RIO TINTO

Rio Tinto Exploration Pty. Limited

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A member of the Rio Tinto Group

First Annual Report
for the Period Ending 22nd July 2003,
EL 10189 Wilkinson Creek,
Merlin Orbit Diamonds Programme,
Bauhinia Downs SE 53-03, Wallhallow SE 53-07
and Calvert Hillls SE 53-08,
Northern Territory,
Australia

Exploration Report No. 26179

Tenement Holder:	Rio Tinto Exploration Pty Limited
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1 SUMMARY

EL 10189 Wilkinson Creek is located 100 km south of Borroloola and 20 km south of the Merlin Diamond Mine, Northern Territory, Australia. The area covered by EL 10189 has received a significant amount of historical exploration for diamonds, mainly surface sampling and airborne magnetic surveys. Ashton Mining Limited completed the majority of this work during the late 1990's while the Merlin Diamond Mine was being evaluated and developed.

Work completed by RTE within EL 10189:

- Compilation and review of existing geophysical, geochemical and drilling data highlighted six, low priority, airborne magnetic targets and the high priority Tintagel Prospect area where previous Ashton bulk gravel samples returned anomalous diamond counts.

- Six ~500 kg bulk gravel samples collected around the Tintagel Prospect area did not return any diamonds. Indicator mineral in the samples were identified as being non-kimberlitic. The results were inconclusive.

- A Helicopter-borne Hummingbird EM (HEM) survey, totalling 6200 line km, resulted in ten high priority HEM targets being prioritised for follow up.

- Gravity traverses across ten HEM and six airborne magnetic targets returned gravity lows from targets HUM07T and MAG06T.

- -80# soil and –2mm lag soil geochemical samples collected over the 16 prioritised geophysical targets returned anomalous geochemistry from six targets.

- Heavy mineral (-1mm) loam sampling over the 16 prioritised geophysical targets failed to return any diamonds. Indicator minerals were identified as being non-kimberlitic.

RTE is negotiating with a selected resource company regarding the divestment of EL 10189 at the time of compilation of this report.

2 CONCLUSIONS AND RECOMMENDATIONS

Exploration during the first reporting period outlined a number of discrete geophysical targets that warrant drill testing. There are geochemical anomalies and other targets that with further field work and data review might evolve into priority drill targets.

The gravity anomalies associated with HEM anomaly HUM07T and magnetic anomaly MAG06T are considered significant enough to warrant drill testing.

More detailed soil sampling geochemical surveys are recommended for HUM10T, HUM09T, MAG02T, HUM02T, HUM13T and HUM11T to determine the significance of the existing geochemical anomalies. Soil geochemical surveys over geophysical anomalies, which did not have associated soil geochemical anomalism, are also recommended for comparison.

3 INTRODUCTION

EL 10189 Wilkinson Creek is located 100 km south of Borroloola and 20 km south of the Merlin Diamond Mine, Northern Territory, Australia (Plan WAp45699). It is partly contiguous with SEL 8630 Boomerang Creek that encompasses the Merlin Diamond Mine to the north. These two exploration leases (EL's) comprise Rio Tinto Exploration's (RTE) Merlin Orbit Diamonds Project.

EL 10189 was granted to Ashton Mining Limited (Ashton) on the 9 July 2002. Ashton was acquired by Rio Tinto Ltd in late 2000.

EL 10189 is located immediately south of the area that contains the Merlin Diamond Mine. In the mine area there are 14 diamondiferous kimberlite diatremes aligned along a general north-south trend that comprise the Merlin kimberlite field. The area covered by EL 10189 has received a significant amount of historical exploration for diamonds, mainly surface sampling and airborne magnetic surveys. Ashton completed the majority of this work during the late 1990's while the Merlin Diamond Mine was being evaluated and developed. EL 10189 remains under explored given its proximity to the Merlin kimberlite field, its position "along strike", and encouraging diamond sampling results. The previous exploration had failed to produce any kimberlitic targets worthy of drill testing within the area.

