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#### **ASX/MEDIA RELEASE**

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# Capital and Operating Cost Estimates Khnaiguiyah Zinc-Copper Project Feasibility Study

# **Highlights**

- Khnaiguiyah 2Mtpa plant, infrastructure and mining capital cost estimate of US\$256M
- Total cash costs of US\$52 per tonne of ore processed expected to be in lowest cost quartile
- Potential for up to 75% project finance reduces expected equity requirement

# **Update**

**Perth:** Alara Resources Limited (ASX: AUQ) (**Alara**) is pleased to provide an update regarding the capital and operating costs estimated as part of the Definitive Feasibility Study (**DFS**) for the Khnaiguiyah Zinc-Copper Project in Saudi Arabia (**Project**).

#### **DFS Status update**

Since receipt of the draft DFS in July 2012, Alara has been vigorously pursuing opportunities to optimise capital and operating costs for the Project.

The majority of this work is now complete and Alara and its consultants are focusing on completing final mine scheduling and refining the associated cashflow financial model.

Whilst this work is still ongoing, Alara can now present its estimates of expected capital and operating costs for the Project.

## **Capital Cost Estimate**

Based upon the work conducted under the DFS to date, the capital cost estimate for the Project has been calculated at US\$256 million, which includes US\$37 million for a mining fleet. Owner's costs, project management and contingencies are expected to add a further US\$42 million to the overall Project costs.

This is based upon a plant design of 2Mtpa and includes construction and commissioning of the 2Mtpa process plant, 24MW power station, mining equipment and fleet, mine village and water bore field.

The capital cost estimate was derived through:

- (a) A tender process conducted for the design and construction of the process plant and key elements of associated infrastructure based upon an EPC model;
- (b) Quotations for mining fleet, accommodation, power generation and water bore field; and
- (c) Estimates based upon historical data from recently completed projects in Saudi Arabia for civil and earthworks and ancillary capital costs.

Alara is considering opportunities to lease rather than own major capital items such as the mining fleet, which could reduce the overall capital costs significantly.

### **Operating Costs Estimate**

The total expected cash operating costs for the Project averaged over the life of mine are US\$52 per tonne of ore, including pre-strip, mining, processing, transport, treatment and refining.

These costs are based upon a 2Mtpa ore throughput and expected average annual production over a ten year life of mine of approximately 75,000 tonnes of zinc metal and 5,800 tonnes of copper metal.

Based upon a report commissioned from CRU Strategies as part of the DFS, these operating costs should (subject to costing adjustments related to final mine scheduling) place the Project within or close to the lowest quartile with regard to costs of zinc mines currently operating in the western world. The main factors that contribute towards the operating costs being relatively low are the availability of cheap fuel (approximately US 9c per litre diesel delivered to mine site) and low labour cost in Saudi Arabia.

## **Project Financing**

Alara has held a number of discussions with potential providers of project finance. In particular, representatives from the Saudi Industrial Development Fund (**SIDF**) have indicated that this organisation may be prepared to advance up to 75% of the total capital required for the Project.

Discussions with potential supplier and off-take partners has also given Alara confidence that additional levels of non-equity financing may also be available from these parties, further reducing the amount of equity which Alara will be required to raise to advance the Project. In addition, Alara is reviewing leasing arrangements for items such as earth moving gear, which represents US\$37 million of the total capital costs.

"The DFS team has worked hard over the last few months to bring the capital cost in line with expectations. The low level operating costs demonstrate that the mine should operate with a competitive advantage compared to other zinc mines around the world. Furthermore, the potential for a relatively high level of project financing from the SIDF together with opportunities for leasing the mining fleet, supplier and off-take finance may reduce considerably the amount of equity which Alara will need to raise to advance this Project". Shanker Madan, Managing Director.

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# Khnaiguiyah Zinc-Copper Project – Definitive Feasibility Study Status

#### **DFS Contributors**

This DFS commissioned by joint venture company Khnaiguiyah Mining Company LLC (**KMC**) is based upon extensive drilling, analysis, QA/QC analysis and review, geological modelling, mineralogical studies, metallurgical test work on core samples, geotechnical drilling and studies and mine planning studies of Mineralised Zones K1, K2 and K3 (refer Figure 8).

Additional studies have been conducted on process water, environmental and social issues, legal approvals, land tenure and marketing.

