



Rio Tinto Exploration Pty. Limited

ABN 76 000 057 125 / ACN 000 057 125

A member of the Rio Tinto Group

**Second Annual and Final Report
for the Period Ending 11 October 2004
E47/1167, Nanjilgardy,
Pilbara Iron Ore Programme,
Turee Creek SF50-15,
Western Australia
West Pilbara Mineral Field**

Exploration Report No. 27160

Tenement Holder: Rio Tinto Exploration Pty Limited

Date: December 2004

Author: T Gill

Submitted: I M Clementson

Distribution: WA Dept of Industry & Resources
RTE Perth Information Centre

This report and its contents are confidential. All rights to the report and its contents (including, without limitation, rights to confidential information and copyright in all works (including photographs, diagrams, charts, maps and graphs) comprised in the report) remain the property of Rio Tinto Exploration Pty. Limited. No part of this report or the information contained in it may be disclosed to any person without the consent of Rio Tinto Exploration Pty. Limited. No part of this report, or the information contained in it may be reproduced (including being stored in any form), transmitted, published or used for any purpose without the prior consent of Rio Tinto Exploration Pty. Limited.

LIST OF CONTENTS

| | <u>Page No</u> |
|---|-----------------------|
| LIST OF CONTENTS | ii |
| LIST OF TABLES | iii |
| LIST OF APPENDICES..... | iii |
| LIST OF PLANS | iii |
| 1 SUMMARY | 1 |
| 2 CONCLUSIONS AND RECOMMENDATIONS | 1 |
| 3 INTRODUCTION | 1 |
| 4 LICENCE DETAILS | 2 |
| 5 GEOLOGY | 2 |
| 6 RC DRILLING..... | 3 |
| 7 ENVIRONMENT | 5 |
| 8 EXPENDITURE STATEMENT | 5 |
| REFERENCES..... | 7 |
| LOCALITY | 7 |
| LIST OF DPO'S | 7 |
| DESCRIPTOR..... | 7 |
| KEYWORDS | 7 |

LIST OF TABLES

| | |
|--|---|
| Table 1: Tenement Details | 2 |
| Table 2: Details of 2004 Expenditure..... | 5 |
| Table 3: Yearly and Total Expenditure..... | 6 |

LIST OF APPENDICES

| <u>No.</u> | <u>Title</u> | <u>File Name</u> |
|-------------------|---|--|
| 1 | Sampling, Laboratory and Logging Procedures, Logging References and Material Type Classifications | Sampling Procedures.pdf |
| 2 | RC Drill Hole Data | NAN_WASL2_COL2001A.TXT NAN_WADL2_GEO2001A.TXT NAN_WADG2_ASS2001A.TXT |

LIST OF PLANS

| <u>Plan No.</u> | <u>Title</u> | <u>Scale</u> |
|------------------------|---|---------------------|
| HIF1294 | Stratigraphic Columns for the Hamersley Group | - |
| WAp45914 | Tenement Location Plan | 1:500 000 |
| WAp45915 | Exploration Index Map | 1:250 000 |
| WAp15916 | Interpreted Bedrock Geology and Drill hole Locations | 1:50 000 |

1 SUMMARY

This report covers all the exploration work undertaken during the tenure of E47/1167 (Nanjilgardy).

Exploration Licence E47/1167 (Nanjilgardy) (EL) was granted on the 22 October 2002 and covers an area of 97.8 km² on the western limb of the Turee Creek Syncline, approximately 25 km southeast of Paraburdoo, in the Pilbara Region of Western Australia. The EL was surrendered on 11 October 2004.

The EL was acquired to explore for iron ore in the Brockman Iron Formation.

Exploration completed during the tenure of the EL included an historic drilling compilation and geological interpretation, drafting of the Environmental Management Plan (EMP), an Aboriginal Heritage survey with the Native Title Claimant Group, earthworks in preparation for the drilling programme and RC drilling. A total of five RC drill holes for 866 m were completed to test the target area.

Expenditure for the final year was \$208,718. This met the minimum annual expenditure requirement of \$27,900. Expenditure for the tenure period of the EL was \$254,772.

2 CONCLUSIONS AND RECOMMENDATIONS

Targets arising from interpretations of the historic drilling compilation were drill tested and found not to be within range of the target Brockman Iron Formation stratigraphy. No iron mineralisation was intercepted from the drilling. No other exploration targets are considered to occur within the bounds of the tenement at this time. Consequently, the tenement was surrendered on 11 October 2004.

3 INTRODUCTION

This report covers all the exploration work undertaken during the tenure of E47/1167 (Nanjilgardy).

