



21 June 2011

Manager Announcements  
Company Announcements Office  
ASX Limited  
20 Bridge Street  
Sydney NSW 2000

Dear Sir,

### **PRESENTATION**

Attached is a copy of presentation to the Rare Earths and Strategic Metals 2011 conference being held in Sydney this week.

A copy of this presentation will also be available on the Company's website [www.alkane.com.au](http://www.alkane.com.au).

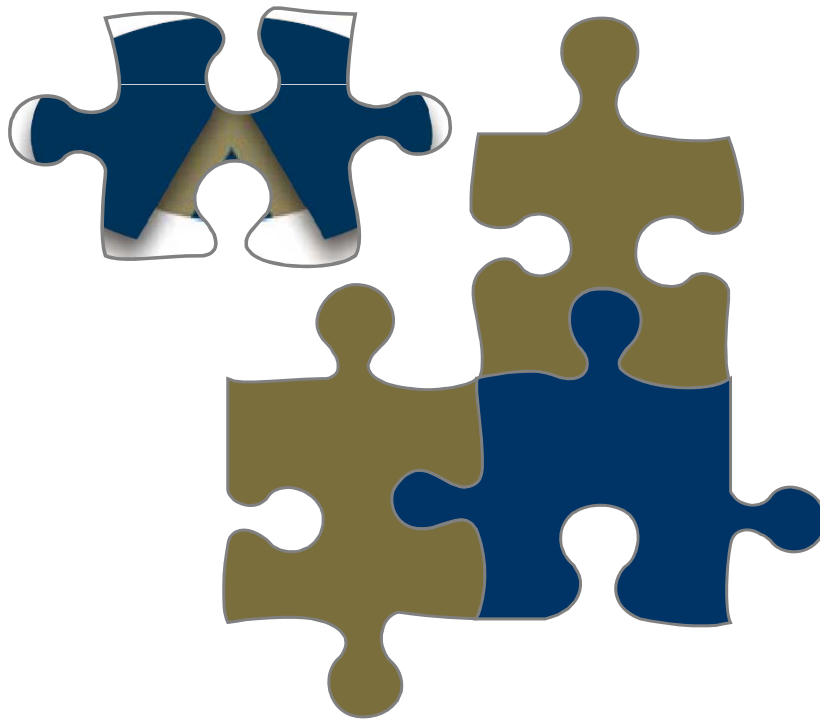
Yours faithfully,  
for **ALKANE RESOURCES LTD**

A handwritten signature in black ink, which appears to read 'D I Chalmers'. The signature is written in a cursive, flowing style.

D I Chalmers  
**Managing Director**

# Dubbo Zirconia Project

NSW Australia

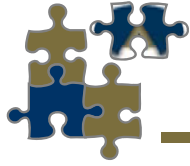


*An example of the process  
required to take a next  
generation polymetallic rare  
metal and rare earth deposit  
into production*

Rare Earths and Strategic Metals 2011

21 - 22 June, 2011, WatersEdge, Sydney, NSW





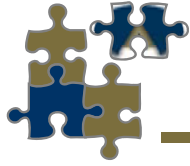
# The Process in Summary

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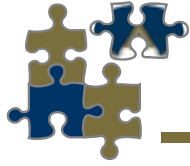
- 1. The Resource – the ore minerals and the host rock**
- 2. Process Development**
- 3. Large scale confirmation of flow sheet – pilot plant**
- 4. Market Development**
- 5. Environmental Assessment**
- 6. Financing**
- 7. Production**





