

## ASX announcement

19 December 2018

### Joint Venture to progress In-Situ Recovery of Copper at Moonta

#### Summary

- **Commercial terms agreed for a binding Earn-In and Joint Venture Agreement, incorporating expenditure of up to \$5.5 million, has been entered into with copper in-situ recovery (ISR) focused Environmental Metals Recovery Pty Ltd (EMR) to form the Moonta ISR Joint Venture covering the northern part of the Company's Moonta tenement located in South Australia.**
- **In-situ recovery has the potential to be a low environmental impact method of copper extraction with minimal surface disturbance that is sensitive to and can co-exist with existing landowners.**
- **Under the terms of the Agreement, following completion of due diligence activities, EMR will sole fund \$2.0 million over four years to earn a 51% equity interest in the project area.**
- **EMR can elect to sole fund a further \$3.5 million over an additional three and a half years to increase its equity interest to 75% in the project area.**
- **EMR will act as manager and operator of the joint venture.**
- **ADN will continue to hold 100% ownership to the remainder of the Moonta tenement, excluding the Moonta Porphyry Joint Venture with Minotaur Exploration in which ADN holds 90% equity interest.**
- **The transaction will result in valuable effort being directed towards evaluating the potential for extracting copper at Moonta by a group of professionals experienced in ISR application while allowing ADN to continue to focus efforts towards progressing the Poochera Halloysite-Kaolin Project.**

#### Discussion

Andromeda Metals Limited (ASX Code: ADN) is pleased to announce that it has agreed commercial terms for a binding Earn-In and Joint Venture Agreement with Environmental Metals Recovery Pty Ltd to form the Moonta ISR Joint Venture covering the northern part of the Company's 100% Moonta tenement. The Project Area defined by the Joint Venture Agreement is considered to have attributes that are prospective for hydrometallurgical in-situ recovery application and significant technical due diligence has been completed by EMR personnel to date.



#### Andromeda Metals Limited

ABN: 75 061 503 375

#### Corporate details:

ASX Code: ADN

Cash: \$1.774 million

(as at 30 September 2018)

Issued Capital:

1,084,422,288 ordinary shares

486,280,451 ADNOB options

22,476,507 unlisted options

#### Directors:

##### Rhod Grivas

Non-Executive Chairman

##### James Marsh

Managing Director

##### Nick Harding

Executive Director and  
Company Secretary

##### Andrew Shearer

Non-Executive Director

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EMR is an Australian private company comprising a team of senior mining professionals with extensive experience in mine development and operations, including ISR production in South Australia. EMR is an associated entity to Environmental Copper Recover SA Pty Ltd that is currently advancing the Kapunda Copper ISR Project and comprises the same project development team.



Figure 1: Location of Moonta tenement

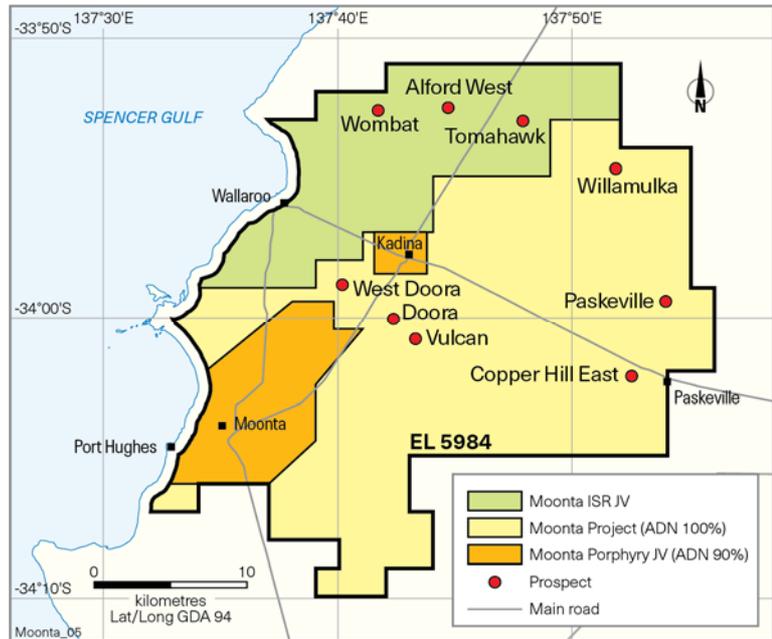


Figure 2: EL 5984 project location map

### Moonta In-Situ Recovery Potential

Andromeda Metals’ holds the Moonta Copper Gold Project, located on EL 5984 on the Yorke Peninsula in South Australia (Figures 1 and 2). The tenement is highly mineralised and includes numerous historically mined deposits, as well as more recent copper discoveries including the Bruce Zone at Alford West and the Wombat deposit located approximately 3 kilometres to the west.

The Bruce and Wombat deposits are considered to have a number of critical attributes that may allow hydrometallurgical in-situ recovery (ISR) copper production. Both deposits are characterised by deeply developed weathering troughs that extend hundreds of metres below the surface. The rocks to both the north and south of the weathering troughs are fresh and impermeable while the trough material contains copper mineralisation that is oxidised, porous and likely permeable, and is situated below both the water table and sea level. Both deposits remain open along strike, presenting opportunities to find further mineralisation in the trough extensions.

