



QUARTERLY REPORT TO 31 DECEMBER 2006

KEY SUMMARY

➤ DUBBO ZIRCONIA PROJECT

- Process optimisation work continued at ANSTO. Procurement for components for the Demonstration Pilot Plant has commenced.

➤ EXPLORATION - McPHILLAMYS

- Significant gold and base metal mineralisation intersected by aircore, RC and diamond core drilling at the McPhillamys Prospect, within the Newmont ODEJV.

- Previous results reported include:

KPD 001	77 metres grading 1.65g/t gold from 140 metres
including	13 metres grading 2.78g/t gold from 165 metres
also	7 metres grading 5.56g/t gold from 191 metres

KPD 001	31 metres grading 1.64% zinc, 12g/t silver, 0.18g/t gold from 64 metres
including	7 metres grading 2.49% zinc, 17g/t silver, 0.22g/t gold from 65 metres

KP 047	54 metres grading 1.69g/t gold from 123 metres
including	20 metres grading 3.10g/t gold from 146 metres

KP 048	123 metres grading 1.96g/t gold from the surface
including	28 metres grading 3.83g/t gold from 19 metres
and	12 metres grading 3.48g/t gold from 101 metres

- The drilling has demonstrated a major altered and mineralised system extending over an area of 400 metres by 200 metres, and to at least 150 metres vertical depth.

➤ EXPLORATION – TOMINGLEY GOLD PROJECT

- Reconnaissance aircore and RC drilling at the Caloma prospect, immediately west of the Wyoming deposits, has returned encouraging intercepts such as:

PE 079	3 metres grading 3.47g/t gold from 21 metres at Caloma
and	12 metres grading 2.27g/t gold from 69 metres

PE 082	11 metres grading 2.10g/t gold from 36 metres at Caloma
--------	---

PE 085	21 metres grading 2.33g/t gold from 66 metres at Caloma
including	6 metres grading 5.60g/t gold from 72 metres

- The drilling has indicated that the mineralisation is similar to Wyoming style and remains open over a 300 metre strike length.

➤ CORPORATE – The successful listing of BC Iron Limited to explore and develop Alkane's iron ore assets in the Nullagine area of WA.

NEW SOUTH WALES

TOMINGLEY GOLD PROJECT (TGP)

Alkane 100% subject to separate royalty agreements with Compass Resources NL, Golden Cross Operations Pty Ltd and Climax Mining Ltd.

As reported to the ASX on 16 January, a reconnaissance RC and aircore drilling program tested several shallow targets within the northern sector of the Tomingley Gold Project (TGP) in the Central West of New South Wales. The aim of the program was to identify gold mineralisation that could add to the resource inventory for the TGP, and aid the development concept for the Wyoming deposits. A total of 28 holes (2,238m) were drilled at **Caloma** (600m east of the Wyoming Three deposit), **Smiths** (7km south of Wyoming) and **Black Snake** (20km south of Wyoming) (figure 1).

Caloma was located early in 2006, when aircore drilling of the Patons East target was extended to the south to test an aeromagnetic anomaly. A Wyoming style porphyry intrusive with associated quartz veining and alteration was identified beneath 5 metres of transported clay cover, and the current program was designed to test the strike extent and orientation of the mineralisation.

The program consisted of 15 aircore (637m) and 5 RC (629m) holes over a north-south strike length of 300 metres (figure 2). Gold mineralisation was recorded over that full 300 metre length with several lenses possible but additional drilling is required to establish a resource potential.

The **Smiths** prospect is the site of limited historical prospector activity and exploration in the mid 1990's, which included an aircore intercept of 8 metres grading 0.49g/t gold. The target area is a 1 kilometre long zone of sub outcropping Wyoming style porphyry with variable alteration and quartz veining. Four RC holes (522m) tested small sectors in the south and north of the target area and intersected altered porphyry and host sediments, but with only low grade gold values. Further drilling would be required to fully test this target.

