Rio Tinto Exploration Pty. Limited
ABN 76 000 057 125 / ACN 000 057 125

A member of the Rio Tinto Group

Annual and Final Report
For the Period 18 May 2009 to 23 April 2010
EL 22413 Baiguridji River
Blue Mud Bay SD 5307
Northern Territory

Exploration Report No. 28715

Tenement Holder: Rio Tinto Exploration Pty Limited
Date: June 2010
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RTX Perth Information Centre

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<td>EL22413_2010_03_lithology.txt</td>
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<td>EL22413_2010_04_downholegeochem.txt</td>
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1. SUMMARY

Exploration Licence (EL) 22413 Baiguridji River was applied for by Rio Tinto Exploration Pty Limited (RTX) on 11 February 2000 and was granted on 18 May 2006. RTX is the sole manager and operator of this tenement. The original tenement application covered an area of 117km$^2$ (35 sub blocks) of which only 66.9km$^2$ (20 sub blocks) gained consent. The remainder of the application area did not gain consent, and was subsequently relinquished. In 2008, 50% of the granted tenement (10 blocks) was relinquished. The remaining 10 sub blocks were relinquished in full on the 23 April 2010. EL 22413 is located 150km southwest of Nhulunbuy, east Arnhem Land, and consequently is processed under the Aboriginal Land Rights Act 1975 (ALRA).

EL 22413 covers part of the subtle plateaus south of the Frederick Hills, and east of the Mitchell Ranges. This area has undergone a similar geomorphological history to that of the Cato Plateau, which is a known area of bauxite mineralisation of similar style to the nearby world class Gove deposit. The area is also considered prospective for base metal mineralisation similar to that of McArthur River (HYC) in the McArthur Basin. Diamonds are a subsidiary target.

This is the fourth Annual and Final report and describes the exploration completed during the fourth year of the tenement. Exploration included conducting 13 shallow hand auger drill sites of the low laterite surface to test for bauxite. The results were negative with no evidence of the bauxite profile being present. The tenement has been relinquished in full.

2. CONCLUSIONS AND RECOMMENDATIONS

Hand auger sampling of the low subdued topography showed that there is not a bauxitic weathered profile present. The interpretation is that the potential surface has been eroded off.

3. INTRODUCTION

This is the Final relinquishment report for EL22413 and includes the data collected during the fourth year of the licence.

Exploration Licence (EL) 22413 Baiguridji River was applied for by Rio Tinto Exploration Pty Limited (RTX) on 11 February 2000 and was granted on 18 May 2006. RTX is the sole manager and operator of this tenement. The original tenement application covered an area of 117km$^2$ (35 sub blocks) of which only 66.9km$^2$ (20 sub blocks) gained consent. The remainder of the application area did not gain consent, and was subsequently relinquished. In 2008, 50% of the granted tenement (10 blocks) was relinquished. The remaining 10 sub blocks were relinquished in full on the 23 April 2010. EL 22413 is located 150km southwest of Nhulunbuy, east Arnhem Land, and consequently is processed under the Aboriginal Land Rights Act 1975 (ALRA).

Tenement details are included in Table 1 below. See plan pAl10_020 for tenement locality.
**Table 1: Tenement Details**

<table>
<thead>
<tr>
<th>Tenement No.</th>
<th>Tenement Name</th>
<th>Owner/ship</th>
<th>Application Date</th>
<th>Grant / relinquish Date</th>
<th>Blocks Applied For</th>
<th>Blocks Granted</th>
</tr>
</thead>
</table>

4. **PREVIOUS EXPLORATION**

BHP explored the region for both bauxite and manganese mineralisation in the mid to late 1960’s (Chestnut et al. 1968). As part of this work an exploration track was established which lies to the eastern edge of EL 22413.

5. **GEOMORPHOLOGY**

EL 22413 is situated exclusively within the “Coastal Plain”, one of the three major physiographic regions of the Blue Mud Bay 1:250 000 map sheet, defined and delineated by Plumb & Roberts (1965, 1992) (Haines et al. 1999). The Coastal Plain is a region of low relief adjacent to the Arafura Sea’s west coast, and comprises tidal flats, coastal dunes and undifferentiated plains. The Baiguridji River represents the primary water course within the boundary of EL 22413, and flows southeast to the northern shore of Blue Mud Bay, where it joins the eastward flowing Koolatong River at an area of tidal flats. This region witnesses sustained rainfall throughout the wet season (late October- early May), and is at risk to tropical cyclones during this time. The influence of the southeasterly trade winds blowing across the Gulf of Carpenteria interacting with the Parsons Range causes rainfall to continue across this region well into the dry season in comparison with other areas in the Northern Territory.

A high rate of water percolation through a bauxite protolith is considered a central and critical factor for mineralisation. The Coastal Plain east of the Parsons and Mitchell Ranges is a desirable exploration area due to this extended wet season, in comparison to other areas of the Northern Territory with proven bauxite resources.

6. **GEOLOGY**

Cainozoic sediments dominate the surface geology of EL 22413. These cover sediments are comprised of variably consolidated gravels, sands, silts and clays. Significant areas of ferricrete cover parts of EL 22413, which present as subtle plateaus, bounded by mostly N-S trending drainages.

