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# UNITED ARABIAN MINING CO:

## KHNAIGUIYAH MINING CO

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# Saudi Arabia's **rising star**

Khnaiguiyah Mining Company (KMC), a joint venture between United Arabian Mining Company and Alara Resources, is one of the most exciting projects in Saudi Arabia's newly established mining industry. Chief operating officer Sohan Singh Rathore talks to Jane Alverca

Saudi Arabia may be best known for its oil and petrochemical industries, but the Arabian Shield in Saudi Arabia is one of the richest geological territories in the world. It is a vast treasure chest containing gold, silver, copper, zinc, chromium, titanium, nickel and iron ore, often in unequalled concentrations and grades. Moreover, exploitation of these resources has barely begun.

Not until 2004 did the Saudi government give permission for private investors to begin mapping and extracting the country's mineral wealth. In the same year, the United Arabian Mining Company (Manajem) was formed to act as the lead developer of a new mining sector within the country. To date, Manajem has obtained 10 licences which are typically developed through joint ventures with established mining experts.

One of the most exciting prospects in the Manajem portfolio relates to a 30-year mining licence issued by the Ministry of Petroleum and Minerals Resources to explore develop and exploit the most extensive zinc and copper deposits yet discovered in the Arabian Shield—a project known as Al Khnaiguiyah.

This task has been entrusted to Khnaiguiyah Mining Company (KMC). It is a joint venture company registered in Saudi Arabia and held on a 50/50 basis by Alara Resources Limited and Manajem. Alara is a publicly listed company in Australia with global interests and was chosen as a partner for its technical expertise and financial strength.

"We believe this project will yield 1.5 million tonnes per annum of zinc-copper ore when the mine comes into full production," states Sohan Singh Rathore, chief operating officer of KMC. "There are bigger projects than Khnaiguiyah globally, but these are the first combined zinc and copper mines in Saudi Arabia and a landmark project in the emerging mining industry."

Work on the definitive feasibility study is being managed by the Australian firm Ausenco Minerals and Metals—the subsidiary of Ausenco KMC is dealing with. The final DFS results should be ready for release in March 2012. A 5,000 metre, 40 drill hole programme began earlier in Q2 this year to re-validate the historical knowledge already held on the mineral inventory.

A survey completed almost 20 years ago by BRGM, the French Office of Geological and Mining Research, showed in-place minable reserves of 10.23 million tonnes containing 7.46 per cent zinc and 0.80 per cent copper (source: BRGM Geoscientists 1993, Khnaiguiyah Zinc-Copper deposit—prefeasibility study 1, 2 and 3, Saudi Arabian Directorate General of Minerals Resources Technical Report BRGM TR 13-4, 651p, 209 figs, 171 tables, 78 appendices and 23 photo plates). Earlier surveys also showed the presence of gold and silver, but subsequent exploration has proved that these traces are too small to make commercial extraction worthwhile—so the focus is on zinc and copper.

Exploration to the south-east of the major mineralised Zone 3 of the project has already extended the mineralisation beyond historically outlined parameters and has found an exceptionally high thickness of zinc mineralisation starting at a relatively shallow depth of just 45 to 50 metres

### Alegra Safety

Although based in Western Australia, Alegra Safety is a boutique consultancy with a reputation as a leader in specialist safety, emergency, risk and security consulting and management that has spread around the world. This is down to the company's decades of experience in helping various industries, including the mining and resources sector, manage safety, risk, security and emergency concerns, and prepare companies for project risk and compliance measures all over the world.

All of Alegra Safety's consultants are committed to delivering both the best customer service and the best standard. Regardless of the situation or location, advice is on hand to help all companies reach their potential.

