



Rio Tinto Exploration Pty. Limited

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A member of the Rio Tinto Group

**Second Annual and Final Report
For the Period Ending 31 March 2005
EPM13949 Archer 1, EPM13951 Archer 2, EPM13952 Archer 3,
EPM13953 Archer 4, EPM13956 Archer 5, EPM13950 Archer 6,
EPM13955 Holroyd 1, and EPM13957 Holroyd 2,
Cape York Project,
Holroyd Special SD54-11, Queensland**

Exploration Report No. 27187

Tenement Holder: Rio Tinto Exploration Pty Limited

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Author: G J Lilley, G K Hartshorn

Submitted: I M Clementson

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LIST OF CONTENTS

LIST OF CONTENTS	i
LIST OF TABLES	ii
LIST OF FIGURES	ii
LIST OF APPENDICES	ii
LIST OF PLANS	ii
1. SUMMARY	1
2. INTRODUCTION	1
3. LICENCE DETAILS	2
4. GEOLOGY	3
4.1 Regional Geology	3
4.2 Exploration Model	3
4.3 Project Area Geology	3
5. DRILLING	6
6. ENVIRONMENT	7
7. LAND ACCESS	8
8. CONCLUSIONS AND RECOMMENDATIONS	9
REFERENCES	10
LOCALITY	10
LIST OF DPO'S	10
DESCRIPTOR	10
KEYWORDS	10

LIST OF TABLES

Table 1. Summary of work completed..... 1
Table 2: Tenement Details 2

LIST OF FIGURES

Figure 1: Location of topographic profiles shown in Fig. 2..... 5
Figure 2: Topographic profiles suggest that the Aurukun surface (bauxite profile) has probably been stripped from the area..... 6

LIST OF APPENDICES

No.	Title	File Name
1	Drill Hole Ledger	CY_WASL2_COLL2004.txt CY_WADL2_GEO2004.txt CY_WADG2_ASS2004.txt
2	Environmental Management Plan	26470 Cape York Bauxite EMP.pdf WAp45952.pdf WAp46139.pdf Code of Environmental Compliance.pdf Low Impact Exploration Activities.pdf Of Concern Ecosystem.pdf Fish Habitat.pdf Map coordinates for the proposed drill hole locations. Pdf Environmental Procedures List.pdf Search Results.pdf Drill hole locations. pdf
3	Final Rehabilitation Report	27199 Cape York Bauxite Final Rehabilitation Report.pdf WAp46307.pdf

LIST OF PLANS

Plan No.	Title	Scale
WAp46272	Tenement Location Plan	1:500 000
WAp46273	Exploration Index Plan	1:250 000
WAp46274	Drill Hole Locations	1:250 000
WAp46275	Geomorphic Interpretation	1:250 000

1. SUMMARY

EPM13949 Archer 1, EPM13951 Archer 2, EPM13952 Archer 3, EPM13953 Archer 4, EPM13956 Archer 5, EPM13950 Archer 6, EPM13955 Holroyd 1, and EPM13957 Holroyd 2, the Cape York Project, were applied for by Rio Tinto Exploration Pty Ltd (RTE) in December 2002 (WAp46272). The exploration target was bauxite under shallow cover.

Table 1. Summary of work completed.

Activity	Tenement No.	Specifications	Results
Desktop review of historical data and geologic interpretation.	EPM13949-53, EPM13955-57	Compilation of historical exploration data. Landsat TM and Shuttle Radar DTM interpretation.	Bauxite targeted under shallow cover.
Helicopter reconnaissance.	EPM13949-53, EPM13955-57		No bauxite outcrop.
Community liaison and negotiation of Access Agreement.			Access Agreement signed with Traditional Owners.
Auger, wacker, and aircore drilling.	EPM13949-53, EPM139456	17 auger drill holes (104.7 m), 21 wacker drill holes (89.8 m), 9 aircore drill holes (184.0 m).	No bauxite intersected.
Geochemical analysis of drill samples.	EPM13949-53, EPM139456	XRF analysis of 201 samples. ICP and fire assay of 45 composite samples.	No bauxite detected. No anomalous multi-element geochemistry.
Rehabilitation.	EPM13949-53, EPM139456	Drill holes rehabilitated immediately after drilling.	No further rehabilitation required.

