



**EL 22329 HORSE CREEK  
VICTORIA RIVER REGION, NT**

**ANNUAL REPORT**

**ON EXPLORATION ACTIVITIES  
YEAR TWO OF TENURE  
PERIOD ENDING 30 JANUARY 2004**

**submitted by**

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

**on behalf of**  
**Diamond Mines Australia Pty Ltd**  
**and**  
**Ashton Mining Limited**  
(a wholly owned subsidiary of the Rio Tinto Group)

EL 22329 'Horse Creek  
Holder: Ashton Mining Limited  
Grant Date: 31 January 2002  
1:250,000 sheet : Limbunya SE52-07  
Minerals Sought: diamonds, base metals

## **SUMMARY**

EL 22329 forms part of a farmin agreement between Rio Tinto Exploration Pty Ltd (“Rio Tinto”) and Diamond Mines Australia Pty Ltd (“DMA”) covering numerous Rio Tinto-controlled tenements and applications in the Northern Territory. Under this agreement, DMA will conduct predominantly diamond exploration over the tenements and will utilise the newly-developed Falcon™ airborne gravity gradiometer system, which has been shown to be very effective in detecting kimberlite pipes.

Gravity Capital Ltd is managing the farmin arrangement for Diamond Mines Australia and owns 40% of DMA.

During the first year of tenure, Ashton Exploration Australia (the licence holder at the time), conducted a thorough review of historic exploration data, including considerable surface sampling focussed on diamonds, and recommended divestment of the tenement. The timing of the divestment arrangement with DMA during year two of tenure precluded the instigation of field exploration activities during 2003.

Expenditure on the tenement during the reporting period totalled \$9,165.

## **CONTENTS**

1. Introduction
2. Location and Access
3. Geological Setting and Economic Potential
4. Previous Exploration
5. Work Completed in Year 2
6. Environment and Rehabilitation
7. Conclusions and Recommendations
8. Proposed Exploration and Budget
9. Expenditure Statement

## **FIGURES**

1. EL 22329 Tenement Location
2. Regional Geology and Sampling

## **INTRODUCTION**

EL 22329 was granted to Ashton Exploration Australia Pty Ltd, a wholly owned subsidiary of the Rio Tinto Group ("Rio Tinto"), on 31 January 2002. The licence was transferred to Ashton Mining Limited on 24 July, 2003. At the time of the grant of the licence, Rio Tinto was in negotiation with Gravity Capital Limited ("Gravity") concerning the deployment of the Falcon™ airborne gravity gradiometer system over Rio Tinto's diamond tenements in northern Australia. The Falcon™ system is a unique exploration tool developed by BHPB and it has particular application in diamond exploration.

BHPB and Gravity concluded an arrangement on Falcon™ deployment in Australia during the year (ASX announcement 01/07/2003) and then formed a farmin 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 these 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™ 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 carried out in 2003 was focussed on areas of strongly anomalous diamond indicator mineral sampling results, obtained from Rio Tinto and surveys were conducted in the McArthur, Hodgson and Arnhem Land regions of the NT as well as in the Victoria River region which is the general locality of EL22329. EL22329 was not covered in the Victoria River survey, the closest flying being at Tee Dee Hill some 45 kilometres to the north.

While the principal target in the area is diamonds, some interest was also directed toward base metal deposits.

## **LOCATION AND ACCESS**

EL 22329 is located in the central northern portion of the Waterloo 1:250,000 map sheet within the Limbunya (PPL 1136) pastoral lease and immediately north of Limbunya homestead. The nearest major towns are Kununurra (200km to the NW), and Timber Creek (175km to the NE). Major access is via a secondary road that extends northwards to Limbunya Station homestead from the Buchanan Highway. Access to other areas is via station tracks.

The EL is located about 160km ESE and 175km WSW of the Argyle (AK1) and Timber Creek diamondiferous kimberlite/lamproite intrusions, respectively.

## **GEOLOGICAL SETTING AND ECONOMIC POTENTIAL**

The Limbunya region contains the Paleoproterozoic Birrindudu Basin, the Meso-Neoproterozoic Victoria Basin and the Cambrian Ord Basin that includes the Antrim Plateau Volcanic flood basalts. The Horse Creek EL is located over the basalt-covered contact between the Birrindudu Basin in the south the Victoria Basin in the north and east. These basin sequences have, in general, been gently deformed.

Localised Cretaceous sandstones and conglomerates are found central to the Limbunya 1:250,000 map sheet proximal and adjacent to the Limbunya Fault. These sediments could be the remnants of palaeodrainage channel deposits or the equivalent of Dunmarra Basin sequences. A number of faults, including the Limbunya Fault, are interpreted to traverse and, therefore, post date the age of these sediments.

