



Rio Tinto Exploration Pty. Limited

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A member of the Rio Tinto Group

Fourth Annual Report (Combined Yambarra Project)
for the Period Ending 22 September 2006,
EL1638 Port Keats 1, EL1639 Port Keats 2,
EL1640 Keats, EL1641 Port Keats,
EL1923 Keats 2, EL1924 Cape Ford, EL3403 Barwolla,
EL3404 Fitzmaurice, EL3405 Anson, EL3406 Keyling,
EL6516 Tom Turners Creek,
EL6517 Cui-eci Creek, EL6551 Greenwood,
EL22218 Fitzmaurice 4,
Yambarra Project,
Northern Territory.

Exploration Report No. 27883

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LIST OF CONTENTS

LIST OF CONTENTS ii

LIST OF TABLES iii

LIST OF PLANS iii

1. SUMMARY 1

2. CONCLUSIONS AND RECOMMENDATIONS 1

3. INTRODUCTION 2

4. TENEMENT DETAILS 2

5. GEOMORPHOLOGY 3

6. GEOLOGY 3

7. GEOPHYSICS 4

8. PREVIOUS EXPLORATION 4

9. EXPLORATION COMPLETED FOR FOURTH YEAR ENDING 22 SEPTEMBER 2006.... 6

10. ENVIRONMENT 6

11. EXPLORATION EXPENDITURE 6

12. PROPOSED EXPLORATION 7

REFERENCES 9

LOCALITY 10

DESCRIPTOR 10

KEYWORDS 10

LIST OF TABLES

Table 1: Tenement Details 3
Table 2. Exploration Expenditure for Fourth Year Ending 22 September 2006. 7

LIST OF PLANS

Plan No.	Title	Scale
WAp46476	Tenement Location Plan	1:1,000,000
WAp46477	Bauxite Targets on DTM image	1:2,000,000

1. **SUMMARY**

This report describes exploration by Rio Tinto Exploration Pty Limited (RTE) within the Yambarra Project area during the period 23 September 2005 to 22 September 2006. The Yambarra Project is comprised of fourteen contiguous exploration licences EL1638 Port Keats 1, EL1639 Port Keats 2, EL1640 Keats, EL1641 Port Keats, EL1923 Keats 2, EL1924 Cape Ford, EL3403 Barwolla, EL3404 Fitzmaurice, EL3405 Anson, EL3406 Keyling, EL6516 Tom Turners Creek, EL6517 Cui-eci Creek, EL6551 Greenwood and EL22218 Fitzmaurice 4. The tenements are owned by Ashton Mining Limited and Ashton Operations Australia Limited ("Ashton"), subsidiaries of Rio Tinto Ltd. Work programmes on the project area are managed and operated by RTE.

The Yambarra tenement package is located approximately 200 km south west of Darwin on the Daly River/Port Keats Aboriginal Land Trust. The area covers portions of the Palaeoproterozoic Pine Creek Orogen, the Mesoproterozoic Victoria-Birrinduddu Basin and the Palaeozoic Bonaparte Basin.

No field-based exploration was completed during the current reporting period. Office-based interpretation of remote sensed data, including digital terrain images and TM scenes, concentrated on further refining and prioritizing bauxite exploration targets within the western coastal tenements in the project area. The eastern tenements are being farmed out to a third party.

2. **CONCLUSIONS AND RECOMMENDATIONS**

Proposed bauxite exploration for the Yambarra Project area was postponed during the reporting period while RTE tested higher priority bauxite targets in the Northern Territory. Concerns over community issues and a late wet season also contributed to the lack of field activity.

Office-based exploration has identified a number of areas within the Yambarra Project with "moderate" potential for bauxite.

Several target areas have been identified and in the western tenements and will be followed up with detailed interpretation and shallow drilling on regional traverses.

Residual potential for diamondiferous kimberlites exists within the eastern-most tenements that are being farmed out to a third party.