2. INTRODUCTION

EPM13949 Archer 1, EPM13951 Archer 2, EPM13952 Archer 3, EPM13953 Archer 4, EPM13956 Archer 5, EPM13950 Archer 6, EPM13955 Holroyd 1, and EPM13957 Holroyd 2, the Cape York Project, were applied for by RTE on 24th December 2002. The tenements were granted as low impact licences under Queensland's Alternative Provisions on 15th October 2003. An additional four tenements, EMP13954 Holroyd 3, EMP13958 Holroyd 4, EMP13959 Holroyd 5, and EMP13960 Holroyd 6, were also applied for on 24th December 2002 but were relinquished prior to grant on 8th October 2003.

The Cape York Project tenements are located between the Archer and Holroyd Rivers, between Aurukun and Pormpuraaw on the western side of Cape York, northeast Queensland. The tenements are located wholly on a Local Government Lease operated by the Aurukun Shire Council.

RTE explored the tenements for bauxite under shallow cover. The area was explored for bauxite in the early 1970's. Pacminex drilled 73 hand auger holes between the Archer and Kendall rivers to a maximum depth of 4.5 m (Pacminex, 1972). Shallow scout drilling of coastal sediments was also conducted by the Bureau of Mineral Resources. Few results are available from these programmes.

A short programme of community liaison in Aurukun and a visit to assess logistics was completed in October 2003. This confirmed that bauxite did not outcrop south of the Archer River, and established contacts with Traditional Owners and the Aurukun Shire Council.

A programme of auger and aircore drilling along existing tracks, and helicopter-supported wacker drilling, was completed during October and November 2004 (WAp46273). No bauxite was located during the programme, and the tenements were relinquished on 31 March 2005.

3. LICENCE DETAILS

Table 2: Tenement Details

Name	Tenement No.	Application Date	Grant Date	Sub-Blocks	Area (km ²)
Archer 1	EPM13949	24/12/2002	15/10/2003	78	267
Archer 2	EPM13951	24/12/2002	15/10/2003	100	333.6
Archer 3	EPM13952	24/12/2002	15/10/2003	79	270.1
Archer 4	EPM13953	24/12/2002	15/10/2003	100	333.4
Archer 5	EPM13956	24/12/2002	15/10/2003	96	319.8
Archer 6	EPM13950	24/12/2002	15/10/2003	100	333.1
Holroyd 1	EPM13955	24/12/2002	15/10/2003	100	332.7
Holroyd 2	EPM13957	24/12/2002	15/10/2003	100	332.9

4. GEOLOGY

4.1 Regional Geology

The Cape York Peninsula is a north-trending belt of Coen Inlier basement rocks flanked by the Mesozoic Carpentaria Basin and the Cenozoic Karumba Basin (Smart, 1977). The Coen Inlier comprises Proterozoic metasediments pervasively metamorphosed and intruded by Palaeozoic granitoids. The Mesozoic sequence comprises a conformable Jurassic to Lower Cretaceous sequence of terrestrial sandstone and conglomerate (Gilbert River Formation) overlain by marine sandstone and mudstone (Rolling Downs Group). Unconformably overlying the Mesozoic rocks are fluvial sediments and reworked surficial deposits of the Karumba Basin, namely the Late Cretaceous to Eocene Bulimba Formation, and the Late Miocene to Early Pliocene Wyaaba Beds.

Bauxite-capped plateaus are developed on the Bulimba Formation along the western side of Cape York Peninsula. Bauxite formation commenced in the Eocene with the development of the Aurukun Surface, which pre-dates the Wyaab Beds (Grimes, 1979).

4.2 Exploration Model

The exploration target was bauxite plateau under shallow cover.

Gentle warping and minor reactivation of basement faults post-dating the Aurukun Surface may have caused the Wyaaba Beds and Quaternary sediments to cover bauxite south of the Archer River. The bauxite targeted was covered extensions of the Merapah plateau, which dips southwest toward the project area where it was interpreted to go under Wyaaba Beds cover.

Historical drill data indicates (Ha Bauxiet Australie, 1972) that the Merapah bauxite has patchy development and higher reactive silica relative to the deposits further north. Potentially however, bauxite quality could improve with shallow burial, and bauxite with good thickness and quality may be minable at up to 20 m depth.

