# **ASX Code: "THR"**

THOR

2 August 2017

Company Announcements Office, ASX Securities Limited, 20, Bridge Street, Sydney, N.S.W. 2000

# AGREEMENT TO CO-INVEST IN SOUTH AUSTRALIAN COPPER PROJECT EARNING MAJORITY INTEREST NEW COPPER FOCUSED COMPANY

The Board of Thor Mining Plc ("Thor" or the "Company") (AIM, ASX: THR) is pleased to announce it has agreed to acquire an interest in the historically mined Kapunda copper deposit in South Australia ("Kapunda").

Thor will invest in a newly incorporated private Australian company, Environmental Copper Recovery SA Pty Ltd. ("ECR"), initially via convertible loan notes of up to A\$1.8 million, which will be used to fund field test work and feasibility activities at Kapunda over the next 3 years. In turn ECR has entered into an agreement to earn, in two stages, up to 75% of the rights over metals which may be recovered via in-situ recovery ("ISR") contained in the Kapunda deposit from Australian listed company, Terramin Australia Limited ("Terramin" ASX: "TZN").

#### **Agreement Details:**

- Binding term sheet signed to provide funding through convertible notes in ECR, of up to A\$1.8 million, which will be used by ECR to fund field test work and feasibility study activities at Kapunda;
- Conversion of loan notes in ECR is at the sole discretion of Thor, and will result in Thor holding up to a 60% equity interest in ECR, depending on the timing of conversion and value of the convertible loan notes that Thor holds at the time;
- Upon the initial investment in loan notes by Thor, agreed at A\$200,000, Thor will be invited to nominate two of the four directors of ECR and shall nominate the chairman;
- ECR to earn an initial 50% of the rights over that portion of the Kapunda deposit minerals which can be extracted via in-situ recovery through the expenditure of A\$2.0 million on field test work, metallurgical studies, and other environmental and feasibility processes;
- ECR to hold the right to earn a further 25% of that part of the Kapunda copper deposit
  which can be extracted via in-situ recovery through the expenditure of a further A\$4.0
  million. Should ECR decide to earn-in to this additional 25%, the shareholders of ECR
  will contribute the A\$4.0m on a pro-rata basis or their holdings in ECR will be diluted.

**Mick Billing, Chairman of Thor Mining plc:** "We are delighted to team up with the professional people of Environmental Copper Recovery in, what we expect, is to be the first of several low-cost copper opportunities in Australia.

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ASX Listings: Shares: THR

AIM Listings: Shares: THR

Directors:
Michael Billing
David Thomas
Gervaise Heddle
Paul Johnson
Alastair Middleton

#### **Key Projects:**

Tungsten
 Molyhil NT
 Pilot Mountain USA

"Kapunda is not an exploration project where we hope to find mineralisation. The presence of copper is well documented with significant prior production, and substantial historical drilling. The opportunity at Kapunda is to test, at modest cost, the potential for insitu recovery to extract the copper mineralisation. While the characteristics of the deposit, determined from reviewing historical drilling results, appear suitable for this style of extraction, hydrogeological pump testing is required for validation.

"We look forward to updating the market shortly with a resource estimate and details of first steps in assessing for commercial development."

## **Kapunda Copper Deposit**

On the edge of the town of Kapunda (90 minutes north of Adelaide) is the historic Kapunda Copper mine, the site of the birthplace of the Australian commercial copper mining history. Copper was mined from Kapunda for more than 30 years, until 1877 with tributors subsequently working it through to 1912.

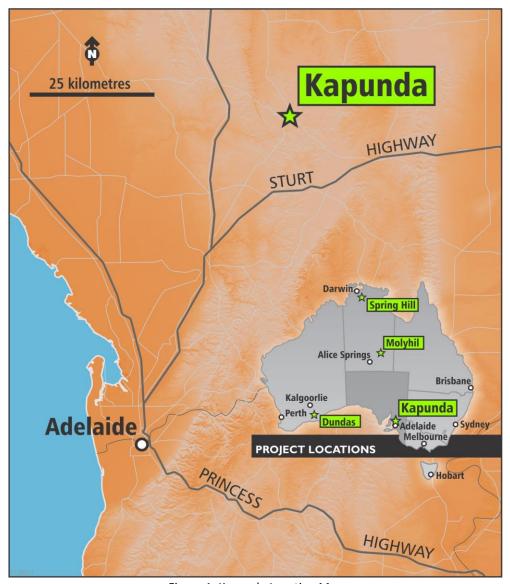


Figure 1. Kapunda Location Map



The Kapunda copper deposit has been comprehensively drill tested over many years (Ref Figures 2 &3), however a JORC compliant resource estimate has not been published. The protocol for estimation, and reporting, of resources with potential for exploitation via insitu-recovery has a number of additional steps compared with conventional mining and processing, and this procedure is currently in progress, with an outcome expected in the coming weeks.

