

# Goldletter INTERNATIONAL

the international independent information and advice bulletin for gold and related investments

Special Situation – October 2010 Update

www.alkane.com.au



## Alkane Resources Ltd. (A\$ 0.97)

ASX	: ALK
H+L prices (12 months)	: A\$ 1.19 – 0.23
Net shares issued	: 249.0 million shares
Fully diluted	: 249.0 million shares
Market Capitalization	: A\$ 241.6 million

**Next price target: A\$ 1.50**

### Company profile

Alkane Resources (“Alkane”) is a multi commodity explorer and miner, focused on the Central West of New South Wales, Australia, about 400 kilometres northwest of Sydney

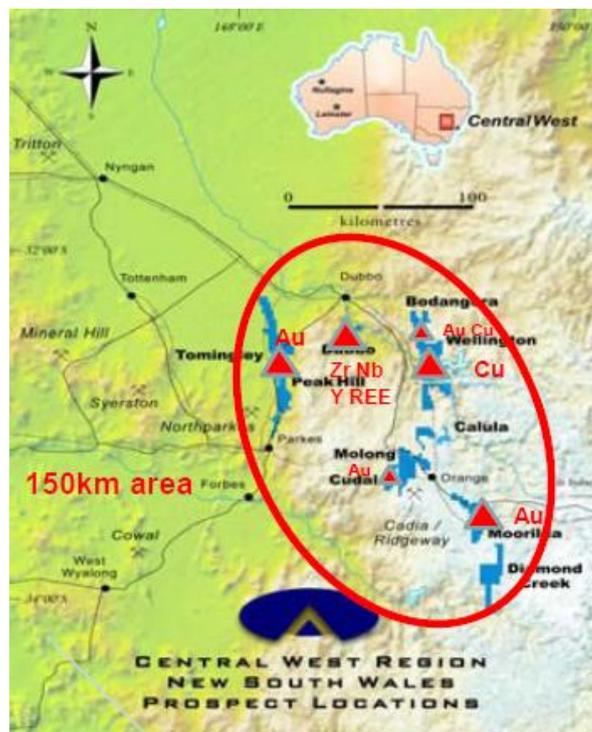
Over several years, including experience in developing the Peak Hill Gold Mine, Alkane has built a substantial resource base and is proceeding towards several developments.

The Company’s **Tomingley Gold Project (TPG)** currently has an 840,000 ounce gold resource within the Wyoming and Caloma deposits.

The Project is centred on three gold deposits, Wyoming One, Wyoming Three and Caloma, located 14 kilometres north of the Company’s Peak Hill Gold Mine.

A Feasibility Study for the development of the Project with potential 50,000 to 60,000 ounce gold production is anticipated to be completed by late 2010.

Near Orange, Alkane has a joint venture (ODEJV) with Newmont Australia, which resulted in the discovery in 2006 of a potentially significant gold deposit at McPhillamys within the Moorilda Project.

