

# EL 22732 MT YOUNG COX RIVER DISTRICT, NT

### **ANNUAL REPORT**

# ON EXPLORATION ACTIVITIES YEAR TWO OF TENURE 26 SEPTEMBER 2003 – 25 SEPTEMBER 2004

## **GRAVITY CAPITAL LIMITED**

(ABN - 72 009 178 689) Level 7, Exchange Tower 530 Little Collins Street, Melbourne, Victoria, 3000

#### **SUMMARY**

EL 22732 "Mt Young" was acquired by Gravity Capital Limited from BHP Billiton soon after it was granted, as part of a diamond exploration venture involving Gravity, Gravity's 40% associated company, Diamond Mines Australia Pty Ltd and BHP Billiton. These companies also have a diamond exploration arrangement with Rio Tinto Exploration covering a large number of Rio Tinto-controlled tenements in the Northern Territory.

During the first year of tenure, on the basis of encouraging diamond sampling data from nearby tenements, a Falcon<sup>TM</sup> airborne gravity gradiometer survey was flown over a substantial part of the Mt Young tenement.

The survey was completed on September 27<sup>th</sup>, 2003 and acquired a total of 5153 linear kilometres of gravity gradiometer, magnetics, and laser scanner data. Approximately 25% of this survey was contained within EL 22732.

Data was processed by BHP Billiton's Falcon Operations Group and delivered to Gravity Capital in November 2003.

BHP Billiton's Falcon Operations Group has identified a number of gravity gradient and magnetic anomalies that may indicate the presence of kimberlite pipes. The majority of the anomalies are gravity gradient lows. No coincident magnetic and gravity gradient anomalies have been identified

Detailed interpretation, anomaly ranking and exploration targeting from the Falcon<sup>TM</sup> data by Gravity Capital is nearing completion, with several target areas already identified for follow-up work. Statutory requirements for field access and approvals for work programs are currently being finalised and it is envisaged that testing of these targets will commence during the current field season.

Year 2 expenditure on the tenement was \$64,296

# TABLE OF CONTENTS

| SUMMARY  | 2 |
|--|---|
| INTRODUCTION                                       | 4 |
| LOCATION AND ACCESS                                | 4 |
| GEOLOGICAL SETTING                                 | 4 |
| PREVIOUS EXPLORATION                               | 5 |
| WORK COMPLETED IN YEAR 2                           | 6 |
| ENVIRONMENT AND REHABILITATION                     | 6 |
| CONCLUSIONS AND RECOMMENDATIONS                    | 7 |
| EXPENDITURE STATEMENT                              | 7 |
| PROPOSED EXPLORATION BUDGET                        | 7 |
|  |   |
| FIGURES  |   |
| 1. Tenement Location – EL 22732                    |   |
| 2. Regional Geology and Historic Sampling          |   |
| 3. Falcon™ Gravity Survey Boundary                 |   |
| 4. Falcon™ Vertical Gravity Gradient ('Gdd') image |   |
| 5. Falcon™ Vertical Gravity ('Gd') image           |   |
| 6. Enhanced Aeromagnetic image                     |   |
| 7. Digital Elevation Model image                   |   |

#### INTRODUCTION

Exploration License (EL) 22732 was granted to BHP Billiton Minerals Pty Ltd ("BHPB") on 26 September 2002. BHPB was at that time in advanced negotiation with Gravity Capital Limited ("Gravity") concerning the deployment of the Falcon<sup>TM</sup> airborne gravity gradiometer system. The Falcon<sup>TM</sup> system is a unique exploration tool developed by BHPB and it has particular application in diamond exploration. Gravity was in the process of forming joint venture arrangements for diamonds and for base metals, which would utilise the Falcon<sup>TM</sup> system and BHPB agreed to transfer title to EL 22732 to Gravity on the basis that if Falcon<sup>TM</sup> was deployed over the EL, then BHPB would have some potential rights to discoveries made by the system.

