Core logging at Yalyirimbi

Author: Graeme Johnston  
B.Sc., (Geol), M.Sc., D.I.C., F.G.S  
Date: 26 January 2015
Annual Report No: EL24548

Location: Ngalia Basin, Arunta Province, Northern Territory.

Sheet Name: Napperby 1:250,000 SF53-09; Napperby 1:100,000 (S452) map sheet.

Datum: GDA94

Projection: GDA  \quad GDA Zone: 53

GDA East: 266,000mE  \quad GDA North: 7,504,000mN

Keywords: Geological Mapping, Reconnaissance Field Trip, Central Land Council, Haematite, Yalyirimbi Iron Project, Mine Management Plan, Diamond Drilling.

Titleholder: Arafura Resources Limited

Project Operator: Ferrowest Limited

Target Commodity: Iron

Author: Graeme Johnston, Ferrowest Limited

Date: January 2015

Distribution:

1. Northern Territory Geological Survey, Department of Mines and Energy
2. Arafura Resources Limited
TABLE OF CONTENTS

SUMMARY .................................................................................................................................. 4

1.0 INTRODUCTION ................................................................................................................ 5
  1.1 LOCATION AND ACCESS ............................................................................................... 5
  1.2 TOPOGRAPHY AND DRAINAGE ................................................................................... 5
  1.3 TENURE .......................................................................................................................... 5

2.0 PROJECT GEOLOGY ........................................................................................................... 7
  2.1 IRON MINERALISATION .................................................................................................. 7

3.0 WORK COMPLETED IN REPORTING PERIOD ................................................................. 9
  3.1 WATER EXPLORATION PROGRAMME – ARAFURA RESOURCES LIMITED .................. 9
  3.2 RESOURCES UPGRADE - 2013 .................................................................................... 9
  3.3 DEVELOPMENT OF NEW MINE MANAGEMENT PLAN – OCTOBER 2014 .................. 10
  3.4 SITE REHABILITATION FOLLOWING THE DIAMOND DRILLING PROGRAMME – EARLY 2014 ...................................................... 10
  3.5 SUMMARY OF FINDINGS AND FURTHER RECOMMENDATIONS ...................... 10

4.0 CURRENT EXPLORATION PROGRAMME ........................................................................ 11

5.0 HERITAGE STATUS .......................................................................................................... 12

6.0 ENVIRONMENT AND REHABILITATION ..................................................................... 13

7.0 FURTHER WORK ............................................................................................................. 14

8.0 REFERENCES ..................................................................................................................... 15

LIST OF FIGURES

Figure 1. Tenement Location Map .............................................................................................. 6
Figure 2. Geological Map of the Yalyirimbi Iron Project with Tenement Boundary ...................... 8

APPENDICES

Appendix 1. MINERAL RESOURCE ESITMATE – YALYIRIMBI IRON PROJECT – FEBRUARY 2014 – G.LOUW
SUMMARY

Ferrowest Limited ("Ferrowest") carried out a due diligence process on a potential iron project on EL24548 in 2013 and as a result entered a Farm-in agreement for the iron rights with the tenement owners, Arafura Resources Limited ("Arafura") by acquiring those rights from the previous owner, Ngalia Resources Pty Ltd.

At the end of the previous Reporting Period (end of 2013) Ferrowest had just completed a diamond drilling programme that was designed to augment the extensive RC drilling completed previously. This resulted in the Inferred Resource Estimate being lifted to a mix of Inferred and Indicated in December 2013. Work in the initial part of the Reporting Period centred on wrapping up post-drilling activities such as site rehabilitation. The new Resource modelling was also completed by CSA Global and is reported here.

The next round of exploration (further RC drilling) had been planned for the latter part of 2014. However, this coincided with a most devastating and sustained reduction in iron ore prices. The result was that Ferrowest (like almost all iron ore juniors) was unable to raise any funds for iron ore exploration in the second half of 2014. As a consequence, the planned exploration programme for the year was cancelled.

At the end of the Reporting Year, Ferrowest and Arafura also agreed to seek a voluntary reduction of the tenement’s size by 50%. This reduction is currently pending DME processing.

Arafura continued its water exploration activities in support of the Nolans Project development across the Aileron-Reynolds region, including EL24548, although no ground disturbing activities were undertaken on the tenement during the Reporting Period as part of this exploration programme.