3. INTRODUCTION

This report describes exploration by RTE within the Yambarra Project area for the year starting 23 September 2005 and ending 22 September 2006. The Yambarra Project is comprised of twelve contiguous exploration licences EL1638 Port Keats 1, EL1639 Port Keats 2, EL 1924 Cape Ford, EL1640 Keats, EL1641 Port Keats, EL1923 Keats 2, EL3403 Barwolla, EL3404 Fitzmaurice, EL3405 Anson, EL3406 Keyling, EL6516 Tom Turners Creek, EL6517 Cui-eci Creek, EL6551 Greenwood and EL22218 Fitzmaurice 4 (WAp46476). The tenement block is located approximately 200 km south west of Darwin on the Daly River/Port Keats Aboriginal Land Trust.

The tenements are owned by Ashton Mining Limited and Ashton Operations Australia Limited ("Ashton"), subsidiaries of Rio Tinto Ltd. Ashton Mining Limited and Ashton Operations Australia Limited ("Ashton") applied for the Yambarra Project tenements in the late 1970's and early 1980's. The tenements were granted to Ashton on 23rd September 2003. Ashton was acquired by Rio Tinto Limited in late 2000. Work programmes on the project area are managed and operated by RTE.

The project area is considered prospective for diamonds, nickel and bauxite.

4. TENEMENT DETAILS

Current tenement details are included in Table 1. Partial relinquishments of 178 sub-blocks from EL 1640, 196 sub-blocks from EL 1923 and 151 sub-blocks from EL 1924 were made in 2005. EL 3403 Barwolla and EL 3406 Keyling were surrendered on 21st August 2006.

Table 1: Tenement Details

Tenement No.	Tenement Name	Ownership	Application Date	Grant Date	Blocks Applied	Blocks Granted	Blocks Current
EL3403	Barwolla	Ashton Mining Limited	28/09/1981	23/09/2002	23	23	23
EL6517	Cui-eci Creek	Ashton Mining Limited	22/02/1989	23/09/2002	194	194	194
EL3404	Fitzmaurice	Ashton Mining Limited	28/09/1981	23/09/2002	118	118	118
EL6551	Greenwood	Ashton Mining Limited	23/03/1989	23/09/2002	365	365	365
EL1640	Keats	Ashton Mining Limited	2/06/1977	23/09/2002	389	356	178
EL1923	Keats 2	Ashton Mining Limited	8/09/1978	23/09/2002	414	392	196
EL1924	Cape Ford	Ashton Mining Limited	8/09/1978	28/07/2003	245	245	94
EL3405	Anson	Ashton Mining Limited	8/09/1978	28/07/2003	112	112	112
EL3406	Keyling	Ashton Mining Limited	28/09/1981	23/09/2002	214	187	187
EL1641	Port Keats	Ashton Mining Limited	2/06/1977	23/09/2002	394	393	393
EL1638	Port Keats 1	Ashton Mining Limited	2/06/1977	23/09/2002	358	355	355
EL1639	Port Keats 2	Ashton Mining Limited	2/06/1977	23/09/2002	390	390	390
EL6516	Tom Turners Creek	Ashton Mining Limited	22/02/1989	23/09/2002	97	97	97
EL22218	Fitzmaurice 4	Ashton Mining Limited	28/09/1981	23/09/2002	51	51	51

5. GEOMORPHOLOGY

The geomorphology of the project area was described by Rheinberger (2003, 2004 and 2005). The five main geomorphological provinces are, i) lateritised mesa surfaces, ii) uplands, iii) escarpments and dissected hills, iv) elluvial lowlands, and v) flood plains. Lateritised mesa surfaces and low lying plateaus on the flood plains adjacent to the coast are currently provide the greatest exploration potential for bauxite.

6. GEOLOGY

The geology of the Yambarra Project was described by Rheinberger (2003, 2004 and 2005).

The project area covers the Palaeoproterozoic Pine Creek Orogen, the Mesoproterozoic Victoria-Birrindudu Basin and the Palaeozoic Bonaparte Basin.

