



## **Rio Tinto Exploration Pty. Limited**

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A member of the Rio Tinto Group

### **Third Annual Report for the Period Ending 9<sup>th</sup> September 2002, SEL 9779, Mt Lynott (formerly Abner Range), McArthur Diamonds Program, Bauhinia Downs SD53-03, Northern Territory**

**Exploration Report No. 25819**

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1	Mine Management Plan	Mt Lynott MMP.pdf

## **LIST OF PLANS**

<b><u>Plan No.</u></b>	<b><u>Title</u></b>	<b><u>Scale</u></b>
WAp45495	Tenement Location Plan	1:3 000 000

## **1 SUMMARY**

SEL 9779 Mt Lynott was granted to Ashton Mining Ltd on the 10<sup>th</sup> September 1999 for a period of four years. Rio Tinto Exploration Pty Ltd acquired Ashton Mining and SEL 9779 in late 2000.

SEL 9779 overlies the Abner Range syncline which forms a prominent plateau comprised of Nathan and lower Roper groups overlain by remnant outliers of Cambrian and Cretaceous sediments. Exploration had previously identified two small kimberlitic-sandstone breccia pipes and abundant diamonds and kimberlitic indicator minerals within SEL 9779.

No ground-based exploration work was completed for SEL 9779 during the current reporting period. A Mine Management Plan was completed.

During the period RTE reviewed Ashton's history of exploration activities and methodologies within SEL 9779 and the surrounding region. Ashton's exploration data for SEL 9779 (and neighbouring areas) was merged with RTE's own geological, geochemical and geophysical databases and reviewed at both the local and regional scales. As a consequence of the review RTE decided to divest SEL 9779 along with neighbouring tenements.

The exploration data was collated and presented to various interested parties throughout 2002. This culminated in an agreement being signed with Gravity Capital Pty Ltd (Gcap). At the time of writing of this report the agreement between RTE and Gcap was being finalised.

## **2 CONCLUSIONS AND RECOMMENDATIONS**

A review of Ashton and RTE's merged diamond exploration datasets indicated that the potential for discovery of a world class diamond mining project within SEL 9779 was remote, however, there remains potential for the discovery of a smaller mining project.

It was recommended that SEL 9779 be divested along with other RTE tenements in the region.

## **3 INTRODUCTION**

SEL 9779 Mt Lynott was granted to Ashton Mining Ltd on the 10<sup>th</sup> September 1999 for a period of four years. The SEL replaced Ashton's previously explored EL's 7228, 7269, 8698 and 9211. In late 2000 Rio Tinto Ltd acquired Ashton Mining Ltd and its diamond exploration projects around Australia, including SEL 9779. The acquisition of Ashton Mining dramatically expanded RTE's diamond exploration project portfolio throughout Australia. During 2001 and 2002 RTE embarked on merging Ashton's diamond exploration datasets with its own and then reviewing,

assessing and prioritising all its diamond projects. The decision was made to divest SEL 9779 along with some neighbouring tenements in the McArthur region of the Northern Territory. At the time of this report, the divestment of SEL 9779 along with a suite of neighbouring tenements was being concluded with Gravity Capital Pty Ltd (Gcap).

SEL 9779 is located 80km south of Borroloola and 700 km south east of Darwin. Land use is predominantly pastoral leasehold, mainly for cattle grazing.

Access is provided by the sealed Carpentaria Highway, which connects the Stuart Highway to the HYC (McArthur) mine and station tracks. The Tablelands Highway intersects the Carpentaria Highway next to Abner Range at Cape Crawford.