# Location





# Dubbo Zirconia Project Location



**Dubbo region pop 80,000**

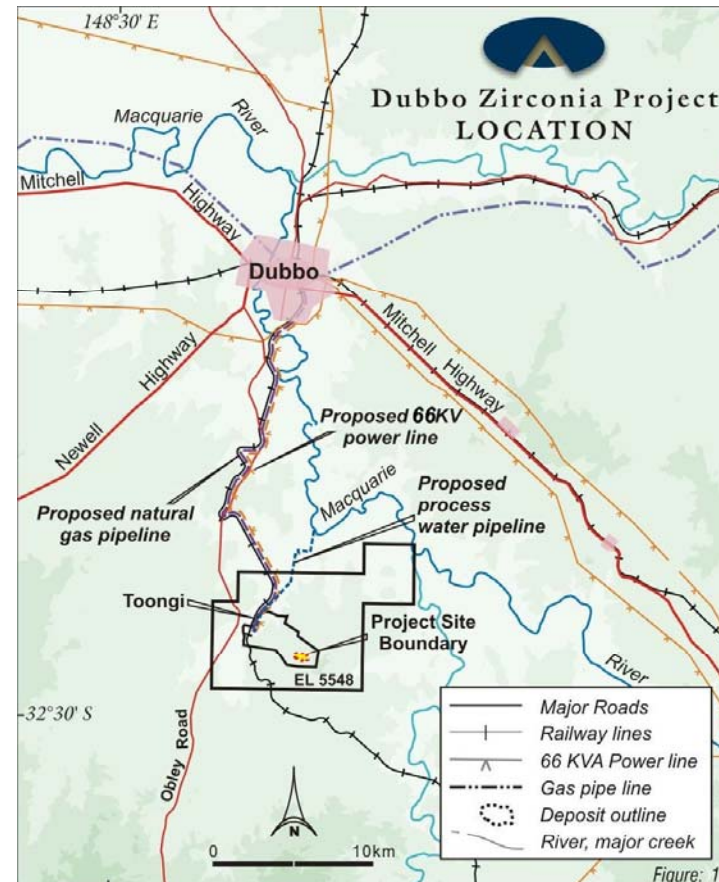
**State power grid**

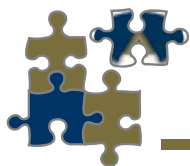
**State gas grid**

**Major mixed agriculture**

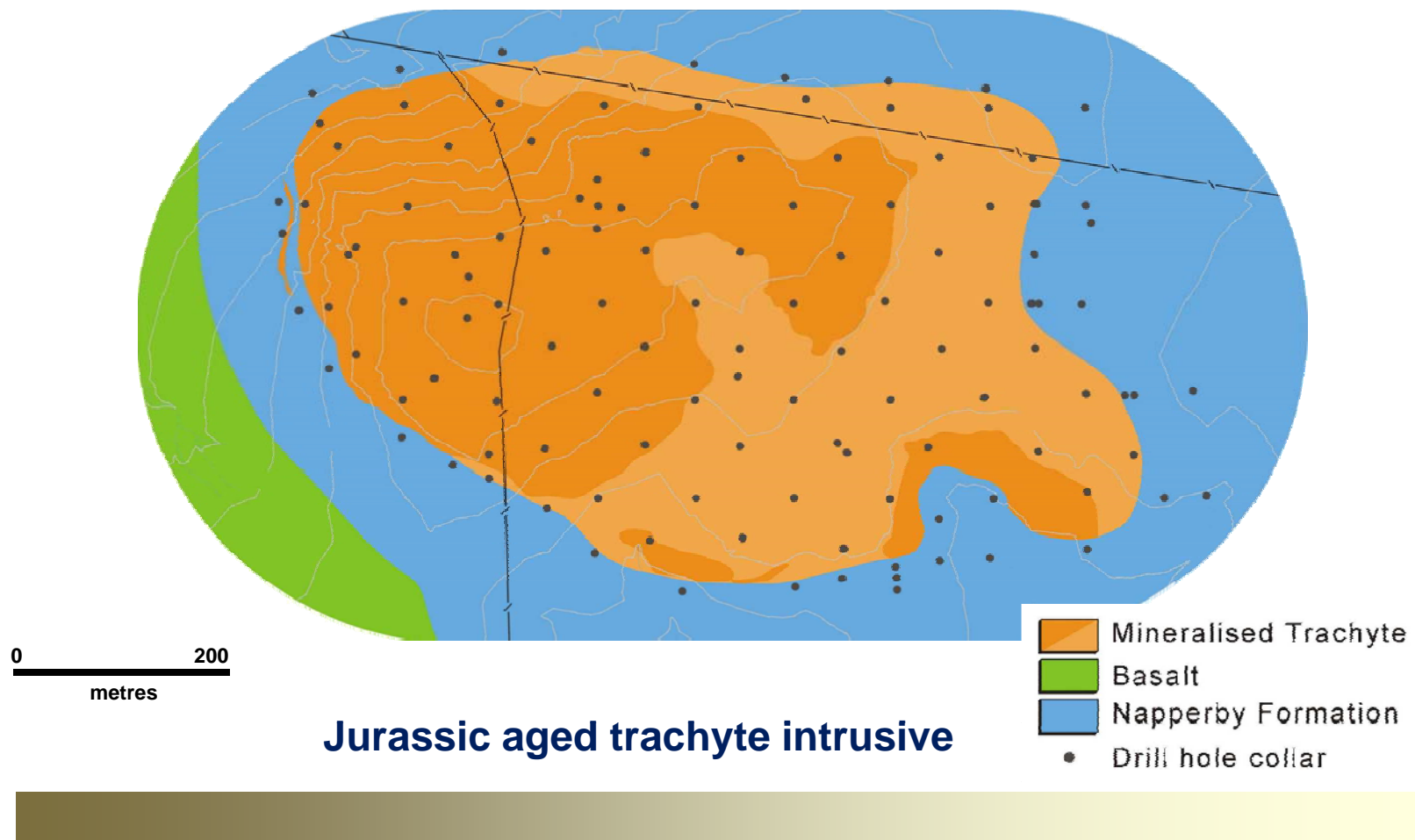
**Transport hub**

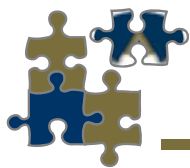
**Substantial light industry**





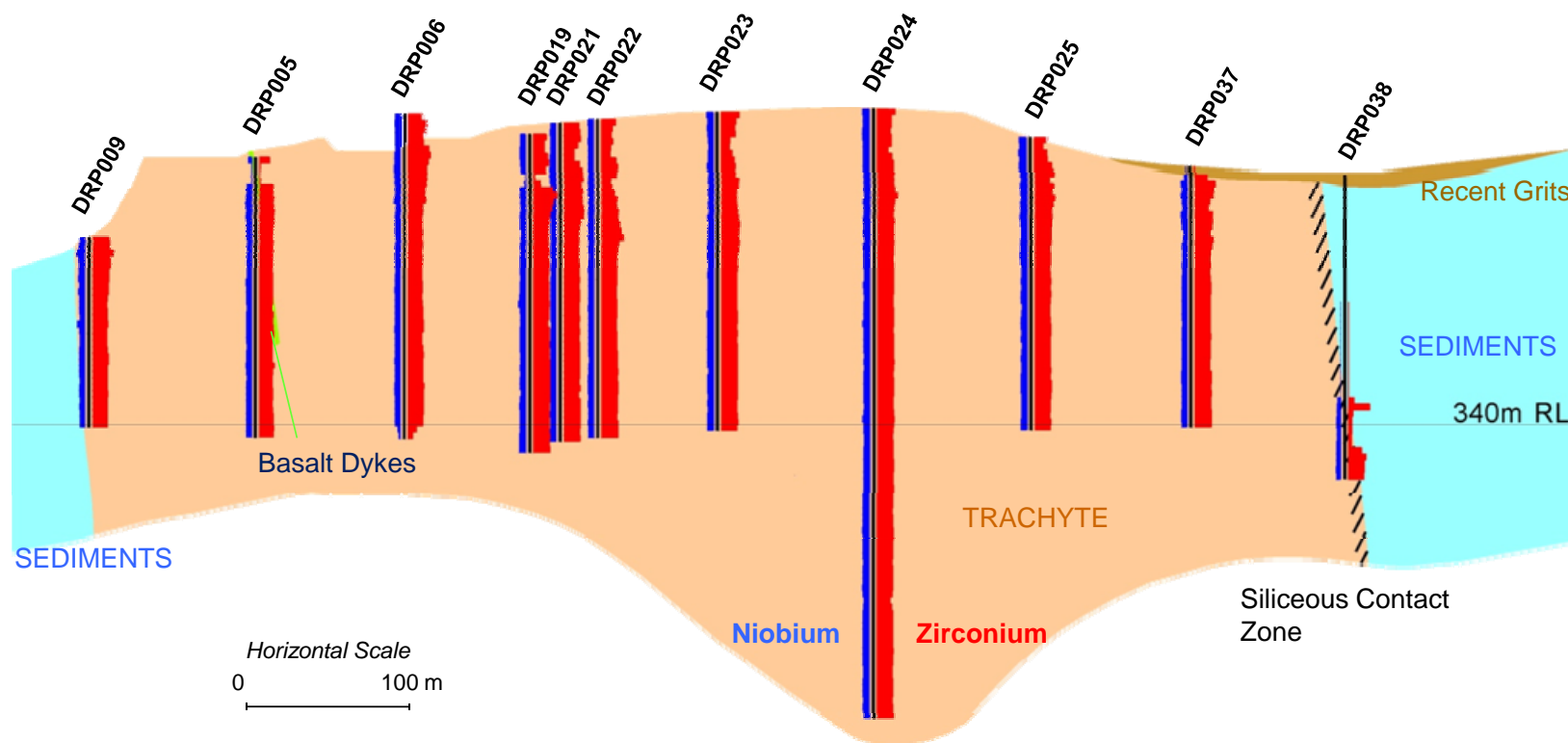
# DZP Geology



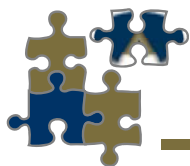


# DZP Geology

## East-west cross section through centre of deposit



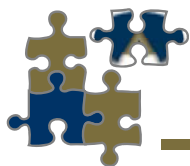




## DZP Western contact of deposit







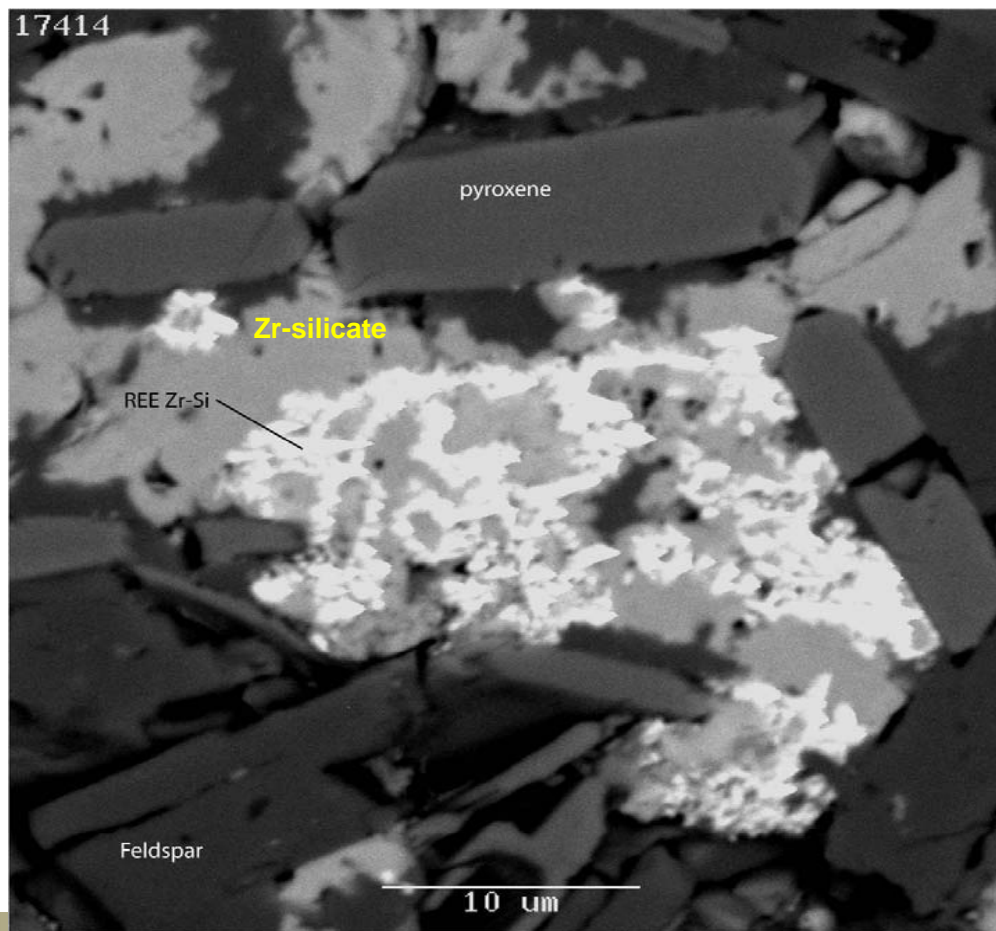
# DZP Ore Mineralogy

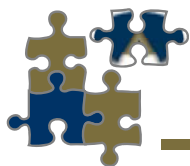


## Zirconium Minerals

**BSE image x 2300: HREE-rich  
Zr-Si hosted within Zr-silicate**

ANSTO March 2007





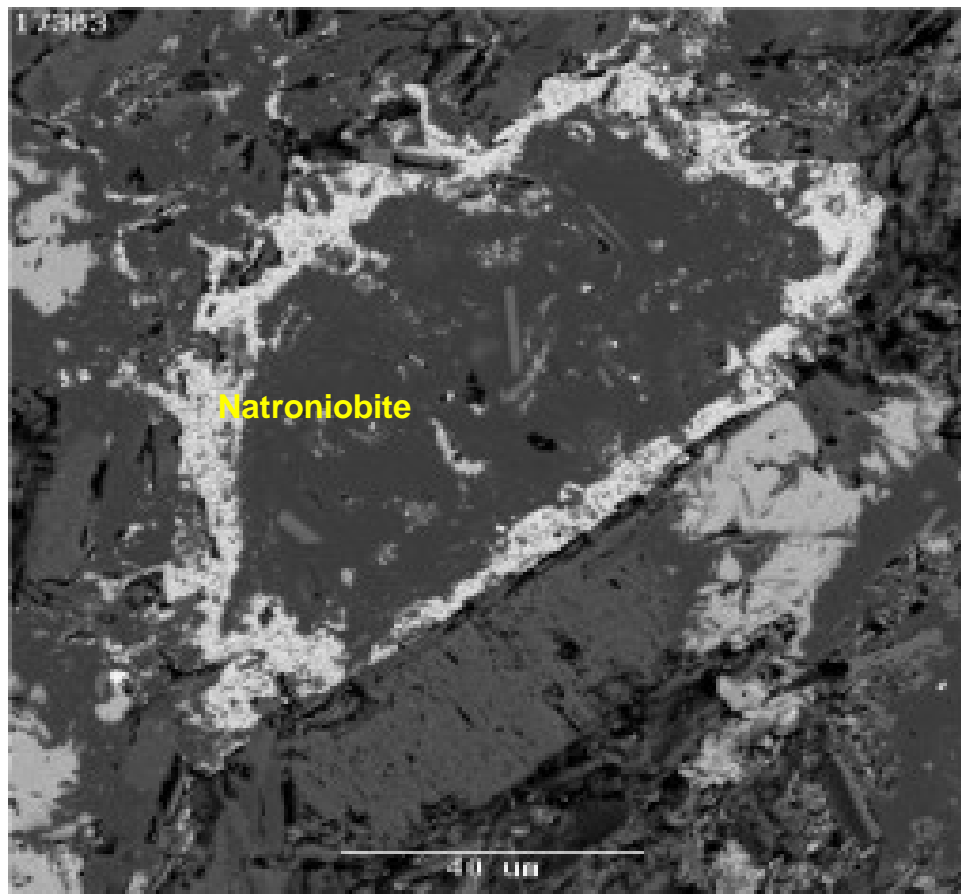
# DZP Ore Mineralogy

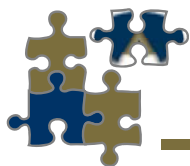


## Niobium Minerals

BSE image x 600:  
Nb mineral in Fe-Mn  
carbonate

ANSTO March 2007





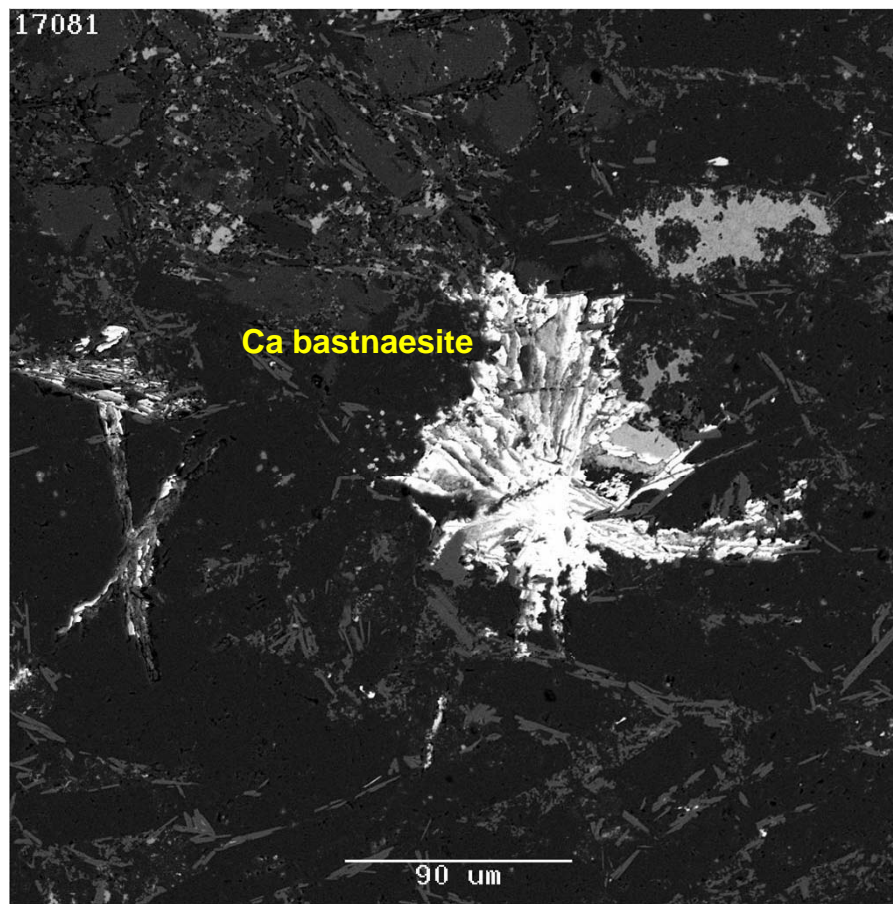
# DZP Ore Mineralogy

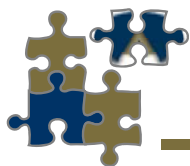


## Light Rare Earth Minerals

BSE image x 250:  
Altered Ca-bastnaesite

ANSTO March 2007





## DZP Ore Mineralogy



**Zirconium  
Heavy REs**

**eudialyte  
armstrongite**

**$\text{ZrSiO}_4 \pm \text{Ca, Y, HREE, H}_2\text{O} + ?\text{U}$**

**$< 2\mu\text{m} - 50\mu\text{m}$**

**Niobium/  
Tantalum**

**natroniobite**

**$\text{NaNbO}_3 + \text{Ta} + ?\text{Th}$   
also  $\text{NbFeSiO}_4$**

**$< 30\mu\text{m}$**

**Rare Earths**

**calcian  
basnaesite**

**$\text{Ca(REE)(CO}_3\text{)F}$**

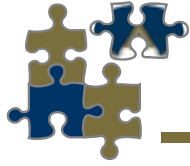
**$< 100\mu\text{m}$**

**rare ancylite**

**$\text{Sr(REE)(CO}_3\text{)H}_2\text{O}$**

**All ore minerals are soluble in  $\text{H}_2\text{SO}_4$**





## DZP Host Rock Mineralogy



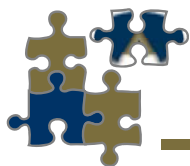
