

# **Kajeena Mining Company Pty Ltd**

## **2007 Annual Combined Report**

**On**

**EXPLORATION LICENCE's**  
**EL 10096 & EL 10097**

Mistake Creek Area

**Period Ending 12<sup>th</sup> December 2007**

<b>LICENCEE:</b>	<b>Kajeena Mining Company Pty Ltd</b>
<b>OPERATOR:</b>	<b>Dingo Resources Pty Ltd</b>
<b>STANDARD 1:250,000 SHEET:</b>	<b>SE 52- 07      Limbunya</b>
<b>STANDARD 1:100,000 SHEET:</b>	<b>Negri            4763</b>
	<b>Limbunya      4863</b>
	<b>Napier          4762</b>
	<b>Inverway      4862</b>
<b>AUTHOR:</b>	<b>Pacific Consulting Services Pty Ltd.</b>
<b>DATE:</b>	<b>February,2008.</b>

## **CONTENTS.**

### **Summary.**

- 1. Introduction.**
- 2. Location & Access.**
- 3. Tenure Details.**
- 4. Regional Geology.**
- 5. Structural Elements and Tectonic History.**
- 6. Current Exploration.**
- 7. Forward Work Programmes Year 7.**
- 8. References.**

### **Appendices**

<b>EL10096_200712_02_map.pdf</b>	<b>Location.</b>
<b>EL10096_200712_03_map.pdf</b>	<b>Sampling on TM.</b>
<b>EL10096_200712_04_map.pdf</b>	<b>TMI with Soil Sample Locations.</b>
<b>EL10096_200712_05_map.pdf</b>	<b>TMI with Stream Sediment Sample Locations.</b>
<b>EL10096_200712_06_data.xls</b>	<b>2006 Rock Chip Assays.</b>
<b>EL10096_200612_07_data.xls</b>	<b>2006 Soil Sample Assays.</b>
<b>EL10096_200612_08_data.xls</b>	<b>2007 Stream Sediment Assays.</b>
<b>EL10096_200612_09_data.xls</b>	<b>2007 Soil Sample Assays.</b>
<b>EL10096_200712_10_map.pdf</b>	<b>EL 10097 Stream Sediment Au Assays on Topography.</b>
<b>EL10096_200712_11_map.pdf</b>	<b>EL 10097 Stream Sediment Cu Assays on Topography.</b>

## **SUMMARY**

The Kajeena Mining Company Pty Ltd holds exploration licences 10096 and 10097 in the Mistake Creek area which are considered to have excellent exploration potential for lead – zinc, copper, gold and diamond deposits. In December 2006 Kajeena entered into a Joint Venture Agreement with Dingo Resources Pty Ltd. Dingo is focussed on gold mineralisation in the Inverway Metamorphics and follow up of copper and lead – zinc anomalies identified by GeoPeko during previous exploration. Dingo completed an orientation trip and sampling programme in December 2006 and a further field trip in October, 2007 during which further stream and soil sampling was undertaken. Soil and stream sampling has failed to delineate clear gold geochemical anomalies over prospective magnetic features – postulated to represent basement BIF. Stream sampling in the area of previously drill tested copper mineralisation shows a low order anomaly which is not considered to be culturally derived.

It is proposed to conduct further sampling, several 3D IP surveys and drill testing in the next year of tenure.

## **INTRODUCTION.**

The tenements have been subject to previous exploration with barite and copper having been mined historically in the area. Modern exploration – principally by GeoPeko Ltd including diamond drilling - has focussed on the anomalous base metal ( Isa style Lead – zinc ) values in the Birrindudu Basin sediments. Regional sampling programmes for diamonds with have also been completed by Ashton. The Inverway Metamorphics are also considered prospective for gold mineralisation.

## **2. LOCATION & ACCESS**

The tenement areas are located on the Northern Territory \ Western Australian Border approximately 125km NW of Lajamanu and 200km SE of Kununurra. Access to the area is via the Buchanan Highway, then via station tracks from Inverway Homestead.

The region is sub-tropical. With long hot summers days ranging from 20°C – 40°C+ and mild winters days varying from 5°C to high 20°C's. Tropical monsoonal rains occur during January to March making access to all areas difficult and averaging 400-500mm per year.

### 3. TENEMENT DETAILS

Exploration Licence	No. Blocks (Area km <sup>2</sup> )	Grant Date	Expiry Date	Expenditure Covenant
EL 10096	398 (309)	13/12/2001	12/12/2007	\$43,000
EL 10097	76 (235)	13/12/2001	12/12/2007	\$60,200

### 4. REGIONAL GEOLOGY

The tenements are located over the northern extension of the Tanami Province - to the east of the Halls Creek Mobile Zone and to the south of the Pine Creek Orogen. They encompass elements of the Palaeoproterozoic Birrindudu Basin and overlying Mesoproterozoic Victoria Basin which comprise platform cover to the underlying Tanami Region basement, elements of which outcrop in the tenement area.