Black Snake is also a site of limited historical prospector activity and exploration in the early 1980's. An RC hole intersected 8 metres at 1.6g/t gold within a 1 kilometre long zone of altered volcanoclastic sediments and some coarse volcanic conglomerates, with similarities to the Hangingwall Zone at Wyoming One. The program of 4 RC holes (450m) drilled one section at the south and one in the north of the outcropping target zone, intersecting broad intervals of alteration with low grade gold values and narrower "ore grade" intercepts. Further drilling would also be required to evaluate this mineralisation.

Definitive Feasibility Study (DFS)

Several other RC holes were drilled to provide ground water monitoring sites for background environmental data for the proposed Wyoming development site as part of the DFS program. Four holes were also drilled at the historic **Myalls United** mine site to locate the underground workings to understand the geological controls to the mineralisation prior to core drilling at depth, and to assess the old mine as a potential source of water. One of these holes (WYMB 006) intersected the main lode structure, north of the original main shaft.

Further aircore-RC drilling is being scheduled to evaluate the potential of Caloma, and build the open pitable resource inventory for the Wyoming development.

Diamond core drilling is proposed to test the deeper potential below Wyoming Three, the geological continuity and resource potential at Wyoming Two, and test for the geological continuity between the Hangingwall Zone at Wyoming One and the historic Myalls United mine. Core drilling is also proposed to test the down dip extensions to the Myalls United ore structures.

The data will be incorporated into the resource models and development scenarios for the project, and factored into the ongoing DFS.

Table 1: TGP aircore and RC Drill Results greater than 0.5g/t gold

Hole No	East	North	RL (m)	Azimuth	Inclin	Intercept (m)	Grade (g/t Au)	Interval (m)	EOH (m)	Comments
PE074	614920	6394080	~270	90°	60°	3	1.08	14 - 17	53	Caloma
and						6	1.21	18 - 24		
and						2	0.85	51 - 53		
PE077	614800	6394080	~270	90°	60°	1.5	0.57	12 - 13.5	13.5	Caloma
PE078	614760	6394080	~270	90°	60°	3	1.25	9 - 12	21	Caloma
PE079	614790	6393900	~270	180°	60°	3	3.47	21 - 24	81	Caloma
and						3	1.61	39 - 42		
and						12	2.27	69 - 81		
PE080	614790	6393940	~270	180°	60°	3	0.51	28 - 31	66	Caloma
and						3	0.69	37 - 40		
and						8	0.94	58 - 66		
PE081	614790	6393980	~270	180°	60°	3	0.68	39 - 42	57	Caloma
and					60°	3	4.15	51 - 54		
PE082	614790	6394020	~270	180°	60°	11	2.10	36 - 47	47	Caloma
incl						9	2.45	36 - 45		
PE085*	614790	6393930	~270	180°	60°	6	1.10	39 - 45	149	Caloma
and						21	2.33	66 - 87		
incl						6	5.60	72 - 78		
BS005*	613800	6372874	~290	270°	60°	3	1.71	90 - 93	120	Black Snake
BS006*	613753	6372879	~290	270°	60°	3	2.98	84 - 87	120	Black Snake
BS007*	613681	6372879	~290	270°	60°	9	1.25	45 - 54	102	Black Snake
PE088*	614835	6393920	~270	270°	60°	6	1.81	78 - 84	126	Caloma
and						3	3.31	117 - 120		
PE091	614840	6394160	~270	270°	60°	6	2.19	9 - 15	33	Caloma
PE092	614880	6394160	~270	270°	60°	9	2.34	27 - 36	50	Caloma
PE093	614920	6394160	~270	270°	60°	4	0.63	55 - 59	59	Caloma
WYMB006	614248	6392479	~270	0°	90°	24	0.81	42 - 86	90	Myalls
incl						6	1.76	48 - 54		

* RC Hole. Gold analysis by 30g fire assay of speared 3m composite Air Core or RC samples. True widths are not clear at this time. EOH = End of hole

DUBBO ZIRCONIA PROJECT (DZP)

Australian Zirconia Ltd (AZL) 100%

Process optimisation and development work on the flowsheet continued at the laboratory facilities of ANSTO Minerals. Much of the first phase of the program designed to minimise acid consumption and improve metal recoveries has been completed, and the data is being compiled to determine recommendations. Other process improvements are being considered and test programs initiated.

