



# CARMICHAEL RESEARCH

13<sup>th</sup> April 2005

## RECOMMENDATION

**SPEC. BUY**

## ASX CODE

**ALK**

## SHARE PRICE

**\$0.20**

## PRICE TARGET

**\$0.40**

## MARKET CAP

**\$29.6m**

## SHARES ON ISSUE

(ALK) 156.0m FPO shares

Unquoted  
 (ALKAO) 3.0m (Ex 35c)  
 Directors 31 May 2005  
 (ALKAI) 0.5m (Ex 40c)  
 Consultants 24 May 2007  
 (ALKAQ) 1.75m (Ex Var)  
 Directors 24 May 2007  
 (ALKAK) 0.975m (Ex 45c)  
 Unknown 29 May 2008

## AVERAGE VOLUME

1.12m shares per week  
 5.16m shares per month

## 12 MONTH SHARE PRICE PERFORMANCE (VS XSR)

1 month - 9.3%  
 3 month - 24.2%  
 1 year - 66.7%

**Terry Burns  
 & Simon Cole**  
 Resources Analysts  
 +61 8 9263 5270  
 tburns@djcmichael.com.au

## ALKANE EXPLORATION LTD (ALK)

### Initiating Coverage

Alkane Exploration's (ALK) current share price weakness is viewed as being overdone in a market that has been removing exploration or "blue sky" potential from the speculative end of the resource sector. The advanced nature of ALK's gold and copper-gold projects would appear to justify the current market capitalisation of the company (approx \$29.6m) without consideration of the remaining projects. The quality of the Company's focus and undeniable exploration prowess is further emphasised by ALK receiving the 2004 New South Wales (NSW) Department of Mineral Resources Explorer of the year award.

### Key Points

- An explorer with a mining background is rare. Gold from the Peak Hill open pit mine was produced via heap leaching with 152Kozs over the period 1996-2004 for a cash operating surplus of \$15m.
- ALK has an excellent tenement position in the Central West of NSW that is highly prospective for gold (Au) and copper-gold (Cu-Au) mineral deposits. Newcrest's giant Cadia deposit is located in this region.
- Primary focus is on gold and gold-copper projects with a current gold resource inventory of greater than 1Mozs. Limited ongoing activity is anticipated on the remaining project portfolio in the current financial year due in the most part to joint venture arrangements.
- Three major project "hubs" are located within a serviced rural district that supports a well developed mining culture.
- Approx \$3.0m in cash (following a recent placement @ 18c) to further advance the Tomingley Project "hub" that encompasses the Wyoming (Au) prospects and the Wellington Project "hub" that encompasses the Galwadgere (Cu-Au) prospect.
- The Dubbo Zirconia project, Leinster Nickel JV (Jubilee Mines 51%) and the Bonnie Ck Channel Iron Deposit project have considerable value that has not been quantified in this report and could add considerable value to ALK's bottom line.
- Significant operational experience remains available to ALK apart from that of the Board via retention of key personnel from the recently completed Peak Hill operation. Senior production personnel continue to develop alternative mining strategies for the Wyoming prospects and can quickly evaluate and bring new discoveries on stream.

### 12 MONTH SHARE PRICE (VS XSR)



*ALK has consistently traded below the Small Resources Index (XSR) for the last six months.....*

Source: IRESS

## Table of Contents

EXECUTIVE SUMMARY .....	3
INTRODUCTION .....	3
<b>PROJECT PORTFOLIO.....</b>	<b>4</b>
<i>GOLD/COPPER-GOLD PROJECTS.....</i>	<i>4</i>
TOMINGLEY GOLD PROJECT (TGP).....	4
<i>Wyoming Prospects .....</i>	<i>4</i>
<i>Peak Hill Gold Mine.....</i>	<i>6</i>
<i>Wellington Project (WP).....</i>	<i>6</i>
<i>Galwadgere Prospect .....</i>	<i>6</i>
<i>Bodangora Prospect.....</i>	<i>7</i>
<i>Orange Project.....</i>	<i>7</i>
<i>Molong Prospect.....</i>	<i>7</i>
<i>Moorilda Prospect.....</i>	<i>7</i>
<i>Cudal Prospect .....</i>	<i>7</i>
<i>NON-GOLD/COPPER-GOLD PROJECTS.....</i>	<i>8</i>
<i>Dubbo Zirconia Project (DZP).....</i>	<i>8</i>
<i>Leinster Region Joint Venture (LRJV).....</i>	<i>9</i>
<i>Nullagine.....</i>	<i>9</i>

## Executive Summary

ALK has been a successful self-funded explorer in recent years where cashflow from the Peak Hill open pit gold operation has enabled the Company to consolidate favourable tenement positions in response to a strong strategic focus on gold and gold-copper exploration. The non-gold component of the portfolio has considerable value which we believe is not reflected in the current share price.