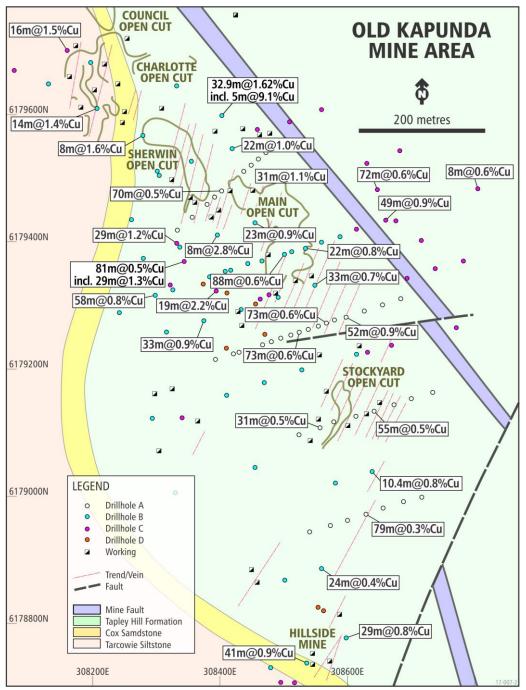


Figure 2: Old Kapunda Mine Area – "Copper Range Limited Progress Report 14 December 2007"

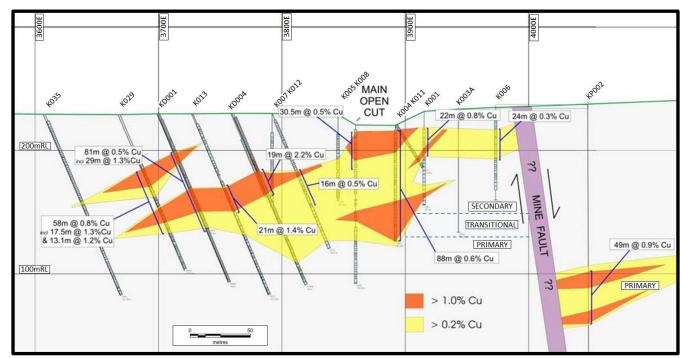


Figure 3: Old Kapunda Mine Area cross section 8300N "Copper Range Limited Progress Report 14 December 2007"

In addition to the substantial body of evidence from copper assays, while gold assays were not routinely conducted, subsequent work has since suggested gold mineralisation in parts of the deposit, although the data supporting this is limited.

## About Environmental Copper Recovery SA Pty Ltd ("ECR")

ECR is a newly formed Australian private limited company established by METGH Pty Ltd, a 100% owned subsidiary of Midas Environmental Technologies Pty Ltd (MET), and Mr Tennyson Wickham of corporate advisory group Fortis Ago, for the purpose of acquiring and developing the Kapunda resource (and potentially other projects of interest in the future). MET was founded in by a team of senior mining professionals with over 90 years' experience in mine development and operations to pursue project development opportunities for the recovery of gold and copper. The team's capabilities include an extensive background in South Australian uranium ISR production.

Over a period of 12 months, METGH has undertaken a detailed technical review and due diligence regarding the potential application of ISR at Kapunda as a low impact, environmentally friendly method of metal extraction. The group has also established relationships with several research organisations including the Australian government owned Commonwealth Scientific and Industrial Research Organisation ("CSIRO") who are developing new suites of environmentally benign "lixiviants" to extract and recover metals in low impact ISR operations.

ECR are proposing to test extraction via "in-situ recovery" (ISR) of the copper, and potentially also gold, followed by either SX/EW (solvent extraction / electrowin) or IX/EW (ion exchange / electrowin). If field recovery tests are successful, then a pre-feasibility study to project to assess the economic viability of producing copper (and possibly gold) at low capital and operating cost will be commissioned. Primary ore below the near surface oxide and chalcocite horizons is unlikely to be a mineable proposition until chemical recovery of those minerals becomes feasible and economic.

#### **Copper In-situ Recovery**

ISR is a common extraction method in uranium production (more than 50% of current world uranium production is via ISR), and has also been successful, where conditions are suitable, in copper production, in the USA and Russia. ISR production of copper at the San Manuel mine in the USA lasted 15 years and amounted to over 250 million pounds of copper during its lifetime\*.

ISR uses solutions (lixiviants) pumped through boreholes into the mineralized body, to dissolve (leach) the metals followed by extraction from nearby boreholes (ref Figure. 4). It requires that the minerals be amenable to chemical recovery (in this instance near surface copper oxides and chalcocite), and that the mineralised body be permeable. The process is managed such that the solutions do not contaminate groundwater away from the deposit and that groundwater is remediated after the process in compliance with regulatory requirements.