In 2002 Argyle Diamonds and RTE decided to divest the Merlin Diamond Mine mining lease (ML 1154) and several contiguous exploration leases (SEL's and EL's) as a single package. No acceptable offers regarding the purchase of the entire Merlin package were received from the market. In 2003 RTE decided to divest the surrounding "Merlin Orbit" EL's and SEL's separately from the Merlin ML. The Merlin Orbit exploration data was repackaged and

presented to various interested resource companies. RTE is currently negotiating the divestment with a selected resource company.

4 LICENCE DETAILS

Table 1: Tenement Details

Name	Tenement No.	Application Date	Grant Date	Sub-Blocks	Area (km^2)
Wilkinson Creek	EL 10189		9 July 2002	231	759

5 PREVIOUS EXPLORATION

Historical airborne magnetic/radiometric survey coverage of the area covered by EL 10189 is almost complete at line spacings of between 100-300m. CRA Exploration (1983, 1986), Normandy (1991) and BHP (1991) completed surveys over different areas using line spacings of either 200m or 300m. In 2000 Ashton Mining completed a detailed airborne magnetic/radiometric survey, totalling 6000 line km, covering the northern and central portions of the EL. The line spacing was 100m and sensor height 25m. CRA Exploration completed a regional Geotem survey at 500 m line spacing over the western portion of the EL in 1993.

Ashton Mining first collected a number of reconnaissance gravel samples from the area covered by EL 10189 in 1983. None of the samples returned any indicator minerals. In the period 1984-1987 CRA Exploration collected a substantial number of gravel and lesser numbers of loam samples from the area. Four samples returned single diamonds and three others returned single chromite grains. During the period 1991-1993 Ashton collected a few gravel and lag samples from the area. None of the samples returned any kimberlitic indicator minerals.

In the period 1994-2000 following the discovery of the Merlin kimberlite field, Ashton collected a large number of gravel and loam samples as well as several large bulk gravel samples from the EL 10189 area. A very small proportion of the gravel and loam samples returned diamonds and other indicator minerals.

6 GEOMORPHOLOGY

About 20 km south of the EL 10189 there is a high plateau associated with the lateritised Cretaceous Dunmarra Basin sediments (Mullamen Beds). The Glyde River that drains through EL 10189 is sourced from this high plateau. The NE margin of the high plateau represents the

largest and most significant drainage divide in the Northern Territory. Surficial diamonds exist on top of the plateau.

EL 10189 overlies the margin and incised scarp of an intermediate level plateau broadly associated with the distribution of Neoproterozoic-Cambrian rocks in the region. The Merlin kimberlite field is associated with this intermediate level plateau immediately to the north of the EL. Fault-related topographic lineaments pass through the Merlin kimberlite field and extend into EL 10189.

The Glyde, Foelsche and Wearyan rivers and their tributaries are incising the intermediate plateau. The source of the latter two rivers is the intermediate level plateau contained within the EL. With the exception of the Glyde River, that drains south to north and follows the trace of the regionally significant Emu Fault Zone, most of the major rivers in the region drain northeastwards into the Gulf of Carpentaria. Some of the major rivers have a linear course that suggests a NE-SW trending structural control.

7 GEOLOGY

EL 10189 is located over the northeast margin of the Neoproterozoic Georgina Basin overlying the south east of the Mesoproterozoic McArthur Basin. It lies not far to the north east of the Cretaceous Dunmarra Basin. Neoproterozoic Bukalara Sandstone of the Georgina Basin outcrops over most of the EL. A narrow horst block of Mesoproterozoic Tawallah Group and Roper Group traverses the northeast margin of the EL. Cenozoic sands overlie Neoproterozoic sediments in the south. The Merlin kimberlite field is located immediately to the north of the EL.

The NNW-SSE trending Emu Fault Zone is a broad, major fault zone that passes though the west of the EL 10189. Georgina Basin sediments preserved from erosion extends northwards as a broad belt around the fault zone. Numerous faults that parallel to sub parallel the Emu Fault Zone traverse the central and eastern portions of the EL. These faults define the margins of the horst block along the northeast margin of the EL.