*ALK's exploration ability is emphasized by receiving the 2004 NSW Department of Mineral Resources Explorer of the year award*

We believe that a resource inventory of >1moz of gold from the initiatives undertaken in the central-west of New South Wales (NSW) is capable of providing for a project development pipeline following further drilling and optimisation studies.

Wyoming should be given the green light once an optimised study is completed into a less conventional mixture of open pit and underground mining. The large yet refractory gold orebody beneath the Peak Hill mine, with potential for mineralisation at Wyoming Two and the possibility for the identification of resources along strike from the historic Myalls United mine suggest that the Tomingley project "hub" may develop into a large production centre. Several other NSW projects are capable of returning positive results and include the projects within the Wellington "hub" where further drilling at the Galwagere (Au-Cu) Prospect should provide information capable for a resource calculation.

## Introduction

*From gas exploration to gold mining*

ALK first listed in 1969 as a gas explorer in the Sydney Basin. In the early 1980's the Company switched to mineral exploration with most activity in (NSW). In 1992 ALK sold the London Victoria deposit near Parkes to BHP Gold for one of that company's first foray's into the yellow metal. In 1993 ALK pushed the button at Peak Hill but lengthy Native Title claims delayed mining until 1996.

*Strong strategic focus on gold and NSW*

ALK is a mineral exploration company focused on exploration, development and mining of gold (+/- copper) in the Central West of NSW. The Company has an array of other projects including specialty metals at the Dubbo Zirconia Project in Central West NSW and both the Leinster Downs, Miranda and McDonough Lookout nickel-gold joint venture (JV) adjacent to the Cosmos Nickel Project (Jubilee Mines 51%) and the Bonnie Creek Channel Iron Deposit at Nullagine in Western Australia (WA).

*Successful self-funded explorer via gold mining*

The model of a self-funded explorer has been very successful for ALK as it has enabled the Company to consolidate favourable tenement positions to further a strong strategic focus on gold and gold-copper via three project "hubs" in a highly prospective region of NSW that is supported by a sizeable population and an established mining culture.

*A return to gold mining in 2006?*

There is no doubt that the Company is well positioned in NSW to use the considerable technical knowledge obtained via mining and successful exploration since the 1990s to not only expand known mineralisation via more brownfield exploration but discover new deposits via purely greenfield initiatives.

*Commodity diversification or pure play?*

A strong cash position following a recent placement will advance the Wyoming deposits to mining by utilising the most financially robust blend of open pit and underground production. Consideration of the Peak Hill underground orebody and other exploration opportunities that may exist within the belt, in conjunction with a Wyoming development, would appear the best coordinated approach to a significant production outcome for ALK. The current resource inventory of >1 million ozs of gold is a tasty prize for an integrated operation at Tomingley.

The "non-gold/copper" and "non NSW" projects are significant in their own right and add considerable value to ALK. The choices that appear to confront the Company at present are two-fold in nature. Firstly is it better to be diversified in a number of commodities and regions and secondly is there more value to ALK to have such diversity of projects/commodities and locations. Strong arguments can be mounted to defend both positions.

It is our opinion that the Dubbo Zirconia Project (DZP) has far more value outside of ALK as the intrinsic value of the project (and the measured resource) is not reflected in the current share price ascribed to the Company. If the project was spun-out on its own then the remaining geographical split would dictate ALK remain a pure NSW gold/copper miner and explorer with the Western Australian projects potentially joining the DZP for a diversified mining and production company. However, JVs with others may well be a better option for the WA interests.

## PROJECT PORTFOLIO

ALK first listed in 1969 as a gas explorer in the Sydney Basin. In the early 1980's the Company switched to mineral exploration with most activity in (NSW). In 1992 ALK sold the London Victoria deposit near the Parkes deposit to BHP Gold for one of that company's first forays into the yellow metal. In 1993 the Company pushed the button at Peak Hill but lengthy Native Title claims delayed mining until 1996.