#### 4 LICENCE DETAILS

Table 1: Tenement Details

Name	Tenement No.	Application Date	Grant Date	Sub-Blocks	Area (km <sup>2</sup> )
Mt Lynott	SEL 9779	2/12/1996	10/09/1999	45	

#### 5 GEOLOGY

SEL 9799 Mt Lynott Project overlies a small portion of the Batten Trough of the Mesoproterozoic (1800-1400Ma) McArthur Basin. The project is located proximal to the contact between the Proterozoic McArthur Basin in the north and the unconformably overlying Cambrian Georgina Basin in the south. The 1800-1400Ma stratigraphy and mineralisation of the Batten Trough, from youngest to oldest, can be summarised as follows:

- Roper Group
- Nathan Group (or Mt Rigg Group)
- McArthur Group
- Tawallah Group

SEL 9779 overlies the Abner Range syncline, which forms a prominent plateau in the surrounding landscape. In the Batten Trough, the older Tawallah and McArthur Groups dominate in outcrop, however, in the Abner Range syncline the younger Nathan Group and lower Roper Group are exposed. The Tawallah and Hot Springs Faults, that trend approximately N-S, lie on the western and eastern margins of the Abner Range syncline, respectively. These two major faults are parallel to, and probably broadly sympathetic to, and

coeval with, the Emu Fault that defines the eastern margin of the Batten Trough. The lower Devonian diamond pipes of the Merlin field lie proximal to the Emu Fault.

Remnant outliers of Cambrian sediments are widespread and unconformably overlie the Batten Trough's Proterozoic sequences. In the Abner Range syncline there are remnant outliers of Cambrian Bukalara Sandstone lying on top of the plateau. Two small, probably lower Devonian, kimberlitic sandstone breccia pipes have intruded Bukalara Sandstone in the Abner Range.

Lateritised, thin, flat-lying Cretaceous Mullamen Beds sediments of the Dunmarra Basin forming outliers on the Abner Range that unconformably overlie the older rocks. These outliers of thin sediments infill any depressions on the pre-Cretaceous weathering surface. In the McArthur and Georgina Basins the Cretaceous sediments fill and are locally preserved within karstic sink holes. They are also known to fill "karst-like" depressions overlying kimberlite diatremes. The Cretaceous sediments are also a potential source of secondary kimberlite indicator minerals.

Cenozoic laterite and transported sediments are widespread over the Abner Range plateau. Lateritisation during the Cenozoic-Quaternary was widespread in the region but mainly affected the flat-lying blanket of Cretaceous sediments.

## **6 HISTORY OF EXPLORATION**

During the last two decades RTE/CRAE and Ashton have undertaken exploration for diamondiferous kimberlitic diatremes in the Batten Trough region that resulted in the discovery of the Merlin kimberlite field and the production of commercial-sized gem-quality diamonds by Ashton in 1999.

CRA Exploration originally defined the substantial kimberlitic chromite anomaly that was tracked to a large, fracture-controlled ravine in the Abner Range Plateau.

More detailed evaluation by Ashton Mining Ltd of the Abner Range kimberlitic chromite anomaly revealed a small, circular fracture/breccia geomorphic feature located on the Abner Range Plateau. Additional sampling and then drilling (four RAB holes and one diamond hole) confirmed the feature was a sandstone breccia pipe, 80m in diameter, with an ultramafic component and containing abundant kimberlitic chromite and microdiamonds. The pipe is associated with a 020° trending fracture system throughout the Abner Range. A second, similar, small sandstone breccia diatreme was later discovered about 1.5km to the NE.

Subsequently, Ashton carried out detailed exploration over the Abner Range area that included the Dog Leg Creek prospect area immediately to the SW of the diatremes. The detailed exploration, incorporating infill sampling, bulk sampling, soil geochemical sampling and geophysical surveys (airborne, ground magnetics, Geotem, EM-34 and gravity), produced numerous targets. A large number of microdiamonds and kimberlitic chromites were recovered from loam samples collected over a 10km by 2km grid at Dog Leg Creek Prospect. Drilling of a few select targets failed to intersect kimberlite. A microdiamond was reported in a RAB hole sample of Cretaceous sediments.

In 2000 Ashton collected 37 follow up loam samples and drilled one RAB hole. During 2001 RTE processed and reported on the 37 follow-up loam samples and the samples from the single RAB drill hole. The loam samples returned a high number of kimberlitic chromite grains that were unlikely to have been shed from the known kimberlitic breccia pipes. The results suggested potential for additional kimberlite pipes in the area. The source of the indicator mineral cluster at this prospect remained enigmatic and warranted further work. A proposed work programme was postponed until a more detailed review of Ashton's historical exploration data could be completed by RTE.