The NW-SE trending Calvert Fault, which intersects the Emu Fault Zone proximal to the Merlin kimberlite field, passes just to the north of the EL 10189. A number of major and minor faults paralleling to the Calvert Fault pass through EL. One can be interpreted to extend out towards the Abner Range kimberlitic sandstone breccia pipes.

Some of the major rivers in the region have strong NE-SW trending linear course suggestive of an underlying structural control. A set of regional gravity lineaments in the region also trend NE-SW.

At the regional scale, the geology of EL 10189 is essentially the same as the area to the north that hosts the Merlin kimberlite field. Structures that traverse the Merlin kimberlite field traverse the EL. Within EL 10189, there is excellent potential for repetitions of the regional and local structural configurations that control the location of the Merlin kimberlites.

8 GEOPHYSICS

Regional gravity data shows that the Merlin kimberlite field and the Abner Range kimberlitic breccia pipes are located along either margin (gradient) of a regional north-south trending gravity ridge. The Merlin field is also located over a major NE-SW trending gravity lineament (gradient) that intersects the north-south trending gravity ridge. The regional gravity patterns associated with the Merlin kimberlite field are applicable to EL 10189 as well given the scale of the data. The gravity data is mainly mapping deep-seated Proterozoic basement domains and structure, however, the geological processes that influenced the gravity patterns also influenced the surface geology and geomorphology. It is noticeable that prominent NW-SE trending gravity lineaments broadly parallel the major fault-controlled drainage patterns in the region.

Regional magnetics data shows the Merlin kimberlite field to be located along the eastern margin of the vast deep-seated magnetic high. The eastern margin of the magnetic high is terminated along the NNW-SSE trending Emu Fault Zone. A magnetic lineament associated with the Calvert Fault that intersects the Emu Fault Zone near the Merlin kimberlite field is also evident in the regional data. Traversing EL 10189 are a number of NNW-SSE trending magnetic lineaments that parallel the Emu Fault Zone. The patterns suggest potential for repetitions of the regional structural configuration evident for the Merlin kimberlite field.

Kimberlitic intrusions and diatremes in the McArthur Basin region are commonly located proximal to major geophysical domain contacts probably mapping major, deep-seated structures. EL 10189 contains much the same regional gravity and magnetic patterns and lineament trends that potentially represent favourable tectono-structural settings that control the locations of kimberlitic intrusions and diatreme breccia pipes in the McArthur Basin.

9 EXPLORATION COMPLETED DURING REPORTING PERIOD

RTE was funded by Argyle Diamonds to explore within an approximate 25 km radius of Merlin Diamond Mine that included the area covered EL 10189. Work completed within EL 10189 comprised the following:

- Compilation and review of existing geophysical, geochemical and drilling data.

- Six ~500kg bulk gravel samples.
- Helicopter-borne Hummingbird EM (HEM) survey totalling 6200 line km.
- Follow up of 16 prioritised HEM and magnetic geophysical anomalies with;
    1. Ground gravity surveys.
    2. -80# soil geochemical sampling.
    3. -2mm soil (lag) geochemical sampling.
    4. -1mm loam heavy mineral sampling.

Re-interpretation of the Ashton (2000) Tintagel detailed airborne magnetic data by RTE did not reveal any high priority magnetic responses considered to be of kimberlitic source. The data was largely dominated by responses from shallow magnetic basement and surficial iron-rich material. A second review of the data identified six low priority magnetic targets (MAG01T-06T) that were selected for additional field-based follow up. Refer to Appendix 8 and Plan WAp45700 for locations of the magnetic targets.

Re-evaluation of the Ashton surface sampling data by RTE highlighted the Tintagel Prospect area in the north of EL 10189 where two bulk gravel samples in adjacent drainage catchments had returned abundant kimberlitic indicator minerals, including macrodiamonds and kimberlitic chromites. The results suggested a proximal macrodiamond bearing kimberlitic source within EL 10189. Tintagel Prospect was identified as a high priority area for follow up sampling.

