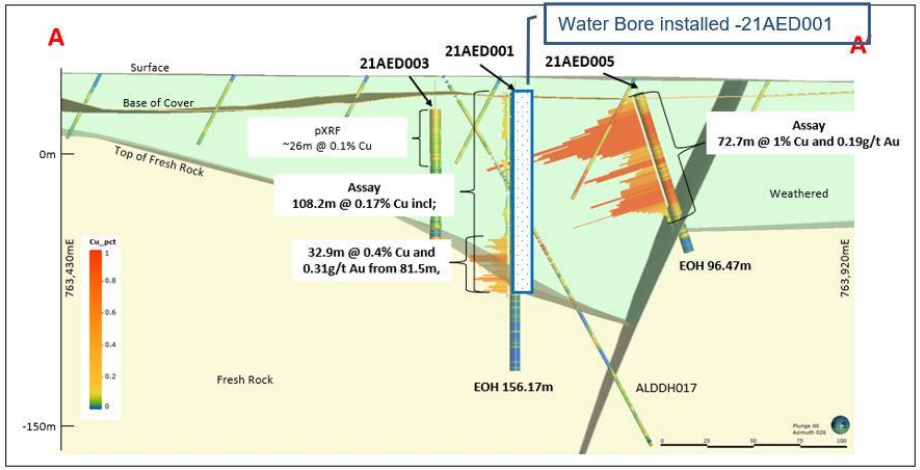


3D Geological Model

Hydrogeology

Aquifer pump test

- The copper mineralisation at the test site is saturated
- The water table elevation is approximately 38m AHD. At the test site this equates to a depth to water of 12 m below ground surface.
- Salinity (TDS) of ~20,000 mg/L.
- Groundwater quality at the site is saline - precludes agricultural or potable use.
- pH - 8.1 Alkaline
- The rock hosting the copper mineralisation and is moderately permeable
- Yield under pumping of 0.6 L/s.
- The aquifer transmissivity is approximately 2 to 3 m^2/day and the concomitant bulk hydraulic conductivity is approximately 0.14 m/day.
- In an ISR setting, wells with 18 m long screens can be expected to yield around 0.5 L/s
- Encouraging early results for potential ISR.



Cross-Section 6,256,360mN looking NNE

Seasonal testing to establish baseline data

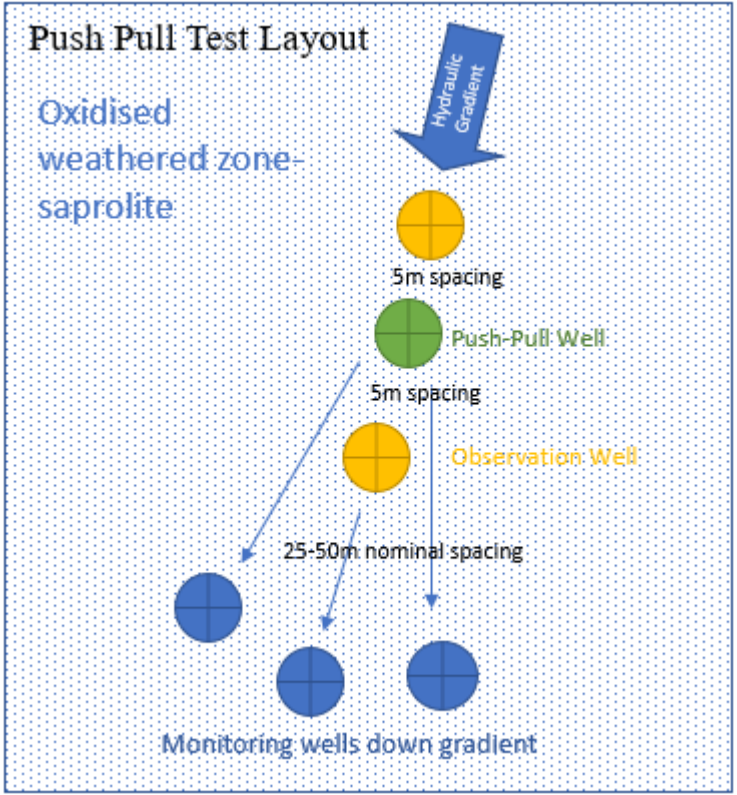
Lixiviant trial

Stage 1: Baseline Data

- Aquifer Seasonal Pumping tests = water levels and quality. 3 monthly
- More information required on hydraulic gradients and groundwater flow paths.