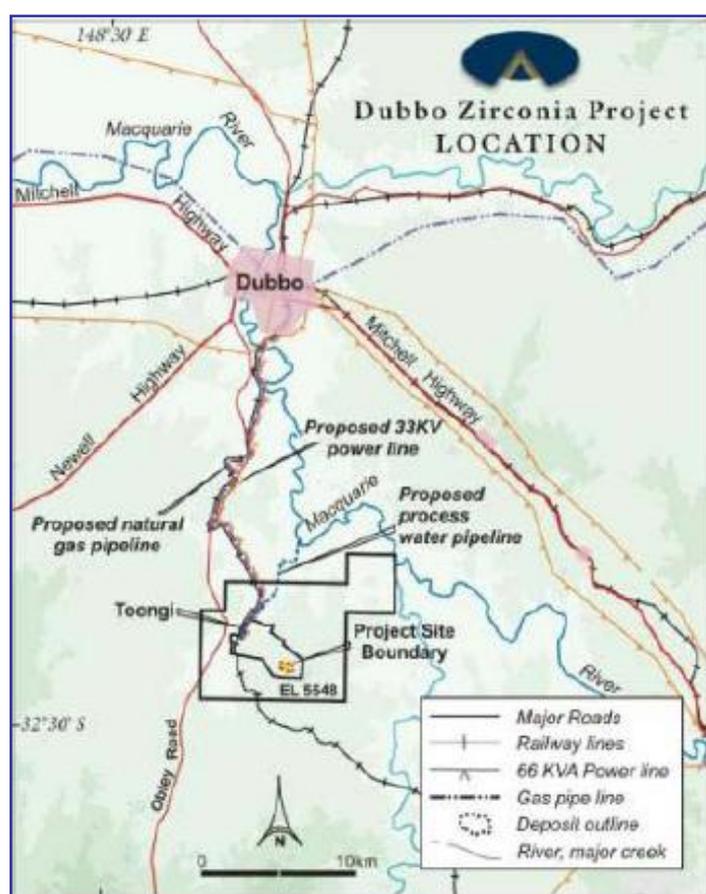


In July 2010, an initial resource of Indicated plus Inferred resources containing 2.96 million ounces of gold and 60,000 tonnes of copper has been defined for McPhillamys. Newmont is proceeding to complete a Bankable Feasibility Study for the development of the Deposit.

Elsewhere within the region Alkane has defined a 2 million tonne 1.00% copper Indicated resource which is being reviewed for its development potential at Galwadgere within the **Wellington Project**, and several other advanced exploration projects with encouraging drill intercepts. New exploration targets have been identified at several other locations.

In **Western Australia**, Alkane holds a diluting 23% residual interest in a nickel sulphide joint venture with Xstrata Nickel (Jubilee) near Leinster.

Alkane's **Dubbo Zirconia Project (DZP)**, developments located 30 kilometres south of the large regional centre of Dubbo is one of the world's most advanced zirconium, niobium, yttrium and rare earth productions and is based upon a world class reserve.



A Demonstration Pilot Plant (DPP) has been operating at the laboratory facilities of ANSTO Minerals at Lucas Heights south of Sydney since May 2008 and to date has recovered 1,300 kg of zirconium chemicals and nearly 300 kg of niobium concentrate.

The DPP is currently operating for short periods to trial engineering and process innovations and check specific aspect of the flow sheet for production development.

Laboratory scale testing processed to recover **yttrium** and **heavy rare earths (HREE = gadolinium, terbium, dysprosium and erbium)** has been operating within the DPP and about 20 kilograms of filter cake recovered to date.

This filter cake has to be further processed to produce a marketable YHREE product and the program to achieve this has commenced

The yttrium and rare earth distribution in the DPZ ore deposit is unusual, having about 25% in the "heavy" category, which is very different to the standard distribution of about 95% light and 5% heavy.

Alkane's light earth program has taken second priority to the yttrium-heavy rare earth recovery and zirconium-zirconia development, but now has increased in importance and it is anticipated that the LREE circuit will be added to the DPP in the December quarter of this year.