- K-feldspar - partly sericitised ~30 - 40%
- albite (sodic feldspar) ~30 - 40%
- aegerine (sodic clinopyroxene) ~15 - 20%
- minor calcite, siderite, quartz, rhodocrosite

Weathering down to 10-15 metres depth  
No impact on mineral assemblage

**Only calcite, siderite and rhodocrosite dissolve in  $\text{H}_2\text{SO}_4$ ,  
so only minor contaminants in solution**







# DZP Resources



## Measured Resource

0 - 55 metres

:

35.7 million tonnes grading

1.96%  $ZrO_2$ , 0.04%  $HfO_2$ , 0.46%  $Nb_2O_5$ ,  
0.03%  $Ta_2O_5$ , 0.14%  $Y_2O_3$ , 0.75% REO  
(0.9% TREO)

## Inferred Resource

55 - 100 metres

:

37.5 million tonnes at similar grades

## TOTAL

:

73.2 million tonnes

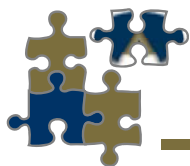
Resource defined by 120 RC and diamond core, mostly vertical drill holes drilled on a staggered 50m grid

Major world resource of zirconium, hafnium, niobium, tantalum, yttrium and rare earth elements

The ore contains low levels of uranium and thorium.

Production of uranium is currently prohibited in NSW





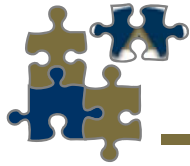
# Process Development - DZP Metallurgy



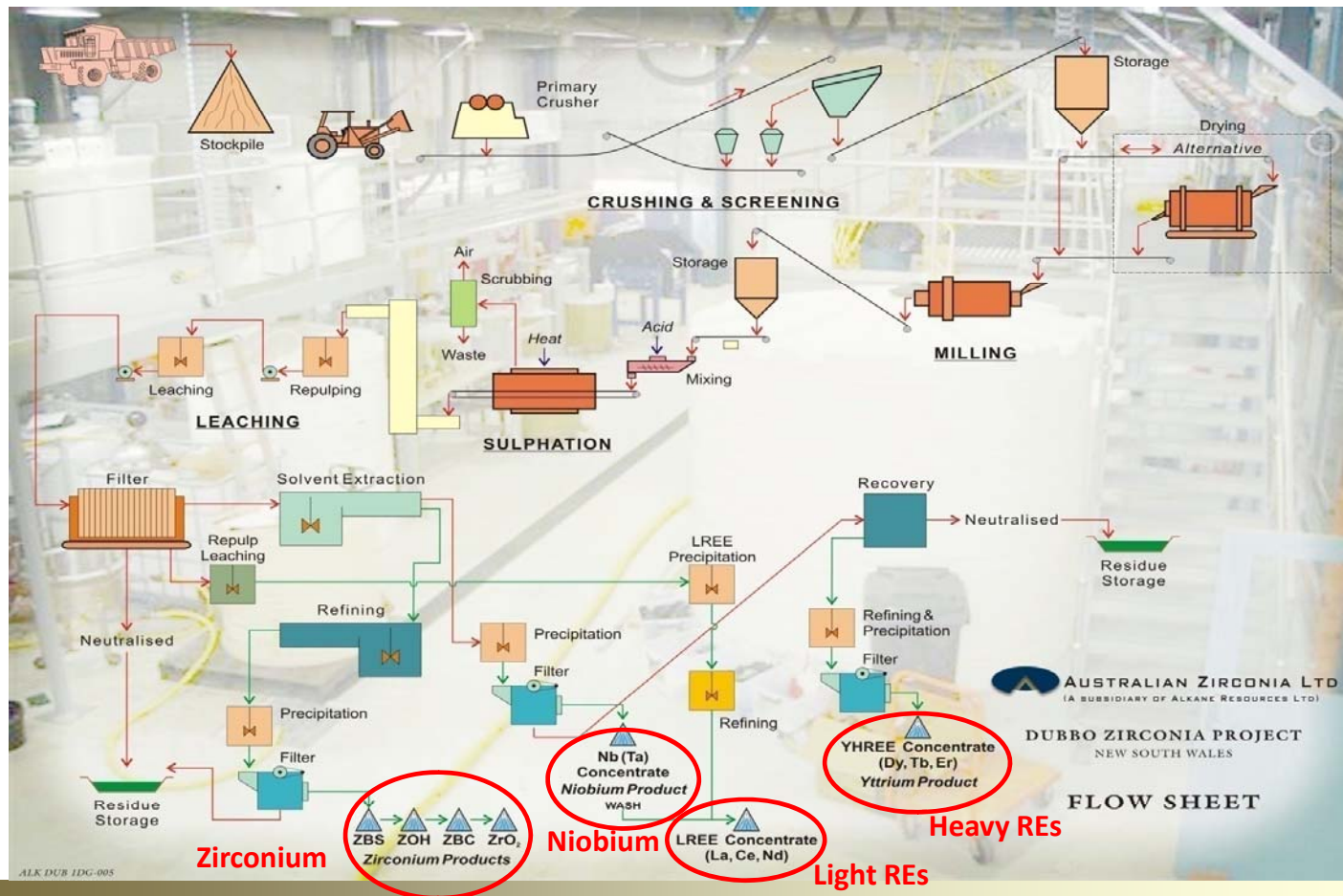
- Preliminary test work on HCl, HF, NaOH leaching, and H<sub>2</sub>SO<sub>4</sub> roasting and leaching
- Preliminary flotation to assess potential for pre-concentration
- Scan of various physical separation processes
- Definitive flotation test work for pre-concentration

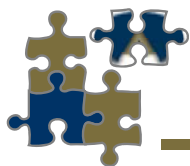
## Only H<sub>2</sub>SO<sub>4</sub> leach gave potentially viable process

- Current flow sheet can be described as a selective sulphuric acid leach, with value metals solubilised and only minor contaminants going into solution. Solvent extraction and refining produces a suite of high purity end products.



