EL 7970 Arnold River
Hodgson Diamonds Project, NT

REPORT ON THE BLOCKS RELINQUISHED AT THE
CONCLUSION OF YEAR 6


submitted by

GRAVITY DIAMONDS 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 7970
Holder: Ashton Mining Limited
Grant Date: 24 July 2000
1:250,000 Sheet: Hodgson Downs SD 53-14,
Minerals Sought: Diamonds, Base metals
SUMMARY

EL 7970 forms part of Rio Tinto’s ‘Hodgson Diamond Project’ and is centred approximately 150km northeast of Daly Waters in the Northern Territory, within the Hodgson Downs 1:250,000 map sheet. The EL was granted to Ashton Mining on 24th July 2000. Ashton Mining Ltd was taken over by Rio Tinto Limited in the 4th quarter of 2000.

The tenement 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 tenements and applications in the Northern Territory. Under this agreement, DMA is conducting predominantly diamond exploration utilising the newly-developed Falcon™ airborne gravity gradiometer system. The Falcon™ system has been shown to be effective in detecting kimberlite pipes. Gravity Diamonds Ltd is managing the farmin arrangement for Diamond Mines Australia and owns 100% of DMA.

The tenement is considered prospective for commercial sources of diamonds. Historic gravel sampling shows that there are unresolved chromite and diamond occurrences in an area of Bukalara Sandstone on EL 7970. During the initial year of the Rio Tinto-DMA farmin arrangement, a review of historic exploration data was conducted by Gravity.

On this basis, a Falcon™ survey was planned to cover prospective areas within EL 7970 and adjacent farmin tenements to the east. The survey was conducted in August - September 2003 and results were received by Gravity in November 2003. Approximately 20% of the area covered by the Falcon™ survey fell in the relinquished area. Target areas were defined for follow up work however none of these areas fell within the relinquished area.
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INTRODUCTION

EL 7970 was granted to Ashton Mining on 24th July 2000. Ashton Mining Ltd was taken over by Rio Tinto Limited in the 4th quarter of 2000. As a consequence of the takeover Rio Tinto Exploration Pty Ltd (RTE) acquired control of all of Ashton’s granted tenements and tenement applications around Australia.

During 2002, Rio Tinto entered into negotiation with Gravity Capital Limited (“Gravity”, and now renamed 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 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). EL 7970 forms part of the DMA - Rio Tinto joint venture. In essence, the agreements provide for DMA to deploy the Falcon™ system and earn an interest in any discovery while Gravity is managing all exploration for DMA. On the basis of these agreements, Gravity (on behalf of DMA) commenced diamond exploration in the Northern Territory during July 2003.

The 2003 Falcon™ flying program was planned to cover areas of anomalous diamond indicator mineral sampling results, obtained from prior exploration work by Ashton. This resulted in the acquisition of Falcon™ data over a portion of EL 7970. Approximately 20% of the area covered by the Falcon™ survey fell in the relinquished area. Target areas were defined for follow up work however none of these areas fell within the relinquished area.

LOCATION AND ACCESS

EL 7970 is centred approximately 150km northeast of Daly Waters in the Northern Territory, within the Hodgson Downs 1:250,000 map sheet (Figure 1).

Due to the remote location of the tenement, helicopters have been used for much of the previous diamond exploration.

The tenement overlies Alawa (Cox River) Aboriginal Trust Land (freehold) and is subject to the Cox River JV and ALRA Deed of Exploration with the owners.
GEOLOGICAL SETTING AND ECONOMIC POTENTIAL

Rock types in the Cox River tenement area include sandstones and minor siltstones of the NeoProterozoic Roper Group, Cambrian Bukalara Sandstone and Lower Cretaceous sediments. Bedrock units are commonly covered by laterite, lateritic soils and Quaternary deposits.

Several North trending, pre-Cretaceous faults transect the eastern parts of the tenement area. Sediments within EL 7970 are only gently folded, with bed dips rarely exceeding 15°. Drainage of the EL predominately occurs through tributaries of the Cox River.