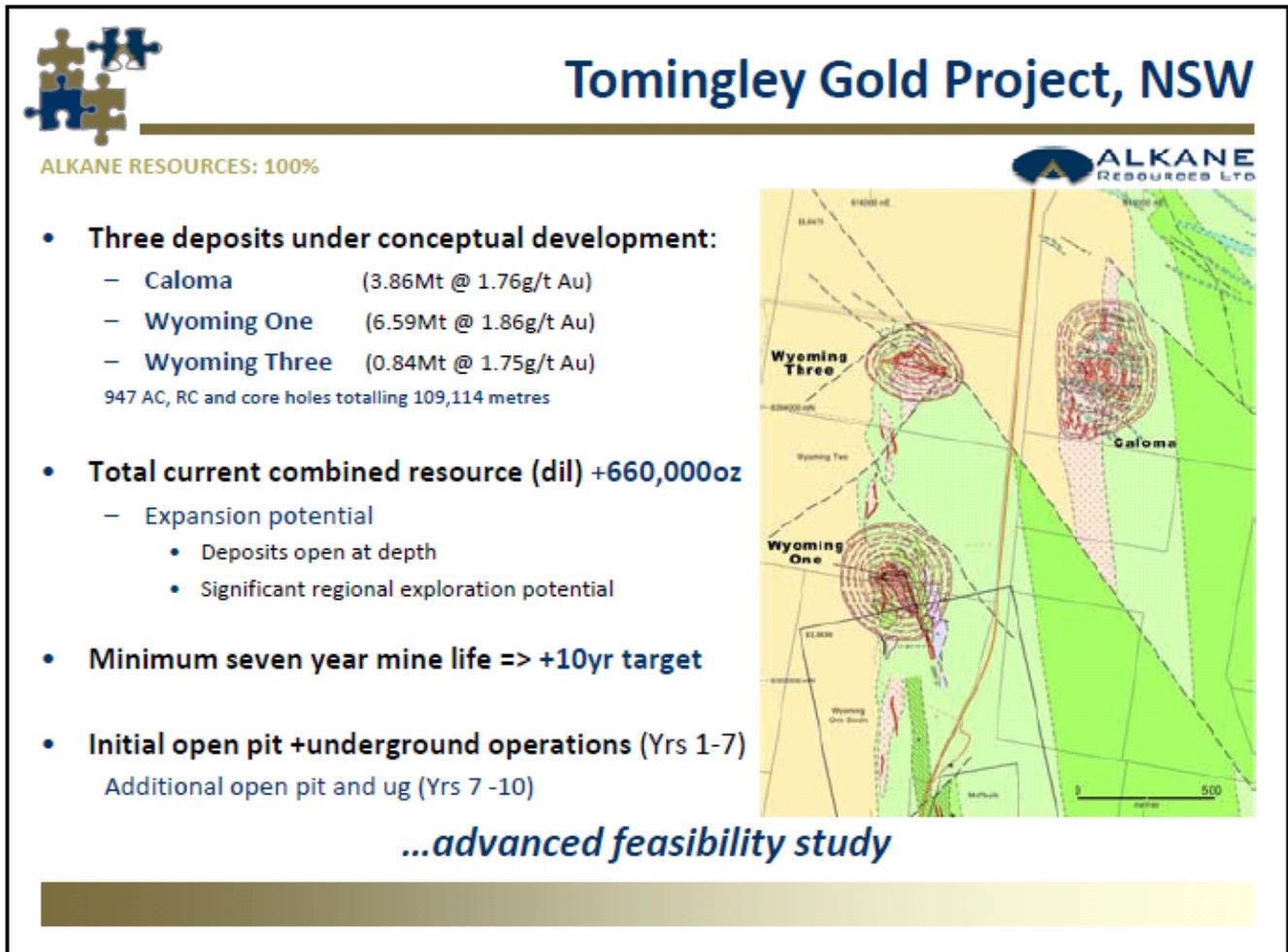
The DPP operation has confirmed the process flow sheet and is providing engineering data for capital and operating cost estimates, and continues to generate substantial product for market evaluation. Data from the DPP and Letters of Intent from future customers will be incorporated in the current DFS which should be completed early 2011.

Depending upon financing and Development Consent from the New South Wales State government, the DPZ could be in production late 2012 or early 2013.

## Overview of Projects

### ➤ Tomingley Gold Project, Central West, New South Wales

The Tomingley Gold Project (TGP) is located in the Central west of New South Wales about 400 kilometres northwest of Sydney.



**Tomingley Gold Project, NSW**

ALKANE RESOURCES: 100%

- **Three deposits under conceptual development:**
  - Caloma (3.86Mt @ 1.76g/t Au)
  - Wyoming One (6.59Mt @ 1.86g/t Au)
  - Wyoming Three (0.84Mt @ 1.75g/t Au)947 AC, RC and core holes totalling 109,114 metres
- **Total current combined resource (dil) +660,000oz**
  - Expansion potential
    - Deposits open at depth
    - Significant regional exploration potential
- **Minimum seven year mine life => +10yr target**
- **Initial open pit +underground operations (Yrs 1-7)**  
Additional open pit and ug (Yrs 7 -10)

*...advanced feasibility study*



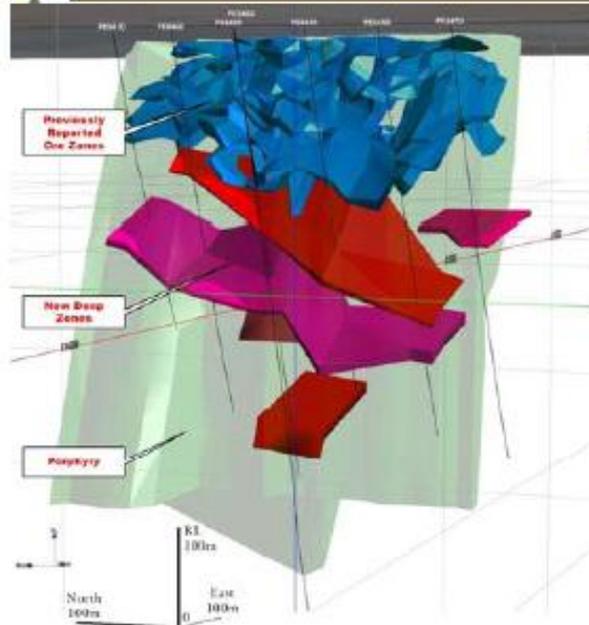
Alkane's Definitive Feasibility Study (DFS) program has been focused on a review of the existing open pit resources. The current model indicates recovery of approximately 300,000 ounces of gold over a 5-year period at a mining rate of 1 million tonnes per annum.