The EL is located 25 km southeast of the town of Paraburdoo, in the Pilbara Region of Western Australia (Plan WAp45914). The tenement lies within the Turee Creek Pastoral Lease

3114/937 and is covered by the Gobawarra Minduarra Yinhawanga (WC97/043), Innawonga (WC98/069) and Innawonga Bunjima and Niapaili (WC96/061) Native Title Claims.

Access to the tenement is gained by the Paraburdoo Gold Project and Turee Creek Station entrance track, which turns off the Channar Mine Road from Paraburdoo.

4 LICENCE DETAILS

The EL was acquired to explore for iron ore. Summary information on the tenement is provided in Table 1.

Table 1: Tenement Details

| Name | Tenement No. | Application Date | Grant Date | Surrender Date | Sub-Blocks | Area (km ²) |
|-------------|--------------|------------------|-------------|----------------|------------|-------------------------|
| Nanjilgardy | E47/1167 | 18 Feb 2002 | 22 Oct 2002 | 11 Oct 2004 | 31 | 82 |

5 GEOLOGY

The tenement is located within the Hamersley Basin, which unconformably overlies the southern extent of the Archaean Pilbara Craton, and comprises predominantly volcano-sedimentary sequences from the Archean to Palaeoproterozoic Fortescue, Hamersley and Turee Creek Groups (Plan HIF1294).

The bedrock lithologies within the Nanjilgardy area are mostly obscured by modern alluvial sediments, however they range from banded iron formation (BIF) and shale of the Brockman Iron Formation and Weeli Wolli Formation (Plan HIF1294) as well as clastic sediments of the Mt McGrath Formation of the upper Wyloo Group. The structural setting of the project area is within the southwestern limb of the large scale double-plunging (east-west) F2 Turee Creek Syncline that has been cut by a large northwest trending fault.

A review of previous drilling and available geological mapping and geophysical data was commissioned with a view to producing a concealed drill target for Brockman style iron ore mineralisation under the alluvial cover. Fop Vanderhor undertook the review and the subsequent report (Vanderhor, 2001) gives a detailed account of the local geology, structure, mineralisation and previous work (as reported in Gill, 2004). The review indicated the potential for concealed Brockman Iron Formation in the southwest fault block that had not been adequately drilled in the past.

6 RC DRILLING

Outcomes of the report by Vanderhor (2001) were used to plan a five hole RC drilling programme to test for potential concealed iron ore mineralisation below the modern alluvial cover at the base of Channar Range. The area of RC drilling is summarised on the Exploration Index Map (Plan WAp45915).

Aboriginal Heritage

An Aboriginal heritage survey to clear the proposed drilling programme was carried out in August 2003 (Gill, 2004) with the Innawonga Native Title Claim Group (WC98/069).

One drill site (N6) was relocated due to scattered artifacts. No sites of significant heritage were found by the survey.

RC Drilling

An RCD250s drill rig was contracted from Ausdrill Northwest to carry out the RC drilling. The drill rig was equipped with a minimum of a 350psi/1150cfm air compressor, 41/2" drill rods and 51/4" hammers. An auxiliary compressor and booster were used for hard broken ground.

A total of five drill holes for 866 m and 50 samples were completed. The locations of the drill holes are shown on Plan WAp45916.

Sampling and Analytical Techniques

The drilling contractor collected two samples from a multi-level riffler from each 2 m of drill hole advance. One was the reference sample of 1 kg contained in a screw top plastic jar. The second sample of approximately 5 kg was collected in a calico bag to be used for chemical analysis. The remainder of the 2 m sample was placed on the ground for inspection by the geologist. A detailed description of the sampling procedure is provided in Appendix 1. The samples were dispatched to Ultra Trace Analytical Laboratories for XRF major and minor element analyses. Geochemical results are provided in Appendix 2.

Geological Logging

Lithologies were logged according to abbreviated codes as per Appendix 1. For each sample the magnetic susceptibility, colour, texture, lithology and percentage of lithologies was recorded. The encoded field data was keyed into the Hamersley Iron computerised drill hole database (DHDB). A more detailed description of the logging procedure is given in Appendix 1. Appendix 2 contains all the RC drill hole geological logging data from the RC drilling.

Interpretations and Discussion

The ground conditions for RC drilling through the overburden are very difficult in this area, nevertheless all but the second drill hole (RC04NAN002) made it to bedrock and effectively tested the target. The stratigraphy through the overburden was similar in each drill hole; 30-50 m of coarse gravel alluvium followed by 100-150 m of puggy clay with hardbands of calcrete and ferricrete throughout, representing fluctuations in the standing watertable over time. The clays caused most of the trouble, expanding into the hole and tightening up against the rods or infiltrating the bit as the air pressure was reduced between rod changes and bogging the hammer. In some of the drill holes, conventional blade and roller bits were used to drill through the clay section with success, though it was time consuming. Once bedrock was reached, the RC hammer was then refitted for penetrating the bedrock and to obtain the best possible sample. Only a limited number of the more interesting overburden samples were submitted for geochemical analysis.