The Roper Group stratigraphic sequence contains low grade, stratabound, sedimentary iron occurrences but base metal occurrences are rare. The small, low grade, diamondiferous Packsaddle and Blackjack kimberlite dykes which occur in the general area have intruded and are hosted by the Roper Group sediments.

PREVIOUS EXPLORATION

As mentioned above, two small, low grade kimberlitic dykes (Packsaddle and Blackjack) were discovered by Stockdale in the late 1980’s. 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. 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 a nearby tenement to the east of EL 7970 (separate annual report), which has returned microdiamonds and abundant kimberlitic chromite.

A large region containing kimberlitic chromite is located along the eastern margin of the Arnold River tenement block (EL 7970). 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. Review of available geophysical and sample data was carried out by Gravity (managing the project on behalf of DMA) during year 4 of tenure and this confirmed the potential for diamondiferous kimberlites to be located within the Arnold River tenement block.

On this basis, a Falcon™ airborne gravity gradiometer survey was planned and acquired in August and September, 2003. The survey was flown on east-west oriented lines, 100m apart at a height of 80m above ground level. Falcon™ coverage was obtained over an area of approximately 240 km² within EL 7970. Approximately 20% of the area covered by the Falcon™ survey fell in the relinquished area.

Data was processed by BHP Billiton’s Falcon Operations Group and delivered to Gravity Capital in November 2003.
A Falcon™ airborne gravity gradiometer survey was planned and acquired in August and September, 2003 over EL 7970. Falcon™ coverage was obtained over an area of approximately 240 km² within EL 7970 with approximately 20% of the area covered by the survey falling within the relinquished area. Field survey work was done by Fugro Airborne Surveys under a contract with BHP Billiton, with whom Gravity Capital has the Falcon™ deployment agreement. The Falcon™ system was developed by BHP Billiton in the late 1990s and is considered to have the ability to detect kimberlite pipes.

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 east-west oriented lines, 100m apart at a height of 80m above ground level. Data was processed by BHP Billiton’s Falcon Operations Group and delivered to Gravity Capital in November 2003.

Images of the data insofar as the relinquished area is concerned is presented in figures 3 (Gdd), 4 (Gd), 5 (magnetics) and 6 (Digital Elevation Model).

Target areas were defined for follow up work however none of these areas fell within the relinquished area. There was no further work carried out on the relinquished area.

ENVIRONMENT AND REHABILITATION

There was no work carried out on the relinquished area which required rehabilitation.

CONCLUSIONS AND RECOMMENDATIONS

EL 7970 is considered prospective for commercial sources of diamonds as anomalous kimberlitic indicator mineral results, including both macro and micro-diamonds have previously been recovered within the tenement.

On this basis, a Falcon™ survey was flown to cover the most prospective portion of EL 7970 during August-September 2003 and results were received by in November 2003. Interpretation and exploration targeting from the Falcon™ data was completed in 2004.

The survey flown downgraded the area subsequently relinquished at the conclusion of Year 6 and there was no further work carried out on that relinquished area.
Figure 1

Hodgson Project
EL 7970
Showing Aboriginal Land Trust and Pastoral Lease Boundaries

Legend
- EL7970 tenement
- Aboriginal Land Trust boundary
- Pastoral Lease boundary
- Drainage

Project Location

Legend

Drainage
Pastoral Lease boundary
Aboriginal Land Trust boundary
EL7970 tenement

Location

Cox River
Alawa Aboriginal Land Trust
Figure 3: Hodgson Project-EL7970
Falcon Vertical Gravity Gradient
"Gold" Image
Dynamic Range = 45E0 (approx)

Diamond Mines Australia

Scale: 1:100000
Workspace: Fig3 EL7970 Relinq 2006
Drawing: NicolCAD
Projection: UTM Zone 53, Southern Hemisphere (WGS 84)
Date: 9/11/2006
Author: GG
Office: West Perth
Figure 5: Hodgson Project-EL7970
Enhanced Aeromagnetic Image

Total Field Range ~60nT
Figure 6: Hodgson Project-EL7970
Digital Elevation Model
Total Elevation Range ~110m

Date: 9/11/2006
Author: GG
Office: West Perth
Drawing: NicolCAD

Tenement EL7970