These carbonate dominated basins are in turn partially covered by the flood basalts of the Cambrian age Antrim Plateau Volcanics and the Ord Basin Sediments.

#### 4.1 Orogenic Basement

##### Inverway Metamorphics

The Palaeoproterozoic Inverway Metamorphics are correlated with the Tanami Complex pre Barramundi Orogen ( 1880 –1840) flysch sedimentation. Regional gravity and magnetics interpretation indicates a continuity beneath the later sedimentary basins and basalt cover.

Two small inliers on the Inverway Metamorphics are exposed along the core on a NE trending anticline within the middle of EL10097. The exposures are comprised of steeply dipping muscovite schist, which has at least two cleavages, grey to reddish – grey volcanics and minor siltstone. Metamorphic grade is sub – greenschist to greenschist facies. Concordant quartz veins are common and form massive 2-4m thick reefs of white quartz, which cut the schist and volcanics

#### 4.2 Birrindudu Basin

The Birrindudu Basin contains Paleo-Proterozoic sandstone, mudstone and shallow water evaporitic carbonate rocks . The Limbunya Group is dated at 1.7 – 1.6 Ga and is a time equivalent of host sediments to the extensive syn – epigenetic lead-zinc province of the eastern part of the North Australian Craton.

The Mt Isa Group sediments of the Mt Isa Trough, the McNamara Group of the Lawn Hill Platform and the McCarthur Group of the Batten Trough were deposited during the

period 1700 – 1600 Ma. This period of widespread lead – zinc mineralisation was generated via circulation of basinal brines and deposition into chemically active sediments. Fluids were focussed on the intersection of NW – WNW pre-Barramundi extensional basement faults and later (post Barramundi) N – NNW trending growth faults.

### **Undifferentiated ? Birrindudu Group**

An interval of steeply dipping mudstone, which is commonly dolomitic and carbonaceous with siltstone and minor thin intervals of quartz arenite and rhyolitic volcanics, has been intersected by drilling. Black carbonaceous mudstone up to 55m thick has been reported in drill logs. The rocks are not obviously metamorphosed and are unconformably overlain by the Limbunya Group of the Birrindudu Basin.

### **Limbunya Group**

The Proterozoic Limbunya Group is divided into eleven formations as tabulated below and has a composite thickness of 1300m.

The group is a succession of cyclic carbonate and siliclastic package. Gently folded and un-metamorphosed. A gentle anticline can be seen to the North of Kirkimbie Homestead within EL 10096 extending into the application areas.

All internal contacts are conformable (after Cutovinos et al 2002)

Unit and Typical Thickness	Lithology	Depositional Environment
Killaloc Formation 104m	Dolostone, dolarenite stromatolitic dolostone, dololutite, dolomitic siltstone; minor sandstone	Marine / Lagoonal
Fraynes Formation 165m	Laminated dolomitic siltstone and mudstone; minor silty dolostone, dolostone, tuffite, siltstone and very fine sandstone	Low-energy, near shore shallow marine
Campbell Springs Dolostone 160m	Stromatolitic dolostone; minor dolarenite, dolorudite and dolosiltite; rare tuffite	Shallow to very shallow marine reworked by waves and currents; some storm deposits
Blue Hole Formation 330m	Dolomitic mudstone, stromatolitic mudstone, siltstone; minor tuffite, dolarenite, sandstone and shale	Shallow marine with periods of low-energy deeper marine
Farquharson Sandstone 40-110m	Fine sublith-arenite and quartz arenite, dolomitic siltstone; minor dolostone and mudstone	Shallow marine/fluvial with periods of sub-aerial exposure
Kunja Siltstone 60-65m	Green and grey mudstone and siltstone (some dolomitic) carbonaceous in lower intervals; rare dolostone and tuffite	Low-energy shallow marine, below wave base
Mallabah Dolostone 10-100m	Laminated to thinly bedded dololutite, dolarenite and shale, stromatolitic dolostone; minor carbonaceous mudstone; rare silty dolostone	Storm-influenced, shallow marine with periods of low-energy deeper marine, below wave base
Amos Knob Formation 40-50m	Stromatolitic dolostone, dolarenite, mudstone, siltstone and shale	Low-energy shallow marine; upper levels higher energy, shallow marine
Pear Tree Dolostone 75-92m	Dolarenite, dodrudite, dololutite, stromatolitic dolostone, dolomitic mudstone and oolitic dolostone; minor carbonaceous mudstone	Storm-influenced shallow to very shallow marine
Margery Formation 116-125m	Stromatolitic dolostone (silicified), dolarenite, dololutite, siltstone, sandstone and claystone	Shallow marine to inter-tidal, basal part terrestrial
Stirling Sandstone 120m	Quartz-arenite, dolomitic sandstone, conglomerate, minor clay laminations	Shallow marine with periods of sub-aerial exposure, syntectonic

### 4.3 Victoria Basin

Unconformably overlying the Birrindudu Basin, the mesoproterozoic Victoria Basin contains several thousand meters of sedimentary material divided into four groups. This package is only represented in the tenement area by the Wattie Group and Auvergne Group.

