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Technology



# Dubbo Project (DP) Community Newsletter

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## ASM invests in new downstream metal processing technology

Alkane has announced a significant investment towards a new processing technology for converting metal oxides produced by the Dubbo Project into high-purity metals.

Several of the Dubbo Project elements – including hafnium and the high-value rare earth magnet metals neodymium and praseodymium – are highly marketable in metallic form. Alkane’s wholly owned subsidiary, Australian Strategic Materials (ASM), has been exploring potential downstream metal conversion technologies for the past several years.

ASM has now entered into a binding agreement with Zirconium Technology Corporation (Ziron Tech), a South Korean company, to fund the final stages of research and feasibility of a new metallisation technology developed by scientists at Chungnam National University (CNU) in Daejeon, South Korea.

The innovative technology promises to replace highly energy-intensive conventional processes, in wide use since the 1940s, with a more environmentally sustainable and cost-effective alternative. Central to the technology are solid oxide membranes made from yttria stabilised zirconia, which replace the carbon electrodes used in conventional electrolysis and result in the production of oxygen as a by-product. When commercialised, the technology is expected to reduce metallisation costs by more than 50%.

Under the agreement, ASM has invested US\$1.2M towards a pilot plant located at CNU and will supply Dubbo Project metallic oxide samples for processing. ASM will have exclusive global rights to commercialise the technology under licence. Commercial plants based on this technology would enable ASM to market high-purity rare earth metals, nuclear and industrial-grade zirconium metal, and high-purity hafnium metal to global customers.

This investment represents the final significant outlay expected by ASM prior to project financing being achieved. The Dubbo Project remains construction ready, with material offtake discussions underway.



*Alkane Chairman Ian Gandel signs the agreement with South Korea's Ziron Tech.*

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### Drought management strategies on the farm

Alkane’s wholly owned subsidiary, Toongi Pastoral Company (TPC), continues to work on strategies to combat the challenging drought conditions. This includes heavily destocking over the past few months, retaining only core cattle breeding stock by mid-July, some 30% of carrying capacity.

To assist with management of pasture resources and livestock inventory, TPC uses Maia Grazing software, which is designed to help farmers make informed decisions to maximise pastures and profits in the good times and reduce risks when the conditions are tough.

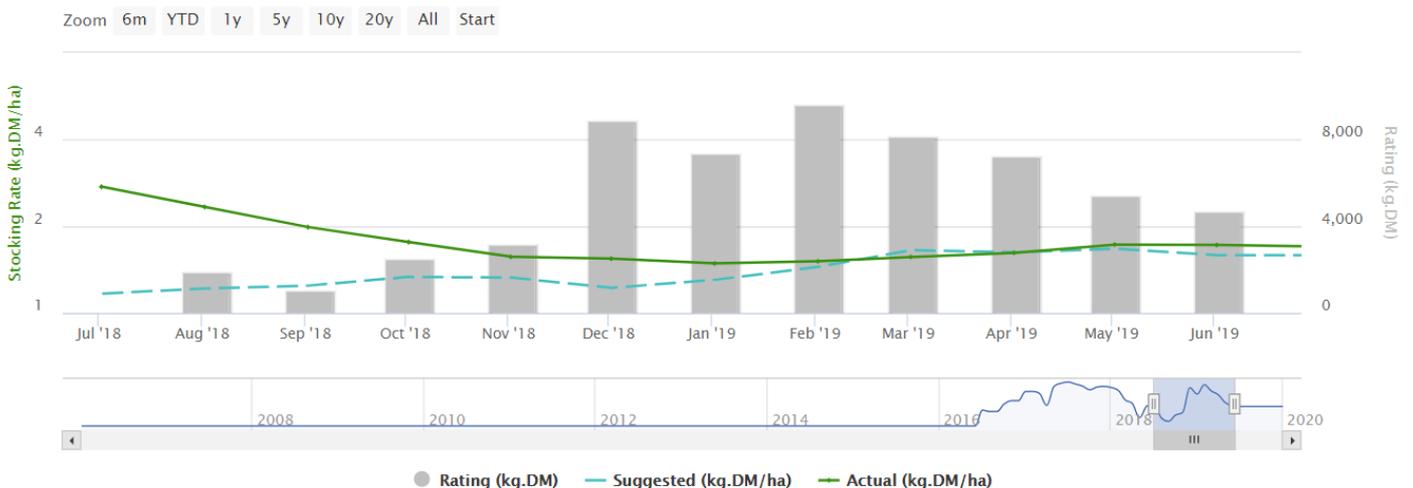
At present, TPC has established approximately 400 hectares of winter grazing crops for the cattle – a mix of wheat, barley and oats. Now, like all the farms in the region, we are crossing our fingers for rain.

Limiting grazing has been achieved to date, but unless rain comes very soon there will be little chance of significant late-winter grazing in 2019.



Farming contractor Scott Carney sowing wheat in Village Paddock

### Actual vs Suggested Stocking Rate (Annualised)



TPC uses Maia Grazing software to assist with management of pasture resources and livestock inventory.

## Innovation in pest control

TPC has been exploring innovative methods of culling vermin such as feral cats, wild pigs and foxes. The pest reduction program will be designed to target each species with the best available technology and equipment that will result in minimal collateral damage.

Feral cats have directly contributed to extinctions of more than 20 Australian mammals, such as the rusty numbat, the desert bandicoot, the broad-faced potoroo and the crescent nailtail wallaby (source: Australian Department of the Environment and Energy).

As a result, we are keeping an eye on trials of the Felixer Grooming Trap for the control of feral cats and foxes. This technology uses sensors to distinguish target cats and foxes from nontarget wildlife and humans, and spray targets with a measured dose of toxic gel. The cats' natural self-grooming instincts then cause the toxin to be ingested.

TPC has also been working with Local Land Services on trapping programs for control of feral cats and wild pigs. A total of 35 feral pigs have been eradicated since the beginning of May 2019.



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## Alkane's golden activities



Exploration drilling at the Peak Hill Gold Mine in January. (Photo courtesy Mitchell Services)

About 60km southwest of Dubbo, Alkane is undertaking major exploration activities in the gold corridor between Tomingley and Peak Hill. This is part of a project to identify potential additional resources for processing at Alkane's wholly owned gold processing facility, Tomingley Gold Operations (TGO).

Drilling results from a newly defined Exploration Target comprising three prospects are very encouraging, and flag a possible return to open pit mining, as TGO transitioned to an underground mine earlier this year. Resource drilling is now underway. At the same time, Alkane is also in the early stages of exploring the potential of a restarted mining operation that uses modern recovery techniques at Peak Hill Gold Mine.

It's hoped all of these exploration activities will lead to an extension of the TGO processing plant, where underground development continues on time and on budget.

## Contacting Us

Subscribe to our Community Newsletters and find out more information about Alkane Resources and the Dubbo Project on our website:

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