This report has been generated internally by Ferrowest Limited alone and is submitted here in accordance with Mineral Title Regulation 78(1). This work is copyright with all rights reserved. Furthermore Ferrowest authorises the Department of Mines and Energy to copy or distribute this report and associated data in accordance with Mineral Title Regulation 126(3)(a). Except for statutory liability which cannot be excluded, each of Ferrowest, its related body corporates and its and their respective officers, employees and advisors expressly disclaims any responsibility for the accuracy or completeness of the material contained in this work and excludes all liability whatsoever (including in negligence) for any loss or damage which may be suffered by any person as a consequence of the use or reliance upon any information in this work or any error in it or omission from it.
1.0  INTRODUCTION

This section summaries some of the physical aspects of the tenement as well as any pertinent changes to the current tenure situation within the reporting period.

1.1  Location and Access

EL 24548 is located 180 kilometres northwest of Alice Springs and 1080 kilometres south-southeast of Darwin by the Stuart Highway in the southern part of the Northern Territory of Australia. Turning westwards from the Stuart Highway, south of Aileron, the Napperby Station Road leads into the centre of the tenement from where a network of station roads and tracks lead to stock water bores, wells and dams. Access is also possible via roads and tracks leading north from the Tanami Road. Please refer to the Figure 1 at Section 2.1 below.

1.2  Topography and Drainage

The southern part of the area comprises a flat plain rising gently northwards from around 600 to around 700m ASL, punctuated by Patty Hill and Mt Caroline rising to 748m ASL and 751m ASL respectively.

The Yalyirimbi Ranges rising to over 880m ASL trend north westwards along the northern part of the tenement.

Drainage from the Yalyirimbi Ranges is mostly southwards through the plain comprising three major creek systems; Gidyea, Napperby and Day Creeks. Surface water flows toward Lake Lewis.

1.3  Tenure

EL24548 is owned by Arafura Resources Limited. The iron rights to the tenement are contracted to Arafura Iron Pty Ltd, a joint venture vehicle held by Ferrowest (51%) and Arafura Resources Limited (49%) for the proposed Yalyirimbi Iron Project.

Ferrowest has the right to earn a further 9% (i.e. Ferrowest 60% and Arafura Resources Limited 40%) by completing a Bankable Feasibility Study on the Project at its own expense.

EL24548 consisted of 250 graticular blocks for the Reporting Period but at the end of the Reporting Year, Ferrowest and Arafura Resources sought a voluntary reduction of the tenement’s size by 50% to 125 blocks.
Figure 1: Tenement Location Map
2.0 PROJECT GEOLOGY

Haematite mineralisation at Napperby is associated with isolated outcrops of Late-Proterozoic quartzites and ferruginous quartzites of the Vaughan Springs Quartzite.

The Yalyirimbi Haematite deposits occur in the late Proterozoic Vaughan Springs formation in the Ngalia Basin (Figure 2). The basin is a lens shaped depression in the Arunta inlier with a faulted northern boundary (Thompson 1995). Sedimentation commenced about 850 to 800 Ma when the area was part of a flat plain inundated by a small sea level rise.

The Vaughan Springs Formation is a bedded to well bedded, quartz sandstone and quartzite, which is locally pebbly; with minor mudstone and shale. The quartz sandstone has generally been compressed to a quartzite that is more resistant to erosion than surrounding rocks and forms well defined ridges.

According to Dale (2011) at Yalyrimbi the Vaughan Springs quartzite formations have been mapped as the northern limb of a very broad syncline. Massive and specular haematite outcrops in several areas most notable of which are ‘A’ and ‘M’ deposits. Local warping and reversals of dip do occur. M deposit appears to dip gently to the north with a small (+ 3 to 4°) plunge towards the east. A deposit dips gently to the south.

2.1 Iron Mineralisation

The primary haematite mineralisation has been deposited within brecciated quartzites of the Vaughan Springs Formation and appears to be strata-bound if not strati-form. There is evidence of haematite layering and preferential replacement as well as remobilisation into breccia and fault zones. The assumption has been made that these are primary, likely hydrothermal deposits. This has been supported by regional airborne magnetometer surveys and an initial ground magnetic survey. These surveys have demonstrated that the hematite deposits are completely non-magnetic.