The external organisations that contributed to the development of the DFS include:

- Ausenco Services Pty Ltd (Ausenco)
- SRK Consulting (Australasia) Pty Ltd (SRK)
- SMEC International Pty Ltd (SMEC)
- CRU International Limited
- Kiandra Engineering
- Megabest Pty Ltd
- George, Orr & Associates
- BDO
- Pinc Group Pty Ltd

#### **DFS Status**

A draft DFS report for a 1.5Mtpa operation was delivered in July 2012. A review of the draft report identified a number of areas where the opportunity for further optimisation was likely to result in significant operating efficiencies together with reductions in capital and operating costs.

Furthermore, Alara decided that the inclusion of additional mineral resources that had subsequently been delineated by KMC but not included in the draft DFS (including Mineralised Zone K1) would also have a positive impact on the overall Project and so should be included as part of the DFS. In particular, the additional resource supports the increase in the plant throughput from 1.5Mtpa to 2Mtpa.

The current DFS therefore includes Mineralised Zones K1, K2 and K3 and is sized for a 2Mtpa operation.

The majority of the DFS is now complete, with mine scheduling being the last major outstanding item to be completed. It is expected that the final DFS report, with full financial analysis and cashflow projections will be completed early in the New Year.

## Khnaiguiyah Zinc-Copper Project - Operational Overview

### **Project Overview**

The Project includes the development and operation of an open-cut zinc-copper mine and associated infrastructure over an approximate ten year mine life. Mining and processing will be undertaken on a campaign basis according to different domains of zinc and copper mineralisation, using conventional haul trucks and hydraulic excavators. The process plant will recover by differential flotation zinc concentrate and copper concentrate from the ore. The main stages in the process plant will be crushing, grinding, copper flotation, zinc flotation, concentrates filtration and tailings filtration and disposal. With a plant design capacity throughput of 2Mtpa of ore, the average concentrate quantities produced per year are expected to be approximately:

Zinc concentrate: 140,000 tonnes; and

Copper concentrate: 24,000 tonnes.

The concentrate will be loaded into half-height lidded containers and trucked ~610kms to Dammam Port, on the east coast of Saudi Arabia, by standard triple-axle trailers. At the port, the concentrate will be loaded into a bulk carrier for export to the smelter(s).

## Mining

The mining operation is proposed as an owner-operator mine operation with a workforce housed in onsite accommodation.

The mining method proposed for the Project is based on conventional truck and excavator (backhoe configuration) practices, utilising hydraulic 170 tonne class excavators with 90 tonne class (payload) off-road trucks for the primary load and haul fleet (refer Figure 1).

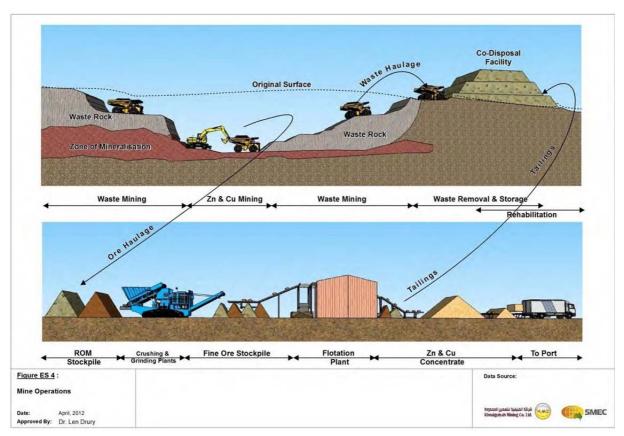


Figure 1: Mining Operations

Material will be drilled and blasted on 5m benches in the ore zones and on 10m benches in bulk waste material when present.

Illustrative pit designs for Mineralised Zones K2 and K3 are shown in Figures 2 to 5 (these may change as the mine scheduling work currently underway is completed).

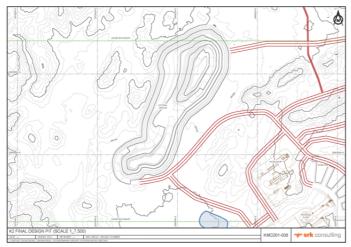
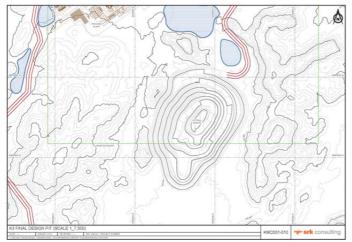


Figure 2: Mineralised Zone K2 Pit design plan

Figure 3: Mineralised Zone K2 Pit design image



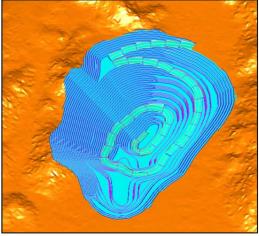


Figure 4: Mineralised Zone K3 Pit design plan

Figure 5: Mineralised Zone K3 Pit design image

Ore will be mined on nominal 2.5m benches (plus blast heave) into 90 tonne rear dump off highway haul trucks. The same sized equipment will be utilised during the pre-strip phase.