Procurement of components for the Demonstration Pilot Plant has also commenced, and construction is scheduled to get underway in the March quarter.

ORANGE DISTRICT EXPLORATION JOINT VENTURE - ODEJV (gold-copper)

Alkane Exploration Ltd 100%, subject to Newmont Australia Limited earning an initial 51%

Molong Project

Modelling of aeromagnetic data of the **Borenore** anomaly, which is located 2km southeast of the **Charlies** prospect, has confirmed the potential to host Cadia-Ridgeway style porphyry copper-gold mineralisation. An IP survey is scheduled to commence shortly to assist target definition prior to drill testing later in the year.

Moorilda Project

As reported in the September Quarterly Report (30 October 2006), a follow up aircore and RC drilling program was completed at McPhillamys (figure 3) with five sections tested on lines at approximately 150 metre spacing over a strike length of 600 metres. The gold results confirmed that McPhillamys hosts a major mineralised system which extends over a 400 metre strike length. This system comprises at least two distinct gold bearing zones (Western and Eastern) which are up to 50 to 100 metres wide and extend from the ground surface to at least 150 metres vertical depth.

Diamond core hole KPD 001, drilled towards the southern end of the known mineralisation, intersecting the Western Gold Zone and a separate zinc rich zone. Results from this hole were summarised as:

KPD 001	77 metres grading 1.65g/t gold from 140 metres
including	13 metres grading 2.78g/t gold from 165 metres
also	7 metres grading 5.56g/t gold from 191 metres
KPD 001	31 metres grading 1.64% zinc, 12g/t silver, 0.18g/t gold from 64 metres
including	7 metres grading 2.49% zinc, 17g/t silver, 0.22g/t gold from 65 metres

RC holes also returned significant results from the Eastern Gold Zone:

KP 047	54 metres grading 1.69g/t gold from 123 metres
including	20 metres grading 3.10g/t gold from 146 metres
KP 048	123 metres grading 1.96g/t gold from the surface
including	28 metres grading 3.83g/t gold from 19 metres
and	12 metres grading 3.48g/t gold from 101 metres

Base metal results were received early in the quarter from the RC drilling and have indicated that the zinc mineralisation forms two separate and discrete zones (Central and East). The Central Zinc Zone of plus 1% zinc is located between the two gold zones and has a strike length of approximately 200 metres (open to the south) with an apparent width up to 20 metres. The Eastern Zinc Zone is less well defined and lower grade, but also extends over an open strike length of about 200 metres (figure 4).

The zinc rich zones contain variable lead (up to 0.72% Pb) and silver (max 60g/t Ag), with a background of gold around 0.2g/t. Copper is generally associated with the gold and is highest in the Eastern Gold Zone.

Table 2: McPhillamys Summary of Quarterly Base Metal Results

Hole No	East	North	RL (m)	Azimuth	Inclin	Intercept (m)	Grade (%Zn)	Interval (m)	EOH (m)	Comments
KP 045	715846	6292351	955	276°	-60°	11	0.58	56 - 67	210	0.24g/t Au; 0.48g/t Ag
incl						3	1.15	59 - 62		0.23g/t Au; 0.73g/t Ag
KP 047	715894	6292199	965	274°	-65°	26	0.34	37 - 63	180	Tr Au; 0.61g/t Ag
KP 048	715839	6292077	974	272°	-70°	18	0.34	126 - 144	168	0.19g/t Au; 2.76g/t Ag
KP 049	715842	6291899	967	268°	-60°	6	1.58	70 - 76	168	0.29g/t Au; 8.9g/t Ag
and						11	0.99	84 - 95		0.14g/t Au; 9.47g/t Ag
incl						4	2.21	85 - 89		0.17g/t Au; 25.7g/t Ag
Hole No	East	North	RL (m)	Azimuth	Inclin	Intercept (m)	Grade (%Cu)	Interval (m)	EOH (m)	Comments
KP 046	715805	6292201	965	272°	-65°	6	0.25	66 - 72	194	0.45g/t Au
and						5	0.32	117 - 122		3.01g/t Au
KP 048	715839	6292077	974	272°	-70°	52	0.12	69 - 121	168	2.00g/t Au