Stage 2: Lixiviant Trial - push pull Test

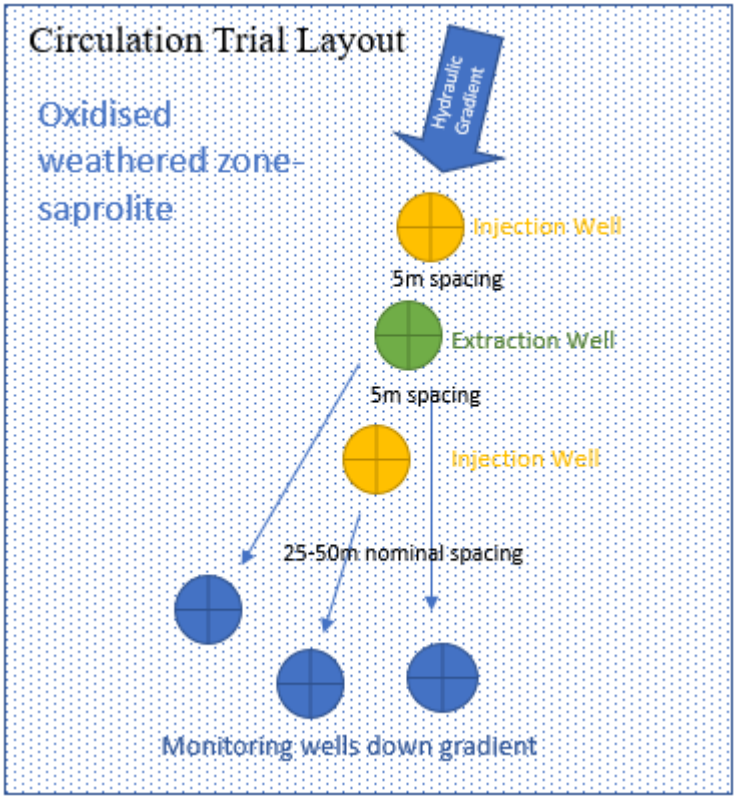
- Install Well Array
- Well Connectivity Tracer Test - NaBr - demonstrates connectivity between tracer test and observation and monitoring wells
- Lixiviant Injection and Extraction
- Rehabilitation



Lixiviant circulation

Stage 2b: Lixiviant Trial – Circulation Test

- Install Well Array
- Lixiviant Circulation
  - Construct flow control system (well house)
  - Test lixiviant grades and copper-gold recovery under in-situ conditions
  - Copper concentration in lixiviant and reagent consumption is monitored
- Rehabilitation - restore ground water to baseline conditions



