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Alkane Exploration Ltd (ASX code – ALK) has received an offer of a \$3.29 million Commercial Ready Grant from AusIndustry to advance the Dubbo Zirconia Project (DZP). Can you explain how Alkane qualified for the grant?

Technical Director Ian Chalmers

AusIndustry provides grants and other incentives of around \$200 million a year to small and large businesses to support business innovation. Our grant recognises the innovative nature and commercial potential of the DZP and is one of the largest recently awarded. It's a fairly long process and we've been working on our submission, which includes quite a detailed program and budget, from the middle of last year. Our Environmental Manager Mike Sutherland attended a presentation by an AusIndustry executive in Dubbo and the AusIndustry executive convinced us that we should apply for a grant when he heard about our project. Mike did most of the work putting it together and was very persistent and thorough with our application.

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What direct financial commitment does Alkane have to make to qualify? To what extent will the funds advance the project?

Technical Director Ian Chalmers

The grants are awarded on a dollar-for-dollar basis. We submitted a budget of about \$6.5 million, primarily to build and operate the demonstration pilot plant and that will advance the project over the next 2.5 years. The monies are paid on a quarterly basis against the pre-determined budget, so we don't have to have our share of the full amount in the account at the commencement.

AusIndustry requires a fairly detailed reporting program over the period of the grant.

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Can you explain the DZP in terms of the size and quality of the resource in an industry context, including resource category, tonnes, grades and impurities?

Technical Director Ian Chalmers

The orebody lies within a vertical alkaline volcanic intrusive with surface dimensions of 900 metres by 550 metres. The bulk of the resource drilling was done in 2001. We decided to drill the top 100 metres to get our JORC Resource although the ore body is still wide open at depth. The total Resource is 73.2 million and split roughly evenly between Measured and Inferred. The Measured Resource is down to 55 metres. The grades are good and it's predominantly a zirconium deposit with by-product credits like niobium, tantalum, yttrium and uranium. The uranium is a fairly low concentration so it's not regarded as a radioactive ore which is obviously a positive for us in terms of development in the short term.

The resource does not have contaminants to a level that you'd worry about. Importantly, the valuable minerals are soluble in sulphuric acid while most of the contaminants are not. So we'll end up with quite a clean and valuable metal solution at the first stage of the flow sheet. This straight forward extraction process has always been the key to the project.

I've studied these types of deposits for more than 20 years and there are probably another 10 or so around the world of roughly the same characteristics as the DZP. However, it really doesn't matter how big they are because the project economics are a function of the metal recoveries. With these types of deposits, there are very few cases where the valuable minerals can be recovered easily in economic quantities because the minerals are usually very fine grained and are just not recoverable through normal beneficiation. To the best of our knowledge our project is the only one that has a workable process flow sheet and therefore the DZP stands out as the most likely economic project of this type anywhere in the world.

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What scope of project is possible in terms of capital expenditure and production?

Technical Director Ian Chalmers

We completed a feasibility study in 2002 which modelled production of about 200,000 tonnes of ore per annum. At that rate the open pit has a life in excess of 400 years. The output was equal to about 7% of world zirconia demand at that time and we thought that was an amount that we could market successfully. The size of the resource will allow us to easily scale up well beyond that rate of production. That base case model came out with capital expenditure of about \$100 million.

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What saleable products do you expect to produce in order of value? What are your options to generate revenue from the uranium in the ore?

Technical Director Ian Chalmers

The base case has three main metal outputs; a range of zirconium products, a niobium-tantalum concentrate and yttrium-rare earth concentrate. About 50% of the revenue will come from zirconium products, 40-45% from niobium and 5-10% from yttrium-rare earth concentrate. Zirconium is produced in several forms including sulphate, carbonate, hydroxide and zirconia which is the oxide. We're still evaluating whether we can separate zirconium and hafnium metals. Zirconium and hafnium go hand in hand in nature, so when we talk about zirconium products, we mean zirconium and hafnium together. If we can separate those as metals it opens up a new market as they have a big use in the nuclear power industry. Niobium is primarily used in special steels but it also has developing applications in specialty glasses and alloys.

In the flow sheet we have to extract the uranium out of the zirconium stream otherwise it would contaminate the end products. Unfortunately uranium is currently a prohibited metal in NSW so we can't produce a uranium product. However, we believe it's better for us to sell the product rather than disposing of it in the waste. Selling the uranium by-product doesn't drive the project economics but it could add valuable additional revenue.

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How easily do you expect to sell the products? What are the markets for each? What is the connection with zircon where spot prices have increased dramatically over recent years?

Technical Director Ian Chalmers

It's never easy to be a new producer in these kinds of commodities. You have to establish a strong relationship with your customers and make sure that the product specifications suit their requirements. Zirconium products have many applications ranging from the simple uses such as paint dryers to antiperspirants. Zirconia has replaced lead as the drying agent in paints and that's why paint is now more environmentally friendly. Some of the more sophisticated applications are in ceramics, electronics and as catalysts in automobile exhaust systems. A future application could be in solid oxide fuel cells where there could be a big market developing.

Virtually all zirconium products in the industry are made in processing plants using zircon as the feed stock, which itself is generally a by-product of ilmenite mining. An important difference is that we will produce the zirconium products directly at the mine site, so we're not reliant on the zircon industry. The strong zircon price should obviously have a flow-on affect on the prices for our zirconium products.

As mentioned earlier, niobium has major use in the steel industry but we will be targeting the specialty alloy producers who make things like turbine blades for jet aircraft and power stations. Yttrium-rare earths also have diverse uses but our product would be sold for its yttrium content and head towards phosphors for TV and computer screens, and also stabilised zirconias for use in electronics and solid oxide fuel cells.