The reconnaissance work carried out in March 2013 and followed up in October 2013 by the Ferrowest Chief Geologist confirmed that the primary deposits are in fact hydrothermal vein systems, probably associated with regional local faulting along the complexly deformed northern limb of the Ngalia Basin. Diamond drilling at the end of 2013 also confirmed this analysis.
Figure 2: Geological Map of the Yalyirimbi Iron Project with Tenement Boundary
3.0 WORK COMPLETED IN REPORTING PERIOD

3.1 Water Exploration Programme – Arafura Resources Limited

Arafura continued its water exploration activities in support of the Nolans Project development across the Aileron-Reynolds region. In 2014, a review of reprocessed AEM data and interpreted depths to basement (Hussey 2014) and a revised geological model for the surrounding Cainozoic basins was completed prior to the commencement of the 2014 water drilling program. The regional interpretation and modelling, and subsequent assessment of the water storage capacity and potential of these basins formed the supporting background information required for Arafura’s water abstraction license submitted to NT Department of Land Resource Management in October 2014.

Arafura’s regional water investigation efforts were substantial but all exploration drill holes in 2014 lie outside of EL 24548. The water drilling results and logs are detailed in Hussey and Dean (2014) and have largely concentrated on areas of thick Cainozoic stratigraphy targeting deep aquifers and palaeochannels within about 40 kilometres of the Nolans Project area. Deep Cainozoic aquifers are also modelled to the west of Day Creek on EL 24548, however at this stage these targets are not seen as a priority as they lie outside of the current 40 kilometre exploration limit and numerous water exploration bores closer to the Nolans Project area have yielded positive results.

3.2 Resources Upgrade - 2013

At the end of 2013, following the completion of the diamond drilling programme, the determination of typical densities for iron bearing rocks allowed the assignment of real densities to the existing ore block model by CSA Global. This allowed an upgrade of the original mineral resource estimate under the JORC Code(2004) version.

The new Resource Estimate is as follows:

Yalyirimbi Inferred and Indicated Mineral Resource Estimate (JORC 2004 – G Louw)

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Category</th>
<th>Million Tonnes</th>
<th>Fe %</th>
<th>SiO2 %</th>
<th>Al2O3 %</th>
<th>P %</th>
<th>S %</th>
<th>LOI %</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Indicated</td>
<td>3.2</td>
<td>33.4</td>
<td>42.4</td>
<td>5.6</td>
<td>0.02</td>
<td>0.03</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>Inferred</td>
<td>1.3</td>
<td>29.4</td>
<td>45.8</td>
<td>7.2</td>
<td>0.02</td>
<td>0.02</td>
<td>3.7</td>
</tr>
<tr>
<td>M</td>
<td>Indicated</td>
<td>4.1</td>
<td>25.1</td>
<td>58.8</td>
<td>3</td>
<td>0.02</td>
<td>0.14</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>Inferred</td>
<td>4.8</td>
<td>24.1</td>
<td>59.4</td>
<td>3.8</td>
<td>0.02</td>
<td>0.07</td>
<td>1.8</td>
</tr>
<tr>
<td>Combined</td>
<td>Indicated</td>
<td>7.2</td>
<td>28.7</td>
<td>51.6</td>
<td>4.2</td>
<td>0.02</td>
<td>0.09</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>Inferred</td>
<td>6.1</td>
<td>25.2</td>
<td>56.5</td>
<td>4.5</td>
<td>0.02</td>
<td>0.06</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>Indicated + Inferred</td>
<td>13.3</td>
<td>27.1</td>
<td>53.9</td>
<td>4.3</td>
<td>0.02</td>
<td>0.08</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Note: The CSA Mineral Resource was estimated within constraining wireframe solids based on a nominal lower cut-off grade of 15%Fe. The Mineral Resource is quoted from blocks above a 15%Fe cut-off grade. Differences may occur due to rounding

Based on the information and studies completed to date by both the previous operator of the project and Ferrowest’s own investigations, combined with the successful upgrade of much of the Resource to an Indicated Resource category, Ferrowest believes that the Yalyirimbi Iron Project has reasonable prospects for eventual economic extraction of the iron ore and justifies the ongoing exploration and feasibility studies leading to a Bankable Feasibility, subject only to continued successful results.

The full Resource Report is included at Appendix A to this Report.
3.3 Development of New Mine Management Plan – October 2014

An updated Mine Management Plan was prepared and submitted to the DME. The revised MMP has been approved by DME.