At Tintagel Prospect, six ~500 kg bulk gravel samples were collected by RTE within the source catchment area upstream from diamondiferous bulk gravel samples previously collected by Ashton. Refer to Appendix 1 and Plan WAp45700 for gravel sample locations. All of the samples were mechanically sieved to –1mm in the field using a “Cheer Screen”. All of the samples were forwarded to the RTE Diamond Laboratory (Belmont, WA) for processing down to 0.25mm. None of the samples returned diamonds. Several samples returned indicator mineral grains including one sample with 20 chromite grains.

RTE Diamond Laboratory carried out SEM geochemical analysis of selected indicator minerals, mainly chromite and ilmenite, from gravel and loam heavy mineral samples from around EL 10189 (Appendix 5). The results indicated that the majority of the indicator minerals were non kimberlitic in origin. The SEM analysis of the chromite and ilmenite from the RTE sample

collected from the site where Ashton recovered 75 diamonds suggests there are two populations of chromite;

i) Non-kimberlitic moderate Cr, low Mg group that plot out of the kimberlitic field.

ii) A group which plot in the field between 45-90# Cr that may be a mantle trend but it remains unclear whether they represent a kimberlitic population.

None of the chromite tested fell within the diamond inclusion field. The presence of zinc (up to 1.95 wt %) in some of the chromite suggests the grains might have undergone a metamorphic episode, although the expected elevated ferric iron is absent. The ilmenite has crustal chemistry.

Geo Instruments completed a HEM survey, totalling 6200-line km that covered much of northern half of EL 10189 (Plan WAp45700). The data was collected using a 100m-line spacing and a 25m-sensor height. Ten prioritised HEM anomalies were selected for follow up. Refer to Appendix 8 and Plan WAp45700 for location of HEM anomalies. The HEM data is included in Appendix 8.

Haines Surveys completed ground gravity traverses (Appendix 6) over the six magnetic and ten HEM anomalies prioritised by RTE for follow up (Appendix 7). Kimberlitic gravity responses were identified at HEM anomaly HUM07T (0.2mGal gravity low anomaly) and magnetic anomaly MAG06T. Gravity surveying of MAG06T was affected by topography (10m cliffs), however, there is a well defined gravity low coincident with the HEM anomaly on the profile. HUM07T and MAG06T were recommended for drill testing based solely on their geophysical expressions.

Ground reconnaissance of HUM07T identified Cretaceous mudstones that appear to be outcropping over an approximately circular area. These mudstones might be filling a crater-like sinkhole depression overlying a kimberlitic diatreme.

A single -80# soil and –2mm lag soil sample was collected over each of the ten HEM and six magnetic targets prioritised by RTE (Appendices 3 and 4). Samples from over HUM05T and MAG06T did not return kimberlitic geochemical signatures, however, Cretaceous sedimentary cover might explain this. Only HUM10T returned a kimberlitic geochemical signature with clearly elevated levels of Nb, Ni, Cr, La & Ce. HUM09T, MAG02T, HUM02T, HUM13T and HUM11T returned mildly to highly anomalous kimberlitic geochemical signatures (Appendix 7).

A single -1mm heavy mineral loam sample was collected over each of the ten HEM and six magnetic anomalies prioritised by RTE (Appendix 2). All 16 samples were sent to the RTE

Diamond Laboratory to be processed down to 0.25mm. None of the loam samples returned diamonds. The samples collected over HUM06T and MAG03T returned indicator minerals (chromite and garnet) but SEM analysis of these minerals indicated they were of non-kimberlitic origin (Appendix 5). The SEM results downgraded the significance of these two geophysical anomalies.

10 ENVIRONMENT

RTE's evaluated the environmental impact of Ashton's previous exploration activities within the area covered by EL 10189. It was found that the Ashton's exploration activities fell within the environmental guidelines set by the Northern Territory DME. No sites were identified that required environmental remedial work.