At start-up, an open pit cut-off grade of 1.00 g/t gold would be applied through grade control to maximise the head grade to the CIL plant, with the 0.5 g/t to 0.99 g/t gold low grade stockpile blended with Wyoming One underground ore to provide mill feed for an additional 2 years and recovery of a further 100,000 ounces of gold.

The combination of the open/pit output, with low/grade stockpiled open/pit ore and Wyoming One underground ore gives TGP potential to produce approximately 400,000 ounces of gold and a 6 to 8 year life, representing \$ 550 million revenue at current the gold price.



## TGP Current Resource Expansion



Caloma Deposit 3D Ore Model

- Caloma Underground

- Seven core holes 3,500m
- Numerous mineralised intercepts
 

PE 641D	7.1m @ 12.9g/t Au
PE 645D	4.4m @ 4.76g/t Au
PE 647D	3.0m @ 5.53g/t Au
- Geological modelling for resource potential
- Shallow south plunging system, not tested at depth



## TGP Economics



PRODUCTION OUTCOMES	BASE CASE	EXPANDED CASE
Mine Life	7 Years	8 - 10 Years
Throughput		
Open Pit	6.0 Million tonnes	1.0 million tonnes
Underground	0.6 million tonnes	1.0 Million tonnes
Production	400,000oz	150,000oz
Method	conventional CIL circuit	conventional CIL circuit
Recovery	>90%	>90%
Capex (+/- 10%)	A\$90 Million	+A\$10 Million
Estimated cash costs	A\$900/oz	A\$900/oz
Potential LOM cashflow	~A\$200 Million <sup>#</sup>	A\$275 Million <sup>#</sup>

<sup>#</sup> Based on A\$1350 per ounce gold price; 1 Mtpa mill throughput

*...targeting 10 year mine life*

## ➤ Orange District Exploration Joint Venture

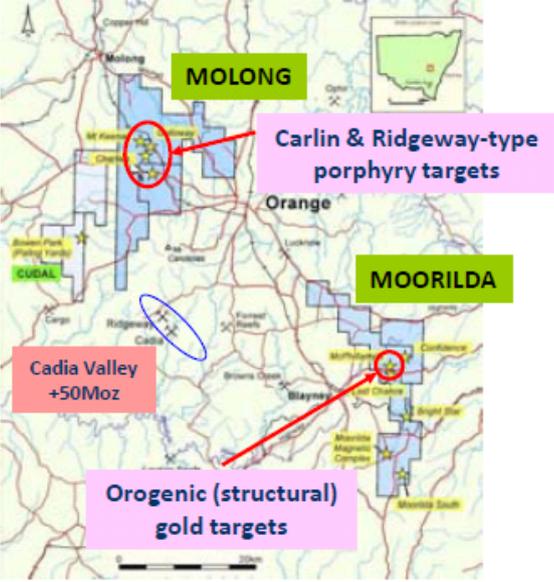
Near Orange, Alkane (49%) has a joint venture with Newmont Australia (51%), which resulted in the discovery in 2006 of a significant gold deposit at **McPhillamys** within the **Moorilda Project**.

In 2006, reconnaissance drilling at McPhillamys located extensive gold mineralisation associated with altered felsic volcanic rocks with intersections of 123 metres grading 1.96g/t gold and 77 metres at 1.65g/t gold within a 600 metre by 200 metre mineralised zone.

Follow up diamond drilling has confirmed the potential of the project to host a major gold system with an intersection in KPD003 of 366 metres grading 1.85g/t gold.

 **ALKANE**  
RESOURCES LTD

**ORANGE DISTRICT EXPLORATION JOINT VENTURE (ODEJV)**  
Gold, Copper – Orange, NSW | Alkane Resources: 49%, Newmont Australia: 51%



**TWO FOCUS AREAS:**

- **Molong**
  - targeting copper-gold porphyry-style gold mineralisation (Ridgeway-type) and Carlin style
- **Moorilda**
  - drilling confirms a major gold system @ McPhillamys
- Newmont have earned 51%, to go to 75% by carrying all expenditures through to completion of final BFS

***...low risk with significant upside + 4moz system***

An initial conceptual target of **2 to 4 million ounces of gold** and **50,000 to 100,000 tons of copper** has been assigned to the discovery and it rates as the potentially largest greenfields gold discovery in Australia since the Anglo Gold – Independence Group discovery at Tropicana in Western Australia in 2005.