The basement to these cover sequences is probably comprised of the Palaeoproterozoic Balma Group. The Balma Group is inferred to record the development of an east thickening half graben between the Mitchell Range Fault and the Coastal Range Fault within the widening Walker Trough. To the west of EL 22413 the youngest formation of the Balma group: the Bath Range Formation (coarse-medium sandstone incl. dolomitic sequences, cherts and tuffaceous mudstones), outcrops in a N-S trend, and dips gently to the west. To the east the Palaeoproterozoic Coast Range Sandstone (juvenile, upward fining sequence) and Jalma Formation (mature qtz sandstone) which underly the Balma Fm, outcrops in a N-SE trend, and also dips gently to the west. The majority of the formations within the Balma Group are described as recessive, and are often heavily leached and silicified. The basement therefore is highly likely to be eroded/modified Balma group, although the possibility remains that
unobserved rock units or structural complexity may introduce error in this 15-20km extrapolation across strike from identified basement.

The results of the hand auger sampling showed that the weathered profile consists of an orange sandy loamy soil overlying a clay (kaolinite rich) saprolite. There was no evidence of pisolitic or tubular bauxite formation in the weathered profile.

7. **GEOPHYSICS**

The project area is covered by a regional scale aeromagnetic and radiometric survey flown for the NTGS in 1990-93 (Haines et al., 1999). The radiometric data can be used to help distinguish between the laterite-covered areas from those of both basement and Quaternary sand cover.

8. **EXPLORATION COMPLETED DURING REPORTING PERIOD**

Exploration completed during the reporting year included:

- Review of previous exploration.
- 13 hand auger holes for a total of 35.3m using a dormer shell 75mm auger
- 35 geochemical assays of hand auger samples by XRF
- 2 rock samples assayed by XRF

9. **HAND AUGER AND ROCK SAMPLING**

A hand auger sampling programme was conducted with a total of 13 auger holes for 35.3 metres of sampling with the maximum hole depth being 4 metres. (see plan PAI10_021). A total of 35 samples were assayed by XRF for whole rock analysis. The auger used was a Dormer SOD7510C shell auger which has a 75mm diameter shell. Samples were collected at both half and one metre intervals down the hole.

The auger worked reasonably well, being able to penetrate to a depth of 4m through the soil horizon. There were several holes where a hard layer composed of ferruginous material (ferricrete?) was not able to be penetrated.

The profile encountered by the auger sampling typically consisted of a thin organic rich A horizon (5-20cm) with a red-orange silty quartz rich loamy soil down to about 2-3m under which lies a transition from the soil to a saprolitic layer. White kaolin clay (weathered saprolitic siltstone) was encountered in all holes that penetrated below 3 metres in depth. This provided strong evidence that there is no potential for bauxite within the current preserved weathered layer.

The geochemical results of the auger samples showed silica between 60 and 75% with alumina between 10 and 20% which is consistent with the logging of a quartz rich loamy soil.

Two rock samples of the surface ferruginous material was assayed (see plan PAI10_021). The results showed iron of about 35% indicative of the logged iron rich nature of the material. These areas are interpreted to be ferricrete.
Table 1: Analytical Details.

<table>
<thead>
<tr>
<th>Element</th>
<th>Digest</th>
<th>Method</th>
<th>Units</th>
<th>Det_limit</th>
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<tr>
<td>P₂O₅, V₂O₅</td>
<td>XRF Fused bead</td>
<td>XRF bauxite suite</td>
<td>%</td>
<td>0.001</td>
</tr>
<tr>
<td>Al₂O₃, CaO, Fe₂O₃, K₂O, MgO, MnO, Na₂O, SiO₂, SO₃, TiO₂, ZrO₂</td>
<td>XRF Fused bead</td>
<td>XRF bauxite suite</td>
<td>%</td>
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<tr>
<td>LOI</td>
<td>Thermo-gravimetric</td>
<td>bauxite suite</td>
<td>%</td>
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</tbody>
</table>

Hand Auger used during the exploration programme
10. **ENVIRONMENT**

No ground disturbance other than the hand auger tool was conducted. All work was supervised by two representatives of the local Traditional landowner from Gan Gan.

11. **EXPLORATION EXPENDITURE**

The exploration expenditure details attributed to the project by RTX for the fourth year of exploration are contained in the Northern Territory Exploration Expenditure for Mineral Tenements form that is submitted with this report.

12. **PROPOSED EXPLORATION**

The tenement has been relinquished in full and no further work is to be conducted.
REFERENCES


LOCALITY

Blue Mud Bay  SD 5307  1:250 000

DESCRIPTER

Annual and Final Report for the period 18 May 2009 to 23 April 2010 for EL 22413 Baiguridji River, Bauxite Project, Northern Territory, located within Arnhem Land, Northern Territory, Australia. Exploration activities consisted of hand auger and rock sampling. Results were negative and the tenement was relinquished in full.

KEYWORDS

bauxite, plateau, coastal plain, Baiguridji River.

LIST OF DPO’S

DPO 224658  Sample No’s 10043824 – 10043860
APPENDIX 1

Auger Results

EL22413_2010_02_drillcollars.txt
EL22413_2010_03_lithology.txt
EL22413_2010_04_downholegeochem.txt
APPENDIX 2

Rock sample Results

EL22413_2010_05_rock_geochem.txt