ALK is a mineral exploration company focused on exploration, development and mining of gold (+/- copper) in the Central West of NSW. The Company has an array of other projects including specialty metals at the Dubbo Zirconia Project in Central West NSW and both the Leinster Downs, Miranda and McDonough Lookout nickel-gold joint venture (JV) adjacent to the Cosmos Nickel Project (Jubilee Mines 51%) and the Bonnie Creek Channel Iron Deposit at Nullagine in Western Australia (WA).

## GOLD/COPPER-GOLD PROJECTS

### Tomingley Gold Project (TGP)

Alkane Exploration Ltd 100%

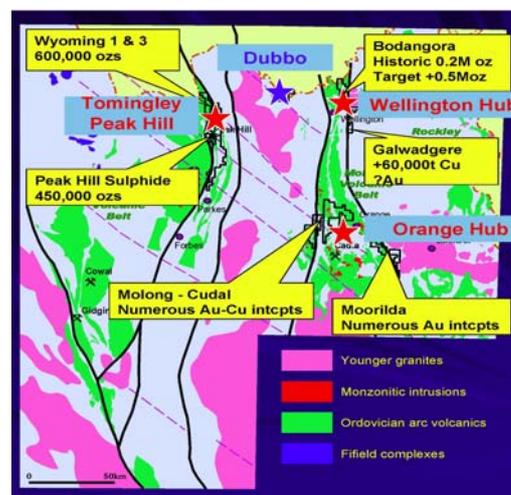
Gold – NSW

Area -366km<sup>2</sup>

The TGP extends over 60kms from near Parkes in the south, to north of Tomingley in the Central West of New South Wales and covers a narrow sequence of Ordovician volcanic rocks. The Wyoming Prospect, within the TGP, is situated about 14kms north of the Company's Peak Hill Gold Mine and immediately north of the historic 70Kozs gold producing Myalls United Mine (also known as McPhails). Subject to separate royalty agreements with Compass Resources NL, Golden Cross Operations Pty Ltd and Climax Mining Ltd.

Drilling first intersected Wyoming One in May 2001 and to date >115km of drilling (1205 holes) has been completed (incl pre-discovery exploration). The total project expenditure of \$5.4m to end December 2004 equates to approximately A\$8/oz (resource) discovered.

### Gold/Copper Conceptual Development Hubs



Source: ALK

### Wyoming Prospects

#### Geology

To date the Wyoming prospect has been divided into three areas, Wyoming One to Wyoming Three, this being more a function of drilling passes than geological control i.e. the drilling has tended to concentrate around the high grade hits, however with definition drilling, the three areas could potentially form one structure some 1000m long.

At Wyoming One the main porphyry intrusive appears to be a near vertical, pinnacle shaped body whose northern extent is truncated by a vertical east-west structure which is strongly mineralised at the contact with the porphyry. The main zone of mineralisation is overlain by approximately 30m of unmineralised cover.

The top of the porphyry is strongly altered and veined, and is mineralised throughout. The contact of the porphyry with the host volcanoclastic rocks is also altered, veined and mineralised, particularly on the eastern contact. At depth the mineralisation appears to be controlled by more specific structures. A zone in

the hangingwall located 20-30m east of the porphyry contact has been traced over a strike length of 300m and individual shoot like bodies control high grade mineralisation.

Wyoming Three is currently interpreted to be a structurally controlled west-north-west trending sheeted quartz vein system associated with major regional dislocation. The mineralisation is largely within the host volcanoclastic rocks and although porphyry bodies are present they are not extensively altered or mineralised as at Wyoming One. Overall the mineralised system is near vertical and has returned >1g/t gold intercepts over a strike length of 300m with variable widths, but grades and widths can be substantial within link structures. The unmineralised cover at Wyoming Three is generally <10m.

## Resources

**On December 2004, Identified Mineral Resources stood at:**

WYOMING RESOURCES (>0.75g/t Au cut off)									
DEPOSIT	Measured		Indicated		Inferred		Total		Ounces
	Tonnage (t)	Grade (g/t)							
Wyoming One	4,020,000	2.25	1,010,000	2.77	1,270,000	4.09	6,300,000	2.70	547,700
Wyoming Three	815,000	2.20	15,000	2.32			830,000	2.20	58,700
<b>TOTAL</b>	<b>4,835,000</b>	<b>2.24</b>	<b>1,025,000</b>	<b>2.76</b>	<b>1,270,000</b>	<b>4.09</b>	<b>7,130,000</b>	<b>2.70</b>	<b>606,400</b>

Source: ALK

At Wyoming One resource definition drilling in 2003 on a 25m x 20m pattern covered an area of 150m x 250m down to a depth of 250m on the north north-west trending porphyry associated veining and alteration system. Deeper RC and core drilling during 2004 was successful in delineating high grade zones. within the porphyry, hangingwall zones (HWZ) and an gold bearing structure known as "376".