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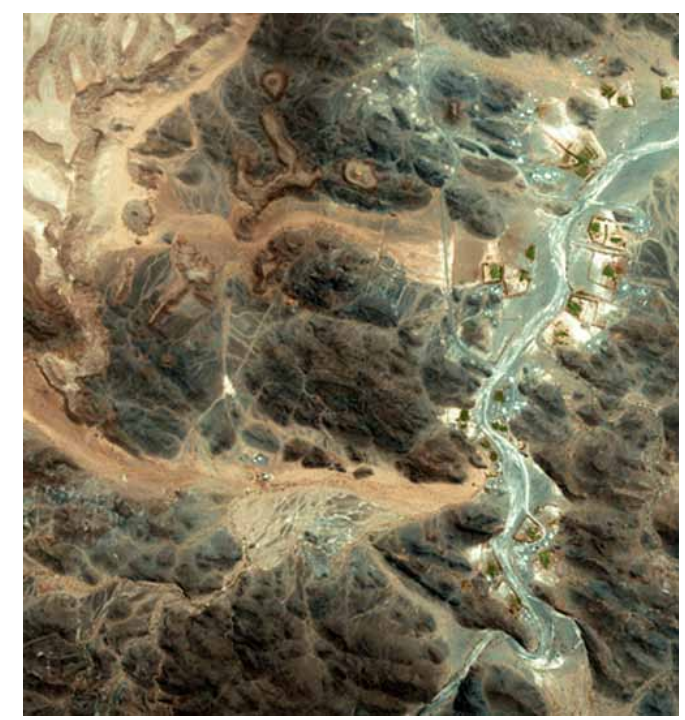


below the surface. Geological mapping of major mineralised Zone 2, which lies approximately one kilometre from the main area has indicated that the mineralisation there extends by at least 600 metres further to the north than was originally known before it disappears beneath recent sediments.

The biggest challenge facing Rathore in completing the definitive feasibility study and then bringing the mine to production is obtaining permits for the use of land and water. "As everyone knows, water is a scarce and highly valued resource in Saudi Arabia, but we are very lucky to have the Saq Sand Stone aquifer within 25 kilometres which will give us sufficient water by digging wells in adjacent land. Getting the permission to draw water is time-consuming, but we do not believe this will ultimately be a barrier," he comments.

Infrastructure is not a problem as the mine is located next to the Riyadh – Makkah main highway. Fuel is extremely cheap, costing just 15 cents per litre, meaning that the cost of transporting the mineral concentrate to rail and shipping points is very low. Beneficiation will take place on site and there are no plans for additional smelting facilities at the moment.

However, the availability of skilled labour is an issue, particularly as Saudi Arabia has no significant mining heritage of the type to draw upon. "The mining operation will require highly skilled manpower and our thinking at the moment is that we will probably outsource this operation. The other area where we will need skilled labour, although to a lesser extent, is in the beneficiation plant," he says, adding that KMC will simultaneously use this initial phase of the mine's life as an opportunity to train indigenous talent with a view to making much wider use of local labour in the long-term.

Funding is unlikely to be an issue and Rathore expects it to be in place by June or July of 2012. "During extraction, we anticipate certain technical challenges, but these are not new to mining and we already have the technical solutions available. It

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will be a traditional open-cast mine. Geologically, the area has suffered intense geological disturbances causing numerous fault and joint planes but also silicification and thus hardening of the host rock. There are zones of weak and friable rock. This means we will be paying special attention to the design of bench slopes and the safety of personnel working in the area."

With the Khnaiguiyah project progressing according to expectations, Rathore will turn his attention to the Marjan Project, another joint venture with Alara. This consists of three other smaller projects spanning an area of 260 square kilometres in the same locality which are currently in the exploratory pipeline. He sees great future potential for economies of scale as these will be able to make use of existing beneficiation facilities at Khnaiguiyah.

"In the longer term, we are delighted to be contributing to the establishment of a new industrial sector which will help to diversify the Saudi Arabian economy. The establishment of a new metals industry will generate new revenues for the government in taxes and royalties and also create many employment opportunities for the people of Saudi Arabia," he concludes. **www.manajem.com** ■

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