# DZP Flow Sheet

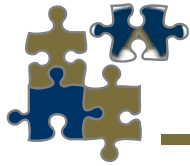




## DZP Mini pilot plant 2002



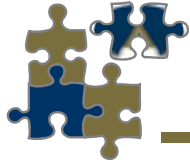




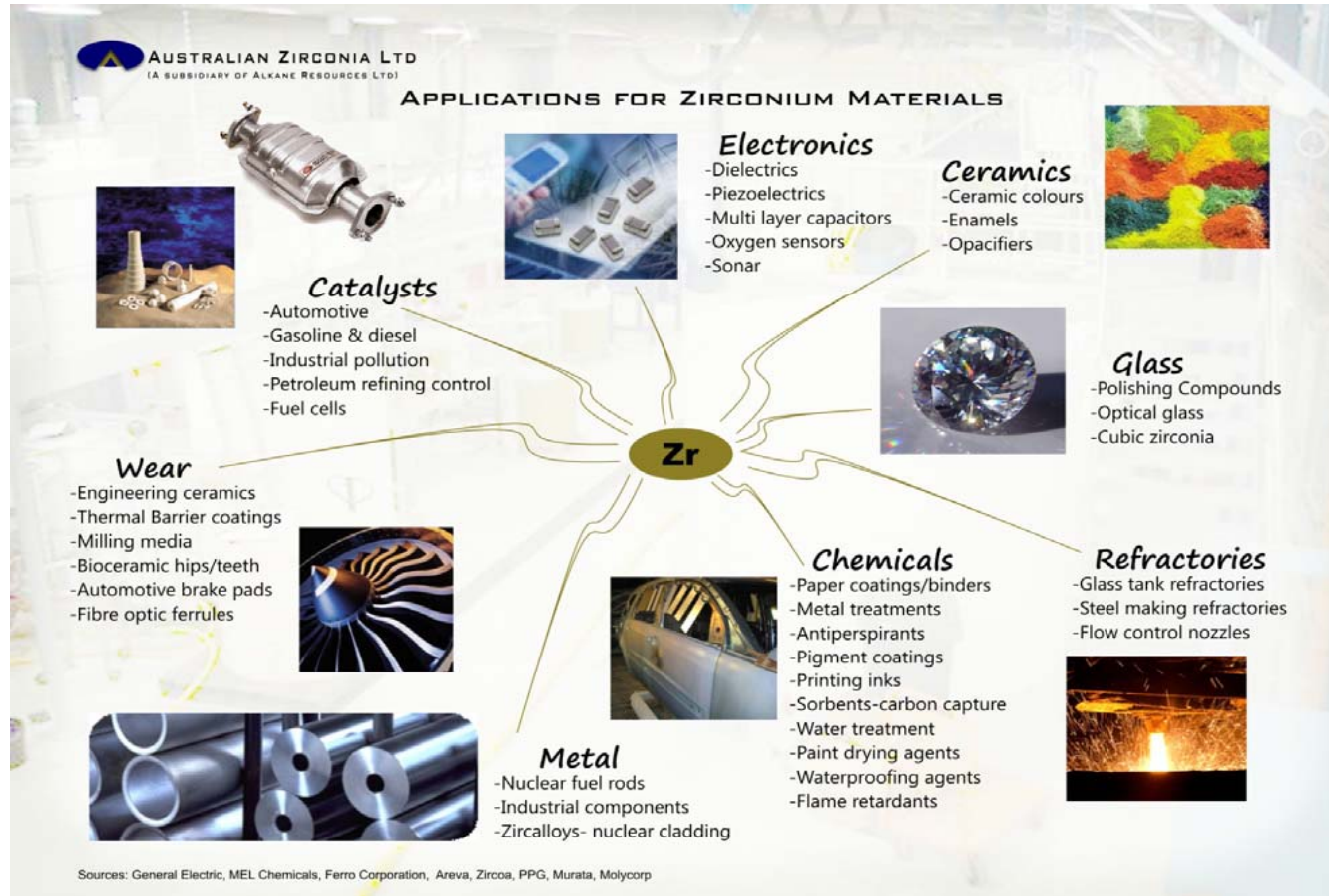
## DZP Demonstration Pilot Plant 2008

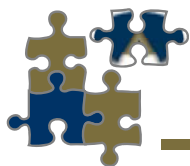






# Marketing - Zirconium Applications

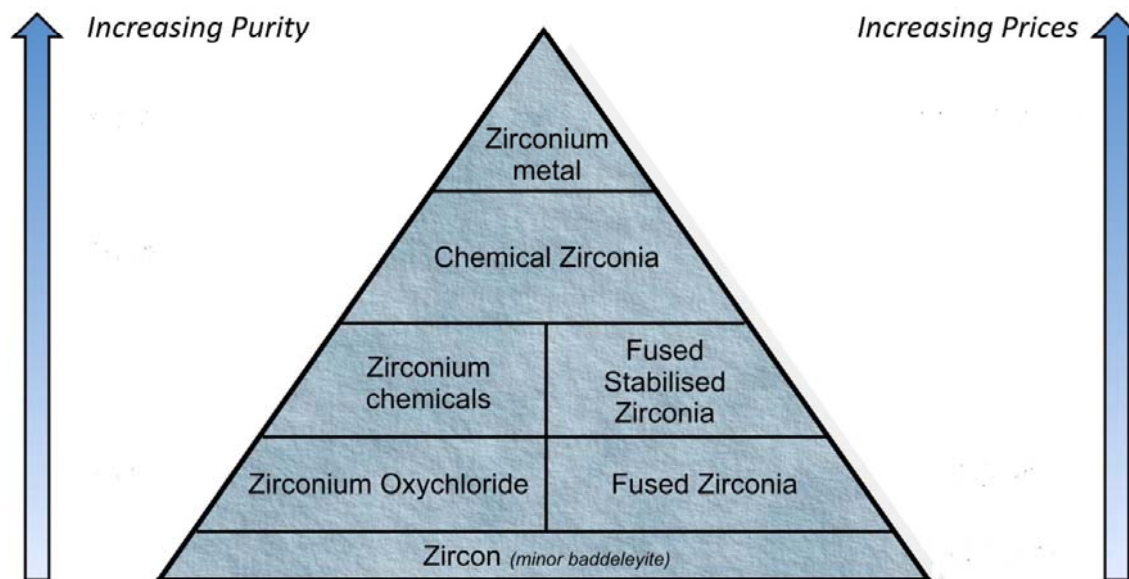




# Zirconium Industry



## ZIRCONIUM MATERIALS PYRAMID



**China consumes about 50% of world's zircon output.**

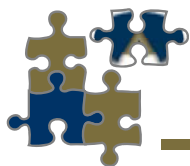
**About 30% of that zircon is converted to downstream products.**

**China currently produces about 90% of world's ZOC and 60% of FZA.**

**China has limited domestic supply of zircon and acquire from major producers (Aust and S Africa).**

<b>Zircon</b>	<b>Zirconium silicate <math>ZrSiO_4</math></b>	<b>Primary Zr mineral source</b>	<b>Value</b>
<b>2010</b>	<b>1.2 million tonnes</b>	<b>~US\$1.6 billion</b>	<b>→ US\$3.2B</b>
<b>Zirconium products</b>	<b>Zirconia <math>ZrO_2</math> , Zirconium chemicals, Zr metal</b>		
<b>2010</b>	<b>120,000 tonnes</b>	<b>~US\$0.7 billion</b>	<b>→ US\$1.4B</b>