Base metals and silver analysed by ICPMS of 1m samples. True widths are probably 70 to 80% of drill width. EOH = End of hole

Newmont, the JV manager, have advised that their preference for 2007 is to test several targets in the project area to add to the regional resource inventory and build up a substantial potential resource base before drilling out the

main zone of McPhillamys. The targets include a number of geological and geophysical features, sites of historic workings and areas that have shown positive geochemical signatures.

The early-stage exploration targets around McPhillamys include extensions to the McPhillamys alteration zone, where the original drilling has only tested about 600 metres north-south strike length. The drill data suggests that the low grade mineralised envelope remains open to the north and south of McPhillamys and soil auger sampling has commenced to cover this area.

At McPhillamys East, which is about 1 kilometre to the east of the main zone, the limited 2006 drilling demonstrated the McPhillamys style alteration and mineralisation extended over a north-south strike length of 1.5 kilometres. Soil sampling is in progress. Soil sampling has also commenced at the Grahams Prospect, located 4.5 kilometres to the northwest, to cover a geophysical anomaly.

The historic Confidence Mine is 5 kilometres east of McPhillamys and limited exploration in the 1980's generated several intersections including 7 metres at 2.85g/t gold. Regionally there is a 20 kilometre structural corridor with scattered historical gold workings running down the centre of the project. The exploration effort in this area is minimal with the most serious being prospecting activities in the 1880's and 1890's.

The Moorilda Complex (15 kilometres south of McPhillamys) is a Cadia Ridgeway-style monzonite intrusive complex where previous drilling has intersected 19 metres at 1.23 g/t gold and 0.2% copper. Soil geochemistry and modelling of aeromagnetic data has defined a number of targets in this area.

Reconnaissance Induced Polarisation surveys are planned for several target areas prior to drill testing.

CUDAL (gold-copper)

Alkane Exploration Ltd 100%

Reconnaissance RC drilling scheduled to test the Bowan Park area, where soil sampling delineated a +50ppb gold anomaly for +300 metre in strike, with a maximum of 700ppb gold, has been delayed by rig availability and has been rescheduled for the March 2007 Quarter. The anomaly covers the mineralised contact of a micro-syenite intrusive. Rock chip sampling from the same area returned values to 1g/t gold and 0.17% copper.

WELLINGTON (copper-gold) and BODANGORA (gold-copper)

Alkane Exploration Ltd 100%

A review of the historic Induced Polarisation (IP) data covering the Galwadgere copper deposit (**Wellington**) and the regional aeromagnetic data, has demonstrated a close correlation between the sulphide mineralisation and the IP response at Galwadgere. The potential for several other nearby targets was also identified by the review.

A follow up 3D IP survey has been scheduled to examine the down plunge potential to the Galwadgere mineralisation and determine to possibility of mineralisation below other surface targets.

A similar geophysical review is planned for the **Bodangora** project.

WESTERN AUSTRALIA

LEINSTER REGION JOINT VENTURE (nickel-gold)

Alkane Exploration Ltd 25%, Jubilee Mines NL 75%

*The three prospects - **Leinster Downs**, **Miranda** and **McDonough Lookout** - are subject to a farm-in agreement with Jubilee Mines NL.*

Jubilee has advised that they have reached the required expenditure to achieve the 75% equity level. A program and budget to 30 June 2007 has been proposed but Alkane has elected not to contribute to this program. No field work was carried out in the quarter.