The mining method has been designed with access to multiple benches mined across the strike of the mineralised zones in order to provide access to all three ore domains over a number of different levels. Internal road and ramp systems will connect all active benches. Choked blasting techniques fired along the strike of the mineralised zones will be used to minimise dilution, whilst maintaining digging characteristics required for the excavator.

Ore boundaries will be identified by the drill sampling programme in conjunction with face mapping and hauled to the Run-of-Mine (**ROM**) pad or low grade stockpiles located on the north side of the process plant. With the current understanding of the mineralised zones, a conservative approach to blending has been utilised, with all ROM ore being rehandled on the ROM pad.

Waste material not required for construction work will be hauled to the Co-Disposal Facility (**CDF**) located to the north of the process plant, approximately equal distance between Mineralised Zones K2 and K3.

Ore will be transported from the open cut pits to either the ROM pad or low grade stockpile by 90 tonne capacity haul trucks.

Stringent environmental management measures will be incorporated throughout the Life-of-Mine to minimise potentially adverse local and regional impacts, and to ensure that mine development adheres to Saudi Arabian and international adopted standards.

## **Processing**

The main stages in the process plant will be crushing, grinding and copper flotation, zinc flotation, concentrates filtration and tailings filtration and disposal. The design is based on a minimum system availability to ensure maximum plant efficiency and maintainability. The minimum design availability by system is shown in Table 1.

Process	Minimum Design Availability (%)	Minimum Design Availability (Operating hours per year)	
Crushing	85%	7,446	
Grinding and Floatation	91.5%	8,015	
Concentrate Filtration	74.7%	6,544	
Tailings Filtration	85%	7,446	

Table 1: Process Plant. Minimum design availability

The process plant is to be located centrally between Mineralised Zones K2 and K3, immediately south of the ROM pad and east of the heavy mining equipment vehicle workshop. All ore has been costed to be rehandled by a front end loader at the ROM pad to ensure there is adequate capacity to address unrecognised short term quality variability requiring operational blending.

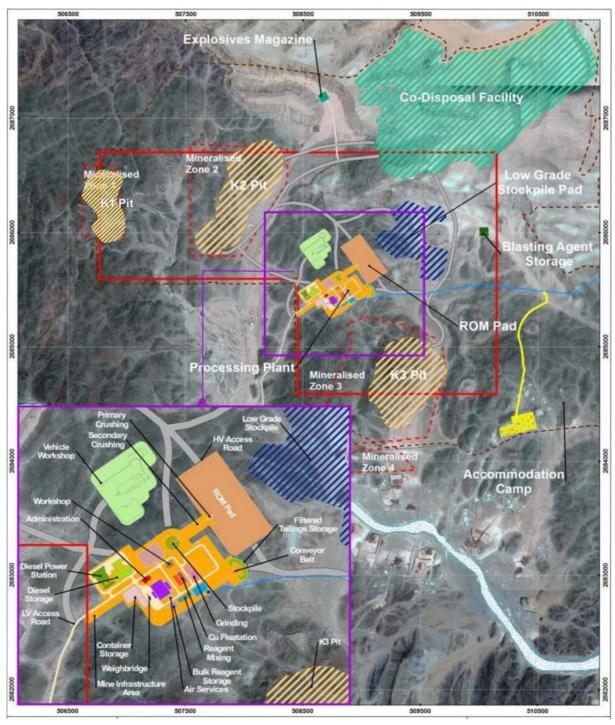


Figure 6: Mine Layout

The primary crusher feed bin has been designed to accept direct tip of the 90 tonne rear dump mine trucks, as it is envisaged that operations will be able to reduce the volume of ROM rehandle once the ore body is better understood during mining operations.

The process plant has been designed to accept 2Mtpa of "fresh rock" zinc-copper ore at grades up to 6.5% zinc and 1% copper.

Conventional comminution and flotation technology is appropriate to process the Khnaiguiyah ore. The comminution circuit consists of a standard SABC circuit. The production of copper and zinc concentrates will be based on differential copper and zinc separation using standard rougher, regrind and cleaner flotation circuits using standard reagents and addition rates.

The minerals are liberated at a relatively coarse primary grind size of 80% passing 106 micron. To enable production of marketable grade products, the zinc rougher concentrates will be reground to 80% passing 38 micron and the copper rougher concentrates reground to 80% passing 18 micron. The flotation tailings will be filtered (to recover most of the process water for reuse) and stockpiled.