#### Wattie Group

The Wattie Group is a dominantly siliclastic succession with subordinate carbonates with a total thickness >400m and contains seven identified formations. It overlays the Limbunya Group with a marked angular unconformity. Of the seven formations only the basal Wickham Formation is well exposed in the area. The others are mainly recessive and form low ridges.

### **Wickham Formation**

The Wickham Formation is characterised by fine to medium, well-sorted sandstone; minor inter-bedded sandstone, conglomerate and chert; and rare siltstone. Significant exposures are present with the tenement areas. Sedimentary structures may be readily seen. The Wickham formation is interpreted to have been deposited during a shallow marine transgression, with some sub-aerial exposure.

### **Auvergne Group**

The Auvergne Group contains seven formations, of which only two are preserved or exposed in the area. It unconformably overlays the Wattie Group and the Limbunya Group.

The Jasper Gorge Sandstone and the Angalarri Siltstone are not thought to outcrop in the tenement areas, but are present on the Limbunya Map Sheet.

## **4.4 Cambrian Antrim Plateau Volcanics**

The Antrim Plateau Volcanics are assigned a Cambrian age and outcrop extensively over the tenement area. They comprise part of the largest Phanerozoic flood basalt province in Australia.

### **Antrim Plateau Volcanics**

The greatest exposure is within the Victoria River Region but attain their greatest thickness in the Kimberley Region WA. The flows consist of 20-60m thick lava flows, mostly of massive fine basalt with vesicular flow tops; less commonly of plagioclase-phyric basalt. The eruptive centres are difficult to determine.

Their upper contact with the Headley's Limestone, Negri Sub-group – Ord Basin is considered prospective for copper mineralisation.

Barite vein type mineralisation and copper mineralisation are noted associated with the basalt.

## **4.5 Ord Basin**

The Ord Basin straddles the NT / WA border. It contains three distinct synclines of which only the Hardman Syncline is present in the NT and preserves the most complete stratigraphic succession.

### **Goose Hole Group**

Containing all the Middle and Late Cambrian Sediments of the Ord Basin, it is split into two subgroups and has a thickness of 700m. This Group is the dominant lithology in the Application areas but has limited outcrop within the granted tenements.

### **Negri Subgroup (Headleys Limestone)**

The Headleys Limestone is the basal unit of the subgroup, which has a maximum thickness of 530m and unconformably overlies the Antrim Plateau Volcanics. It has limited exposure within the granted areas but the contact is considered highly prospective for

copper mineralisation. It is a peritidal carbonate sediment shown at the start of the widespread marine transgression into the Northern Australian Craton. No age diagnostic fossils are present but it is considered to be Ordovician in age. It is predominantly stromatolitic limestone and is expressed as bold ridge like outcrops making access difficult.

#### **4.6 Mesozoic Cover.**

Cretaceous sandstone and minor conglomerate outcrop over small areas on the Limbunya map sheet.

#### **4.7 Cenozoic Cover.**

Cenozoic units cover a substantial portion of the tenement area

##### **Silcrete.**

A unit of internally brecciated chert was originally mapped as the upper unit of the Fraynes Fm. of the Limbunya Gp. This unit is now recognised as a Cenozoic duricrust.

##### **Laterite.**

Ferruginous laterite is particularly developed over the Antrim Volcanics. A thin lateritic horizon is also present over the Limbunya Group lithologies.

##### **Grey clay rich soil.**

This soil is noted along Sturt Creek and tributaries and overlying basalt areas of low relief.

##### **Superficial soils and calcrete.**

Superficial sand, soil, eluvium and calcrete occur through the Limbunya area.

##### **Quaternary Alluvium.**

The majority of rivers and streams are entrenched in alluvium.

## **5. Structural Elements & Tectonic History.**

The Inverway Metamorphics which are correlated with the Tanami Complex display several foliations and have undergone at least one tectonic event although only metamorphosed to greenschist facies.

The Birrindudu and Victoria Basin lithologies display evidence of mild deformation and no tectonic related metamorphic history. The Birrindudu Group sediments which have been intersected in drilling are folded and distinctly unconformable with the Limbunya Group.