NULLAGINE PROJECT (diamonds, iron, gold)

Alkane Exploration Ltd 60%, Randolph Resources Syndicate 40%

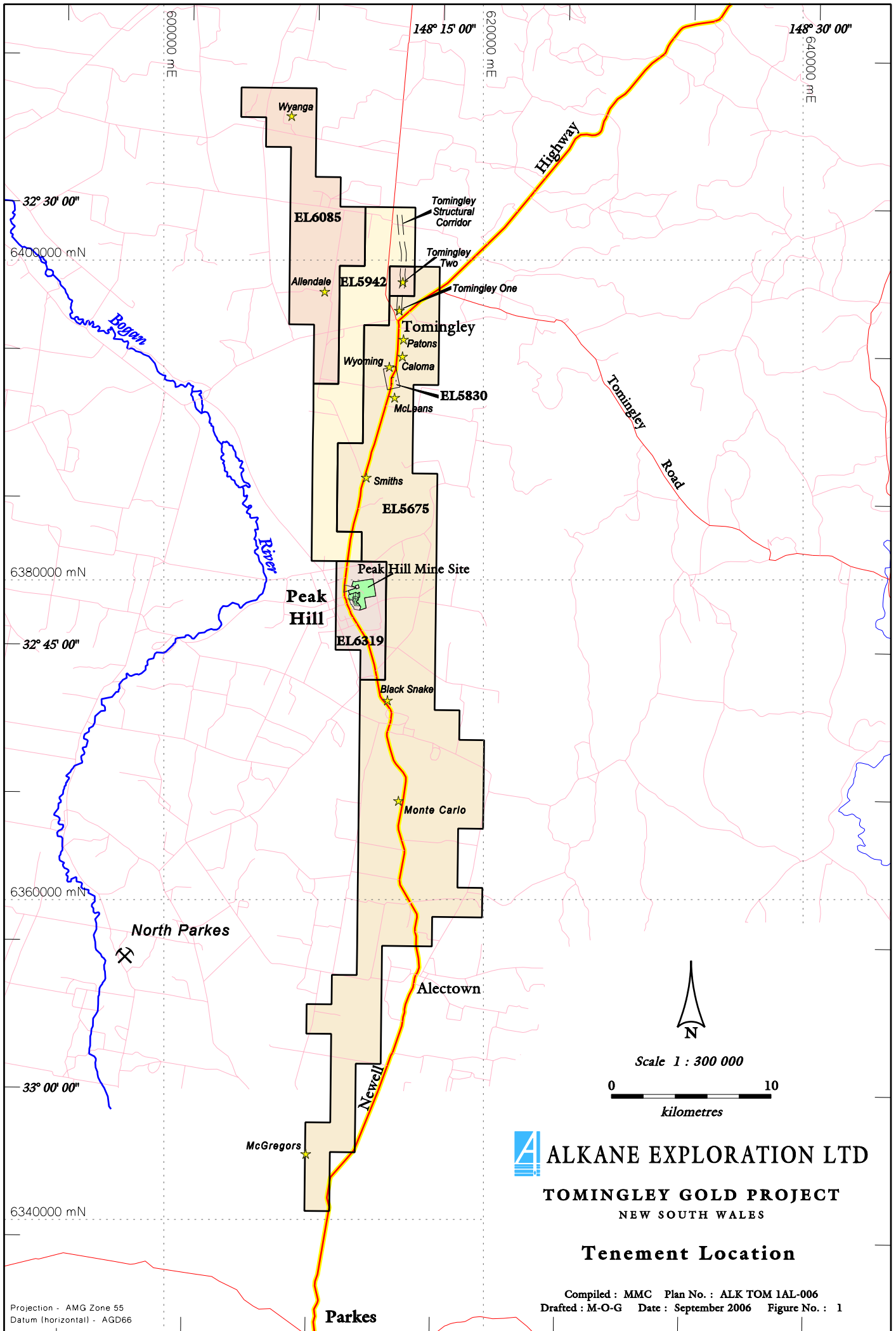
As advised to the ASX on 31 October 2006, Alkane and its partner in the Nullagine Project, the Randolph Syndicate, combined their tenement holdings in the East Pilbara with those of Consolidated Minerals Limited to float **BC Iron Limited (BCI)**. BCI has the rights to all minerals other than diamonds in the Alkane tenements, and will focus on testing the extensive Tertiary palaeochannels which host significant potential for Channel Iron Deposits.