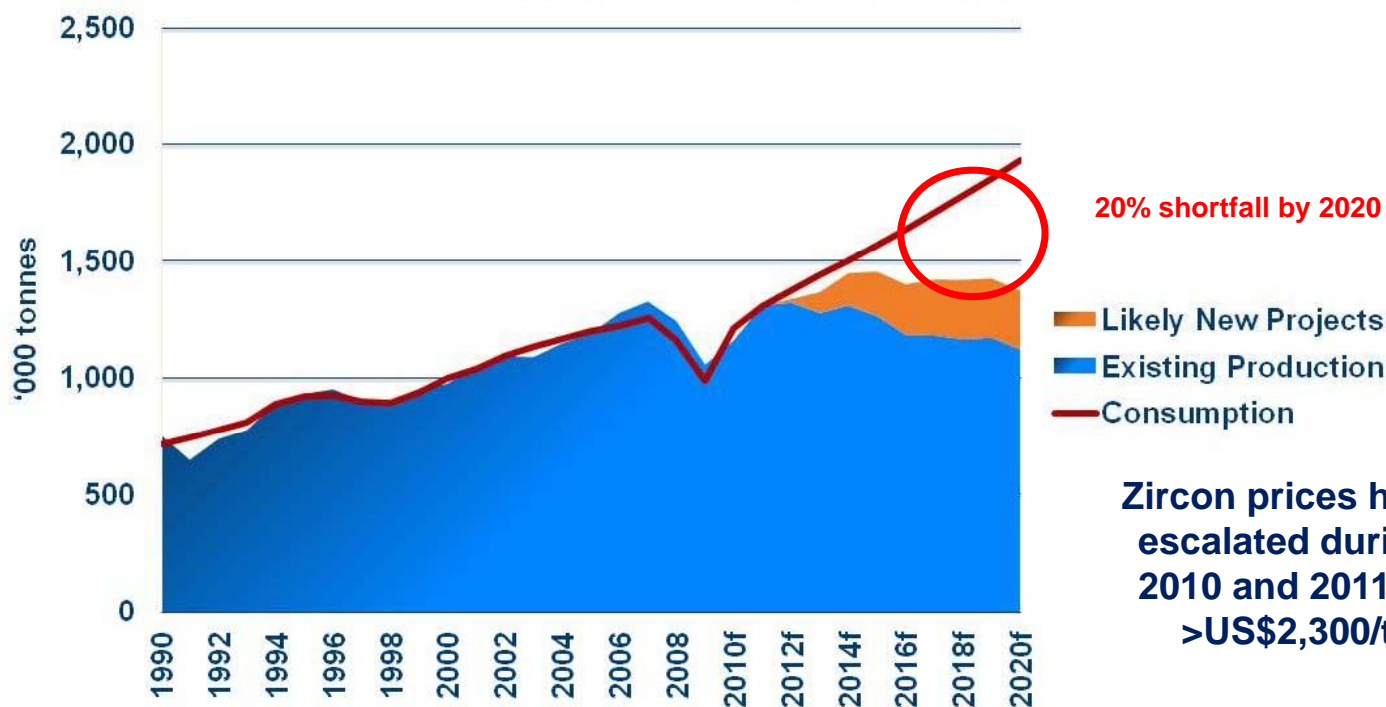
**Source: TCMS**



# Zircon Supply Demand Price



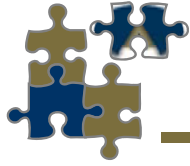
Zircon supply and demand: 1990-2020f



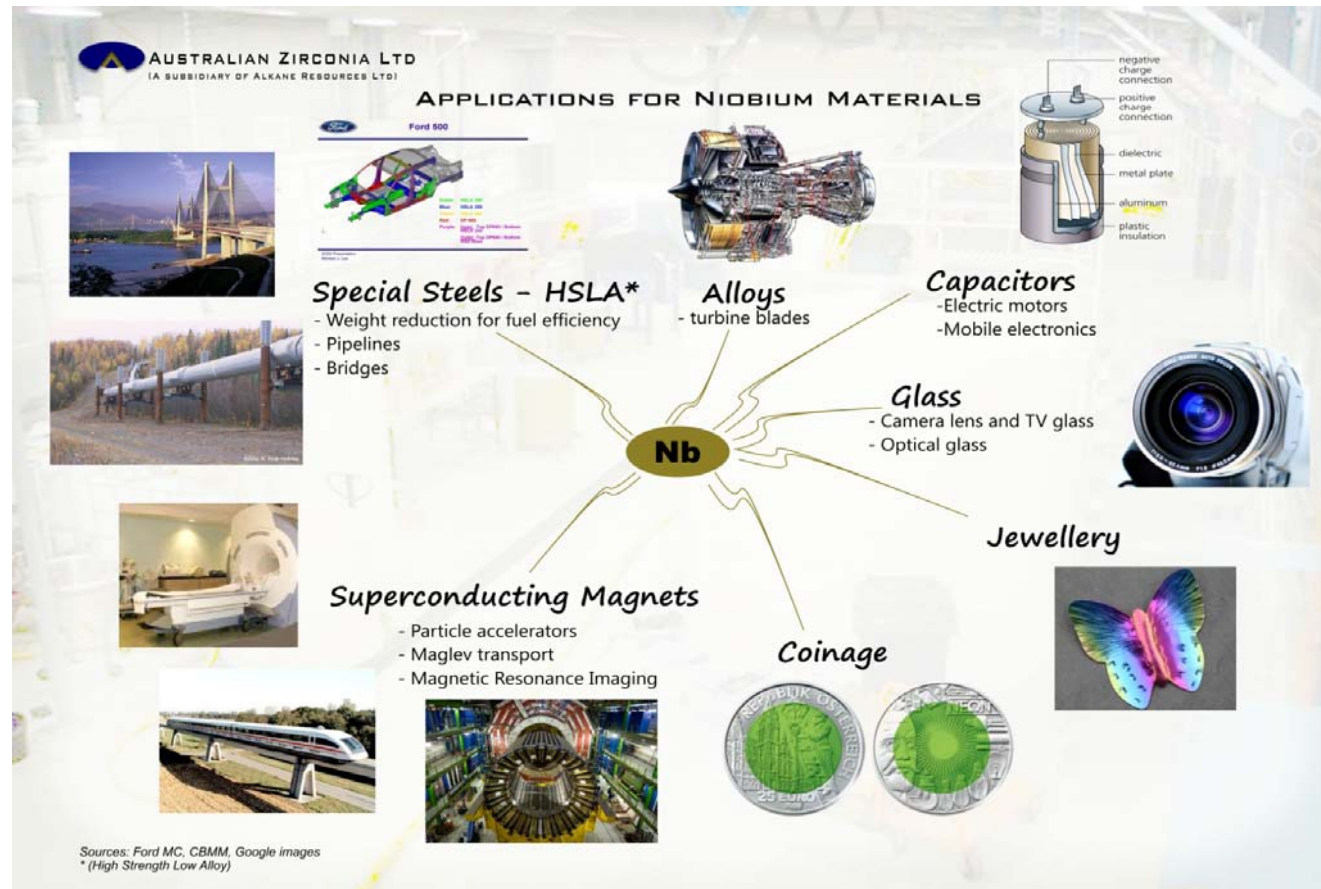
Zircon prices have escalated during 2010 and 2011 to >US\$2,300/t

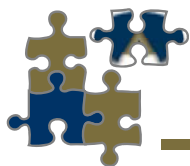
*Zircon price and supply will have a major impact on the cost and availability of zirconium chemicals, zirconia and zirconium metal. China and Japan have declared zirconium a strategic metal.*

Source: TZMI

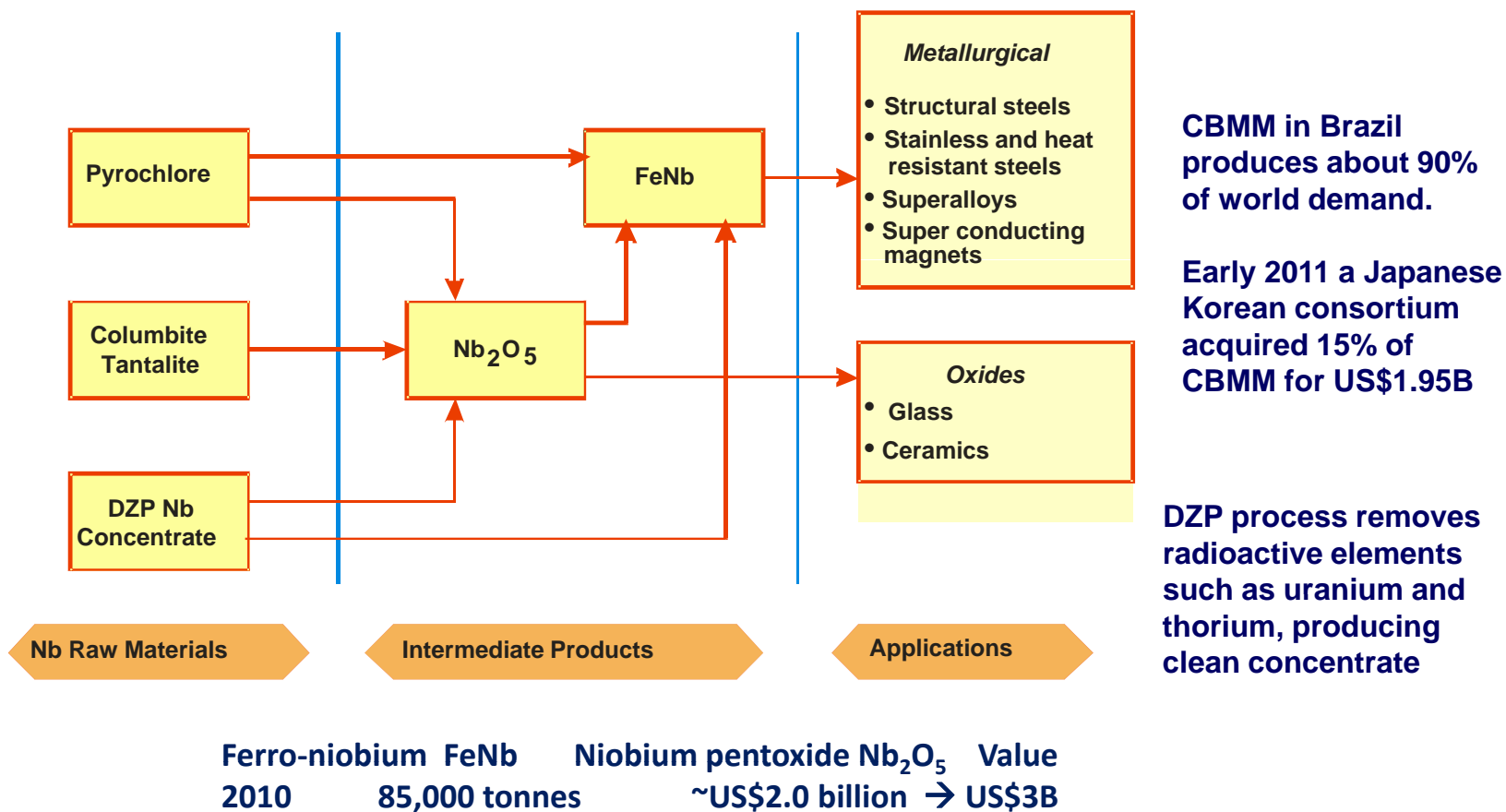


# Marketing - Niobium Applications



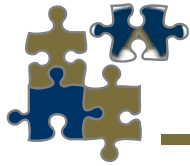


# Structure of Niobium Industry



Source: TZMI

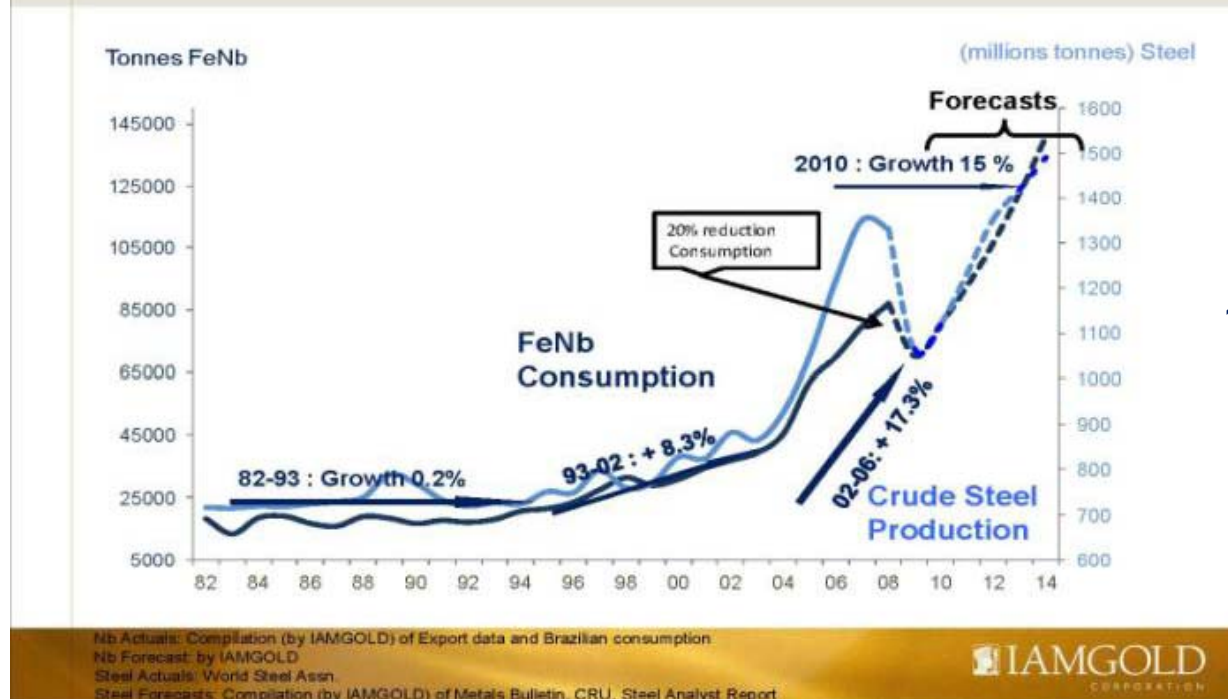




# Niobium Demand



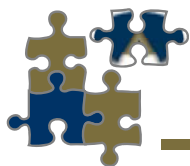
## World Consumption Forecast (FeNb)



