

## ASX/MEDIA RELEASE

Tuesday, 18 February 2014

# Oman Project Breakthrough Ore Upgrade Heavy Media Separation Tests Successful

**Perth:** Further to the recent “Oman Project Update” announcement (on 30 January 2014)<sup>1</sup>, Alara Resources Limited (ASX : AUQ) (**Alara** or **Company**) is pleased to inform the market that the Heavy Media Separation (**HMS**) test work on the Washihi resource has been completed and has been successful in providing a breakthrough for the Washihi Copper-Gold Project in Oman.

In summary:

- ❖ ALS Ammtec Laboratories and Megabest Metallurgy Consulting recently completed HMS test work on the Washihi mineral resource.
- ❖ HMS is shown to increase the effective Washihi resource copper grades from 0.9 – 1.0% Cu to 1.8 – 2.0% Cu.
- ❖ The HMS test work is seen as a technology breakthrough for the Washihi deposit.
- ❖ Options Analysis Study to be completed on schedule (February) with initial results further demonstrating overall project optionality.
- ❖ Updated Scoping Study on schedule for completion in March and will now employ the HMS circuit in the mineral processing stream.
- ❖ The addition of a HMS process circuit to the process plant design will materially improve the overall economics of the project.

## HMS Test Work Breakthrough on Washihi Deposit

Although the final reporting by Megabest Metallurgy Consulting is being completed at this time, the Company has confirmed the success of the recently completed HMS test work undertaken by ALS Ammtec Laboratories.

Based on inspection of the Washihi drill core indicating the mineralogical presence of chalcopyrite in stringer/stock work mode, it was deemed suitable to conduct indicative HMS testing on Washihi ores to determine their amenability to effective ore upgrading via HMS circuit.

Representative samples from the three mineralised zones of Washihi North, Washihi Central and Washihi South (refer Figure 1) were composited and used for this HMS test work. The crush size of the drill core material from each of these three variability composites used in this study was 3.35mm. This was the currently available material sizing however it is believed that these results are reproducible at sizes up to ~6.50mm.

## Washihi HMS Test Work Results

### (1) Washihi North Composite:

- ❖ Sinks Ore = 52.6%Wt at 2%Cu at 86%Rec Cu & 0.45g/t Au at 71.3%Rec Au
- ❖ Float Tails = 47.4%Wt at 0.35%Cu at 14%Rec Cu & 0.11g/t Au at 16%Rec Au

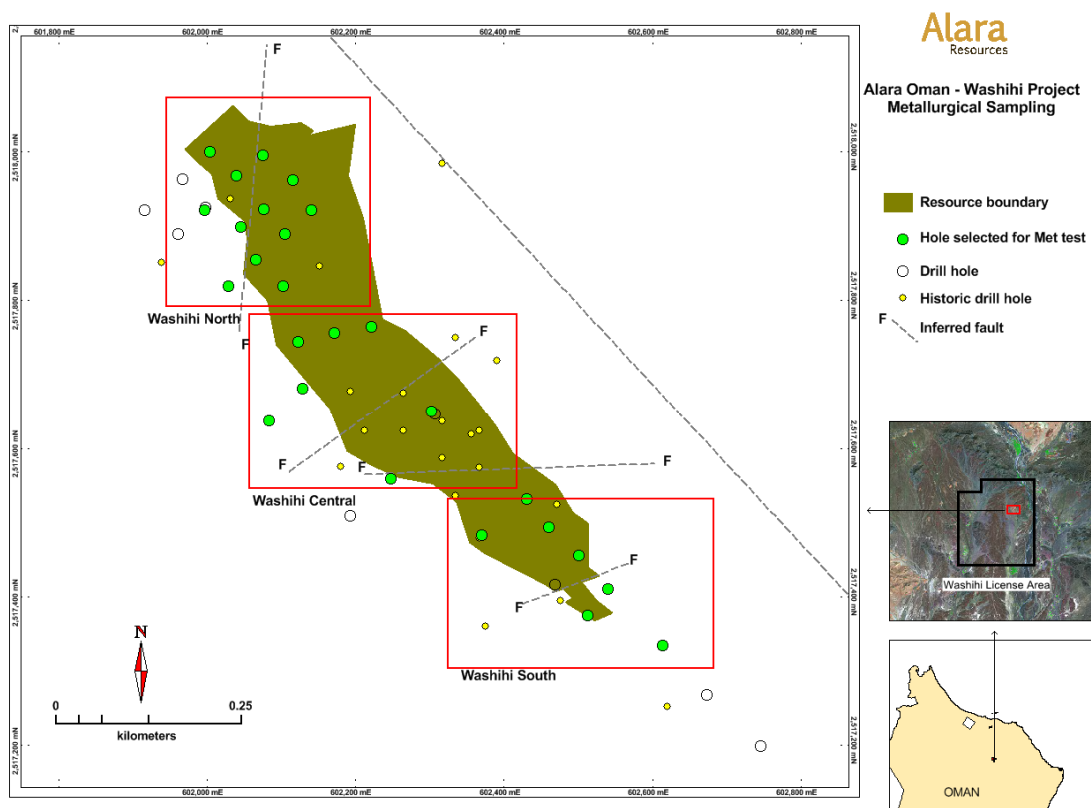
### (2) Washihi Central Composite:

- ❖ Sinks Ore = 47.3%Wt at 2.26%Cu at 94.3%Rec Cu & 0.57g/t Au at 87%Rec Au
- ❖ Float Tails = 52.7%Wt at 0.12%Cu at 5.7%Rec Cu & 0.07g/t Au at 12.2%Rec Au

### (3) Washihi South Composite:

- ❖ Sinks Ore = 46.3%Wt at 1.62%Cu at 90.7%Rec Cu & 0.51g/t Au at 84.8%Rec Au
- ❖ Float Tails = 53.7%Wt at 0.14%Cu at 9.26%Rec Cu & 0.07g/t Au at 12.9%Rec Au

Figure 1: Washihi Drill Holes Selected for HMS Testwork



## Summary of Washihi HMS test work results

The overall summary of this test work is as follows:

Mass balance:	45 - 50% of material to final process plant feed
Copper Grade Upgrade:	1.5 - 2.0 times enhancement
Metal losses:	8 - 10% overall metal losses

The results indicate doubling of the copper grade for flotation after rejecting about half of the mass with metal losses in the order of approximately 10%.

## Economic Parameters

An HMS circuit of 1 – 2 Mtpa throughput (thus a 0.5 – 1.0 Mtpa discharge to the floatation circuit) has an estimated capital cost range of A\$5 – 8M and can be operated at an estimated cost of between A\$1.00 - \$1.50/tonne of feed to the HMS plant.

## Way Forward

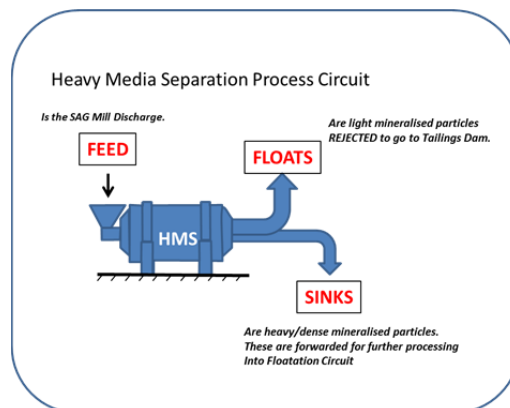
The following steps are underway as a result of these breakthrough test results:

- (1) Further testing will be undertaken to confirm the optimal liberation crush size.
- (2) Current Options Analysis Study to include the HMS process circuit enhancement.
- (3) Previously suspended Scoping Study will be finalised to include the HMS process circuit enhancement.

## Description of a HMS Process/Circuit

Heavy (or dense) media separation, often referred to as the sink-float process, is one of the simplest gravity separation methods used in mineral processing. Figure 2 shows a simplified diagram of the HMS process. The HMS process uses a heavy medium (fluid) with a density set between the dense and light particles in the feed ore. When the feed ore is passed through the heavy medium, the heavier, more mineralised particles (more dense than the medium) will tend to sink thus resulting in the lighter non-economic material to float out of the circuit.

**Figure 2: Simplified process flow diagram of HMS**



The HMS pre-concentration process is common in base metals flotation processing plants and is applicable where there is a significant density contrast between the metal sulphides presented as stringer/stock work mode being recovered and the waste rock.

Some salient points of this process are as follows:

- ❖ The HMS dense medium is a mixture of very fine high grade ferrosilicon and water. This medium used to separate the lighter from the heavier crushed material and is designed to suit the specific ore type being treated.
- ❖ It is a pre-concentration process that upgrades the ore metal concentration to be processed by the flotation plant. This is done by removing a large proportion of the waste rock prior to the more complex floatation circuit.
- ❖ The metal sulphides are significantly softer in comparison to the siliceous waste rock.
- ❖ In addition to separating the waste rock from the ore there is a significant power saving in grinding the upgraded ore going forward to the flotation plant for processing.
- ❖ Overall, it is a low capital and operating cost process to deliver significant benefits.