BHPB and Gravity concluded the arrangement on Falcon<sup>TM</sup> deployment during 2003 (ASX announcement 01/07/2003) and also formed a joint venture, through its 40% owned associated company, Diamond Mines Australia Pty Ltd ("DMA") with Rio Tinto Exploration, concerning the diamond and base metal exploration over a large number of Rio Tinto-controlled tenements in the Northern Territory) (ASX announcement 25/07/2003).

On the basis of the agreements, Gravity (on behalf of DMA) commenced diamond exploration in the Northern Territory during July 2003.

In essence, the agreements provide for DMA to deploy the Falcon<sup>™</sup> system and earn an interest in any discovery. BHP Billiton retains a right to buy into DMA's interest in any discovery. Gravity is managing all exploration for DMA.

The flying program which covered parts of EL 22732 also included coverage of Exploration licenses controlled by Rio Tinto (and included in the Rio Tinto – Gravity Capital – DMA joint venture) and other EL application areas by Gravity.

The principal target in the area is diamonds with some interest also directed toward base metal deposits.

#### LOCATION AND ACCESS

EL 22732 is located 25 kilometres west of Nathan River homestead in the Gulf Region of the Northern Territory. The tenement lies in the south west part of the pastoral lease and is accessible via station tracks (Figure 1).

#### **GEOLOGICAL SETTING**

The northern part of EL 22732 comprises gently deformed mid Proterozoic Roper River Group sediments of the McArthur Basin. In the southern part, the Roper River Group is overlain by the Bukalara Sandstone, which forms the basal part of the Cambrian Georgina Basin sequence. The area is of low relief, being drained by the Cox River and exposure is relatively poor.

The principal exploration target in the area is diamonds. The area lies within the northern Australian Craton "microdiamond field" which extends from the Camooweal region of NW Queensland to the East Kimberley district in north west WA. The diamondiferous "Packsaddle" kimberlite dykes area located 120km to the north west of the tenement and the Merlin diamond field lies approximately 200km to the south east.

While the McArthur Basin is known for its base metal potential, known occurrences are rare in the Roper River Group and exploration for lead, zinc and copper are a low priority.

#### PREVIOUS EXPLORATION

Two small, low grade kimberlitic dykes (Packsaddle and Blackjack) were discovered by Stockdale in the late 1980's on the north eastern margin of the Project area. These small dykes contain diamonds with low grades and shed kimberlitic chromite into drainages.

Surface sampling by both CRAE and Ashton was completed over the majority of the project area during the 1980's with some subsequent infill sampling during the 1990's. This sampling identified widespread macrodiamonds, microdiamonds and indicator minerals, mainly chromite, across the project area (Figure 2). The geochemistry of the chromite suggests they are derived from both kimberlitic and non-kimberlitic sources. Two areas have been explored in greater detail by CRAE/RTE and Ashton:

- Along a single drainage within the vicinity of EL 22732 which returned microdiamonds and abundant kimberlitic chromite.
- A large region containing kimberlitic chromite is located along the eastern margin of the tenement EL 22732). CRAE followed up 15 airborne magnetic anomalies in the area in the 1980's but ground magnetic traverses proved all anomalies to have a regolith source. No source rock has been identified to explain the indicator minerals.

As mentioned above, an agreement covering much of the Rio Tinto-controlled diamond exploration tenements in northern Australia was finalised in July 2003 between Rio Tinto and DMA. A review of available geophysical and sample data was carried out by Gravity (managing the project on behalf of DMA) during the current reporting period and this confirmed the potential for diamondiferous kimberlites to be located within the Arnold River tenement block.

On this basis, a Falcon<sup>™</sup> airborne gravity gradiometer survey was planned and acquired in August and September, 2003.

The survey was completed on September 28<sup>th</sup>, 2003 and acquired a total of 5153 linear kilometres of gravity gradiometer, magnetics, and laser scanner data. Falcon<sup>TM</sup> coverage was obtained over an area of approximately 114.7 km<sup>2</sup> within EL 22732 approximating to 25% of the survey (Figure 3).