Regional exploration has discovered several areas with McPhillamys type gold mineralisation, including 78 metres grading 1.04 g/t gold at Kings Plains 2 kilometres to the south of the main deposit.

Further drilling and evaluation will be required to raise the conceptual exploration target to Identified Mineral Resource status.

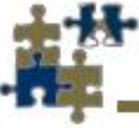
An initial A\$ 2.3 million program was planned for 2010, including a 4 hole, 3,500 metre core program designed to test the depth continuity of the McPhillamys mineralization.

In March 2, 2010 it was announced that Newmont had elected to increase their interest in the joint venture to 75% by completing a bankable feasibility Study (BFS).

On July 5, 2010, Alkane released its first resource estimate for the McPhillamys gold discovery which was completed by Lewis Minerals Consulting in Sydney. An initial Indicated and Inferred resource at a 0.3 g/t cut-off defined 9.1.954 million tonnes grading 1.00 g/t gold and 0.07% copper for a cumulative total of 2.96 million ounces of gold and 60,000 tonnes of copper.

The bulk of the resource is located within an Inner Ore Zone with dimensions of 600 metres by 200 metres and extending down to approximately 525 metres below the ground surface and overall higher grades within the Outer Ore Envelope.

The higher density drilling provided a greater level of confidence in the continuity of widths and grade of the mineralization.

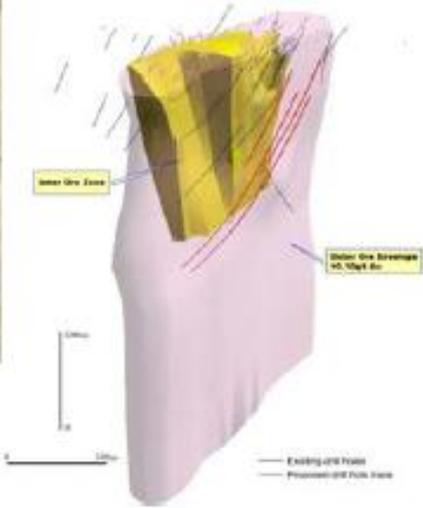


## ODEJV Moorilda | McPhillamys



### INITIAL RESOURCES

- **Indicated + Inferred** +0.3g/t gold  
92 Mt @ 1.00g/t Au 0.07% Cu  
2.96 Moz Au & 60,000t Cu
- **Indicated + Inferred** +0.5g/t gold  
61 Mt @ 1.32g/t Au 0.08% Cu  
2.57 Moz Au & 48,000t Cu
- Mineralisation open at depth  
Deep drilling in progress
- Conceptual studies for both open pit and block cave mining
- Preliminary metallurgical scoping indicates +90% gold recovery from CIL
- Likely low waste to ore ratio to significant depth for open pit

**BASE AREAS**

- Outer ore envelope 1,000m x 260m 0.1g/t Au
- Inner ore zone 600m x 200m to 450m depth
- Average 2.8 SG

Compare Barricks Cowal Operation

- 64Mt @ 1.22g/t Au at start up
- \$Mtpa for ~ 250,000ozpa

**... potential open cut or block caving operation**

On October 6, 2010, Alkane announced that drill results confirmed the continuity of the mineralization envelope. Results include up to 52 metres grading 1.08 g/t gold from 403 metres, including 37 metres grading 1.33 g/t gold from 417 metres (NEWD 009); 94 metres grading 0.77 g/t gold from 449 metres, including 30 metres grading 1.49 g/t gold from 490 metres (NEWD 010); and 119 metres grading 0.82 g/t gold from 416 metres, including 64 metres grading 1.08 g/t gold from 416 metres.

