



Resourcing tomorrow's technology



Company Overview

Alkane Resources Ltd is an ASX and OTCQX (US) listed multi-commodity mining and exploration company with a focus on gold, copper, zirconium, hafnium, niobium and rare earths. All the Company's projects and operations are located in the Central West of New South Wales, in eastern Australia.

Alkane's wholly owned subsidiary, Tomingley Gold Operations (TGO), is a medium-sized gold operation near Dubbo that commenced production in February 2014. Alkane is also developing the Dubbo Project, based on a large in-ground resource of zirconium, hafnium, niobium and rare earths, with operations scheduled for 2018. This will position Alkane as a strategic and significant world producer of zirconium products, hafnium and the full suite of rare earths. Several other copper-gold exploration projects in the region are also being evaluated.

At a Glance

INDUSTRY: Mining
SECTOR: Materials, gold, zirconium, hafnium, niobium, rare earths

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Company Highlights

- ▶ Alkane listed on the (ASX:ALK) in 1969 and USA (OTCQX:ANLKY) in 2010
- ▶ Operated Peak Hill Gold Mine (NSW) 1996 – 2005 producing 150,000oz gold
- ▶ February 2014, Tomingley produced first gold on time on budget
- ▶ FY 16 - Revenue A\$109.6M, TGO EBITDA A\$24.6M Profit A\$6.7M
- ▶ For the Dubbo Project Alkane has agreements in place with
 - Vietnam Rare Earth JSC to toll treat, produce and market the full suite of rare earth metals into Europe and North America
 - Siemens to purchase rare earths and rare metals
 - Triebacher industry AG to produce and market all the niobium output
 - Minchem to market and sell zirconium products – with >six LOI in place

Project Highlights

Tomingley Gold Operations

- ▶ At start-up: 830,000 oz gold resource, A\$116M capex, 7.5 year mine life
- ▶ Construction commenced Q1 2013, production began in Q1 2014
- ▶ Exploration drilling continues to expand the resource potential
- ▶ 200,000 oz production to March 2017

Dubbo Project

- ▶ Long term project of global strategic significance
- ▶ Base case 20 year mine life and 1Mtpa production, NPV of A\$1.2 billion
- ▶ 70+ year mine life. Containing 25% high value rare earths (REE) Pr, Nd
- ▶ Product development and off-take agreements advanced with partners
- ▶ Construction ready - All approvals for development are in place

Sector Highlights

- ▶ China produces 85% of world downstream zirconium chemicals
- ▶ China currently produces 95% of world rare earth element (REE) output
- ▶ China is consuming internally more of its raw rare earths material
- ▶ Brazil produces 85% of world niobium
- ▶ Hafnium supply constrained worldwide due to current processing methods

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ASX : ALK
OTCQX : ANLKY

Tomingley Gold Operations (TGO)

Located 50 km southwest of Dubbo, Tomingley currently has 579,000 ounces in gold resources and 253,000 ounces in reserves. Total capital expenditure was A\$116 million. Projected mine life target is 10+ years, with annual production of 50,000-60,000 ounces gold giving annual cash flow of approximately A\$20-25 million at current gold prices.

Following an extensive environmental assessment, Alkane received development approval in July 2012 and a mining lease in February 2013, enabling operations to commence in January 2014 with first gold poured in February 2014. Construction was delivered on time and within budget. The TGO project employs 180 people in mining operations.



Tomingley Gold Project Mineral Resources (as at 30 June 2016)

| DEPOSIT | MEASURED | | INDICATED | | INFERRED | | TOTAL | | TOTAL GOLD (Koz) |
|--------------|--------------|----------------|--------------|----------------|--------------|----------------|---------------|----------------|------------------|
| | Tonnage (Kt) | Grade (g/t Au) | Tonnage (Kt) | Grade (g/t Au) | Tonnage (Kt) | Grade (g/t Au) | Tonnage (Kt) | Grade (g/t Au) | |
| TOTAL | 2,849 | 1.8 | 3,714 | 1.9 | 3,060 | 1.7 | 10,324 | 1.8 | 579 |

Details in ASX Announcement 22 September 2016

Dubbo Project (DP)

The Dubbo Project (DP) is based on a large in-ground resource of zirconium, hafnium, niobium, yttrium and rare earth elements. This makes it a potential strategic and alternative supply on the global market of critical minerals for a range of “high tech” and sustainable technologies.

Located at Toongi, 25 kilometres south of Dubbo in Central West NSW, the DP is being developed by Australian Strategic Materials Ltd (ASM), a wholly owned subsidiary of Alkane Resources. Due to the size of the resource, the mine is expected to process 1 million tonnes of ore throughput per year over a period of 70 years or more.

At the commencement of production in 2019 the DP is estimated to meet 8% of world demand for zirconium products, 3% niobium demand, 2% light REE and 8% heavy REE and a significant world supplier of hafnium. Strategic agreements for off-take, production, marketing and sales, and all environmental approvals are in place.



Dubbo Project – Mineral Resources Defined resources to 100 metre vertical depth are:

| Toongi Deposit | Tonnage (Mt) | ZrO ₂ (%) | HfO ₂ (%) | Nb ₂ O ₅ (%) | Ta ₂ O ₅ (%) | Y ₂ O ₃ (%) | REO (%) |
|----------------|--------------|----------------------|----------------------|------------------------------------|------------------------------------|-----------------------------------|-------------|
| Measured | 35.70 | 1.96 | 0.04 | 0.46 | 0.03 | 0.14 | 0.75 |
| Inferred | 37.50 | 1.96 | 0.04 | 0.46 | 0.03 | 0.14 | 0.75 |
| Total | 73.20 | 1.96 | 0.04 | 0.46 | 0.03 | 0.14 | 0.75 |

Details in ASX Announcements 16 November 2011, 11 April 2013, 30 October 2013, 27 August 2015