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With so many by-products is it fair to assume that the operating costs will be low?

Technical Director Ian Chalmers

The total cost per tonne of ore mined won't really be low because any chemical processing is fairly expensive. However, in terms of the unit cost per product our project should certainly be able to compete very well with most other zirconium and niobium products.

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What progress have you made in testing the proposed flow sheet?

Technical Director Ian Chalmers

Over a three or four year period up to the end of 2002 we did a significant laboratory-scale process development program. That culminated in what we called a mini pilot plant and we were able to produce a few tens of kilograms of products. These were evaluated by various potential customers around the world and while the feedback was generally very positive, virtually every consumer asked for a larger sample. That meant we had to take the project to the next stage which is a demonstration pilot plant. The objectives of the pilot plant will be to prove the flow sheet on a much bigger scale and also enable us to take much larger samples to consumers for testing.

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How complex is the process for extracting each product? Is your process flow sheet used elsewhere?

Technical Director Ian Chalmers

The flow sheet is not complex, but it involves a critical step when we leach the valuable minerals from the host rock using sulphuric acid. We have to make sure that we limit the contaminants dissolving into solution. We've done that in the mini pilot plant very effectively and the technology from that point on is pretty straight forward and quite well known. We will separate a zirconium products stream, then a niobium stream and then a yttrium-rare earth stream.

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Alkane has considered several corporate options designed at maximizing the value of the DZP. What is your latest thinking?

Technical Director Ian Chalmers

We're still considering the option of moving our subsidiary holding the project, Australian Zirconia Ltd (AZL), into a separate listed entity. However, the grant from AusIndustry changes that somewhat because it takes the pressure off having to raise significant funding to get the demonstration plant running. The Board is still reviewing the various alternatives and we don't yet have a final plan, other than to commence the feasibility program again as soon as practical after losing the last three years.

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How well understood is the DZP amongst share market investors?

Technical Director Ian Chalmers

Quite bluntly, I don't think it's understood at all. We think we're sitting on a very valuable project, but zero value is placed on it by most Australian investors. I think people sometimes equate it with new technology and very

expensive projects like nickel laterite. We very quickly get categorised under the same heading. All we can say to support the project is that it is a world class resource, we have a process that works and as the zircon price increases the strategic significance of the project continues to grow. We've always been very cautious in advancing it so that we don't get over committed. Sometimes we're criticised for being too slow, but we're not going to make a potential \$100 million investment decision without a very thorough evaluation.

We generally get a better reception when we talk to investors in Europe and the UK than we do in Australia. European investors understand the markets for our products and the process we're going to use. On the whole they think it's pretty exciting.

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What other listed companies around the world produce similar products? How big are these companies? How would the DZP compare?

Technical Director Ian Chalmers

That's an interesting question because it's very hard to make a direct comparison because no other company processes these products directly from ore in the ground. However, there are listed companies that use zircon to process into the downstream products and perhaps the best known is an ASX-listed company called Astron which has all of its operations in China and sources zircon internationally as a feedstock. Its market capitalisation has risen from about \$10 million to something in excess of \$200 million over a relatively short period. That illustrates that investors will value these sorts of commodities when you get into production.

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What synergies could you capture between the DZP and other Alkane projects in NSW?

Technical Director Ian Chalmers

Over the last four or five years our focus has very much been on central western NSW. Our only major asset outside that region is the Nullagine Iron Ore Project in WA. In NSW, as well as the DZP, we have the Wyoming gold project, Galwadjere copper project and the exploration joint venture with Newmont. These are all within 150km of each other. We're optimistic that at least one of these projects will get the go ahead this year and we can build on that. If that's the case we'll appoint some senior personnel into either Dubbo or Orange and they could manage all our projects in NSW.

One big advantage of operating in that region is that there are many people from NSW currently working in WA on fly-in fly-out operations and we've received a lot of enquiries from people wanting to return to NSW. Working and living around Orange and Dubbo would be attractive and you can maintain a relatively normal lifestyle living in your own home.

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What are the immediate objectives at Alkane's other mining projects? What's the timing?

Technical Director Ian Chalmers

Our number one priority is to get the pre-feasibility completed at Wyoming. We expect to have that done by the end of April and at current gold prices the project really should be viable. It's really now a function of coming up with the optimum development model and determining the scale of the open pit and underground operations. Again, people probably criticise us for being slow, but we're just trying to optimise the project to get the best return possible for the investment.

Copper prices were around A\$1.78/lb when we did the scoping study on Galwadgere in May last year and we calculated that the project would generate operating cash flow of around \$15 million over three years. That's without the capital costs. The copper price today is about A\$3.50/lb and obviously these prices make the project look pretty interesting. We'd love to do another drilling program and expand that resource, but it has a lesser priority than some of our other projects like Wyoming.

Newmont did four reconnaissance diamond core drill holes late last year at our joint venture near Orange. We were very encouraged by those results even though we didn't get anything spectacular. The 2006 program should start in less than a month. Newmont will initially do a couple of deep diamond drill holes to test some ideas and hopefully that will evolve into a more extensive drill program.

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Can you outline the timetable to the start-up of the Dubbo Zirconia Project?

Technical Director Ian Chalmers

The current schedule is to get the process optimisation work underway by about July. That laboratory work should take about six months and at the end of the year we should have completed the design and costing for the demonstration plant. We'd hope to have the demonstration plant built before the end of the first quarter 2007 and then run it for a minimum of six months, possibly extending out to twelve months depending upon market assessments of the products. That takes us through to about mid 2008 at which point we'd hope to make an investment decision on the project.

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Thank you Ian.

For further information on Alkane please call Ian Chalmers on (08) 9328 9411 or email ichalmers@alkane.com.au

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