The Middle Proterozoic Fitzmaurice Group unconformably overlies the Early Proterozoic basement. Middle Proterozoic intrusives of both basic and acid composition intrude the Fitzmaurice Group. Intrusives include Murrenja Dolerite (altered gabbro and dolerite) and the Ti-Tree Granophyre (variably altered adamellite). Regional transcurrent faults, that are the northerly continuations of the major faults that define the Middle Proterozoic Fitzmaurice Mobile Zone and the Early Proterozoic Halls Creek Mobile Zone, are the dominant structural features of the project area.

Permian sediments of the Bonaparte Basin are present in the east of the project area. Cretaceous sediments form a thin but laterally extensive unit that caps mesas within the project area. Cainozoic sediments and Quaternary alluvium cover much of the bedrock.

7. **GEOPHYSICS**

Two regional scale aeromagnetic surveys cover the Yambarra Project area. In 1994 AGSO completed the Medusa Banks-Port Keats Survey over the western half of the project area at 500 m line spacing and 100 m elevation. In 1984 the NTGS completed the Litchfield South Survey over the eastern half of the area at 500m line spacing and 100 m elevation.

8. **PREVIOUS EXPLORATION**

September 2002-03 (Year 1)

The first year of diamond and nickel exploration of the Yambarra Project area by RTE was reported by Rheinberger (2003) and is summarised as follows:

- Review of previous exploration.
- Completion of aboriginal consultation meetings and site clearance surveys.
- Interpretation of existing magnetic and TM data.
- Establishment of an exploration camp.
- Collection of 220 helicopter supported gravel and stream sediment samples.
- Collection of 55 rock chip samples from the Murrentja intrusion.
- Smith and Curtis (2003) completed a Mine Management Plan.

Diamond exploration results provided initial encouragement given the wide spacing of the drainage gravel sampling. Rock chip sampling of the Murrentja intrusion did not return any elevated Ni assays.

The RTE camp was sited in an area of existing disturbance and did not additionally impact on the environment. All of the field-based exploration completed by RTE was helicopter-assisted and non-surface disturbing. No rehabilitation was required.

September 2003-04 (Year 2)

The second year of diamond exploration by RTE was reported by Rheinberger (2004) and is summarised as follows:

- Scanning Electron Microprobe Analysis of 9485 indicator mineral grains from 167 samples.
- Trace Element Analysis of 103 indicator mineral grains from 18 samples.
- Interpretation of indicator mineral chemistry.
- Collection of 38 helicopter supported gravel and loam samples.

Results did not identify a primary kimberlite/lamproite source for diamonds in the project area.

Field-based exploration activities were not ground-disturbing and no rehabilitation was required.

Dwyer (2004) completed a second Mine Management Plan for the Yambarra Project area.

September 2004-05 (Year 3)

The third year of diamond exploration by RTE was reported by Rheinberger (2005), Hartshorn (2005) and is summarised as follows:

- Review of published geological and topographic information to identify areas of possible bauxite mineralisation.
- Interpretation of Thematic Mapper and digital terrain data sets to define potential bauxite target areas.
- Track construction and drilling of 14 aircore holes and 12 auger holes on EL 1924.

Prospective bauxite areas were identified to be discrete but subtle elevated plateaux with smooth edges and no breakaways or cliffs. The highest priority area was drilled on EL 1924 with only minor evidence of pisolite formation. Assay results were negative (Hartshorn 2005a).

A re-interpretation of indicator mineral chemistry and diamond results did not identify any areas for high priority follow up diamond exploration.

Hartshorn (2005b), (2005c) and (2005d) reported on the partial surrender of portions of EL 1924 Cape Ford, EL 1640 Keats and EL 1923 Keats 2 on 22 August 2005.

9. EXPLORATION COMPLETED FOR FOURTH YEAR ENDING 22 SEPTEMBER 2006

The proposed on-ground bauxite exploration for the Yambarra Project area was postponed during the reporting period while RTE tested higher priority bauxite projects/targets in the Northern Territory.

Exploration completed for the year ending 22 September 2006 consisted of the following:

- Additional interpretation of Thematic Mapper and digital terrain data sets to refine the size of the targeted plateau for bauxite and to prioritise these targets in the western 'coastal' portions of the project area.
- Review of the 2005 drill data from EL 1924.
- Commercial negotiations to farm-out the eastern tenement holdings to a third party were well advanced.