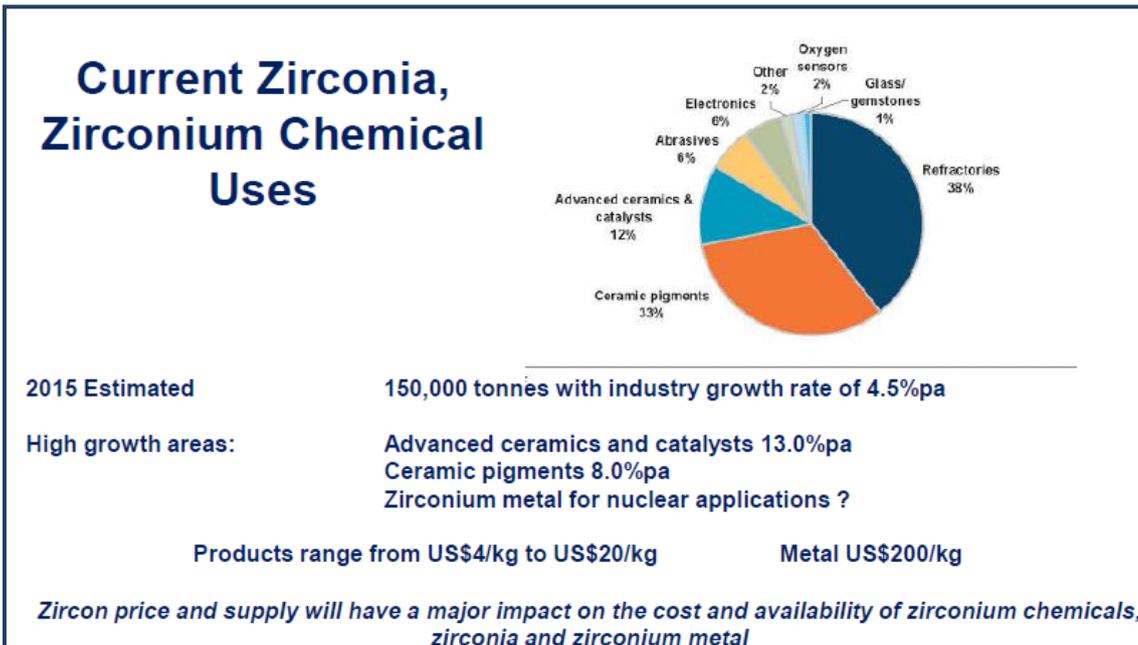
➤ **Wellington Copper Project, Central West region, New South Wales**

Alkane has defined a 2 million tonne 1.00% copper Indicated resource which is being reviewed for its development potential at Galwadgere within the **Wellington Project**, and several other advanced exploration projects with encouraging drill intercepts. New exploration targets have been identified at several other locations.

➤ **Dubbo Zirconia Project, Central West region, New South Wales**

Alkane's 100%-owned Dubbo Zirconia Project (DZP) is located 30 kilometres south of the large regional centre of Dubbo in the Central West region of New South Wales. The DZP is based upon one of the world's largest in-ground resources of the metals **zirconium, hafnium, niobium, tantalum** and **yttrium**, and **rare earth elements**. Over several years the Company has developed a flow sheet consisting of sulphuric acid leach followed by solvent extraction recovery and refining to produce several products.

A Demonstration Pilot Plant (DPP) has been operating at the laboratory facilities of ANSTO Minerals at Lucas Heights south of Sydney since May 2008 and to date has recovered 1,300 kg of zirconium chemicals and nearly 300 kg of niobium concentrate. The DPP is currently operating for short periods to trial engineering and process innovations, and check specific aspects of the flow sheet for production development.



Zirconium basic sulphate (ZBS) is the primary product recovered from the DPP, and this has been converted to zirconium hydroxide (ZOH) and zirconium basic carbonate (ZBC) which are of high quality, returning 99% ZrO<sub>2</sub> when calcined (high temperature drying). These products have diverse uses such as being converted to **zirconia (ZrO<sub>2</sub>)** for use in auto exhaust catalysts, a high growth pollution control development area. Other high growth markets are advanced ceramics, environmental drying agents and metal pre-treatment. Auto manufacturers are replacing zinc-based body undercoat with more effective zirconium primers.

The ZOH has also been converted to a 99.2% ZrO<sub>2</sub> zirconia with very low Hafnia (HfO<sub>2</sub>) content. The existing flow sheet reduces the Zr to Hf ratio from 50:1 in the ore to 350:1 in the products. Hafnium free zirconium metal is used to make tube or fuel rods and reactor vessel construction in nuclear power plants, and other natural sources of zirconium have a much higher Hf content.

Niobium is largely used in special steels (HSLA) and other alloys, ceramics and glasses.

Separate programs to improve the quality of existing zirconium and niobium products continued with success in mining contaminants with the zirconium product suite, and production of a ferro/niobium product which is a primary addition for HSLA (high strength low allow) steels

Laboratory scale testing at ANSTO for the recovery of **light rare earths (LREE)** (= lanthanum, cerium, neodymium, praseodymium and samarium) has successfully produced a high quality rare earth oxide concentrate product containing **~99% rare earth oxides (REOs)**.