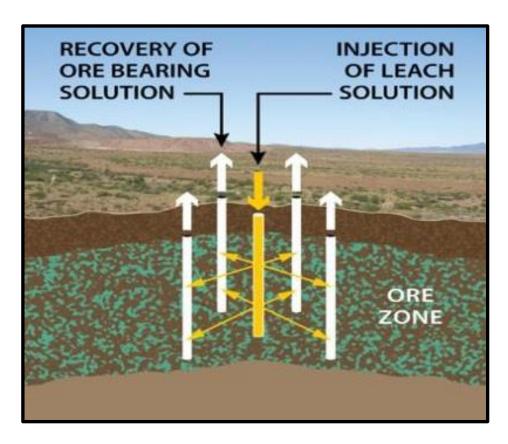


Figure 4. Schematic of Insitu Recovery process

It is a low cost and low environmental impact process, provided the ground conditions allow the flow of leaching liquor through the deposit.

Further details of the transactions

Acquisition of up to 60% of ECR

<sup>\*</sup>Data sourced from Mining.com article - In-situ copper leaching is a proven technology

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A binding term sheet has been signed by the Company to provide funding through convertible loan notes issued by ECR which can be converted to equity in ECR at the election and timing chosen by Thor. Thor has the right to invest up to A\$1.8 million over 3 years (before any available Australian government research and development rebates) in ECR zero-coupon convertible notes, commencing with an initial A\$200,000 investment within the next 10 days. Following the investment in the initial A\$200,000 of convertible loan notes, Thor will be able to convert the loan notes at its sole discretion at any time, into an equity interest in ECR. Thor has an obligation to spend a minimum of A\$300,000 during each 12 month period following the commencement of this agreement.

Upon conversion, the value of Thor's equity interest in ECR will vary depending on Thor's total investment in ECR convertible notes at that time and the stage of the project fieldwork at Kapunda, up to a 60% interest.

MET is assumed to have an initial equity interest in ECR of A\$1.2m (rising in stages to up to A\$ 1.6m on the occurrence of certain events including a successful field recovery trial and an internal feasibility study demonstrating that ECR's share of the ISR recoverable portion of the Kapunda project has a base case NPV of greater than A\$40 million). Any conversion of loan notes by Thor, which can take place in stages, would give it an equity percentage based on MET's equity interest at the time and the value of Thor's loan notes converted. For example, Thor's initial A\$200,000 loan notes, if converted, would give it a 14.3% interest and A\$1.8m would give it 60%. Should ECR's equity interest increase to \$1.6m, Thor has the option to provide an additional A\$600,000 to maintain its 60% interest.

Upon Thor investing in the first A\$200,000 of convertible loan notes, Thor will be invited to nominate two of the four directors of ECR, and shall nominate the chairman.

As further funding may be required to meet ECR's expenditure commitments (see below), ECR may seek to raise capital from Thor and METGH on a pro-rata basis to their equity interest in ECR. If either shareholder is unable to provide sufficient funding at that time, their respective equity interest in ECR shall be diluted.

Thor and ECR will now proceed to formalise these arrangements by entering into shareholder and convertible loan note agreements within the next 375 days and the Company will release further updates in this respect in due course.

## Acquisition of up to 75% of the ISR recoverable portion of the Kapunda deposit by ECR

A separate binding term sheet has been signed by ECR and Terramin, which governs the terms on which ECR will acquire an interest in mineral rights and claims (including the associated mining information) over the ISR recoverable portion of the Kapunda deposit via a two-stage earn-in agreement.

ECR has the right to earn a 50% interest in the ISR recoverable portion of the Kapunda deposit (the "Initial Kapunda Interest") by funding completion of proof of concept test work, field leach trials and a prefeasibility study ("PFS") to demonstrate the ability to feasibly extract copper and/or other metals from Kapunda.

ECR will earn 50% interest of the mineral rights and claims (including the associated mining information) over the ISR recoverable portion of the Kapunda deposit upon the completion of either:

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- i. a successful field recovery trial as evidenced by a positive PFS outcome; or
- ii. the total agreed project expenditure reaching \$2m.

Thor's investment in ECR convertible loan notes will be used to fund the initial work at Kapunda, and ECR will seek further investment in due course.

Should ECR earn the Initial Kapunda Interest, it will have the additional right to earn a further 25% interest in the mineral rights and claims over the ISR recoverable portion of Kapunda by spending an additional A\$4.0 million on project expenditure (the "Additional Kapunda Interest").

Should ECR earn the Additional Kapunda Interest, Terramin, in addition to a residual 25% contributing interest, will hold a 1.5% net smelter royalty in respect of all metal extracted from the Kapunda project area.

Thereafter, both parties will have the option to continue to contribute to applicable project activities or accept dilution to their interests in the Kapunda project.

The minimum required annual expenditure on the project is A\$0.3 million pa, with no fixed period within which ECR must earn the Initial Kapunda Interest. However ECR can withdraw at any time if it deems that the project is not viable.

ECR and Terramin will proceed to agree a joint venture agreement within 90 days and the Company will make further announcements in this respect in due course.

For further information, please contact: **THOR MINING PLC**Mick Billing
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#### Competent Person's Report

The information in this report is based on information compiled by Mr Leon Faulkner, who holds a BSc in geology and is a member of the Australian Institute of Geoscientists. Mr Faulkner is also a director of Environmental Copper Recovery SA Pty Ltd. He has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he 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'. Leon Faulkner consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.