All of the field-based exploration completed by RTE within EL 10189 was helicopter-assisted and non surface disturbing. No additional rehabilitation is required.

11 EXPLORATION EXPENDITURE

The exploration expenditure attributed to EL 10189 Wilkinson Creek by RTE for the first year of exploration is listed as follows.

Table 2: Exploration Expenditure

Description	Amount $
Computing Services	5,802.13
Cont Exploration- Ext	146,825.32
Field & Transport	151,878.83
Gen Office Supp & Comm	2,860.23
Indirect Costs	68,362.70
Laboratory Analysis	19,130.19
Payroll & Benefits	46,631.56
Sundry Prof & Other	2,405.95
Travel & Accomodation	6,345.48
Grand Total	450,242.39

12 PROPOSED EXPLORATION

The following exploration activities are proposed for the second reporting period for EL 10189 Wilkinson Creek:

- Target mapping.
- Additional gravity surveying.
- Additional soil geochemical surveys of targets HUM10T, HUM09T, MAG02T, HUM02T, HUM13T and HUM11T.
- Drilling of targets HUM07T and MAG06T.

The proposed exploration expenditure for EL 10189 is listed as follows:

Table 3: Proposed Expenditure

Description	Amount $
Data Review	2000
Gravity Surveying	10000
Target Mapping	5000
Soil Geochemical Surveys	5000
Drilling	25000
Total	47000

REFERENCES

Rheinberger G M and Curtis R A, 2002. Merlin Orbit Exploration Summary Report, 2001, ML 1154, SEL 8630 & ELA 10189, Boomerang Creek, Tintagel & Nimue, Northern Territory.

LOCALITY

Bauhinia Downs	SE 53-03	1:250 000
Wallhallow	SE 53-07	1:250 000
Calvert Hills	SE 53-08	1:250 000
Glyde	6164	1:100 000
Lancewood	6163	1:100 000
Surprise Creek	6263	1:100 000

LIST OF DPO'S

DPO (Work Order)	No. Sample	Sample Range	Laboratory
201209	6	6019671-676	Belmont Diamond Laboratory
200869	16	6160769, 6160771-776, 6160779-780, 6160783-789	Belmont Diamond Laboratory
200868	16	6019669, 6019701-706, 6019708-710, 6019712-717	Amdel
200864	16	6160823, 6160825-830, 6160833-834, 6160837-843	Amdel

DESCRIPTOR

First Annual Report by RTE for EL 10189 Wilkinson Creek located immediately south of the Merlin Kimberlite Field, Northern Territory, Australia. Diamond exploration activities identified a

number of targets with kimberlitic signatures worthy of additional work. The EL is being divested.

KEYWORDS

Airborne electromagnetic survey, Airborne magnetic survey, Bauhinia Downs, Bulk sample, Calvert Hills, Cambrian, Chromite, Cretaceous, Diamond, Dunmarra Basin, Emu Fault Zone, Garnet, Georgina Basin, Gravel sample, Gravity survey, Indicator mineral, Kimberlite, Loam sample, McArthur Basin, Merlin Diamond Mine, Mullamen Beds, Proterozoic, Sinkhole, Soil sample, Wallhallow.

APPENDIX 1

Bulk Gravel Sample Data

EL10189 Gravel Bulk.txt

APPENDIX 2

-1mm Loam Heavy Mineral Data

EL10189 Loam -1mm.txt

APPENDIX 3

-2mm Lag Soil Sample Data

EL10189 Soil -2mm Lag.txt

APPENDIX 4

-80# Auger Soil Sample Data

EL10189 -80# Auger Soil.txt

APPENDIX 5

Indicator Mineral SEM Analysis Data

EL10189 SEM Data.txt

APPENDIX 6

Gravity Data

EL10189 Haines Gravity.txt

APPENDIX 7

HEM Data

Tintagel_Hummingbird.csv

APPENDIX 8

Prospect Summary Data

EL 10189 Exploration Summary .txt