Further laboratory scale optimization of the process is planned before the flow sheet is incorporated into the DPP in November 2010.

The previous laboratory tested process to recover **yttrium** and **heavy rare earths (HREE = gadolinium, terbium, dysprosium and erbium)** has been operating within the DPP and about 20 kilograms of filter cake recovered to date.

This filter cake has to be further processed to produce a marketable YHREE product and the program to achieve this has commenced

The yttrium and rare earth distribution in the DPZ ore deposit is unusual, having about 25% in the “heavy” category, which is very different to the standard distribution of about 95% light and 5% heavy.

Because China, responsible for about 97% of global rare earth production, has cut its exports as much as 40% worldwide this year, and is planning a further reduction in restricted availability of rare earth products and escalated prices for these outside China.

This has seen the rare earth basket of process within DZP climb dramatically in 2010.

Rare Earth	Q1 average	Q2 average	Q3 average
DZP LREE	\$ 9.93	\$ 12.06	\$ 30.58
DZP YHREE	\$ 32.95	\$ 42.23	\$ 62.34

Alkane’s light earth program has taken second priority to the yttrium-heavy rare earth recovery and zirconium-zirconia development, but now has increased in importance and it is anticipated that the LREE circuit will be added to the DPP in the December quarter of this year.

### Definitive Feasibility Study (DFS)

The DPP operation has confirmed the process flow sheet and is providing engineering data for capital and operating cost estimates, and continues to generate substantial product for market evaluation. Data from the DPP and Letters of Intent from future customers will be incorporated in the current DFS which should be completed early 2011.

Depending upon financing and Development Consent from the New South Wales State government, the DPZ could be in production late 2012 or early 2013.



## DZP Strategic Significance



Majority of “downstream” zirconium products are derived from zircon, whose output is governed by ilmenite/rutile from mineral sands mining operations.

China dominates downstream zirconium business at ~90% but feed is zircon.

Niobium production dominated by one company, CBMM in Brazil with 90% of market.

Rare earth and yttrium production dominated by China (95%). DZP offers new source particularly for important Y and HREE.

Production costs are spread across the four metal outputs – zirconium (hafnium), niobium (tantalum), light rare earths and yttrium-heavy rare earths.

Project located in region with very favourable infrastructure and legislative framework, both at a State and Federal level.

Increased demand for many of the metals is driven by environmental legislation to ensure emissions minimisation and energy consumption efficiency

The DZP provides an alternative and strategic source for a number of important metals, and is capable of producing for hundreds of years from one ore body.



## DZP Product Output



Base case model of 400,000 tonnes per year of ore processed

Ore processed	400,000tpa (Base Case)	1,000,000tpa
ZBS, ZOH, ZBC, ZrO <sub>2</sub>	15ktpa (6ktpa ZrO <sub>2</sub> )	37ktpa (15ktpa ZrO <sub>2</sub> )
Nb-Ta concentrate	2ktpa (1.4ktpa Nb <sub>2</sub> O <sub>5</sub> )	5ktpa (3.5ktpa Nb <sub>2</sub> O <sub>5</sub> )
LREE concentrate	1,980tpa (REOs)	4,950tpa (REOs)
YHREE concentrate	600tpa (REOs)	1,500tpa (REOs)

**Base case revenues ~US\$100m increasing**  
Open pit life 200 years

**Blue sky ~US\$250m ++**  
Open pit life 80 years

- ZBS = zirconium basic sulphate; ZOH = zirconium hydroxide; ZBC = zirconium carbonate    Equivalent ~99% ZrO<sub>2</sub> + HFO<sub>2</sub>
- Nb-Ta concentrate = ~70% Nb<sub>2</sub>O<sub>5</sub> + Ta<sub>2</sub>O<sub>5</sub> calcined basis    ▪ LREE = La, Ce, Nd    ▪ YHREE = Y, Gd, Dy, Tb

		2010	2011	2012	2013
<b>TOMINGLEY GOLD</b>	Definitive Feasibility Study (DFS)	█	█	█	
	Environmental Assessment / DA	█	█	█	
	Project Financing @ \$A90m		█	█	
	Construction		█	█	█
	Production			█	█
<b>DURBO ZIRCONIA</b>	Definitive Feasibility Study (DFS)		█	█	█
	Environmental Assessment / DA		█	█	█
	Project Financing @ ~A\$150m		█	█	█
	Construction		█	█	█
	Production			█	█
<b>McPHILLAMYS</b>	Exploration/Pre-feasibility	█	█	█	█
	Bankable Feasibility Study (BFS)		█	█	█
	Construction			?	?
	Production				?
	<b>Galwagere</b>	Exploration/Pre-feasibility	█	█	?
Exploration/Pre-feasibility		█	█	?	?
<b>Cudal</b>	Exploration/Pre-feasibility	█	█	?	?

