EL 8915 TEE DEE HILL
VICTORIA RIVER REGION, NT

ANNUAL REPORT

ON EXPLORATION ACTIVITIES
YEAR FIVE OF TENURE
7 June 2004 – 6 June 2005

submitted by

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

EL 8915 ‘Tee Dee Hill
Holder: Ashton Mining Ltd
Grant Date: 7 June 2000
1:250,000 sheet: WATERLOO SE52-03
Minerals Sought: diamonds, base metals
SUMMARY

EL 8915 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 is conducting predominantly diamond exploration over the tenements utilising the newly-developed Falcon™ airborne gravity gradiometer system, which has been shown to be very effective in detecting kimberlite pipes.

Gravity Diamonds Ltd (“Gravity”) is managing the farmin arrangement for Diamond Mines Australia and owns 100% of DMA.

During the initial stages of the farmin arrangement, a review of historic exploration data, including considerable surface sampling focussed on diamonds, was conducted by Gravity and numerous anomalous results were noted.

On this basis, a Falcon™ survey was planned to cover the central part of EL 8915. Flying was conducted in November-December 2003 and results were received by Gravity in May 2004. Interpretation and exploration targeting were completed during 2004 and proposed field programmes were submitted to the Northern Land Council to obtain Traditional Owner approval.

The NLC was not able to process Gravity’s field programme proposal in 2004, but approval to proceed was received in early 2005 and field testing of kimberlite targets is scheduled for August-September 2005.

Expenditure on the tenement during the reporting period totalled **$99,379**
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1. EL 8915 Tenement Location
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INTRODUCTION

EL 8915 was granted to Ashton Mining Ltd on 7 June 2000. Since that time, Rio Tinto has taken over Ashton and established the diamond prospectivity of the area with a range of airborne and ground exploration techniques including considerable surface sampling. During 2002, Rio Tinto was entered into negotiation with Gravity Capital Limited (“Gravity”, since renamed to Gravity Diamonds Limited) 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 BHP Billiton and it has particular application in diamond exploration.

BHP Billiton and Gravity concluded an arrangement on Falcon™ deployment in Australia during the year (ASX announcement 01/07/2003) and then Gravity formed a farmin joint venture, through its then 40%-owned (and now 100%-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). EL 8915 forms part of the DMA-Rio Tinto joint venture.

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 2003 flying program was planned to cover part of EL 8915 and focused on the area of strongly anomalous diamond indicator mineral sampling results, obtained from Rio Tinto’s prior work.

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

During 2004, results of the Falcon survey were processed and analysed and a number of robust kimberlite targets were identified and plans for field testing these targets were formed.

LOCATION AND ACCESS

EL 8915 Tee Dee Hill is located 100 km south west of Timber Creek and 30 km east of the Amanbidji Community, on the Waterloo SE52-03 1:250,000 map sheet, western Northern Territory (figure 1). The tenement is located within the Nagurunguru Aboriginal Land Trust (NALT) and is subject to the Timber Creek Joint Venture and Deed of Exploration with NALT. Access is via the Victoria Highway and thereafter via station tracks in the Kildurk area.
GEOLOGICAL SETTING AND ECONOMIC POTENTIAL

EL 8915 is located over the southern part of the Neoproterozoic Victoria River Basin. The physiography consists mainly of dissected plateaus, ridges and some alluvial plains. Occasional pronounced linear drainage patterns map the location of faults.

The Victoria River Basin consists of marine and continental sediments (mainly sandstone) up to 3500m thick. The Jasper Creek sandstone of the Auvergne Group comprises most of the Neoproterozoic outcrop. In the southwest of the tenement Angalarri Siltstone overlies the Jasper Gorge sandstone. In the southeast and southwest Lower Cambrian Antrim Plateau Volcanics unconformably overlies the Auvergne Group. Deformation consists of minor tilting to broad open folding and minor faulting. Erosion of the basalt in the more recent geological past has exposed sub-circular domes of the underlying Neoproterozoic sediments.

Regional NW-SE and NE-SW trending lineaments, some of which appear to be intruded by dykes, are evident from airborne magnetics data. Traversing immediately to the south the Tee Dee Hill indicator mineral anomaly is a prominent ENE-WSW drainage lineament interpreted to be a major fault that extends west for over 100 km.

Jurassic diamondiferous dykes that have intruded the Victoria River Basin are located about 100 km to the NE near Timber Creek.

PREVIOUS EXPLORATION

Ashton explored the area in the early 1980s and early 1990s for diamonds. This earlier work consisted of reconnaissance gravel sampling, drainage geochemical sampling, loam sampling, airborne and heliborne magnetic surveys, INPUT surveying and photogeological studies. Airborne magnetic anomalies were selected and some were followed up with surface sampling. Photogeological studies, utilising 1:50,000 scale black and white aerial photographs surveyed in 1948, identified a number of circular and linear features that were further assessed in the field or tested with one or two loam samples.

The drainage sampling identified macrodiamonds, microdiamonds and other indicator minerals clustering within a number of drainage catchments within the tenement. One pronounced indicator mineral anomaly, referred to as “Tee Dee Hill”, consists of a prominent cluster of macrodiamonds, microdiamonds and other indicator minerals largely confined to a single drainage channel.