4.3 Project Area Geology

Within the project area, dendritic drainage depressions of the Love, Kirke, Knox, Ti-Tree, Sinclair, Kendall, and Holroyd drainages dominate the physiography. These depressions are separated

by rounded interfluvial rises with < 5 m relief. The drainage depressions contain numerous oval swamps and in the west of the area, sinuous and disconnected lagoons. Active drainage occurs in the wet season. The drainage depressions terminate at lagoons at the eastern edge of the coastal floodplain. Swamps also occur in internally drained positions between drainage depressions, notably at the head of Ti-Tree Creek. A geomorphic interpretation using air photographs, Landsat 7 TM, and Shuttle Radar DTM data mapped the interfluvial rises and drainage depressions (WAp46275).

West of the project area there are extensive coastal deposits including mudflat, lagoonal, and palaeostrandline facies. These areas are environmentally and culturally significant, and were not explored for bauxite.

RTE drilling intersected coarse sandstones and kaolinitic mudstones with occasional pebble layers. Isolated outcrops of this unit occur along major drainages, but between the drainages it is covered by weakly mottled quartz sand.

No bauxite was intersected or otherwise sampled in the Cape York Project area. A shallow ferruginous duricrust is developed in most locations, typically up to 1 m thick and between 1-5 m depth. This duricrust overlies a thick mottled zone and is in places overlain by a ferruginous nodule horizon. Deeper in the profile, between 8-20 m, a silcrete horizon up to 5 m thick is developed and overprints the mottled zone.

The Wyaaba Beds are mapped over the project area (Smart, 1977). However, evidence from the aircore drilling and Shuttle Radar DTM data indicates the project area is probably underlain by a truncated profile on the Late Cretaceous to Eocene Bulimba Formation, not the Late Miocene to Early Pliocene Wyaaba Beds as the exploration model predicted (Fig 1.). This evidence includes:

- The thick mottled zone (>20 m) intersected in the aircore drilling is part of a deep weathering profile, now truncated, that is overprinted by a younger (immature) laterite profile and silcrete. This mottled zone lies below the current water table.
- East of the project area, at the western edge of the Merapah plateau, ferruginous duricrust with a veneer of bauxite pisoliths overlies the mottled kaolinitic coarse sandstone unit.
- Topographic profiles identify subtle breakaways east of the project area, where post-bauxite erosion incised into the Merapah plateau (Fig. 1).

Hence, it is interpreted that the Aurukun Surface has been stripped off. The Wyaaba Beds may still occur in the west and south of the project area, but these sediments would probably still overlie a truncated profile.