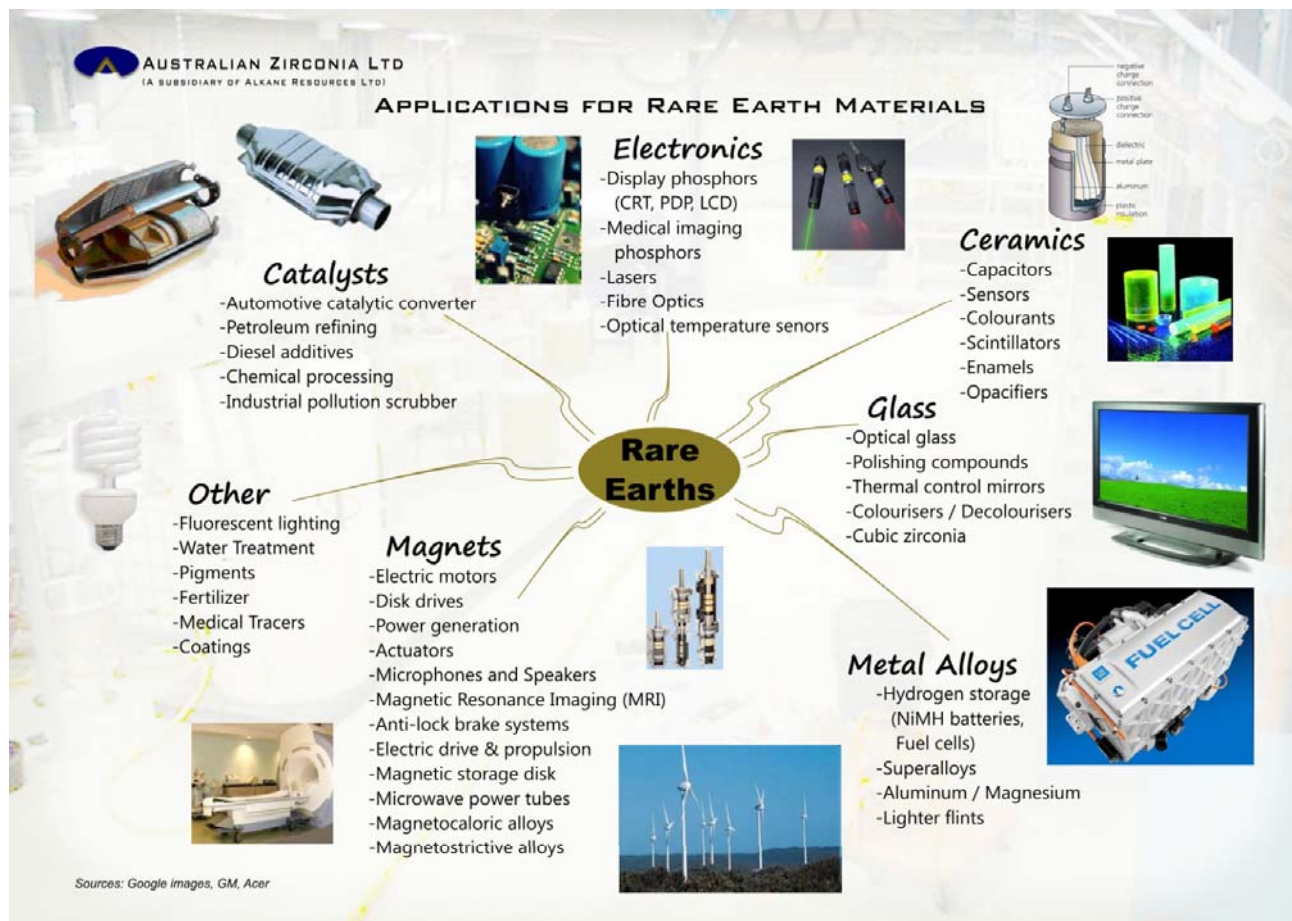
**Niobium 2008  
(Ferroniobium units)  
consumption  
~85,000t – 90% Brazil  
Estimate for 2012  
~100,000t**

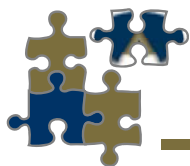
**Ferroniobium price spiralled to US\$60/kg in March 07 and is currently around US\$40 - 45/kg**

**Sources: IAMGOLD / TZMI**

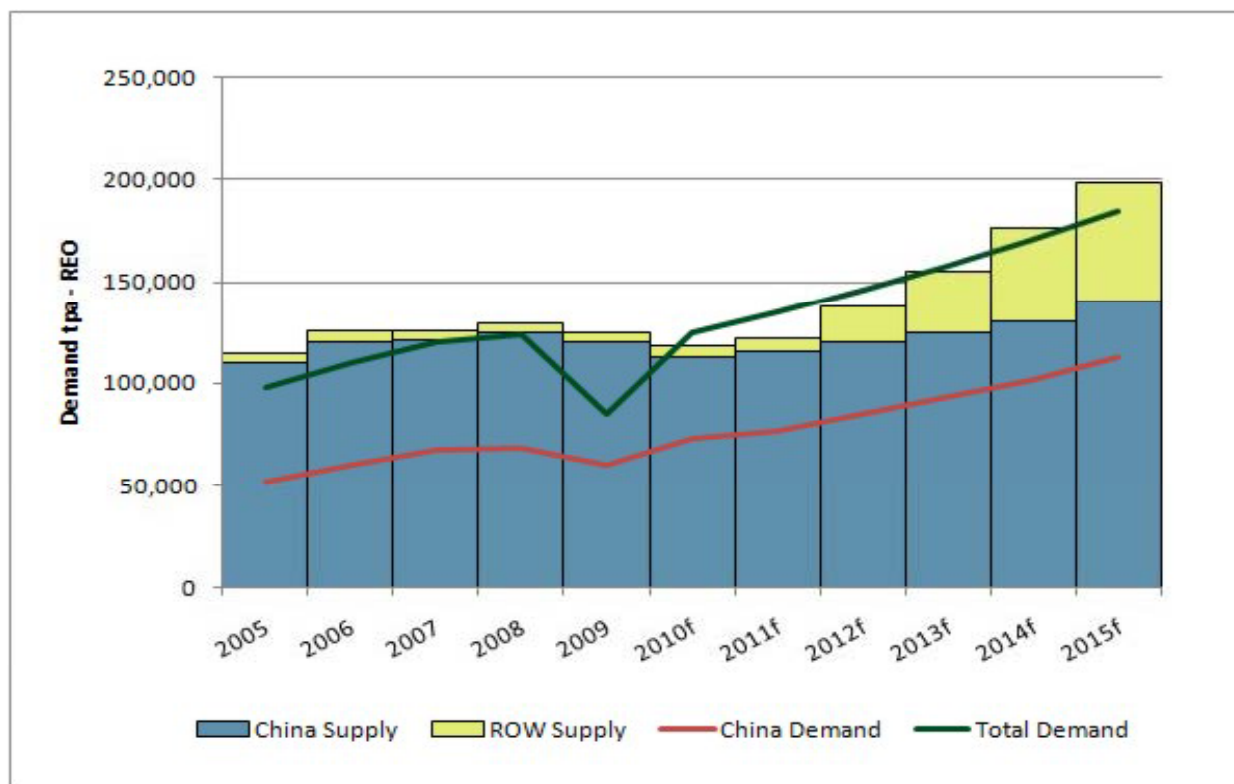


# Marketing - REE Applications





# Rare Earth Supply - Demand



Will rare earth supply demand be in balance from 2015 with Lynas and Molycorp producing?

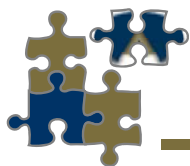
High probability for LREE but not HREE

The DZP has a 75% LREE - 25% HREE split which gives it a demand advantage

Separated rare earth products  
2010 130,000 tonnes

Value  
~US\$2.0 billion → US\$6.5B??

Source: IMCOA



# DZP Rare Earth Pricing



## Rare Earths Prices 2010 (US\$/kg REO)

(Source: Metal Pages© )

Light Rare Earth	DZP Distribution	Q2 Average 2010	Q3 Average 2010	Q4 Average 2010	Q1 Average 2011
Lanthanum Oxide	19.5%	\$7.13	\$25.75	\$53.00	\$95.00
Cerium Oxide	36.7%	\$5.58	\$24.50	\$50.00	\$96.00
Praseodymium Oxide	4.0%	\$30.60	\$48.25	\$77.00	\$155.00
Neodymium Oxide	14.1%	\$31.13	\$49.50	\$80.00	\$170.00
Samarium Oxide	2.2%	\$4.50	\$22.25	\$34.00	\$95.00
<b>Heavy Rare Earth</b>					
Europium Oxide	0.07%	\$521.67	\$570.00	\$625.00	\$820.00
Gadolinium Oxide	2.15%	\$8.25	\$28.75	\$44.00	\$130.00
Terbium Oxide	0.34%	\$545.00	\$570.00	\$605.00	\$830.00
Dysprosium Oxide	2.05%	\$196.67	\$275.00	\$295.00	\$520.00
Ho, Er, Tm, Yb, Lu	2.9%				
Yttrium Oxide	15.8%	\$11.42	\$26.25	\$56.00	\$125.00
<b>DZP LREE</b>	<b>76.68%</b>	<b>\$12.06</b>	<b>\$30.58</b>	<b>\$57.20</b>	<b>\$112.00</b>
<b>DZP YHREE</b>	<b>23.32%</b>	<b>\$42.23</b>	<b>\$62.34</b>	<b>\$78.70</b>	<b>\$157.00</b>
<b>DZP LREE Concentrate Value</b>		<b>\$8.44</b>	<b>\$21.41</b>	<b>\$40.04</b>	<b>\$79.00</b>
<b>DZP YHREE Concentrate Value</b>		<b>\$29.59</b>	<b>\$43.64</b>	<b>\$55.09</b>	<b>\$110.00</b>

Compiled by IMCOA

**Spot 8 June**

\$149  
\$150  
\$240  
\$320  
\$130

\$3,000  
\$195  
\$2,920  
\$1,490

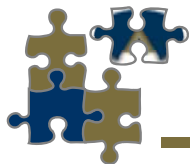
.....\$165.....