In-situ recovery is a production process used to recover minerals using a fluid circulated via drilled wells. During the process a leaching solution (or “lixiviant”) is injected into the mineralisation via a borehole, passes through the deposit leaching the target commodity, and is returned to the surface via a second bore where the dissolved metal is extracted from solution by SXEW or ion exchange in a processing plant (Figure 3).

ISR is used to produce salts, uranium and copper, with approximately 50% of the world’s uranium now extracted using ISR, including at the Beverley uranium mine in South Australia. The costs of ISR are substantially below those of conventional mining, allowing production from much lower grade deposits.

Importantly, as no significant surface disturbance is required, an ISR operation could conceivably be conducted in conjunction with current agricultural land use, and once completed have little on-going impact.

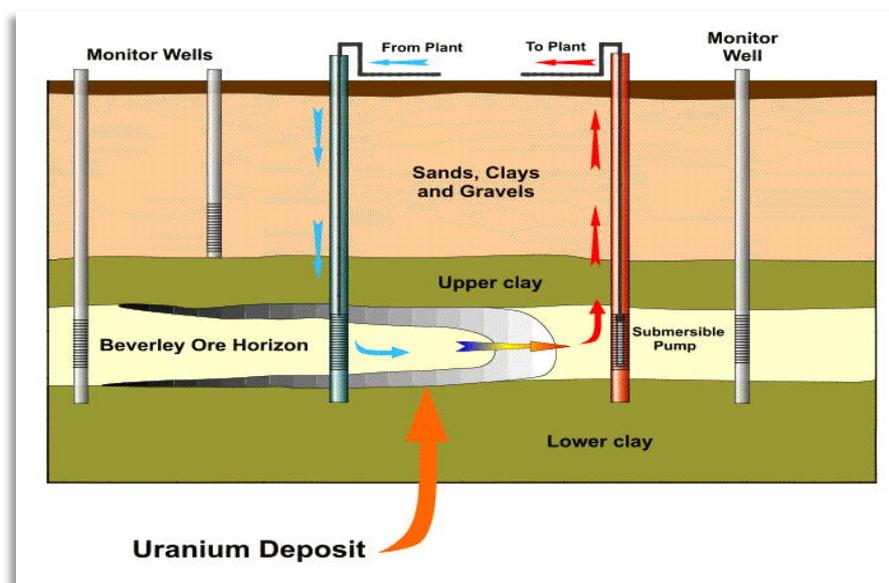


Figure 3: ISR example – Beverley Uranium Mine

### Moonta ISR Joint Venture terms

The principal terms of the Moonta ISR Joint Venture are:

- Subject to completion of satisfactory due diligence, EMR can earn an initial 51% interest in the project area by sole funding \$2.0 million on project related activities across the project area within four years of execution of the Joint Venture Agreement (Stage 1 Commitment);
- EMR is required to spend a minimum of \$200,000 on the project in the first year and a further \$300,000 in the second year under the Stage 1 Commitment;
- On completion of Stage 1 Commitment, EMR may elect to acquire an additional 24% equity interest (75% in total) through expenditure of an additional \$3.5 million (\$5.5 million in total) over a further 3.5 years (7.5 years in total) (Stage 2 Commitment);
- On completion of EMR's sole funding commitments, ADN may elect not to contribute to a proposed joint venture program and budget, in which case its interest in the joint venture will be reduced in accordance with a standard industry dilution formula;
- If ADN dilutes to less than 10% equity interest in the joint venture, then its interest will revert to a 1.5% net smelter return royalty payable with respect to any minerals produced from the project area;
- EMR will manage and operate the joint venture whilst it is sole contributing and thereafter while ever it holds a majority equity.

### Planned Work Program

The planned joint venture work program will initially cover laboratory-based proof-of-concept testing where mineralised core/chip samples from previous drilling conducted at both the Wombat and Bruce deposits will be evaluated for the effectiveness of various lixiviants to leach copper and gold from the

mineralised host rock in addition to ascertaining the effectiveness of recovering copper and gold from the pregnant leachate lixiviant.

Subject to satisfactory results being achieved, then field recovery trials and associated feasibility study work will be undertaken to determine whether a commercial operation to recover copper and gold using ISR methodology is viable.

### **Significance of the Moonta ISR Joint Venture to Andromeda Metals**

In executing the Joint Venture with EMR, the directors consider that the transaction will enable the ISR potential for the Moonta Project to be appropriately funded and evaluated by skilled personnel in this area of expertise.

Andromeda Metals' current focus is to progress the evaluation and potential development of the Poochera Halloysite-Kaolin Project in South Australia and this transaction will ensure that the potential of the Moonta Copper Gold Project is fulfilled while retaining an equity interest in the project area.

The Company still retains 100% ownership of a significant amount of the tenement, which is highly prospective for copper mineralisation and located at the southern end of the Olympic Copper-Gold Province. The ground contains the Willamulka, Paskeville, Copper Hill East and West Doora prospects amongst others and Andromeda Metals would welcome third party involvement to further explore and evaluate this project area.



James Marsh  
Managing Director

Direct enquiries to:

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Leon Faulkner – Managing Director, Environmental Copper Recovery Pty Ltd. Ph 0409 612004

### **Competent Person's Report**

*The information in this report that relates to exploration results and Mineral Resources is based on information compiled by Leon Faulkner, who holds a BSc in geology and who is a Member of The Australasian Institute of Geoscientists. Mr Faulkner is an employee of Environmental Copper Recovery 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.*