BCI raised \$6 million and successfully listed on ASX on 15 December 2006. Alkane retains 9 million shares or a 16.67% interest in BCI.

DI Chalmers
Managing Director

ALKANE EXPLORATION LTD
96 Parry Street
Perth WA 600
Tel: +61 8 9328 9411
Fax +61 8 9227 6011
Email: ichalmers@alkane.com.au

Mr DI 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 report of the matters based on his information in the form and context in which it appears.



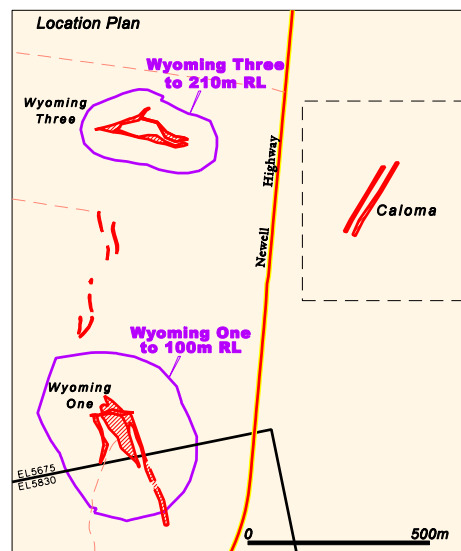
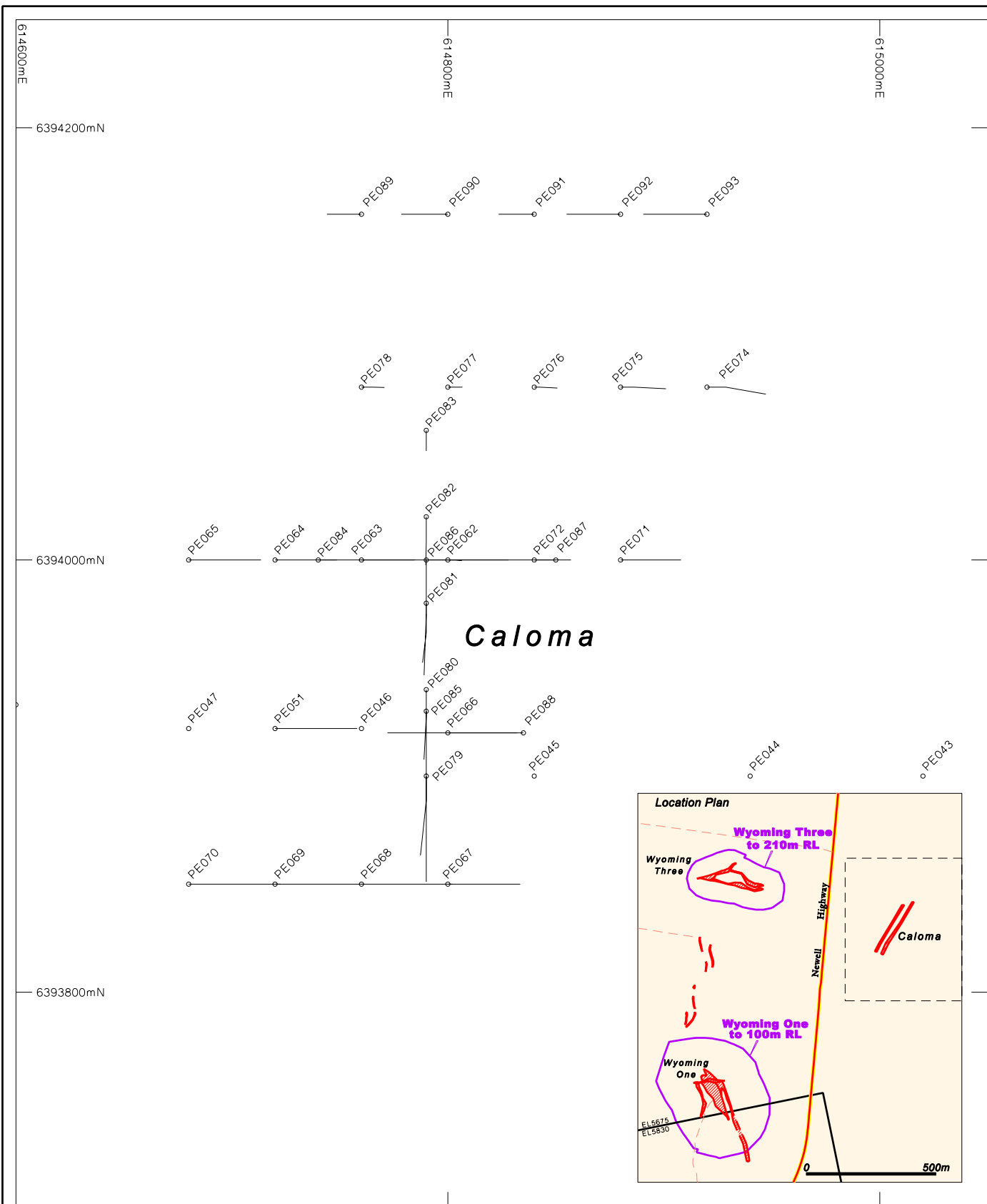
Projection - AMG Zone 55
Datum (horizontal) - AGD66