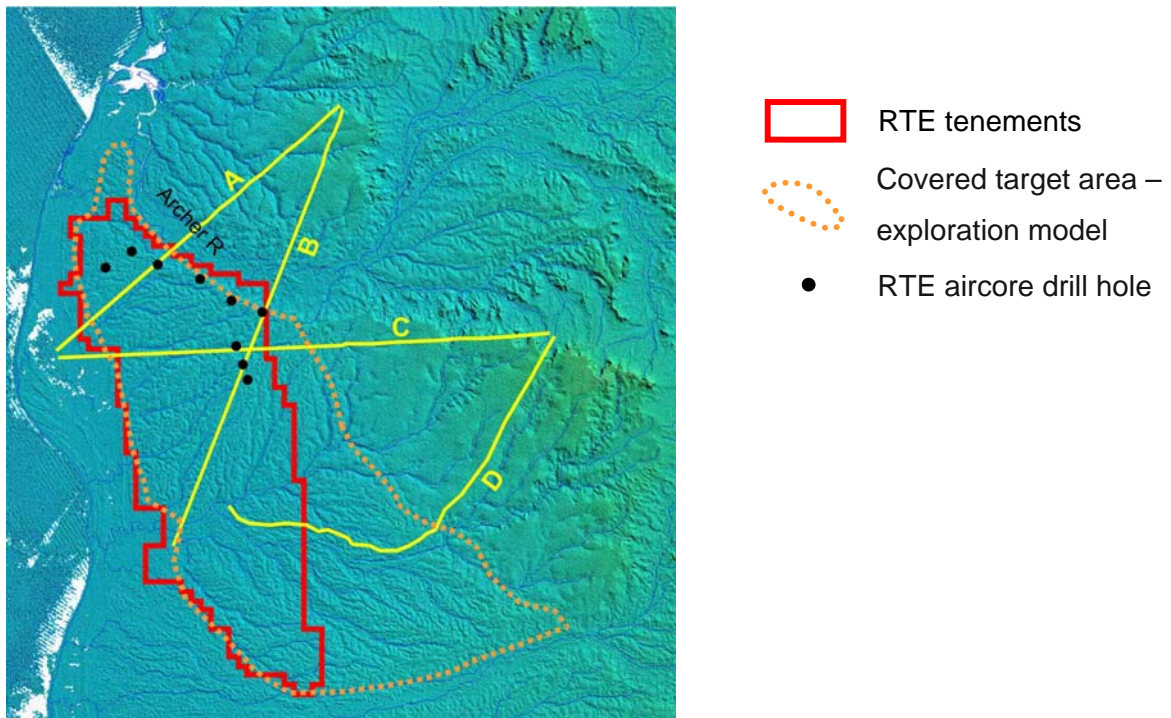


Figure 1: Location of topographic profiles shown in Fig. 2.

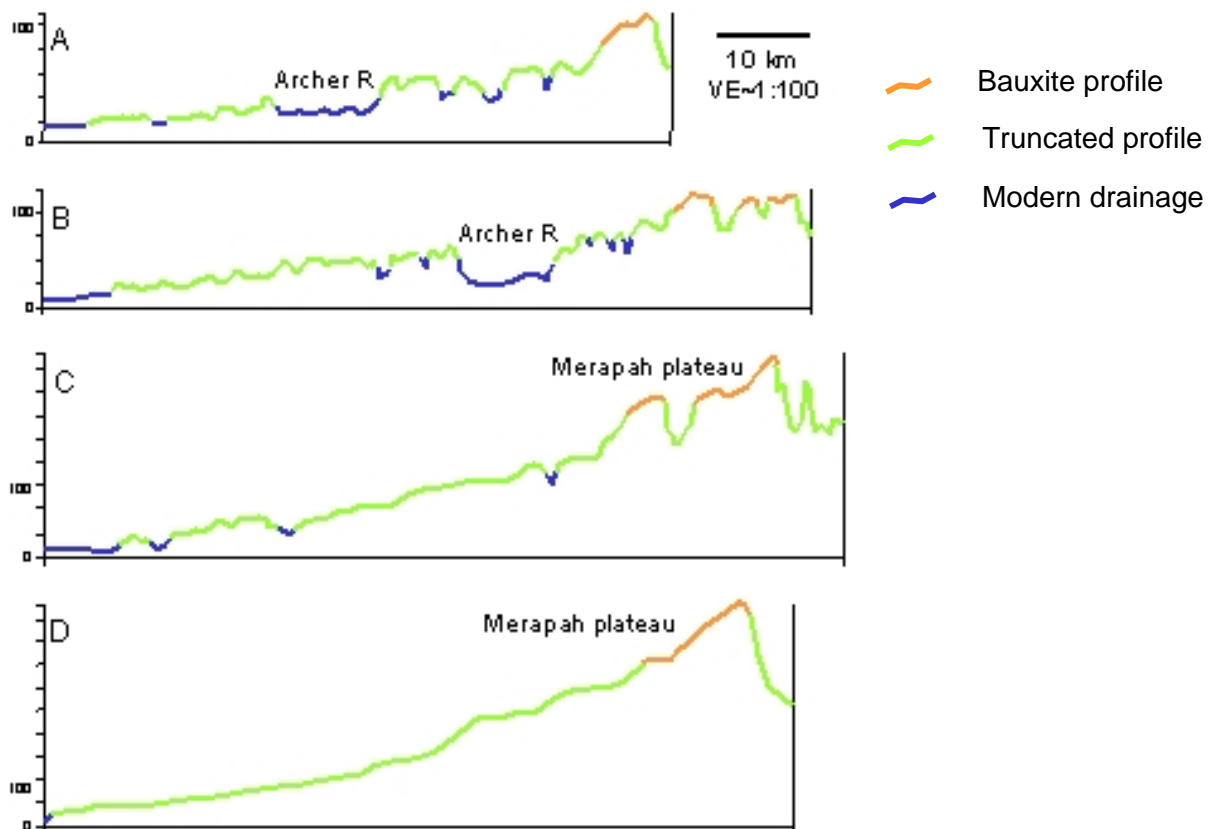


Figure 2: Topographic profiles suggest that the Aurukun surface (bauxite profile) has probably been stripped from the area.