Deep core hole WY 811D targeted an apparent north plunging high grade shoot within the linear north north-west striking HWZ and intersected a zone of alteration and mineralisation, with quartz veining and sulphides prominent in the section between 520m and 540m. The intersection is 200m below the previous deepest intersection in the HWZ (WY 812 17m @ 4.72g/t Au, including 9m @ 6.70g/t Au) and is approximately 450m below surface. This new intercept added significant potential to the total resources at Wyoming One and demonstrated that the HWZ shoot has the tonnage/grade potential to support an underground development.

## Pre-Feasibility Study

A substantial open pit potential is indicated by the pre-feasibility study. The study also targeted the high grade shoot potential with a view to an underground operation. These shoots are open at depth and along strike therefore the possibility of discovering additional shoots is high. Pre-feasibility studies initially focussed on the conceptual model of open pit mining and conventional CIL gold recovery circuit. All processing plant and associated services would be sited adjacent to the mine at Wyoming, about 2kms south of the town of Tomingley. The base case assumed a 1Mtpa open pit throughput, but given the geometry of the deposits and the 30m of clay cover at Wyoming One, the open pit options were unable to deliver ore feed for five years with manageable waste to ore ratios. This impacted on the overall financial model and, while generating positive cash flows, the base case scenario did not achieve the required rates of return.

A number of options are being considered. Modelling of the orebodies is ongoing with the aim of returning an open pit option of higher grade and determining the scope of stand alone underground development. The addition of further open pit resources within economic trucking distance of the plant is also regarded as a priority, and a significant exploration effort focussed on achieving this goal.

The TGP is located in an area of substantial existing infrastructure with the major Newell Highway transecting the project area linking a number of towns with a regional population base exceeding 150,000. No camp facilities are required and the workforce can be sourced locally. A natural gas pipeline and railway are located 5km west of Tomingley, and power is available from the NSW state grid.

### Exploration

A major reconnaissance drilling program commenced early 2004 to advance target development on the many regional anomalies located within 10km of Wyoming. Of immediate interest is the 5km long north-south structural corridor that includes the historic workings at Tomingley (located 1.5km north-east of Wyoming Three), the partially tested Tomingley One target and another area of mineralisation located by earlier reconnaissance drilling at the north end of the corridor. Numerous plus 0.5g/t Au intersections have been recorded in this drilling, identifying a new 800m long zone designated Tomingley Two. Other encouraging intercepts were generated at Patons East, located 1.2km north-east of Wyoming Three. There are several other promising targets requiring early stage exploration initiatives including aeromagnetic targets within the belt.

### Peak Hill Gold Mine

The large gold-copper sulphide body below the current open pits remains a major resource but with the Wyoming discovery the evaluation of this complex mineralisation has taken on a lower priority but features prominently in a regional production scenario.

Reticulation of existing heap leach pads continued at the Peak Hill Gold Mine throughout 2004 and produced 1969ozs Au. At December 31, 2003 the Mineral Resource (at 1.0g/t Au) was –

<b>INDICATED RESOURCES</b>	<b>9.44 million tonnes</b>	<b>1.35g/t Au</b>	<b>0.11% Cu</b>	
<b>INFERRED RESOURCES</b>	<b>1.83 million tonnes</b>	<b>0.98g/t Au</b>	<b>0.10% Cu</b>	
<b>TOTAL</b>	<b>11.27 million tonnes</b>	<b>1.29g/t Au</b>	<b>0.11% Cu</b>	<b>467,570 ounces</b>