 **ALKANE EXPLORATION LTD**



TOMINGLEY GOLD PROJECT
NEW SOUTH WALES

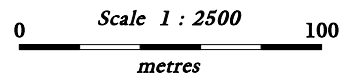
Tenement Location

Compiled : MMC Plan No. : ALK TOM 1AL-006
Drafted : M-O-G Date : September 2006 Figure No. : 1



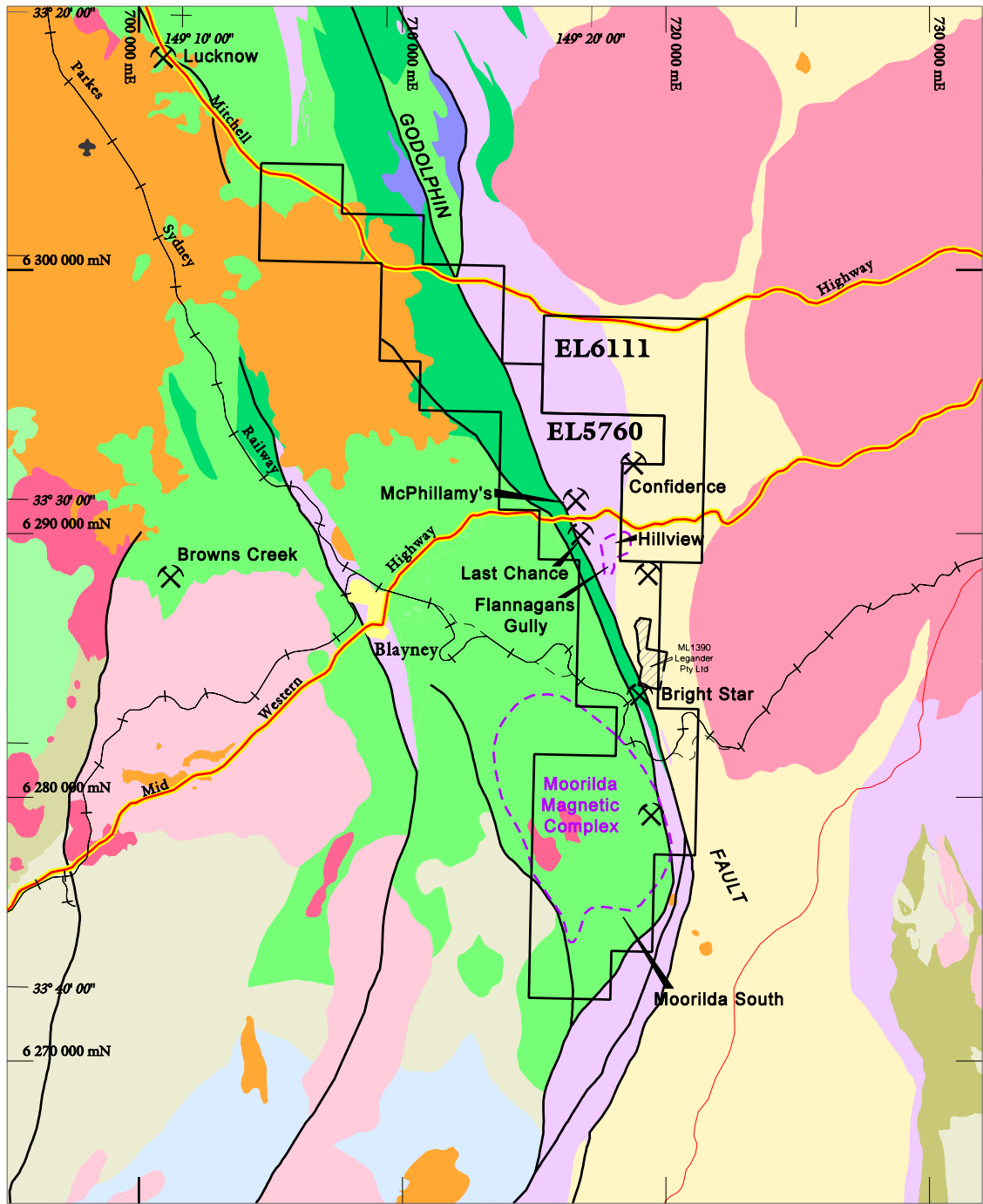
Legend

-  PE089 Drill hole location and trace
-  PE047 Drill hole location (vertical)



ALKANE EXPLORATION LTD
TOMINGLEY GOLD PROJECT
CALOMA PROSPECT

Drill Hole Location



Geology after GSNSW

- | | | |
|-----------------------------|--|--|
| Tertiary | Basalt | |
| Carboniferous | Granite Intrusives | |
| Devonian | Sediments & volcanics | |
| Silurian | Intrusives | |
| | Sediments & volcanics | |
| Ordovician | Intrusions - monzonite, monzodiorite & syenite | |
| | Intrusions - ultramafic | |
| | CARBONNE GROUP | |
| | Blayney Volcanics- mafic volcanics & sediments | |
| | Forrest Reef Volcanics - volcanics & sediments | |