5. DRILLING

During the reporting period RTE completed a programme of 17 auger drill holes (104.7 m), 21 wacker drill holes (89.8 m), and 9 aircore drill holes (184.0 m; Appendix 1, WAp46274).

The programme was designed to test for bauxite under 5-10 m of cover at a spacing of one drill hole per ~20 km². The auger and wacker drills are owned and operated by RTE. The auger drill operated along existing tracks; cross-country traverses were planned but abandoned due to impassable scrub. Difficult ground conditions also reduced the augers' performance.

The wacker drill was developed by RTE from experience in Indonesia. The wacker drill is a petrol-driven jackhammer converted for coring soft ground to depths up to 15 m. The wacker (and all supporting equipment) is slung by helicopter to a waiting ground crew and the wacker hole is drilled on location. At the Cape York project, hard ground conditions, slow drilling

penetration rates, and repeated failure to drill test to 10 m, led to the programme being curtailed in favour of aircore drilling along existing tracks.

Wallis Drilling was contracted at short notice to aircore drill 6 of the auger sites, and 3 sites located along an old overgrown track in the east of the project area. All aircore holes were drilled to 20.5 m (the total depth of available rods).

Each drill hole location was planned to avoid standing water by >500 m, and cultural heritage cleared for work by Traditional Owners (see 7.0). More drill hole locations were planned and cultural heritage cleared than were drilled. Drill hole locations were captured using handheld GPS.

Aircore and selected wacker samples were submitted to Ultra Trace Analytical Laboratories, Perth, WA, where they were dried at 105°C, crushed to -2 mm, and a 100 g split pulverised to 95% passing -106 µm. A 0.1 g sub-sample of the analytical pulp was melted in a lithium tetra borate flux to make a fused bead assayed for major element oxides by X-ray fluorescence (method XRF202; Appendix 1). A split of the pulp was also subjected to a 50 second hydrofluoric acid digest, and analysed for reactive silica by Inductively Coupled Plasma (ICP) Optical Emission Spectrometry (Appendix 1).

Weipa bauxite standard M2241 was inserted 1 in ~50 samples. There are no field duplicate samples. One in 25 samples were split 50:50 for a lab duplicate.

Composite analytical pulps were submitted to Ultra Trace Analytical Laboratories, Perth, WA, for multi-element determination using Inductively Coupled mass spectrometry and fire assay techniques (methods ICP102, ICP302, and FA002; Appendix 1). There were no anomalous results in these data. No auger samples were submitted for assay.

6. ENVIRONMENT

The Environmental Management Plan for the Cape York Project is appended (Appendix 2).

No tracks or drill pads were constructed. All drilling was carried out on existing tracks or was helicopter-supported. All drill holes were filled in with cuttings and surface material at completion of the drill hole. The final rehabilitation report is appended (Appendix 3).

The exploration work was conducted under Low Impact Environmental Authority MIM 500108603, allowing drilling but not track construction. Following reconnaissance to the area in October 2003, RTE reapplied for the tenements as High Impact EPM's 14393-14397 and 14399-14401 under the Alternative State Provisions. The high impact licences would have allowed access track construction for drilling. RTE met with representatives from the Queensland Environmental Protection Agency (EPA) on the 11th May 2004. The EPA had strong concerns about potential environmental impacts. The application for High Impact Environmental Authority was then mutually deferred until the initial work programme was completed and the results interpreted. Since bauxite was not discovered the high impact licence applications were relinquished prior to grant on 31 March 2005 and the application for a High Impact Environmental Authority was withdrawn.