The previous work completed by Ashton and Rio Tinto within EL 8915 during the current tenure is summarised in Rio Tinto’s 2001 and 2002 Annual Reports to the Mines Department.

Work completed during the first reporting period by Ashton/Rio Tinto was follows:

- Infill drainage sampling around the tenement. This work continued to highlight the drainage channel of the Tee Dee Hill indicator mineral anomaly.

- SEM probing and assessment of chromite geochemistry of chromite grains from one sample. This work indicated that most of the chromite grains were non-kimberlitic but some were possibly Kimberlitic.
- A detailed airborne magnetics survey (100m line spacing) over the Tee Dee Hill indicator mineral anomaly. The detailed aeromagnetic survey highlighted four magnetic anomalies. One of four magnetic anomalies was associated with a 400m by 200m depression with brecciation-silicification, peripheral concentric fracturing and a coincident EM anomaly. Soil and loam sampling over the feature failed to return any significant results. Ground inspection revealed that the feature was probably a basalt vent.

- Ground magnetic and EM-34 traverses over a coincident airborne magnetic and circular geomorphological feature.

Work completed during the second reporting period consisted of a review of available exploration data, including regional topographic and Landsat Thematic Mapper imagery. The following observations were made from the data review:

- The Tee Dee Hill indicator mineral anomaly lies down hill of a prominent ENE-WSW drainage-defined (geomorphological) lineament that extends for +100 km to the west. Landsat Thematic Mapper (TM) image interpretation highlighted a possible circular “clay anomaly”, about 1 km diameter, adjacent to the lineament. The anomaly is immediately up slope of the Tee Dee Hill indicator mineral anomaly and near the base of an outlier of Antrim Plateau Volcanics. A very subtle magnetic feature was identified associated with the clay anomaly.

- Further to the west, two adjacent gravel sample sites containing picroilmenite are also located proximal to the +100 km long regional lineament.

- There are other gravel sample microdiamond occurrences within the tenement that could be investigated further.

After the exploration agreement between Rio Tinto and DMA was finalised in July 2003, a review of available geophysical and geochemical data was carried out by Gravity (managing the project on behalf of DMA) and this confirmed the considerable potential within EL 8915 for diamondiferous kimberlites.

On this basis, a Falcon™ airborne gravity gradiometer survey was planned and completed in December 2003. Field survey work was done by Fugro Airborne Surveys under a contract with BHP Billiton, with whom Gravity has the Falcon™ deployment agreement.

The Falcon™ 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.

The survey was flown on north-south oriented lines, 100m apart at a height of 80m above ground level. Coverage of just over 230 km² within the tenement comprising a total of approximately 2,624 line kilometres was acquired.

Data was processed by BHP Billiton’s Falcon Operations Group and delivered to Gravity in March 2004. Interpretation and exploration targeting from the data commenced soon after.
Images of the data were presented in the 2004 annual report. The digital data and acquisition/processing report will be lodged with DBIRD in due course.

**WORK COMPLETED IN YEAR 5**

Processing and analysis of the Falcon data was completed during year 5. The Falcon results were then integrated with prior exploration sampling as well as regional geological and geophysical data.

This resulted in the identification of 13 robust kimberlite targets and work programmes for ground inspection and sampling of these targets were rapidly formulated and submitted to the Northern Land Council. The NLC was not able to process the submission for work clearances during 2004, but advised in early 2005 that the work programmes could proceed. Consequently, field follow-up is scheduled for August 2005.

**ENVIRONMENT AND REHABILITATION**

No requirement for rehabilitation arose during the reporting period as no on ground field work was carried out.

**CONCLUSIONS AND RECOMMENDATIONS**

EL 8915 lies within an area of anomalous kimberlitic indicator sampling results. A significant part of the tenement area has been flown with the Falcon™ system airborne gravity gradiometer system and results indicate at least 13 targets worthy of field testing for kimberlite pipes.

Helicopter supported field sampling programmes are planned for mid 2005.
PROPOSED EXPLORATION AND BUDGET

Field support & logistics $15,000
Sampling and sample analysis costs $15,000
Personnel costs $15,000
Office support, computing, cartography $5,000
Administration, legal, overhead $10,000

TOTAL $60,000

EXPENDITURE STATEMENT

Legal/Tenement management costs $66,513
Professional personnel costs $12,574
Data processing / computing costs $2,685
Cartography $420
Travel and accommodation costs $1,576
Administration/overhead $15,611

TOTAL $99,379
Figure 2: Victoria Project - EL8915
Regional Geology and Historic Sampling

Legend:
- Sample Location
- Chromite
- Microdiamond
- Macrodiamond

Projection: UTM Zone 52, Southern Hemisphere (WGS 84)
Scale: 1:250000
Author: GG
Office: Perth
Drawing: GG Workspace:
Date: 19/7/2005

Angalarrie Siltstone
Jasper Gorge Sandstone
Antrim Plateau Volcanics

Sample Location
Chromite
Microdiamond
Macrodiamond

LEGEND