In its current configuration the Limbunya Group sediments in the tenement area present as an inverted basin with stratigraphy younging toward the basin margins attributed to a compressional event, which was in part transgressive and initially focussed on this area.

### **Tectonic History.**

The tectonic history evident in the stratigraphy is summarised in point form as follows:

The pre Barramundi Inverway Metamorphics ( pre 1880 Ma ) display at least 2 deformations.

The post Barramundi Birrindudu Gp – Birrindudu Basin are folded and eroded but unmetamorphosed and unconformable with the overlying Stirling Sandstone – Birrindudu Basin.

Following folding and uplift of the Birrindudu Group a marine transgression resulted in deposition of the Stirling Sandstone which was followed by a shallow water carbonate dominated sequence.

Tectonic down warp is indicated by a change to deep water sedimentation of the Kunja Silstone comprising siltstone & shale with minor tuffite ( 1640 Ma) .

Tectonic uplift saw a reversion to shallow marine conditions.

Minor tectonism is indicated by mild folding of the Limbunya Gp

Deposition of the Wattie Gp. Victoria Basin correlative of the Nathan Gp. McCarthur Basin.

Uplift – erosion.

Deposition of the Auvergne Gp. Victoria Basin. 810 – 750 Ma.

Reactivation of strike - slip faults and uplift circa 560 Ma was associated with the King Leopold Orogeny and extensive flood basalts –Antrim Plateau Volcanics.

### **Structural Elements.**

The distinct structural elements observable in outcrop, gravity and magnetic data are:

The north west trending structural corridor bounded by the Limbunya fault to the north and in part by the Negri Fault to the south.

The discontinuity between the distinct gravity low to the south west of the tenement area and the generally high gravity readings through the tenement area. This discontinuity is co-incident with a northerly trending zone of folding and faulting which trends to the north west into the Negri fault.



Sample locations are shown on

**EL10096\_200712\_03\_map.pdf**

**Sampling on TM.**

**EL10096\_200712\_04\_map.pdf**

**TMI with Soil Sample Locations.**

**EL10096\_200712\_05\_map.pdf**

**TMI with Stream Sediment Sample**

**Locations.**

Assay data for gold (Au) and copper (Cu) for the stream sediment samples on EL 10097 are shown on the following files. The gold sampling focussed on the area of historic elevated gold in streams and coincident magnetic feature.

**EL10096\_200712\_10\_map.pdf**

**EL 10097 Stream Sediment Au Assays on**

**Topography.**

The elevated copper in streams proximal to the NW trending mineralised shear associated with LMD 10 is illustrated on

**EL10096\_200712\_11\_map.pdf**

**EL 10097 Stream Sediment Cu Assays on**

**Topography**

To date industry shortages have made signing a drilling contractor to undertake a 3000m R.C. programme in this locality impossible.

Stream sediment sampling has not confirmed the anomalous gold results reported previously by Geopeko in the Swan Creek area. The copper values are elevated in the vicinity of LMD10 which reported elevated copper in a late brittle shear zone in graphitic sediments in the Inverway Metamorphics. Soil sampling both over the prospective magnetic target and previous drilling, including LMD 10 which reported 6m @ 0.4% Cu in late breccia veins in the Inverway Metamorphics has not reported distinctly anomalous values.

Further exploration will rely on I.P targeting and drill testing to penetrate cover sequences and identify mineralisation.

## 7. FORWARD WORK PROGRAMS YEAR 7.

Exploration on these tenements during Year 7 will initially involve 3D IP surveys. It is planned to conduct a drill programme during this field season over identified targets.

### EL 10096 Forward Work Program

<b>Expenditure Type</b>	<b>Cost</b>
Geologists	\$25,000
Travel & Accommodation	\$8500
Field Assistants.	\$ 12,000
Vehicle Expenses	\$4,000
3D IP Survey	\$ 80,000.
R.C /Aircore Drilling	\$ 100,000
Sampling and Analysis	\$ 2400
Administration	\$2,000
<b>Total</b>	<b>\$233,000</b>

### EL 10097 Forward Work Program

<b>Expenditure Type</b>	<b>Cost</b>
Geologists	\$25,000
Travel & Accommodation	\$ 8500
Field Assistants	\$ 8,000
Vehicle Expenses	\$ 4,000
R.C / Aircore drilling	\$ 140,000
Sampling and Analysis	\$ 3,500
Administration	\$ 3,000
<b>Total</b>	<b>\$192000</b>

## 9. REFERENCES

A Cutovinos et al, 2002. 1:250,000 Geological Map Series Explanatory Notes Limbunya SE 52-07.

Hurrell A.M ( 1993) Exploration Licence 7140 & 7141 Combined Final Report on Exploration Peko Wallsend operations Ltd. Geopeko Division.