3.4 Site Rehabilitation following the Diamond Drilling Programme – Early 2014

Ferrowest contracted the Napperby Station owner to undertake the rehabilitation of the drill pads and relevant access tracks from the diamond drilling programme during early 2014. This work was completed in accordance with the MMP.

Existing station tracks and the access base lines for the main mineral deposits remain cleared.

3.5 Summary of Findings and Further Recommendations

The iron ore industry in Australia is undergoing major structural upheaval at the date of this Report. It is not possible to determine where future iron ore pricing will settle and this future benchmark is critical to the potential future of the Yalyirimbi Iron Project.

Ferrowest believes that the project has good prospects to produce an excellent product, with some minimal processing, but its location at such a distance from the coast makes it very sensitive to transport costs and iron ore prices. Currently fuel prices are very low but so are iron ore prices and the current market conditions would not support development of the project. However, Ferrowest believes that if iron prices return to higher levels, the prospect for the Yalyirimbi Iron Project would be significantly boosted. Currently, this would justify ongoing exploration.
4.0 CURRENT EXPLORATION PROGRAMME

At the beginning of October 2013, the Company commenced its first diamond drilling programme at the Project site. There had previously been extensive RC drilling of two main deposits (Deposits ‘A’ and ‘M’) carried out by the previous operator Ngalia Resources Limited, but this programme was the first diamond core drilling on the Project.

Core from the main ore zone proved to be consistent with Ferrowest’s expectations. The drill core has demonstrated that the haematite iron, hosted in the quartz-iron vein system that is apparent in outcrops at the surface, is also reflected down through the deposit.

Most importantly, the iron and quartzite are largely present as discrete minerals, which is why early testwork has shown that the ore can be upgraded to 63.5%Fe with crushing to 6mm and gravity separation processes.

While the planning to date has been to process all of the ore to produce an ‘all fines’ product, with the increased understanding of the mineralisation that will come from the test work on these diamond core samples, the Company will be investigating the potential for a second, high grade lump product stream, at a coarser crush. This would reduce the amount of ore that needs crushing to a fines product and also provide a higher value lump product that would further improve overall project economics.

As the Yalyirimbi iron ore is not sedimentary, unlike most haematite ores in Western Australia, it has very low alumina content and low phosphorus. When this is combined with a relatively high iron grade of around 63.5%Fe for the finished product, it is expected that the Yalyirimbi product will be a very attractive blending stock for steel mills to compensate for the falling grades and higher contaminant levels from more traditional haematite mines.

It is therefore currently planned to follow up the diamond drilling programme with a further RC drilling programme as soon as funding is secured.

The specific aims of the RC programme will be to:

- Further ‘fine tune’ the resource model on Deposits A and M;
- Potentially expand the resource to the east of the M Deposit at Anomaly E; and
- Conduct reconnaissance drilling into the undrilled gravity Anomalies D, B and H.
5.0 HERITAGE STATUS

Ferrowest assumed the responsibilities of maintaining the land access agreement and heritage protection originally agreed between the Central Land Council (CLC) and Ngalia. The Central Land Council is based in Alice Springs and is the nominated representative legal body for the community based at Laramba which is located completely within Napperby Station.
6.0 ENVIRONMENT AND REHABILITATION

The services of the Station Owner of Napperby Station, Mr. Chisholm, and his backhoe had been secured for the diamond drilling programme at the end of the previous Reporting Period. Mr Chisholm created water / silt catchment sumps next to proposed diamond drillholes on pads that were all used previously in the older RC programme (and which had been rehabilitated).

In early 2014 Mr Chisholm was again engaged to rehabilitate all of the sumps, which had been lined with plastic to prevent groundwater ingress. The plastic liners were removed and the sumps were backfilled, with top soil re-spread (where available). Access tracks were again scarified and all rubbish removed from site. The diamond holes were plugged and backfilled and marked with survey pegs for retrieval in the future if required.
7.0 FURTHER WORK

It is currently planned to follow up the diamond drilling programme with a further RC drilling programme in the latter part of 2015.

The specific aims of the RC programme will be to:

- Further ‘fine tune’ the resource model on Deposits A and M;
- Potentially expand the resource to the east of the M Deposit at Anomaly E; and
- Conduct reconnaissance drilling into the undrilled gravity Anomalies D, B and H.
8.0 REFERENCES