\$195  
.....\$312.....  
\$136  
\$219

**DZP REE Concentrates expected to return 70% of separated prices**

Q4 average prices currently used in revenue projections

**Source: IMCOA**



## DZP Marketing Developments



**Major MoU just announced: JV to develop 15,000t to 20,000t ZOC production (~6,000 – 7,000t of  $ZrO_2$  equivalent) facility using DZP intermediate zirconium feed. This JV would consume all the Base Case Zr output and almost assures the development of the 1Mtpa operation.**

**Target markets in Japan, Europe and North America.**

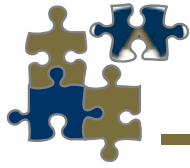
**Advanced discussions with other zirconium consumers / marketing specialists to secure sales for all remaining 1Mtpa Zr output. Many product samples distributed for evaluation.**

**MoU advanced with niobium consumer to look at JV to produce ferro-niobium from DZP niobium concentrate for specialised alloy markets.**

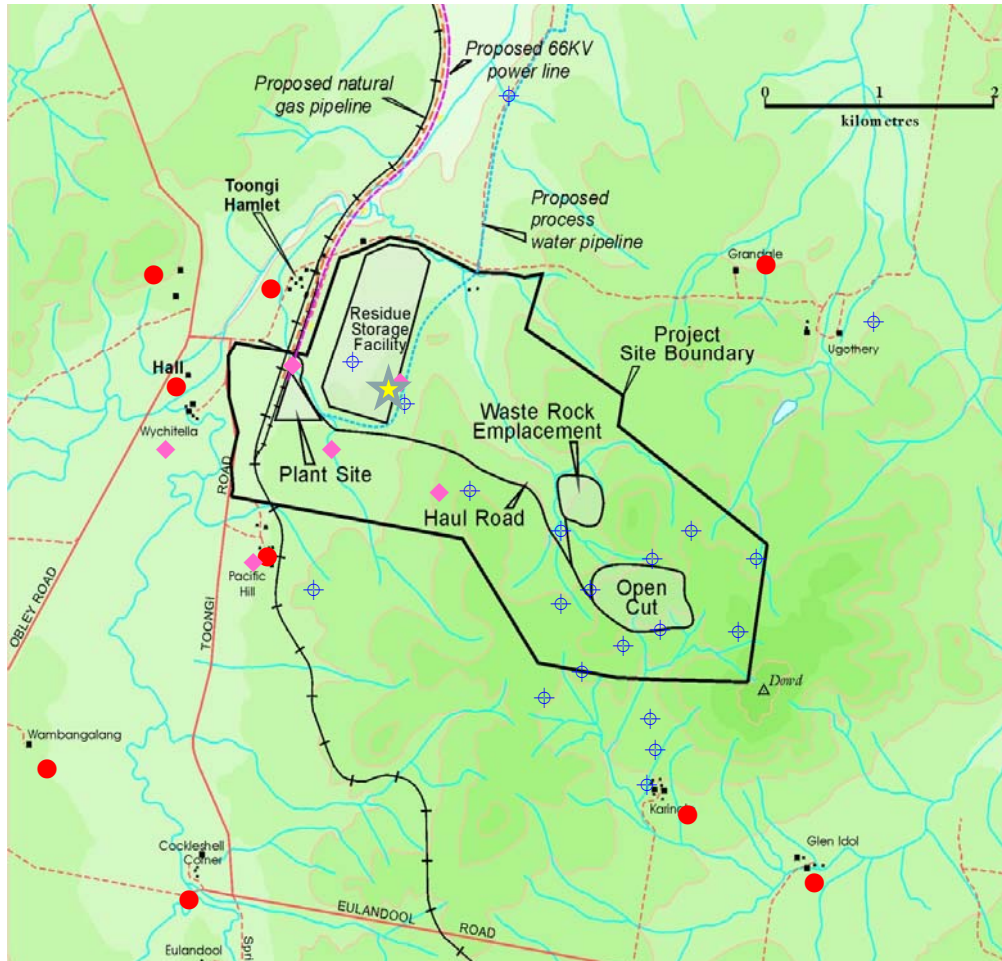
**Numerous discussions for sale or JV of light rare earth concentrate and heavy rare earth concentrate. Samples distributed for consumer evaluation.**







# DZP Environmental Monitoring Stations



● Noise Monitoring Site

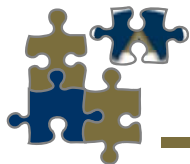
◆ Dust Monitoring Site

⊕ Water Monitoring Site

★ Permanent Weather Station

**Environmental Studies  
Completed 2002 and now  
being updated**

**Flora  
Fauna  
Transport  
Surface and groundwater  
Social impact  
Aboriginal heritage  
Natural radioactivity**



## DZP Radioactive Elements



**All rare metal – rare earth deposits contain some radioactive elements such as uranium and thorium.**

**The Toongi deposit contains low levels of radioactive elements, uranium and thorium, and has low level natural emissions.**

**The DZP flow sheet does not produce a mineral concentrate from the ore, and hence does not generate increased radioactivity.**

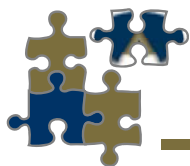
**The DZP flow sheet does not focus radioactive elements internally to a level that requires specific management and produces clean chemical concentrates in final products.**

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**The DZP waste streams are diluted with limestone/lime for neutralisation, which further dilutes any contained radioactive elements such that they are of lower concentration than in the deposit. All wastes are contained within the project site.**

**The deportment and concentration of “daughter products” (radionuclides) within the process streams is an important consideration. Not just uranium and thorium.**





## Financial – DZP Product Output and Revenues

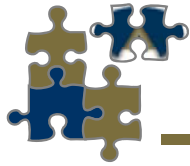


**Base case of 400,000 tonnes pa and expanded 1 million tonnes pa of ore processed**

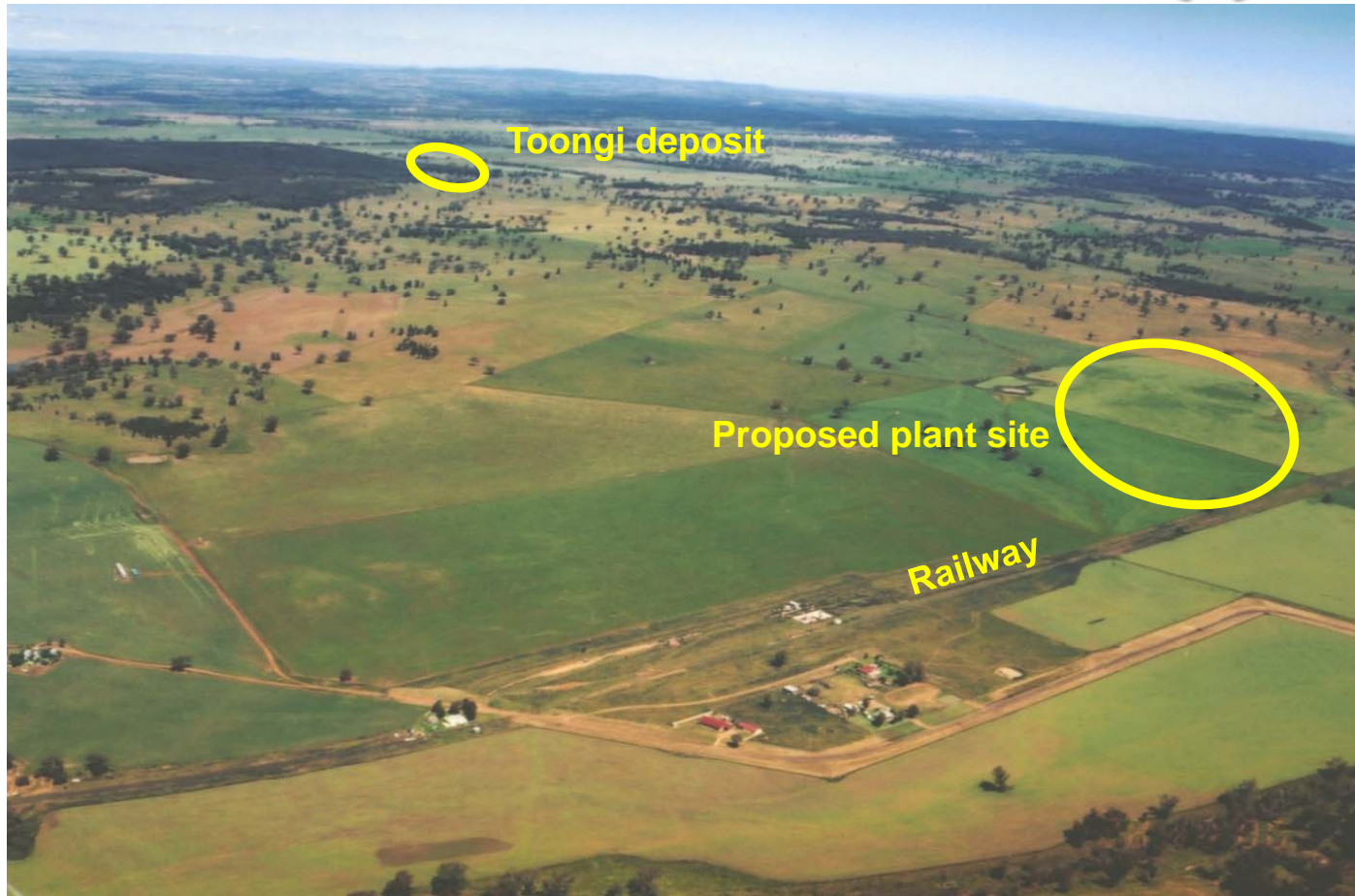
Potential Production and Revenues				
Product	400,000 tonnes per annum		1,000,000 tonnes per annum	
ZBS, ZOH, ZBC, ZrO <sub>2</sub>	6,000tpa	US\$42M*	15,000tpa	US\$105M*
Nb -Ta concentrate	1,400tpa	US\$42M*	3,500tpa	US\$105M*
LREE concentrate	1,415tpa	US\$57M**	3,540tpa	US\$142M**
YHREE concentrate	425tpa	US\$24M**	1,070tpa	US\$63M**
<b>AVERAGED TOTALS</b>	<b>9,240tpa</b>	<b>US\$160 - 170Mpa</b>	<b>23,110tpa</b>	<b>US\$400 - 450Mpa</b>
<small>*Zr @ US\$7.00/kg and Nb @ US\$30/kg as intermediate average prices  ** Price average of Q4 2010 for REO basket and assumes concentrate at 70% of total separated REO value  REO output based on average 50% recovery</small>				