The oldest rocks in the vicinity of the Horse Creek EL are the uplifted Palaeoproterozoic Limbunya Group that lie to the south of the EL. This carbonate-rich group is traversed by NNE-SSW trending faults that also traverse and define the margins of Cambrian basalt flows overlying the Group.

Mesoproterozoic Wattie Group (Wickham Formation) sandstones are interpreted to lie to the immediate east of the EL beneath Cenozoic regolith and Cambrian basalt. Sinkholes are a conspicuous “circular” feature of the Wickham Formation in the region.

Neoproterozoic Auvergne Group sandstones are found in the north of the EL. These dip gently at less than 15° towards the south west and west.

Cambrian Antrim Plateau Volcanics (predominantly basalt) covers most of the Horse Creek EL area. The basalt fills a broad E-W trending structural depression located between the Palaeoproterozoic sequences in the south and the Neoproterozoic sequences in the north. It is not immediately apparent from available maps whether the basalt-filled depression is an erosional palaeovalley, a gentle synclinal fold, a fault-controlled graben or a combination of these. Some basalts to the north of the EL terminate against and are traversed by E-W trending faults.

A number of fault sets traverse the Cambrian basalts (and Cretaceous sediments) in region indicating that the area remained tectonically active throughout the Phanerozoic.

The EL is located in a tectonically favourable region between the Argyle diamond mine and the diamondiferous Timber Creek kimberlite pipe. Previous regional reconnaissance exploration for diamonds on the Limbunya 1:250,000 map sheet located clusters of surficial macro and microdiamonds and other indicator mineral occurrences and, although the source of these remains enigmatic, the region is considered prospective for diamonds.

## **PREVIOUS EXPLORATION**

Ashton Exploration collected 44 reconnaissance and follow up stream gravel samples within the EL area in the early 1980's. Seven of the samples contained chromite. The reconnaissance sampling was at intervals of around 5km and tested drainage catchments of about 25km<sup>2</sup>. Some limited follow up sampling filled in around some of the reconnaissance samples that contained chromite.

The distribution of chromite occurrences comprise two clusters as follows:

- Five samples containing chromite were collected from tributaries (including Kunja, Black Gin and Soda Springs creeks) sourced from a NNW-SSE trending ridge forming a major drainage divide in the east of the EL. One sample of this cluster was followed up with additional sampling suggesting the original chromite occurrence was of particular interest to Ashton. The ridge, from which the chromite-bearing tributaries are sourced, traverses both Antrim Plateau Volcanics and Neoproterozoic rocks. Regional topographic, geological, gravity and magnetics data suggests that it might be related to a major NW-SE trending basement fault. Black soils are extensively developed in the area. Outside of the EL, and along strike to the south east, samples containing diamonds appear to be sourced from the same NW-SE striking ridge.
- Two samples containing chromite were collected from a single drainage catchment in the west of the EL. The drainage catchment was sampled in greater detail with no improvement on the results. The catchment is sourced from, and drains, Antrim Plateau Volcanics. There are localized occurrences of black soils and interbedded basalt, agglomerate and sandstone near the source of the drainage catchment.

No field-based exploration was completed during year 1 of tenure on EL 22329 Horse Creek. During that period RTE reviewed the available geology, geophysics, geomorphology and historical diamond exploration data for the EL and compiled these into workable data bases.

## **WORK COMPLETED IN YEAR 2**

Gravity Capital completed an assessment of the compilation work carried by Rio Tinto and concluded that the area was not of sufficient priority to warrant a Falcon™ survey in the initial stages of the DMA-Rio Tinto farmin arrangement. No field work was carried out and the area will be reviewed when results from Tee Dee Hill Falcon™ survey, which was completed some 45 kilometres to the north, are finalised.

## **ENVIRONMENT AND REHABILITATION**

No requirement for rehabilitation arose during the first year of tenure as no field work was carried out.

## CONCLUSIONS AND RECOMMENDATIONS

EL 22329 lies within an area generally held to be prospective for diamonds. Results of work carried out to the north of the tenement in 2003 will determine the degree of exploration during the forthcoming year of tenure.

Recommendations for further exploration will be largely based on the interpretation of the Falcon™ data at Tee Dee Hill.

## PROPOSED EXPLORATION AND BUDGET

Aerial Photography and satellite imagery	\$2,500
Interpretation costs	\$2,500
Field reconnaissance	\$12,500
Sampling and sample analysis costs	\$12,500
<b>TOTAL</b>	<b><u>\$30,000</u></b>

## EXPENDITURE STATEMENT

Legal/Tenement administration costs	\$4,450
Professional personnel costs	\$2,700
Data processing / computing costs	\$520
Cartography	\$350
Travel and accommodation costs	\$350
Administration/overhead	\$795
<b>Total</b>	<b><u>\$9,165</u></b>