Not a lot of bedrock was drilled as it was very quickly ascertained that target stratigraphy was not present in the concealed bedrock in the drilling area. Drill hole NAN1 ended in a manganiferous sandstone unit presumably from the Mt McGrath Formation of the Wyloo Group that was known to unconformably overlie the Hamersley Group stratigraphy in the area. Holes NAN4 and NAN5 intersected a red siliceous shale that may also be from another unit of the Mt McGrath Formation. Probably the only drill hole that intersected Hamersley Group stratigraphy was NAN3 that ended in slightly more magnetic jaspilitic BIF, presumed to be the Weeli Wolli Formation. This intersection was interpreted to lie on the northeast block of the fault that marks the eastern most boundary to the target area of the drilling.

It was concluded, from the bedrock lithologies intersected, that the Mt McGrath unconformity encroaches onto the target area for Brockman Iron Formation on the southwest block of the fault. Therefore, even if the Brockman Iron Formation is stratigraphically in place and potentially

mineralised on this side of the fault, the target is too deep to be considered of economic significance at this time.

7 ENVIRONMENT

The Nanjilgardy tenement was incorporated into the Turee Creek Area EMP, which was formulated during 2003 and provided as an appendix to the First Annual Report (Gill, 2004).

All areas of ground disturbance in the EL were rehabilitated to RTE's standard procedure for Ground Disturbance (ENVT103) by backfilling sumps and deep ripping drill pads, tracks and the campsite, immediately after completing the drilling programme in 2004. This included nine drill pads and three kilometres of access tracks.

8 EXPENDITURE STATEMENT

The expenditure for the second year period for E47/1167 (Nanjilgardy) was \$208,718. This met the minimum annual expenditure requirement of \$27,900.

Table 2: Details of 2004 Expenditure

| Item | Amount |
|-------------------------|------------------|
| RC Drilling | \$61,637 |
| Laboratory Analysis | \$1,093 |
| Field & Transport | \$12,985 |
| Travel & Accommodation | \$18,465 |
| Contract Exploration | \$15,707 |
| Payroll & Benefits | \$50,478 |
| Computing Services | \$6,848 |
| Heritage Surveys | \$4,210 |
| Tenement Payments | \$4,213 |
| General Office Supplies | \$673 |
| District Administration | \$4,844 |
| Regional Indirect Costs | \$27,565 |
| Total | \$208,718 |

The total expenditure for the tenure the EL was \$254,772.

Table 3: Yearly and Total Expenditure

| Year | Amount |
|-------|-----------|
| 2003 | \$46,054 |
| 2004 | \$208,718 |
| Total | \$254,772 |

REFERENCES

Vanderhor, F. 2001. Compilation and Interpretation of Drillhole Data From the Dublin Target Area, Southern Margin. **RTE Report No. 26289.**

Gill, T. 2004. First Annual Report for the Period Ending 21 October 2003 E47/1167 Nanjilgardy. **RTE Report No. 26290.**

LOCALITY

| | | |
|-------------|---------|-----------|
| Turee Creek | SF50-15 | 1:250 000 |
| Paraburdoo | 2541 | 1:100 000 |

LIST OF DPO'S

| DPO (Work Order) | No. Sample | Sample Range | Laboratory |
|------------------|------------|-------------------|--|
| 200933 | 50 | 6090401 – 6090450 | Ultra Trace Analytical Laboratories, Perth |

DESCRIPTOR

Second Annual and Final Report for the Period Ending 11 October 2004 E47/1167, Nanjilgardy, Pilbara Iron Ore Programme Turee Creek SF50-15, Western Australia West Pilbara Mineral Field. Report No. 27160.

KEYWORDS

Aboriginal Heritage Survey, Archean, Brockman Iron Formation, Environmental Management Plan, Hamersley Group, Iron Ore, Nanjilgardy, Palaeoproterozoic, Paraburdoo 2541, RC Drilling, Turee Creek SF50-15, Turee Creek Syncline. Drill holes: RC04NAN001-RC04NAN005.

APPENDIX 1

**Sampling, Laboratory and Logging Procedures and
Logging References and Material Type Classifications
Sampling Procedures.pdf**

APPENDIX 2

RC Drilling Data

NAN_WASL2_COLL2004A.TXT

NAN_WADL2_GEO2004A.TXT

NAN_WADG2_ASS2004A.TXT