## **7 EXPLORATION COMPLETED DURING CURRENT REPORTING PERIOD**

No ground-based exploration work was completed within SEL 9779 during the reporting period by RTE.

During the reporting period RTE reviewed Ashton's history of exploration activities and methodologies within SEL 9779 and the surrounding region. Ashton's exploration data for SEL 9779 (and neighbouring areas) was merged with RTE's own geological, geochemical and geophysical databases. The merged diamond exploration data was reviewed at both project and regional scales.

The data review highlighted some untested targets within SEL 9779 and it indicated that there remained significant exploration potential for the discovery of kimberlites. However, the potential for the discovery of one or more diamondiferous kimberlites of sufficient size and grade to be of interest to Rio Tinto appeared to be remote given the detail of exploration already completed. The review suggested the greatest scope remained for the discovery of multiple, small, high-grade diamondiferous pipes of interest to a small- to medium-sized exploration company. RTE decided to divest SEL 9779 along with other tenements in the region based on the results of the review.

RTE produced regional project summary reports and plans and compiled all existing geological, geophysical and geochemical and heavy mineral sampling data sets onto CD's as part of the divestment process. The data was presented to, and discussions held with, various interested parties throughout 2002. These presentations and discussions culminated in an Agreement being signed with Gravity Capital Pty Ltd (Gcap) regarding a substantial number of the RTE diamond project tenements in northern Australia, including SEL 9779. At the time of writing of this report, the agreement between RTE and Gcap was being finalised. Finalisation of the divestment agreement was delayed pending government regulatory approvals to Gcap's corporate structure.

## **8 ENVIRONMENT**

A Mine Management Plan identifying land use and environmental issues as well as stating environmental management strategies for exploration was completed for the tenement (Appendix 1). No significant environmental issues were identified by RTE.

## **9 EXPENDITURE STATEMENT**

Field & Transport	\$10,428
Payroll & Benefits	\$8,501
Travel & Accommodation	\$630
Sundry Professionals & Computing	\$2,748
District Administration/Indirect	\$4,461
<b>TOTAL</b>	<b>\$26,768</b>

A variation of covenant has previously been lodged under separate cover.

## **10 PROPOSED WORK PROGRAM FOR NEXT REPORTING PERIOD**

The exploration program proposed for year four will involve Gcap reviewing of past exploration data, heavy mineral sampling, Falcon <sup>TM</sup> geophysical surveying, site clearance surveys and drill testing of existing and new geophysical targets.



## **REFERENCES**

- Thompson B., 2000. Annual report, Substitution Exploration Licence 9779 "Abner Range", 10<sup>th</sup> September 1999 to 9<sup>th</sup> September 2000. Ashton Mining Limited Unpublished Exploration Report.
- Johnson D.M., 2001. SEL 9779 Abner Range annual report for the period ending 9<sup>th</sup> September 2001. Rio Tinto Exploration Report No. 24548.
- Bishop S.R., 2002. McArthur Project – Information Memorandum. RTE Internal (Divestment) Memorandum D2716DCP02.doc
- Smith S. and Christie A.N., 2002. Mine Management Plan, Mount Lynott, SEL 9779 Mount Lynott, EL8134 Kilgour Gorge, SE5303 Bauhinia Downs and SE5307 Wallhallow, Northern Territory. Rio Tinto Exploration Report No. 25461.

## **LOCALITY**

Bauhinia Downs

SE53-03

1:250 000

## **DESCRIPTOR**

Third annual exploration report by Rio Tinto Exploration for SEL 9779, Mt Lynott (formerly Abner Range) located over the Abner Range, Northern Territory. No field work carried out. A review of data resulted in decision to divest the tenement.

## **KEYWORDS**

Abner Range, Batten Trough, Bauhinia, Bukalara Sandstone, Cambrian, Chromite, Cretaceous, Diamonds, Diatreme, Indicator minerals, Kimberlite, McArthur Basin, Proterozoic.

## **APPENDIX 1**

### **Mine Management Plan**

**Mt Lynott MMP.pdf**