This process is uniquely suited to the Washihi deposit where there is a sharp distinction between the dense chalcopyrite sulphide mineralisation and the less dense waste rock.

## Options Analysis - Washihi and Daris Copper-Gold Projects

As noted above and announced previously<sup>1</sup> the Company is nearing the completion (February) of its Option Analysis Study in relation to the combined Daris/Washihi deposits. As a result of the successful HMS test work the options that will be evaluated are as follows:

- (1) 1.0 Mtpa conventional floatation processing;
- (2) HMS process followed by 1.0 Mtpa conventional floatation circuit;
- (3) HMS process followed by 0.5 Mtpa conventional floatation circuit;
- (4) Off-site toll treatment of primary ores;
- (5) On-site conventional heap leach; and
- (6) On-site contained/vat leach.

These options have the potential to offer alternative development approaches to the combined Washihi and Daris project areas and, in turn, improve the overall project economics.

## Scoping Study

In the September 2013 Quarterly Report<sup>2</sup>, the Company advised that an update to its prior Scoping Study had commenced in order to incorporate the significant upgrade in the Washihi Mineral Resource announced in July 2013<sup>3</sup> as well as recent positive results from the commissioned metallurgical test-work. As a result of these positive results, the updated Scoping Study will evaluate the original operational throughput of 0.5 Mtpa as well as an increased throughput of 1.0 Mtpa. This updated Scoping Study will now include a HMS circuit based on the successful test work outlined above.

The scope of work for this updated Scoping Study is being finalised with the intention of completing the work by the end of March 2014.

## Alara's Oman Projects

### Washihi (Washihi-Mullaq-Al Ajal) Copper-Gold Project

Alara holds 70% of the shares in the joint venture company, Al Hadeetha Resources LLC (**Al Hadeetha**). Al Hadeetha holds the licences over the Washihi licence area of 39Km<sup>2</sup>, the Mullaq licence area of 41Km<sup>2</sup> and the Al Ajal licence area of 25 Km<sup>2</sup>.

Two exploration licences, Washihi and Mullaq, are located approximately 100Km south-southeast of the Daris Project. One exploration licence, Al Ajal, is located approximately 40Km east of the Daris Project.

The Washihi Project has a JORC Indicated Resource of 6.84Mt at 0.90% Cu and 0.17g/t Au and a JORC Inferred Resource of 7.27Mt at 0.71% Cu and 0.20g/t Au (refer Table 1 below).

### Daris Copper-Gold Project

Alara currently holds 50% (with options to increase to 70%+) of the shares in the joint venture company, Daris Resources LLC (**Daris**). Alara's joint venture partner, Al Tamman Trading Establishment LLC (**ATTE**), holds a mineral excavation licence of ~587 Km<sup>2</sup> and applications for 2 mining licences totalling 4.5Km<sup>2</sup>.

The exploration licence is located approximately 150Km west of Muscat (capital city).

The Daris Project has a JORC Measured and Indicated Resource of 240,024t sulphides at 2.37% Cu and 183,365t oxides at 0.72% Cu (refer Table 2 below).

<sup>1</sup> Refer Alara's ASX market announcement dated 30 January 2014: [Oman Project Update](#)

<sup>2</sup> Refer Alara's ASX market announcement dated 1 November 2013: [September 2013 Quarterly Report](#)

<sup>3</sup> Refer Alara's ASX market announcement dated 16 July 2013: [Upgrade to JORC Resource at Washihi Copper-Gold Project in Oman Providing Strategic Options for the Asset](#)



## **JORC Code Competent Person Statement**

### **Washihi Copper-Gold Project and Daris Copper-Gold Project - Oman**

The geological information in this report pertaining to the Mineral Resources in relation to the Washihi Copper-Gold Project (Oman) and the Daris Copper-Gold Project (Oman) is based on information compiled by Mr Ravindra Sharma, who is a Chartered Professional Member of The Australasian Institute of Mining and Metallurgy and Registered Member of The Society for Mining, Metallurgy and Exploration. Mr Sharma was a principal consultant to Alara Resources Limited. Mr Sharma has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking to qualify as a Competent Person as defined in the JORC Code, 2004 edition. Mr Sharma consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.