The zinc and copper concentrate total moisture level values will be suitable for ship stowage and transportation. The zinc and copper concentrate will be transported by 30 tonne gross capacity trucks from the mine site via Riyadh to Dammam Port on the Persian Gulf, and then by ship to overseas smelters.

Waste rock from the two pits and waste tailings from the ore process plant will be trucked to the CDF. The CDF will be raised to a maximum of 68 metres, similar to the elevation of the surrounding sandstone and limestone capped escarpment.

#### **Power**

Power is to be supplied from a 24MW diesel engine power station to be located as close to the process plant as practicable. The power station consists of 11 x 2.5kW sets, de-rated to 1.8kW allowing for elevation and extreme temperature (plus one future), 9 of which will operate to achieve the calculated 17MW maximum running demand for the process plant and camp facility.

#### Accommodation

The proposed camp is for a construction workforce building up to 850 persons, reducing to an operating workforce of approximately 400.

This Project assumes that as accommodation requirements for the construction crews diminish, areas of the camp will be retrofitted to house permanent staff – these retrofits are not expected to be major and may be supportable with sales of excess accommodation units or reconfiguration of existing units with minimal capital expense.

## **Bore Field**

Mine and accommodation water demand will be sourced from the Saq Sandstone underlying the outside bore field, located approximately 15 km from the process plant. The bore field comprises two production bores, one standby bore, balance tank, booster pumping station and diesel powered genset. Communication between the bore field and Raw Water Tank will be through a buried fibre telemetric systems.

## **Engineering, Procurement and Construction (EPC)**

The contracting strategy is designed around an EPC turnkey model utilising the FIDIC (International Federation of Consulting Engineers) Silver Book General Conditions of Contract. This model defines the responsibility for detail design, procurement, construction, construction management, commissioning and dry and wet commissioning including process commissioning to the awarded contractor.

Alara has sought expressions of interest from international engineering companies that have experience with process design and construction in Saudi Arabia.

To complement and oversee all site activities, KMC will have an 'owners team' onsite providing overall supervision and project management.

There are several advantages of this contracting model such as design risk mitigation and fixed and firm lump sum pricing. The contracting model defines the responsibility for the design, including all performance related guarantees such as design throughputs and system availability, as remaining with the engineer through construction, final process commissioning and name plate performance testing. A further advantage of this model is associated to a fixed and firm commercial arrangement.

## **Project Location**

The Project involves the development of mining and processing operations to exploit the Khnaiguiyah mineral deposits. The Project area is situated approximately 200kms west of Riyadh, the capital of Saudi Arabia, at latitude 24° 16′ 59″N and longitude 45° 04′ 59″E. It is located approximately 30kms north-west of the town of Al Quwayiyah at an altitude of 900m above the mean sea level.



Figure 7: Project Location

#### **Geology and Resources**

The Project is located within the Al Amar volcano sedimentary succession believed to be Hulayfah in age (earlier than 667 Ma) along the Al Amar Suture Zone, a prominent mineralised belt in the eastern part of the Arabian Shield.

Zinc-copper, copper and, in nearby areas, gold and silver mineralisation are all believed to be part of the hydrothermalisation process that accompanied the first structural event during the course of the development of the Khnaiguiyah region.

Zinc and copper mineralisation occurs within silicic volcano-sedimentary rocks with extensive carbonate, silica and locally magnetite, hematite, chlorite and epidote alteration. The rocks were subsequently intruded by sills and dykes of intermediate and basic composition.

Within and surrounding the Khnaiguiyah Mining Lease and within the surrounding Exploration Licence Application areas, the subject of the DFS, four distinct and separate deposits of zinc, zinc copper and copper mineralisation, named Mineralised Zones K1, K2 , K3 and K4 have been identified and drilled intermittently since 1971. These zones are located within 1-2kms from a central area and within 3kms from each other.

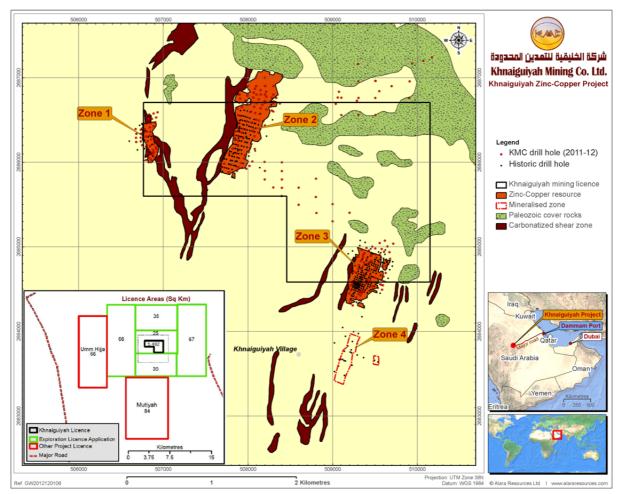


Figure 8: Mining and Exploration leases and identified Mineralise Zones

The current JORC Resource estimates for Mineralised Zones K1, K2, K3 and K4 are shown in Tables 2, 3, and 4 below:

JORC Resource	Domain	Mineralised Zone	Tonnes (Mt)	Zinc %	Copper %	Zn Cut-off (%)
Measured	- 1 and 2	1, 2	9.65	3.37	0.16	1.50
		3	6.37	5.28	0.25	1.50
Indicated		1, 2	3.12	4.45	0.30	1.50
		3	6.18	3.55	0.05	1.50
Measured and Indicated		1, 2 and 3	25.32	4.03	0.17	1.50

Table 2: Khnaiguiyah JORC Measured and Indicated Zinc (Domain 1) and Zinc/Copper (Domain 2) Resource

JORC Resource	Domain	Mineralised Zone	Tonnes (Mt)	Copper %	Cu Cut-off (%)
Measured	- 3	1, 2	4.70	0.72	0.00
		3	1.07	0.63	0.00
Indicated		1, 2	1.59	0.54	0.00
		3	1.16	0.43	0.00
Measured and Indicated		1, 2 and 3	8.53	0.64	0.00

Table 3: Khnaiguiyah JORC Measured and Indicated Copper (Domain 3) Resource

JORC Resource	Domain	Mineralised Zone	Tonnes (Mt)	Zinc %	Copper %	Zn Cut-off (%)
Inferred	1 and 2	4	4.32	2.90	0.03	1.50

Table 4: Khnaiguiyah JORC Inferred Zinc (Domain 1) and Zinc/Copper (Domain 2) Resource

The larger Mineralised Zones K2 and K3 are made up of three distinct mineralisation domains. 'Domain 1' is the highest domain in the sequence and contains zinc mineralisation only. 'Domain 2' is the middle domain and contains zinc and copper mineralisation. 'Domain 3' is the bottom domain in the sequence and is classed as a copper-only mineralised domain (refer Figure 9).

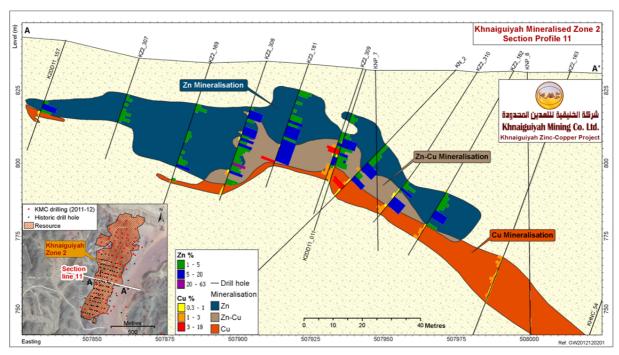


Figure 9: Khnaiguiyah Project Mineralised Domains, Zone 2

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## **About Alara Resources**

Alara Resources Limited (ASX: AUQ) is an Australian-based minerals exploration and development company with a diverse portfolio of projects in Saudi Arabia and Oman.

With a strong pipeline of advanced and early stage projects, Alara is moving towards establishing itself as an emerging base and precious metals development company.

For more information, please visit: www.alararesources.com.

## COMPETENT PERSONS' STATEMENTS

- (1) The information in this announcement that relates to Zinc and Copper Mineral Resources within Mineralised Zones 1, 2 and 4 in relation to the Khnaiguiyah Project (Saudi Arabia) 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 is 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 they are undertaking to qualify as Competent Persons in terms of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2004 edition). Mr Sharma consents to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.
- (2) The information in this announcement that relates to Zinc and Copper Mineral Resources within Mineralised Zone 3 in relation to the Khnaiguiyah Project (Saudi Arabia) is based on information compiled by Mr Daniel Guibal, an employee of SRK Consulting (Australasia) Pty Ltd, who is a Fellow of The Australasian Institute of Mining and Metallurgy. Mr Guibal has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity they are undertaking to qualify as Competent Persons in terms of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2004 edition). Mr Guibal consents to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.
- (3) The information in this announcement that relates to other Exploration Results is based on information compiled by Mr Hem Shanker Madan who is a Member of The Australian Institute of Mining and Metallurgy. Mr Madan is the Managing Director of Alara Resources Limited. Mr Madan 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 2004 Edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves (the JORC Code)." Mr Madan consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.