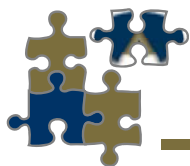
**Full operating and capital costs will be detailed in the feasibility study due later in July**

- 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, Pr      ▪ YHREE = Y, Gd, Dy, Tb

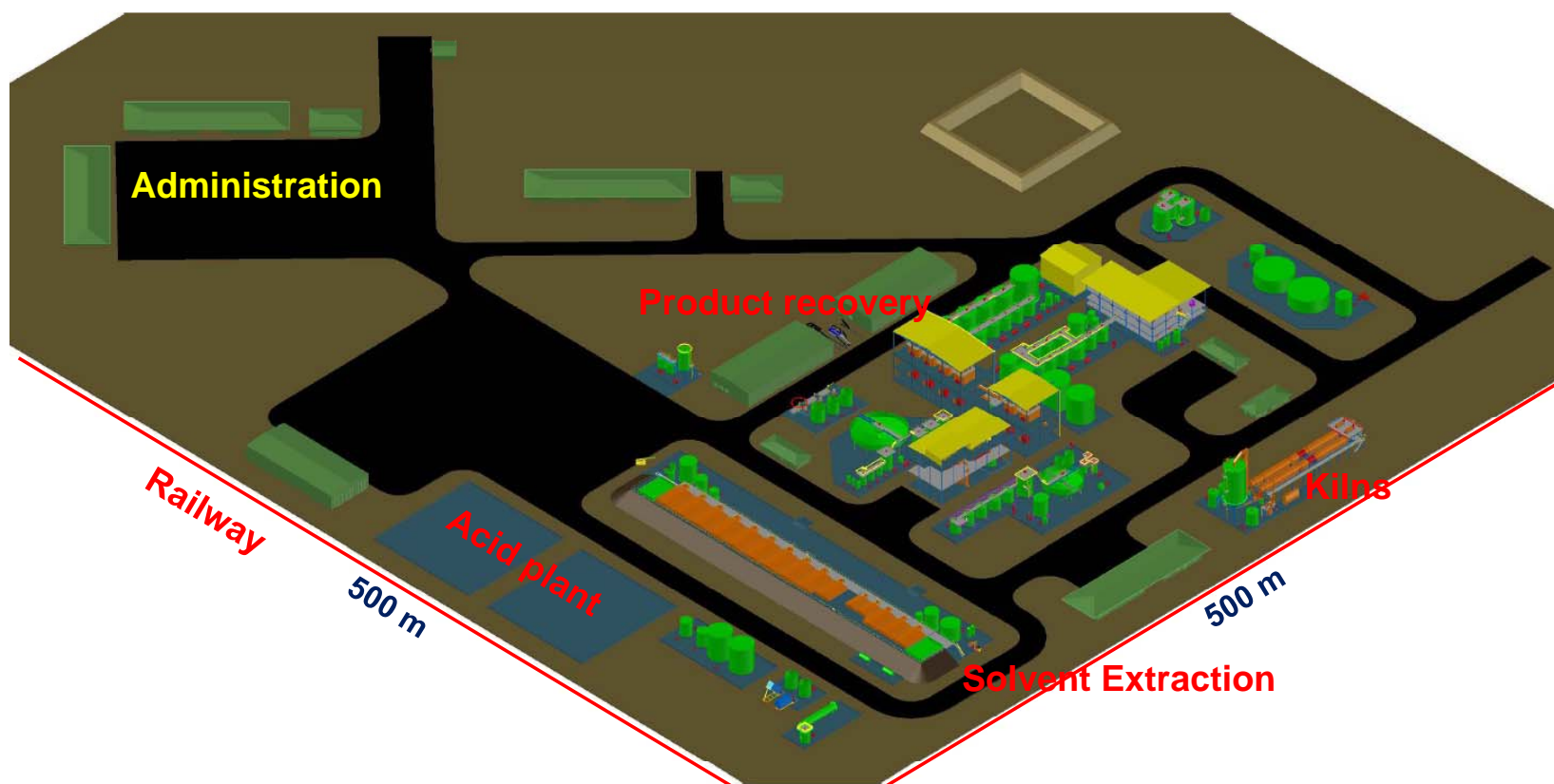


## Construction - DZP Site aerial Image

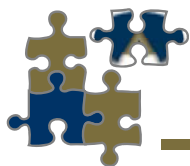




# DZP Plant Layout







# Development pathway

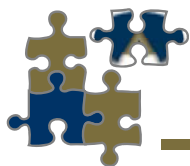


		-> 2009	2010	2011	2012	2013	2014
<b>DZP</b> 	<b>Resource definition 2001 - 2002</b>	✓					
	<b>Flow sheet development 2002</b>	✓					
	Laboratory Zr – Nb 1999 – 2002	✓					
	Pilot plant Zr – Nb 2002	✓					
	Mine Plan & Scheduling 2002	✓					
	Plant Design & Engineering 2002	✓					
	Laboratory Y & REE 2009 -	✓	✓				
	<b>Demonstration Pilot Plant 2008 -</b>						
	Zr – Nb Product Distribution	✓	✓	✓			
	Y - REE Product Distribution						
	<b>Secure Offtake Agreements</b>						
	<b>Definitive Feasibility Study</b>	2002					
	<b>Environmental Impact (EA)</b>	2000 ->					
	<b>Detailed Design</b>						
	<b>Financing / Development Consent</b>						
	<b>Construction</b>						
	<b>Production</b>						

Continued product development

Detail costs for expanded development





## The Summary



1. The Resource – the ore minerals and the host rock ✓
2. Process Development ✓
3. Large scale confirmation of flow sheet – pilot plant ✓
4. Market Development ✓
5. Environmental Assessment ✓
6. Financing ✓
7. Production

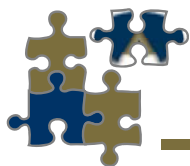


Completed or nearing completion



In progress





# Corporate snapshot

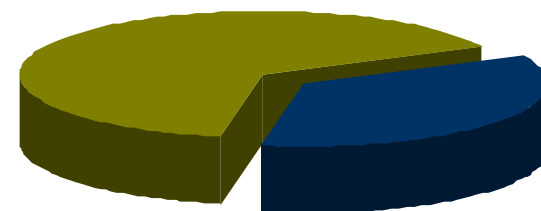


Exchanges	ASX: ALK OTCQX: ANLKY
Share Price (17 June 2011)	A\$2.40
Shares	269m
Fully Diluted Market Cap	~A\$650m
Cash (at 31 March 2010)	~A\$22m
<b>No debt</b>	
12 Month High / Low	A\$2.73/ \$0.23



Source: FT

## Shareholder profile\*

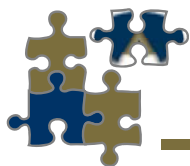


Retail	Top 20	~60%
Institutions	Directors & Management	3%
	Abbottsleigh (Gandel Metals)	26%

\*at 30 June 2010

## Directors & Management

J. S. F. Dunlop	Chairman
D. I. Chalmers	Managing Director
A. D. Lethlean	Non-Executive Director
I. J. Gandel	Non-Executive Director
L.A. Colless	CFO Joint Secretary
K.E. Brown	Joint Secretary
T W Ransted	Chief Geologist
M D Sutherland	General Manager NSW
T Wright	Commercial Manager



## Conclusion



# ***Dubbo Zirconia Project***

***A strategic and alternate supply for the zirconium,  
niobium and rare earths industries***

**[www.alkane.com.au](http://www.alkane.com.au)**

**Definitive Feasibility Study TZ Minerals International Pty Ltd**

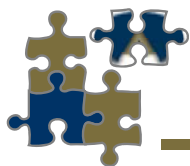
**Study managers: *Steve Gilman and Gavin Diener***

**Marketing: *Alister MacDonald (TCMS) and Dudley Kingsnorth (IMCOA)***

**ANSTO Minerals Group: *Bob Ring, Doug Collier, Karin Soldenoff, Des Levins, Chris Griffiths***

**DPP Operations: *Adrian Manis, Peter Fletcher, Prakash Rajalingam***

**Environmental Assessment: *R W Corkery & Co Pty Ltd***



# Disclaimer

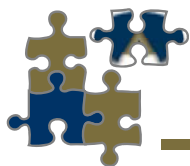


## **Disclaimer**

This presentation contains certain forward looking statements and forecasts, including possible or assumed reserves and resources, production levels and rates, costs, prices, future performance or potential growth of Alkane Resources Ltd, industry growth or other trend projections. Such statements are not a guarantee of future performance and involve unknown risks and uncertainties, as well as other factors which are beyond the control of Alkane Resources Ltd. Actual results and developments may differ materially from those expressed or implied by these forward looking statements depending on a variety of factors. Nothing in this presentation should be construed as either an offer to sell or a solicitation of an offer to buy or sell securities.

## **Competent Person**

The information in this presentation that relates to mineral exploration, mineral resources and ore reserves is based on information compiled by Mr D I Chalmers, FAusIMM, FAIG, (director of the Company) has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Ian Chalmers consents to the inclusion in the presentation of the matters based on his information in the form and context in which it appears.



## DZP Resource Statement



### Dubbo Zirconia Project

Toongi Deposit	Tonnage (Mt)	ZrO <sub>2</sub> (%)	HfO <sub>2</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	Ta <sub>2</sub> O <sub>5</sub> (%)	Y <sub>2</sub> O <sub>3</sub> (%)	REO (%)	U <sub>3</sub> O <sub>8</sub> (%)
Measured	35.70	1.96	0.04	0.46	0.03	0.14	0.75	0.014
Inferred	37.50	1.96	0.04	0.46	0.03	0.14	0.75	0.014
<b>TOTAL</b>	<b>73.20</b>	<b>1.96</b>	<b>0.04</b>	<b>0.46</b>	<b>0.03</b>	<b>0.14</b>	<b>0.75</b>	<b>0.014</b>

*These Mineral Resources are based upon information compiled by Mr Terry Ransted MAusIMM (Principal, Multi Metal Consultants Pty Ltd) who is a competent person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Terry Ransted consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. The full details of methodology were given in the 2004 Annual Report.*