Site Environmental Lixiviant Tests

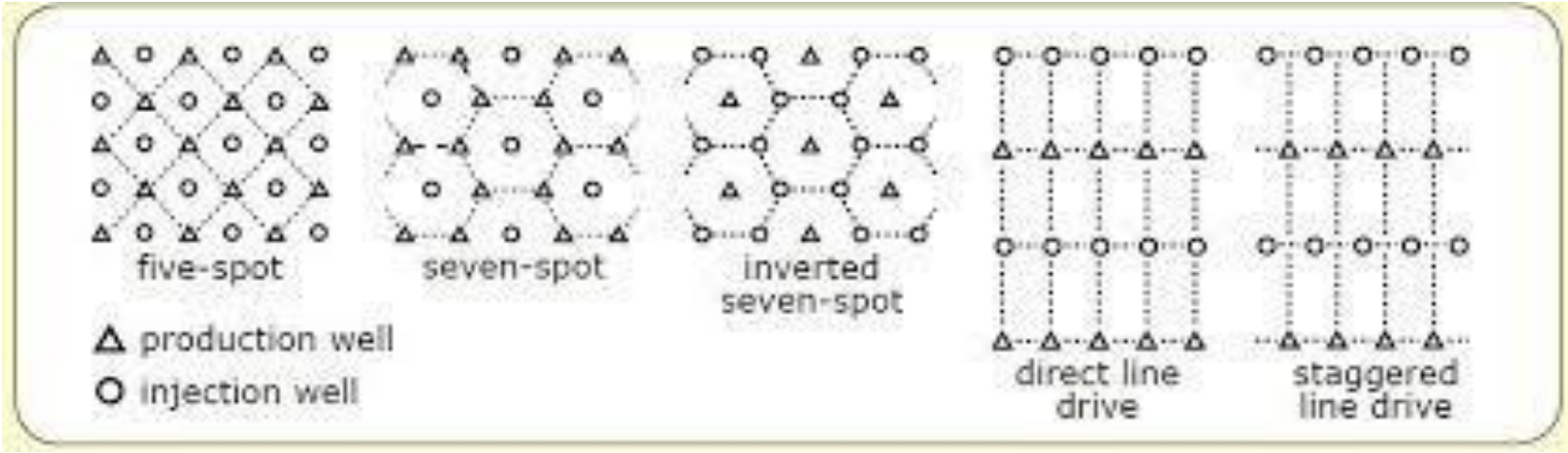
Recoveries

Hydrodynamic modelling

Well Pattern designs

Controlling the flow pattern ensures the peak mineral concentration is high and the mineral recovery time short

In order to ensure containment, the total pumping rate is generally 1 to 3 percent higher than the total injection rate

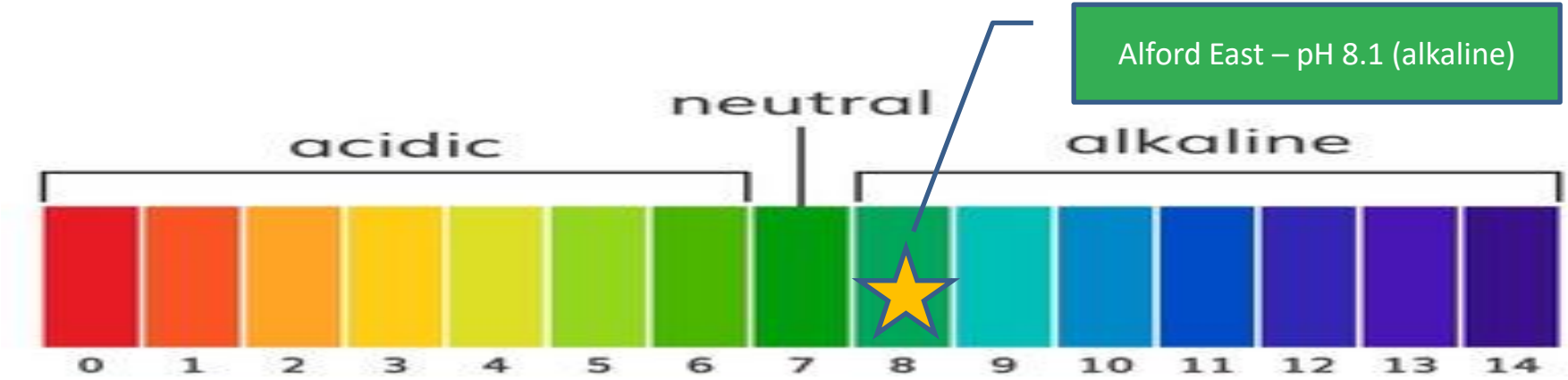


Common Well Field Design Patterns

https://in-situ.com/pub/media/support/documents/Well-Field-Mechanichs-for-In-situ-mining.pdf

Hydrometallurgy

Lixiviant - Choice lixiviant to suit ground water conditions



Example – Methane Sulphonic acid
- MSA: Readily Biodegradable
- Targets value metal species

Example – thiosulfate
- Copper and gold extraction
- No acute or chronic ecotoxicity

Example – Glycine
- Naturally occurring Amino Acid
- Copper, Silver, Nickel, Cobalt and Gold extraction
- Environmentally friendly reagent (in alkaline carrier)