10. ENVIRONMENT

No ground-disturbing exploration activities were undertaken for the year ending 22 September 2006. No rehabilitation is required.

11. EXPLORATION EXPENDITURE

The exploration expenditure attributed to the Yambarra Project by RTE for the fourth year of exploration was \$73,052.73 excluding tenement expenses. The expenditure is detailed on Table 2. Expenditures cover drilling programmes completed during the third tenure year which were not included in the previous annual report.

Table 2: Exploration Expenditure for Fourth Year Ending 22 September 2006.

Description	EL1638	EL1639	EL1640	EL1641	EL1923	EL1924	EL3403
Cont Exploration- Ext					\$171.90	\$7,555.53	\$171.90
Gen Office Supp & Comm	\$38.86					\$198.54	\$21.00
Geoday Overheads	\$0.00	\$0.00	\$1,267.36	\$0.00		\$28,017.22	
Payroll & Benefits	\$321.17	\$835.04	\$1,035.83	\$835.04		\$10,470.19	
Tenement Payments	\$27,868.10	\$43,048.33	\$17,620.46	\$35,768.33	\$19,060.46	\$34,010.91	\$3,404.45
Travel & Accomodation						\$10,883.42	
Total	\$28,228.13	\$43,883.37	\$19,923.65	\$36,603.37	\$19,232.36	\$91,135.81	\$3,597.35

Description	EL3404	EL3405	EL3406	EL6516	EL6517	EL6551	EL22218
Cont Exploration- Ext	\$171.90						\$63.67
Gen Office Supp & Comm			\$38.86				
Geoday Overheads	\$0.00	\$5,069.44			\$0.00	\$0.00	\$0.00
Payroll & Benefits	\$160.58	\$3,367.58			\$449.63	\$385.40	\$224.79
Tenement Payments	\$9,144.28	\$42,487.00	\$50.00	\$11,510.49	\$25,183.16	\$37,965.66	\$10,601.80
Travel & Accomodation	\$500.16					\$797.72	
Total	\$9,976.92	\$50,924.22	\$88.86	\$11,510.49	\$25,632.79	\$39,148.78	\$10,890.26

Grand Total	\$390,776.36
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12. PROPOSED EXPLORATION

Exploration by RTE in the next period will focus on evaluating the bauxite potential of the western coastal tenements. This work will include:

- Wide spaced auger/aircore drilling along existing tracks.

A notional budget for the project area is provided for \$190,000.

Subject to completion of on-going negotiations and reaching a commercial agreement with the external party, the farminee is proposing to undertake exploration over the eastern-most project area tenements to evaluate the potential for kimberlite in proximity to areas reporting diamond indicator minerals.

Proposed work would include:

- Low level aeromagnetic survey (approx 6000 line km)
- Ground geophysics (approx 400 line km)
- Helicopter-supported follow-up gravel sampling (50 samples)

- Bulk stream sediment (4 x 25t samples)
- RC drill-testing of selected anomalies

Aggregate expenditure is likely to be \$230,000.

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LOCALITY

Port Keats	SD 5211	1:250 000
Fergusson River	SD 5212	1:250 000
Cape Scott	SD 5207	1:250 000

DESCRIPTOR

Fourth Annual Report for the Period Ending 22 September 2006, EL 1638 Port Keats 1, EL1639 Port Keats 2, EL1640 Keats, EL1641 Port Keats, EL1923 Keats 2, EL3403 Barwolla, EL3404 Fitzmaurice, EL3406 Keyling, EL6516 Tom Turners Creek, EL6517 Cui-eci Creek, EL6551 Greenwood, EL22218 Fitzmaurice 4. Yambarra Project, Northern Territory. No field-based bauxite or diamond exploration was carried out. The project area is being divested to a third party.

KEYWORDS

Bauxite, Cretaceous, Cape Scott, Diamond, Fergusson River, Nickel, Port Keats, Yambarra.