



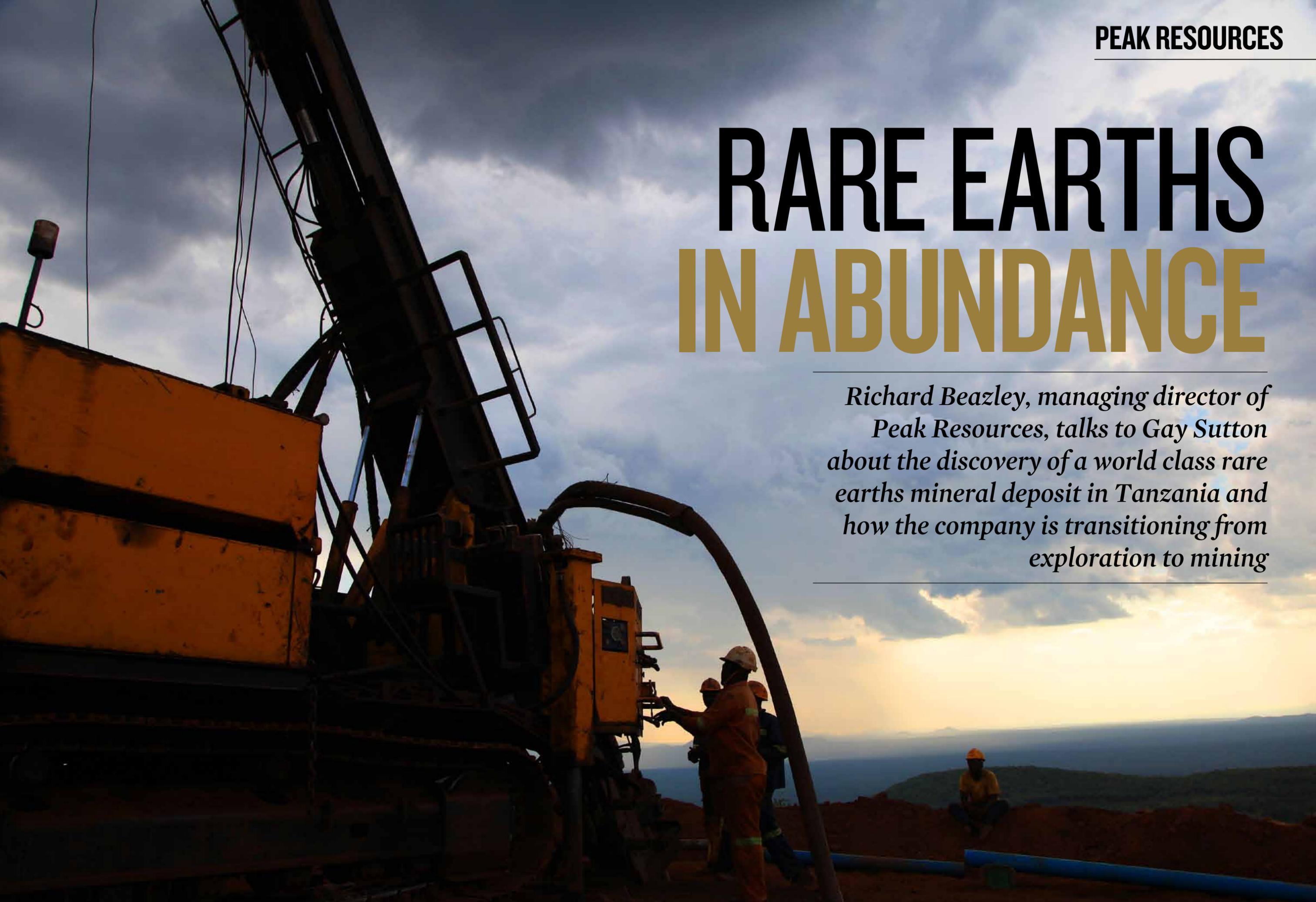
PEAK RESOURCES

RARE EARTHS IN ABUNDANCE



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Richard Beazley, managing director of Peak Resources, talks to Gay Sutton about the discovery of a world class rare earths mineral deposit in Tanzania and how the company is transitioning from exploration to mining



This is the sort of discovery that most geologists go into mining for, and the anticipation is palpable at Australian exploration company Peak Resources. On 29 February, Peak announced its first maiden resource at Ngualla in south-west Tanzania.

“This is the culmination of a lot of hard work in a very short space of time,” says managing director Richard Beazley. “We put our first diamond hole down in June 2010 and completed drilling on 30 November 2011. And within a matter of 18 months we’ve defined a resource of 170 million tonnes of rare earth oxides, at 2.4 per cent. Contained within that is a high grade part of 40 million tonnes at 4.07 per cent. This is very significant.”