## **Management**

**John Stuart Ferguson Dunlop, Chairman, BE(Min), MEngSc(Min), FAusIMM(CP), FIMMM, MAIME, CIMM** is a consultant mining engineer with close to 40 years surface and underground mining experience both in Australia and overseas. He is a former director of the Australian Institute of Mining and Metallurgy but remains Chairman of their affiliate, the Mineral Industry Consultants Association. Mr. Stuart is Chairman of Alliance Resources and Drummond Gold and non-executive director of Gippsland.

**David Ian Chalmers, Managing Director, MSc, FAusIMM, FAIG, FIMMM, FSEG, MSGA, MGSA, FAICD**, is a geologist and graduate of the Western Australian Institute of Technology (Curtin University). He also has a Master of Science degree from the University of Leicester in the United Kingdom. Mr. Chalmers has worked in the mining and exploration industry for over 40 years, during which time he has had experience in all facets of exploration through feasibility and development to the production phase. Mr. Chalmers is also a principal in Multi Metal Consultants.

**Ian Raymond (Inky) Cornelius, MAICD**, has had over 40 years experience in the minerals and petroleum industry. He spent the first nine years of his career with the Western Australian Department of Mines before leaving to manage his own tenement consulting business. Since 1976 Mr. Cornelius has held senior executive positions in a number of public exploration and mining companies. In this capacity he has had extensive experience in the selection, management and development of deposits of many commodities. Mr. Cornelius is a non-executive director of Pancontinental Oil and Gas and New World Alloys.

**Ian Jeffrey Gandel, LLB, BEc, FCPA, FAICD**, is a successful Melbourne businessman with extensive experience in retail management and retail property. He has been a director of the Gandel Retail Trust and has had an involvement in the construction and leasing of Gandel shopping centres. Through his private investment vehicles, Mr Gandel has been an investor in the mining industry since 1994. Gandel Metals Pty Ltd is currently a substantial holder in a number of publicly listed Australian companies and now holds and explores tenements in its own right in Victoria and Western Australia. Mr. Gandel is also a non-executive director of Alliance Resources and Chairman of Gippsland.

**Anthony Dean Lethlean, BAppSc**, is a geologist with 10 years mining experience including 4 years underground on the Golden Mile in Kalgoorlie. In later years he has been working as a resources analyst with various stockbrokers and currently consults to Cartesian Capital. Mr. Lethlean is a non-executive director of Alliance Resources.

### **Investment recommendation:**

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The Company also has a joint venture with Newmont Australia which resulted in the discovery in 2006 of a significant gold deposit at McPhillamys within the Moorilda Project. Newmont has elected to increase their interest in the joint venture from 51% to 75% by completing a Bankable Feasibility Study.

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A Demonstration Pilot Plant (DPP) has been operating at the laboratory facilities of ANSTO Minerals since May 2008 and to date has recovered 1,300 kg of zirconium chemicals and nearly 300 kg of niobium concentrate. Initial light rare earth and yttrium heavy rare earth products have recently been recovered. The yttrium and rare earth distribution in the DPZ ore deposit has about 25% in the "heavy" category compared with a standard distribution of about 95% light and 5% heavy.

Data from DPP and Letters of Intent from future customers will be incorporated in the current Definitive Feasibility Study.

A development decision is anticipated late 2010, with production possible late 2012 or early 2013.

Alkane's current cash position is approximately A\$ 6.0 million. Anticipated non-development expenditure is A\$ 5.0 million to June 30, 2011.

Since our earlier update in June 2010 at A\$ 0.26, the Company's share price more than tripled due to the strong market performance of both gold and rare earth prices and the latter, enhanced by China curtailing REE export, and Alkane's DPZ distribution of yttrium and rare earth oxides focused on the heavy category.

With production possible late 2012 or early 2013, the DPZ Project could emerge to one of the world's major REE producers, as a result of which in conjunction with a potential gold production of 400,000 ounces of gold, representing a current market valuation of more than US\$ 500 million, in our view, the shares of Alkane remain substantially undervalued.

Consequently, we have increased our next price objective to A\$ 1.50.