Curtin University

Cleaner, safer lixiviants than toxic chemicals such as cyanide or Sulfuric Acid

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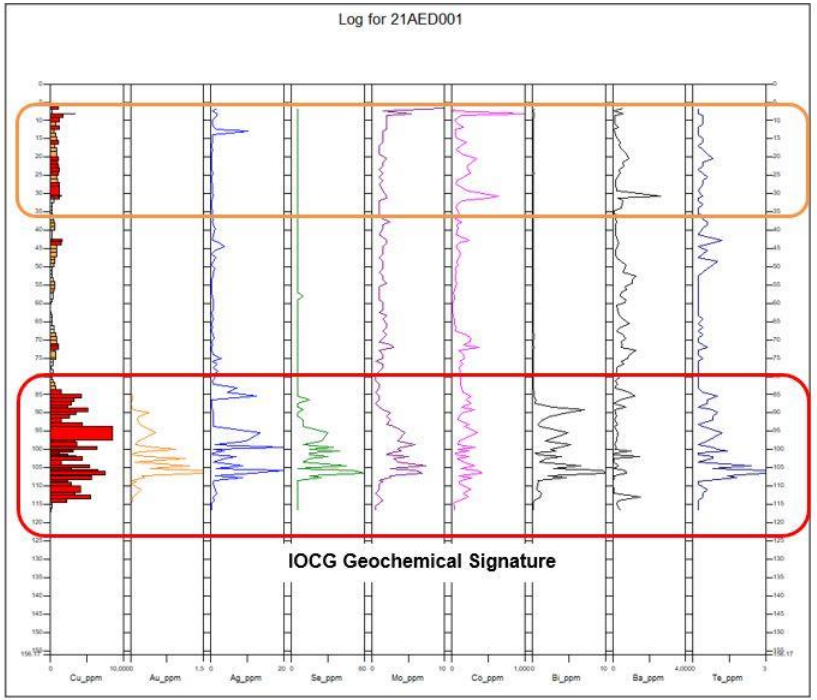
Glycine Trials – GlyLeach & GlyCat™

Glycine:

- Glycine: simple amino acid
- Environment: non toxic
- Selective: solubilise Cu, Ni, Co, Zn (Au) whilst Fe, Mn silicates and carbonates remain in solid phase
- PH: Alkaline leaching conditions
- Low consumption: non volatile
- Recycle: not chemically consumed in overall process

Lixiviant Trials

- Lixiviant trials -21AED001
- 3 trials underway
  - Upper Zone (supergene)
  - Lower zone (oxide IOCG Primary –with gold)
  - And blended (Upper & Lower)



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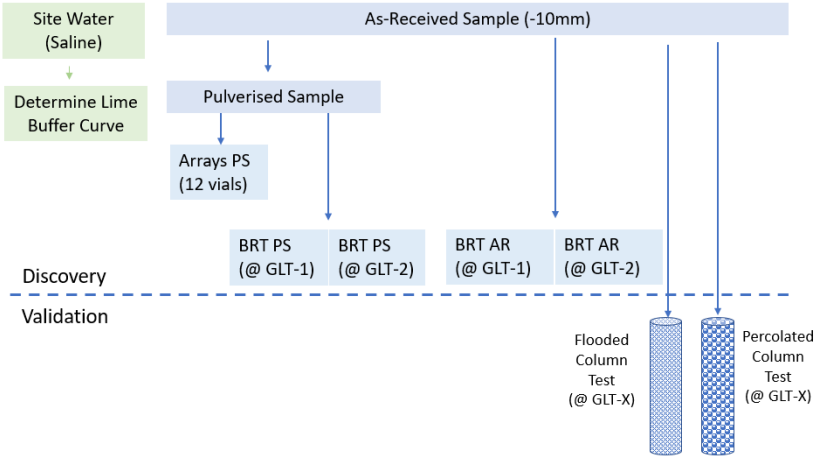
MPS MINING & PROCESS SOLUTIONS

Glycine Trials – GlyLeach & GlyCat™

Initial Findings:

- Copper sequential analysis (identifies leachable copper mineralogy) - 15% of the copper from the upper zone and up to 50% from the lower zone should be theoretically leachable with GLT.
- Gold diagnostic leach assays, extraction from the lower zone of up to 73.4% should be theoretically leachable with GLT. Upper zone had negligible gold.
- Bottle Roll tests (6):
  - The composite sample performed very well with GLT, extracting 98.1% of the gold and over 40% of the copper.
  - Lower zone using GLT extracting 78.3% of the gold and 33.5% of the copper, whilst the Lower zone using cyanide extracted 64.1% Au and 48.2% of the copper
  - The alkaline Glycine Leaching Technology (GLT) has slower leaching dynamics, than cyanidation, so if given more time higher extractions would be expected



Development and Production

Clear pathway to copper development and production

- Mine development-well pattern
- Processing plant
- Infrastructure
- Cut-off grades
- CapEx/ OpEx

SELT - Produce concentrate at low capital cost generating cash flow to develop mine

ISR – Modular upscale & flexible production

Key Upcoming Activities including Economic Assessment

Alford East

- Commence second phase of diamond drilling
- Pump testing – push/pull test
- Continue hydrometallurgical work aiming for greater than +70% copper recovery
- Scoping Study

Kapunda

- Pump testing – push/pull lixiviant test
- Scoping Study
- Site Environment Lixiviant Trials

Conclusions: Time to embrace new thinking

Thank You

AIM/ASX: THR

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