Sulphide Orebody (1.0g/t Au COG) Source: ALK

### Wellington Project (WP)

Alkane Exploration Ltd 100%

Gold & Copper-Gold – NSW

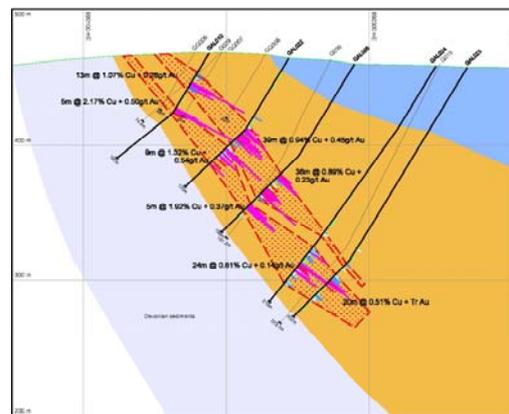
The Wellington Project is centred near the town of Wellington. The project hosts several targets, including the Federal gold and Galwadgere copper-gold prospects. Most previous work by ALK had focussed on Federal but the improving copper price in 2004 prompted a reassessment of the potential of Galwadgere.

### Galwadgere Prospect

At Galwadgere exploration by other companies has taken place intermittently since 1967, with the bulk of the work comprising 41 diamond core holes completed during the 1970's and located an extensively altered felsic to intermediate volcanic sequence hosting base metal sulphide and gold mineralisation. Eleven shallow RC holes were drilled in 1989 to test for a possible supergene oxide gold deposit in the near surface environment. Several resource calculations were completed by other companies but these do not comply with current JORC guidelines.

The drilling to date demonstrates a minimum strike length of 400m. Several mineralised lenses have widths reaching 40m. An additional horizon

### Representative section of the Galwadgere Prospect



Source: ALK

of lead-zinc-silver-gold (in order of significance) is indicated by an early geological interpretation. The deposit also hosts gold and zinc which has not been evaluated. A ground electromagnetic survey has been planned to test the system at depth and to the north and south, prior to further drilling.

During 2004 ALK completed 26 RC holes and one diamond hole totalling 4030m. The drilling was designed to test the known copper-gold mineralisation over a strike length of 400m on 50m sections down to depths ranging from 25m to 175m. The results have confirmed that the mineralisation has an open strike length of at least 400m and appears to be comprised of a number of disseminated and stringer pyrite-chalcopyrite lenses which can reach widths of 40m within altered felsic volcanic rocks. The system is structurally overturned and dips to the east at about 60°. There is an apparent plunge to the north at 45-50° although this may be a function of lack of drilling on the southern end of the deposit where topography limits drill access. The stringer mineralisation appears to be capped by a lead-zinc-silver-gold rich bedded massive sulphide, but to date this has rarely exceeded 2 to 3m in width. There is potential for this horizon to increase in thickness to the north and down plunge. A ground electromagnetic survey has been planned to test the system at depth and to the north and south, prior to further drilling. An inferred non-JORC resource of 1.7Mt @ 1.66 % Cu was calculated by the previous explorers.

### **Bodangora Prospect**

Bodangora is located 15kms north-east of Wellington, and about 25kms north of ALK's Wellington (Galwadgere) prospect. The tenement includes part of the northern end of the Ordovician aged Molong Volcanic Belt (MVB) and is covered by the younger sediments of the Great Australian Basin.

Alkane's primary target in the area is structurally controlled gold deposits, exemplified by the historic Bodangora workings, which cover an area of about 2kms x 2kms. The main mineralised structure at Bodangora strikes north-west and has been mined over a distance of 1300m, to a depth of 300m. The structure is generally evident as narrow high grade quartz veins dipping at 45° to the north-east. Historically Bodangora produced nearly 200Kozs of Au from 300Kt of ore in the years 1876 to 1917.

### **Orange Project**

ALK Exploration 100% (part subject to 3% NSR to Royalco and 2% to Rio Tinto)

Gold-Copper – NSW

### **Molong Prospect**

The Molong prospect is centred immediately to the north and west of the city of Orange and lies within the central part of the Molong Volcanic Belt (MVB), immediately to the north of the Cadia Valley Operations (~30Moz) of Newcrest.

A number of prospective targets exist within the project area and these have been partially tested by various programs including geological mapping; auger soil geochemistry; Induced Polarisation; detailed aeromagnetics; and RC and diamond core drilling.

Overall the drilling has confirmed the potential of the Molong Project area to host a major dioritic to monzonitic intrusive complex, of the same age and composition as those rocks that host the giant Cadia-Ridgeway deposits. Prospect appraisal programs will continue, however priority is low.