| | Oakdale Formation - volcanics & sediments | |
| | Rocklea Volcanics - mafic volcanics | |
| | Weemulla Formation - volcanics & sediments | |
| | Byng Volcanics - mafic volcanics & sediments | |
| | Kenilworth Group - sediments | |
| Adaminaby Group - sediments | | |

Scale 1 : 250 000



kilometres

Projection - MGA Zone 55
Datum (horizontal) - GDA94

 Alkane Exploration Ltd

MOORILDA PROJECT
ORANGE
NEW SOUTH WALES

Regional Geological Setting

EL5760

33°29'S

6292500 mN

6292000 mN

149°19'S

715500 mE

716000 mE

WESTERN GOLD ZONE

EASTERN ZINC ZONE

McPhillamys Hill Mine

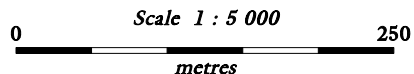
EASTERN GOLD ZONE

Letondeurs

CENTRAL ZINC ZONE

Legend

- RC drill hole
- Air core drill hole
- Diamond drill hole
- Gold zone >1.0 g/t Au
- Gold zone 0.2 - 0.99 g/t Au
- Zinc zone >0.25 % Zn



ALKANE EXPLORATION LTD

**MOORILDA PROJECT
McPhillamys**

**Drill Hole Location
& Gold Zinc Zones**

Figure No.: 4