The Falcon<sup>TM</sup> system was developed by BHP Billiton in the late 1990s and is considered to have the ability to detect kimberlite pipes. The Falcon<sup>TM</sup> system records gravity gradient data via a system of accelerometers. This gradient data is transformed to produce the vertical gravity gradient ('Gdd') which approximates the first vertical derivative of the vertical component of the gravity field. An integral transformation on 'Gdd' is applied to generate 'Gd', which approximates the vertical component of the gravity field itself. Conventional total magnetic intensity is also acquired as is laser scanner data, which is used to construct a very accurate (1m vertical resolution) digital elevation model.

Field survey work was done by Fugro Airborne Surveys under a contract with BHP Billiton, with whom Gravity Capital has the Falcon<sup>TM</sup> deployment agreement. The survey was flown on east-west oriented lines, 100m apart at a height of 80m above ground level.

#### WORK COMPLETED IN YEAR 2

Data was processed by BHP Billiton's Falcon Operations Group and delivered to Gravity Capital in November 2003.

Resulting from the survey BHP Billiton's Falcon Operations Group identified a number of gravity gradient and magnetic anomalies that may indicate the presence of kimberlite pipes. The majority of these anomalies are gravity gradient lows. No coincident magnetic and gravity gradient anomalies have been identified. Images of the data are presented in Figures 4 (Gdd), 5 (Gd), 6 (magnetics) and 7 (Digital Elevation Model).

Detailed interpretation, anomaly ranking and exploration targeting from the Falcon<sup>™</sup> data by Gravity Capital is nearing completion, with several target areas already identified for follow-up work. Statutory requirements for field access and approvals for work programs are currently being finalised and it is envisaged that testing of these targets will commence during the current field season.

The digital data and acquisition/processing report will be lodged with DBIRD in due course.

#### ENVIRONMENT AND REHABILITATION

No on-ground work was carried out during the reporting period. The airborne survey involved no impact on the environment and hence no requirement for rehabilitation.

#### CONCLUSIONS AND RECOMMENDATIONS

Exploration license 22732 covers an area that is considered prospective for commercial sources of diamonds as anomalous kimberlitic indicator mineral results, including both macro and micro-diamonds have previously been recovered.

On this basis, a Falcon<sup>TM</sup> survey was planned to cover the most prospective portion of EL 22732. The survey was conducted in August and September 2003 and results were received by Gravity Capital in November 2003. Detailed interpretation, anomaly ranking and exploration targeting from the Falcon<sup>TM</sup> data is nearing completion, with a number of target areas defined for follow-up work. Testing of these targets will commence during the current field season, subject to successful completion of statutory requirements for approval of field programs.

Further work programs in the near future will concentrate on the follow-up of anomalies evident in the Falcon data which may be representative of a concealed kimberlite intrusive.

#### **EXPENDITURE STATEMENT**

| Legal/Tenement administration costs | \$ 2,511 |
|-------------------------------------|----------|
| Professional personnel costs        | \$ 5,200 |
| Falcon <sup>TM</sup> survey costs   | \$50,632 |
| Data processing / computing costs   | \$ 234   |
| Cartography                         | \$ 106   |
| Travel and accommodation costs      | \$ 240   |
| Administration/overhead             | \$ 5,373 |
| Total                               | \$64,296 |

#### PROPOSED EXPLORATION BUDGET

| Field support & logistics                | \$1        | 0,000         |
|--|------------|---------------|
| Sampling and sample analysis costs       | \$1        | 0,000         |
| Personnel costs                          | \$         | 6,000         |
| Tenement Maintenance, Access, Clearances | \$         | 4,000         |
| Office support, computing, cartography   | \$         | 2,000         |
| Administration, legal, overhead          | \$         | 3,000         |
| Total                                    | <u>\$3</u> | <u>55,000</u> |