### **Moorilda Prospect**

Moorilda straddles the structural contact between the Ordovician aged Molong Volcanic Belt in the west and the Siluro-Devonian sediments and volcanics of the Hill End Trough to the east. Numerous historical gold workings are scattered along 60kms of the structure of which about 30kms is held by the Company. The giant Cadia-Ridgeway gold-copper monzonite associated orebodies of Newcrest Mining are located 30kms to the west while the major historic producer at Lucknow (~500Kozs Au) is 5kms to the northwest. Limited drill testing has generated assays worthy of additional work including 3m @ 4.52g/t Au and 0.31% Cu from 105m.

### **Cudal Prospect**

Cudal is centred 25kms of the city of Orange, adjacent to ALK's Molong prospect and the Cadia Valley Operations of Newcrest. The tenements are located on an outlier of MVB andesitic volcanics, separated from the main belt to the east by the Columbine Mountain Fault, another major crustal structure. Remnants of a Tertiary basalt sheet are scattered throughout the tenements.

RC drilling at Dairy Hill of a quartz stockwork breccia in a dacite porphyry, with dimensions of 550m x 150m, generated broad low-grade intercepts such as 48m @ 0.35% Cu and 0.31 g/t Au. Much of the target area and its extensions remain undrilled.

Large surface geochemical anomaly at Bowan Park (3.7kms x 100-500m) returned high grade rock chip values within a broad alteration zone. RC drilling returned intercepts such as 33m @ 0.21g/t Au and 0.31% Cu; 6m grading 0.99g/t Au and 0.06% Cu; and 2m at 2.73g/t Au and 0.66% Cu. Other skarn targets and magnetic anomalies have not been tested.

## NON-GOLD/COPPER-GOLD PROJECTS

### Dubbo Zirconia Project (DZP)

Australian Zirconia Ltd (AZL) 100%

Zirconia, niobium-tantalum, yttria-rare earths – NSW

The DZP is located 20km south of the large regional centre of Dubbo in the Central West Region of NSW and is based upon a large Jurassic aged alkaline volcanic complex with highly metal enriched vertical intrusives. The upward trend in the price of rare earth concentrates suggests that an IPO of AZL could be most successful based on a fast-tracked pilot plant program undertaken in 2002.

The DZP is based upon one of the world's largest in-ground resources of the metals zirconium, niobium, tantalum, yttrium and rare earth elements. The project is capable of generating a suite of zirconium chemicals, zirconia ( $ZrO_2$ ), a niobium-tantalum concentrate and a yttrium-rare earth concentrate which are used in the expanding ceramic, electronics, engineering ceramic and specialty glasses and alloys industries.

The Company has carefully evaluated the commercial viability of the DZP since the discovery of the orebody and remains convinced that the Project will become an important contributor to the zirconium chemicals industry over many years. The Company has carefully evaluated the commercial viability of the DZP since the discovery of the orebody and remains convinced that the Project will become an important contributor to the zirconium chemicals industry over many years. In October 2003, AZL entered into a joint venture with Astron Limited, an Australian public industrial company. Recent discussions with Astron have focussed on the status of the Joint Venture and a proposed work program. Unfortunately the slow progress of the DZP during the year has meant that other strategies to accelerate the Project are being explored. One of the options is to float AZL as a public company with its own dedicated management and funding.

<b>INPIT MEASURED RESOURCES</b>	<b>4.14 million tonnes</b>	<b>1.91% <math>ZrO_2</math>, 0.041% <math>HfO_2</math>, 0.46% <math>Nb_2O_5</math>, 0.029% <math>Ta_2O_5</math>, 0.138% <math>Y_2O_3</math>, 0.765% Total REO</b>
<b>MEASURED RESOURCES (0-55m, 340mRL)</b>	<b>35.7 million tonnes</b>	<b>1.96% <math>ZrO_2</math>, 0.04% <math>HfO_2</math>, 0.46% <math>Nb_2O_5</math>,</b>
<b>INFERRED RESOURCES (55-100m, 295mRL)</b>	<b>37.5 million tonnes</b>	<b>Similar grade</b>
<b>TOTAL</b>	<b>73.2 million tonnes</b>	<b>Similar grade</b>