These results rank Ngualla as the fourth largest rare earths deposit in the world outside of China, and the high grade zone enhances that value. “Out of the top six largest ore bodies this is the highest grade deposit, so what we have here is a tier one asset in the rare earths market,” Beazley says.

Interestingly, at the time Peak Resources acquired the concession, it was for the phosphate deposits in the area. But preliminary geological reconnaissance revealed rare earth elements, niobium and tantalum mineralisation which has set the company on a completely new course. Now, after some \$7.5 million of exploration, including 26,700 metres of drilling, Peak Resources is poised to make the transition from exploration to mining.

The Ngualla ore body lies within a



Handling drill steel
on the rig at Ngualla



roughly circular volcanic pipe of carbonatite approximately 3.8 kilometres in diameter. Drilling has shown that the main target area known as the southern rare earth zone (SREZ) extends up to 150 metres below surface before transitioning into fresh rock. “The weathered zone shows a natural increase in rare earth concentration as considerable gangue minerals have been leached out by the weathering process.” A second zone, called the south-west alluvial zone, was formed by the erosion of the SREZ with the subsequent accumulation of the eroded materials downstream. “This zone is up to 30 metres deep with a slight drop off in rare earth grades.”

The next step is to begin scoping studies to examine a whole range of mining, economic, environmental, logistics and supply issues. “That will take us around 12 months. Then knowing the ore body and its advantage, we will definitely go forward to the prefeasibility study, feasibility study and then construction. Our vision is to have the mine operating by late 2015 or early 2016 based on what the metallurgy has shown to date.”

The metallurgical testing on the ore samples shipped to Perth are to establish the best extraction methods. “We have

been able to extract up to 88 per cent of the minerals in the weathered SREZ by direct acid leaching, without any optimisation or pre-processing,” says Beazley. “Most rare earths mines have to incorporate several processes before the leaching, and our results are indicating that there is the potential to direct leach at this stage, which will make our capital costs

much lower and enable us to move faster to market.”

The aim is to begin small, producing around 10,000 tonnes of concentrate per annum. With the higher grade zone initially mined from outcrops on a hill, there will be virtually no waste material. And this output level can be achieved by mining just 0.5 million tonnes of ore a year.

The discovery has a significant number of advantages. Located approximately 147 kilometres north of the town of Mbeya, a road and rail hub on the route between Dar

Wet season is coming

**\$7.5
MILLION**

Amount spent on exploring Ngualla to date

es Salaam in the east and the border with Zambia in the west, Ngualla has easy access to the capital’s deepwater international shipping port in one direction and Zambia’s Copperbelt mining region in the other.

This access to the Copperbelt could have great significance once the mine goes into operation. Sulphuric acid, the key chemical in the leaching process, is a primary by-product of the mining in the Copperbelt region. “And they have to find ways of disposing of it,” Beazley explains. “We will obviously have to evaluate all the

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Richard Beazley, managing director of Peak Resources



Drilling against Ngualla backdrop



Ngualla core from the weathered zone of the carbonatite

“OUR RESULTS ARE INDICATING THAT THERE IS THE POTENTIAL TO DIRECT LEACH AT THIS STAGE, WHICH WILL MAKE OUR CAPITAL COSTS MUCH LOWER”

options, but one possibility is to transport the Copperbelt acid to Ngualla via the rail link. That would be good for Zambia, good for Tanzania and good for us.”

The ore body is also unusual in containing extremely low levels of uranium and thorium. “These are both typically associated with rare earth mineralogy, but we have found just 21 ppm [parts per million] of uranium and thorium levels at 35 ppm which makes them

the lowest grades of uranium and thorium contained within a rare earths deposit in the world,” Beazley says. This positively impacts on the bottom line with lower capital and operating costs and considerably reduces the timeline associated with not having to manage radioactive levels requiring government approvals.

Exploration results, however, indicate that the mineralogy of the ore body changes in

characteristic once it enters the fresh rock, some 150 metres below the surface. At that stage the ore is likely to require different extraction processes. “But that’s not going to be a major consideration today as it will be many decades before we get down that far.”

Exploration at Ngualla has so far been funded through the Australian and North American markets. “And we’re currently expanding our capital markets, exploring opportunities in the UK, with the possibility of moving into Europe with London as our base,” Beazley says. “Our intention is to raise funding to take us through into prefeasibility. At that point we will have a good understanding of what we need to go through to construction.”

Having begun by searching for phosphate,

and discovering a world class resource of rare earths, Peak Resources has achieved what many exploration companies merely dream of. “Many Australian companies come to Africa exploring for gold,” he says. “We felt we needed to do something different.” And different it certainly has been. Of course, discussing the long term plans for Ngualla makes the mine development process sound easy, and that’s not often the case. “But I’m the eternal optimist and with a resource of this size and grade I believe there’s always a way,” Beazley concludes. **BE**

For more information about Peak Resources visit: www.peakresources.com.au



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