Quarantine procedures were strictly adhered to. The vehicles used in the programme were thoroughly cleaned prior to departure from RTE's Darwin office, washed down prior to entry to the project area, and washed down prior to commencement of work in the project area. Regarding the Cape York quarantine zone, fresh fruit and vegetables were either transported to the camp at Blue Lagoon by vehicle from Cairns or by helicopter from Weipa. In addition, several vehicles carrying supplies were inspected at the quarantine checkpoint north of Coen. Interstate quarantine requirements were met by dispatching samples to Ultra Trace Analytical Laboratories or RTE's Belmont Diamond Laboratory, both of which are registered AQIS facilities that routinely receive interstate and international samples.

7. LAND ACCESS

Considerable time and resources were allocated to access negotiations and community liaison in Aurukun prior to the commencement of, and during, the exploration programme. RTE negotiated with the Traditional Owners, the Wik and Wik Way People, and their legal representatives from the Cape York Land Council (CYLC), for an Access and Heritage Protection Agreement. RTE and Traditional Owners signed this agreement on 21st September 2004.

The tenements are located wholly on the Aurukun Shire Council Local Government Lease, who gave permission to enter for the purposes of mineral exploration.

Additional community liaison included:

- Logistical assistance from the Aurukun Shire Council and Aurukun Land and Sea. This included allowing RTE to camp at the Blue Lagoon Resource Centre, still under construction at the time.
- Cultural heritage clearances of each drill hole site conducted by senior Traditional Owners.
- Cultural Awareness training for the RTE exploration team facilitated by senior Traditional Owners.
- Employment of Traditional Owners through the Aurukun Shire Council to assist with the exploration programme.

8. CONCLUSIONS AND RECOMMENDATIONS

No bauxite was intersected or otherwise sampled in the Cape York Project area. The bauxite profile is interpreted to have been removed by erosion.

No further work is recommended, and the tenements were relinquished on 31 March 2005.

REFERENCES

Grimes, K.G., 1979. The stratigraphic sequence of old land surfaces in northern Queensland. Bureau of Mineral Resources Journal of Australian Geology and Geophysics 4, 33-46.

Ha Bauxiet Australie, 1972. Final Exploration Report, Merapah ATP 549. Queensland Open File Company Report 4244.

Pacminex, 1972. Final Exploration Report, ATP 870. Queensland Open File Company Report 4047.

Smart, J., 1977. Aurukun, Queensland, 1:250 000 Geological series. Bureau of Mineral Resources, Geology and Geophysics Australia Explanatory Notes SD/54-7.

LOCALITY

Holroyd Special

SD54-11

1:250 000

LIST OF DPO'S

DPO (Work Order)	No. Sample	Sample Range	Laboratory
201830	205	6022262-273 6086738-750 6086801-976 6504384-387	Ultra Trace Analytical Laboratories
201835	45	6504395-400 6504501-539	Ultra Trace Analytical Laboratories

DESCRIPTOR

Second Annual and Final Report ending 14 October 2005 regarding exploration for bauxite under cover on EPM13949 Archer 1, EPM13951 Archer 2, EPM13952 Archer 3, EPM13953 Archer 4, EPM13956 Archer 5, EPM13950 Archer 6, EPM13955 Holroyd 1, and EPM13957 Holroyd 2, between the Archer and Holroyd rivers south of Aurukun, Cape York, Queensland. Exploration consisted of auger, wacker, and aircore drilling. No bauxite was intersected. The bauxite profile is interpreted to have been removed by erosion. No further work is recommended and the tenements were relinquished on 31 March 2005.

KEYWORDS

Holroyd River, Archer River, Aurukun, bauxite, aircore drilling, auger drilling, wacker drilling.

APPENDIX 1

Drill Hole Ledger

CY_WASL2_COLL2004.txt

CY_WADL2_GEO2004.txt

CY_WADG2_ASS2004.txt

APPENDIX 2

Environmental Management Plan

26470 Cape York Bauxite EMP.pdf

WAp45952.pdf

WAp46139.pdf

Code of Environmental Compliance.pdf

Low Impact Exploration Activities.pdf

Of Concern Ecosystem.pdf

Fish Habitat.pdf

Map coordinates for the proposed drill hole locations. Pdf

Environmental Procedures List.pdf

Search Results.pdf

Drill Hole Locations.pdf

APPENDIX 3

Final Rehabilitation Report

27199 FRR Cape York Bauxite.pdf

WAp46307.pdf