Resources Inventory DZP Source:ALK

## Leinster Region Joint Venture (LRJV)

Alkane Exploration Ltd - 49% Jubilee Mines NL 51%

Nickel, gold – WA

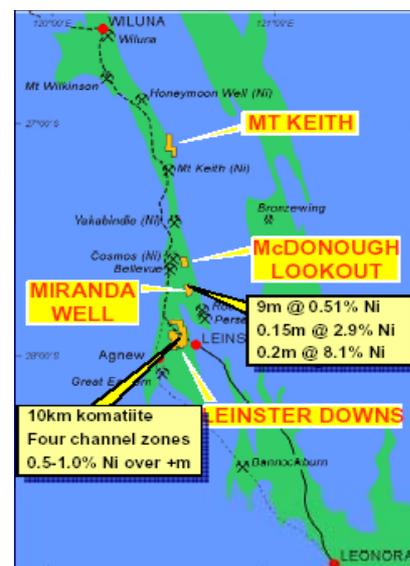
Three prospects – Leinster Downs, Miranda and McDonough Lookout are subject to a farm-in agreement with Jubilee Mines NL (Jubilee) where Jubilee can earn a 75% interest in the properties by spending \$4.5m before March 2006.

Jubilee have completed extensive programmes of ground electromagnetic surveys, aeromagnetic surveys, diamond core and RC drilling and geological mapping with a specific focus on komatiite channel facies hosted nickel sulphide mineralisation at Miranda, McDonough Lookout and Leinster Downs.

Encouraging environments for massive nickel sulphide accumulation were observed at all three locations, particularly at the Taurus prospect within the Miranda tenement.

At Leinster Downs disseminated sulphides were also intersected in four holes which tested channel facies ultramafic flow sequences with 0.5% to 1.0% Ni recorded over several metres.

Early in 2002 Jubilee advised ALK that it had reached the 51% earning level and remained enthusiastic and would proceed to earn an additional 24% interest by the further expenditure of \$2.5m. Early in 2005 ALK agreed to extend the final earn-in period to March 2006. Further exploration and drilling has been scheduled.



Source: ALK

## Nullagine

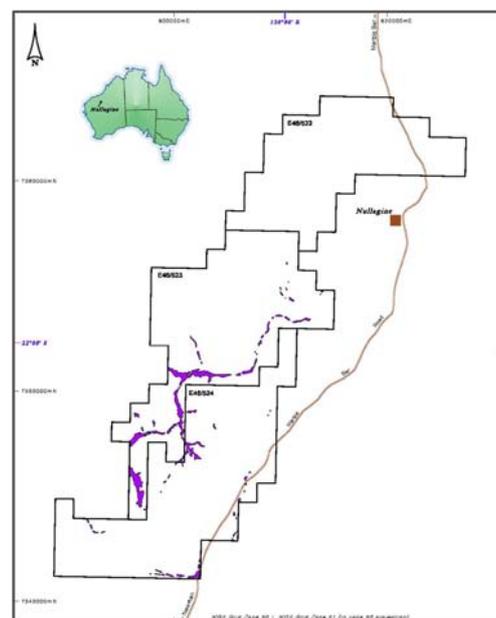
Alkane Exploration Ltd - 60% Randolph Resources Syndicate 40%

Gold, iron & diamonds – WA

ALK holds three exploration licence applications near Nullagine in the East Pilbara of northwest WA. ALK had previously undertaken a major exploration program aimed at locating the source rocks for alluvial diamonds found at the base of Tertiary palaeochannels at Nullagine. During that time ALK discovered three new alluvial diamond locations and several alkaline and kimberlite-like bodies.

ALK's diamond exploration programs have combined traditional exploration techniques such as air photo and satellite image interpretation, high quality stream sediment sampling, studies of bedrock-derived kimberlitic indicator minerals, aerial and ground geophysics, reconnaissance drilling and costeaning with a strong geological approach. Exploration also included mapping of both Archaean and Tertiary-aged rocks, the development of a comprehensive bedrock geochemical data base, studies of alteration and weathering, and stratigraphic drilling of Tertiary channel deposits.

This detailed background geological data base has enabled ALK to review the potential for other minerals in the area from time to time. On 1 December 2004, ALK signed a HOA with a private company, Vaalbara Resources Pty Ltd (Vaalbara) granting Vaalbara a six month option to execute a joint venture document. Under the terms of that joint venture Vaalbara will have the right to 80% of gold, silver and uranium (Witwatersrand type mineralisation) by reimbursement of \$100K cash to ALK for exploration data; will



Source: ALK

issue \$300K worth of vendor Vaalbara shares to the ALK/Randolph JV at initial listing; and will fund all exploration expenditures to the completion of a Bankable Feasibility Study on any gold-silver-uranium deposits discovered of the Witwatersrand type.

Given the increasing demand and prices for iron ore, ALK-Randolph reviewed its database on the Tertiary palaeochannels and concluded that significant potential exists within the tenements. This work was assisted by the two palaeochannel traverses drilled during the diamond exploration program. The drilling demonstrated that the tops of the palaeochannels were generally composed of pisolitic channel iron deposits (CID) up to 15m thick overlying clays, carbonates and other detrital units within a total channel depth of up to 35m. The iron content of the CID was not checked at that time.

Review work completed comprised:

- Examination of geological mapping of Archean-aged bedrock and Tertiary-aged deposits originally completed on 1:40,000 and 1:25,000 scale aerial photos respectively and compiled at a scale of 1:100,000 on topographic base maps. This work detailed the nature of the Archean bedrock and the presence of numerous Tertiary deposits largely found within palaeochannels, dominated by the ancestral Bonnie Creek;
- The 1:100,000 scale Tertiary photo geology map was scanned and geopositioned. The Bonnie Creek system was estimated to be about 26kms in length within the ALK tenements;
- Each Tertiary outcrop on the scanned image was digitised and polygonal areas transferred to a spread sheet;
- Thickness of the CID was assumed but was supported by data from the drill traverses and outcrop where recent erosion has exposed the CID as residual mesas; and
- Specific Gravity was assigned as 2.6 tpm<sup>3</sup> based upon experience with similar deposits, and a tonnage determined for each Tertiary outcrop area. A cumulative total for the CID's ranges from 150 to 220Mt.

No systematic sampling of the CID's has been completed and hence it is not possible to assign an iron grade, nor identify potential contaminants to the CID volumes measured to date. However experience elsewhere suggests that these deposits could grade above 55% Fe.

While the potential quantity and grade referred to above is conceptual, there has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource, the Bonnie Creek palaeochannel does host potentially significant Channel Iron Deposits.

Discussions have been initiated with parties interested in advancing the potential of the iron deposits with the ALK-Randolph joint venture.

---

**Disclosure Disclaimer****RCAN0462**

This Research report, accurately expresses the personal view of the Authors.

DJ Carmichael Pty Limited, its directors and employees advise that they may hold securities, may have an interest in and/or earn brokerage and other benefits or advantages, either directly or indirectly from client transactions in **Alkane Exploration Limited**. **Alkane Exploration Limited** has agreed to pay DJ Carmichael Pty Limited a fee of \$65,598 being a fee of 5% on the funds raised by DJ Carmichael Pty Limited in the \$3.2m placement.

In accordance with Section 949A of the Corporations Act 2001 this document contains general financial information only. In preparing this document D J Carmichael Pty Limited did not take into account the investment objectives, financial situation and particular needs ('financial circumstances') of any particular person. Accordingly, before acting on any information contained in this document, you should assess whether the information is appropriate in light of your own financial circumstances or contact your D J Carmichael Pty Limited adviser. DJ Carmichael Pty Limited also advise that some or all of its Representatives may receive commissions as a result of effecting a transaction on behalf of a client. DJ Carmichael Pty Limited believe that the information herein is accurate however no warranty of accuracy or reliability is given in relation to any information or information contained in this publication and no responsibility for any loss or damage whatsoever arising in any way for any representation, act or omission, whether express or implied (including responsibility to any persons by reason of negligence), is accepted by DJ Carmichael Pty Limited or any officer, agent or employee of DJ Carmichael Pty Limited

**Declaration**

The Author of this report made contact with **Alkane Exploration Limited** for assistance with verification of facts, admittance to business sites, access to industry/company information. No inducements have been offered or accepted by the company.

The recommendation made in this report is valid for four weeks from the stated date of issue. If in the event another report has been constructed and released on **Alkane Exploration Limited** the new recommendation supersedes this and therefore the recommendation in this report will become null and void.

**Recommendation Definitions**

BUY – 10% or more outperformance

HOLD – 10% underperformance to 10% over performance

SELL – 10% or more underperformance

Period: During the forthcoming 12 months, at any time during that period and not necessarily just at the end of those 12 months.

1. Stocks included in this report have their expected performance measured relative to the ASX All Ordinaries index. DJ Carmichael Pty Limited's recommendation is made on the basis of absolute performance. Recommendations are adjusted accordingly as and when the index changes.

© 2005 No part of this report may be reproduced or distributed in any manner without permission of DJ Carmichael Pty Limited.