MULGA DOWNS IRON ORE PTY LTD

PARTIAL SURRENDER REPORT

For the Period

13 August 2013 to 8 June 2016

MULGA DOWNS

E45/3691 Partial Surrender Report

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Bibliographic Data Sheet

Project Name:	Mulga Downs	
Combined Reporting Number:		
Tenement Numbers:	E 45/03691	
Tenement Operator:	MULGA DOWNS IRON ORE PTY LTD	
Report Type:	Partial Surrender	
Report Title:	E45/3691 Partial Surrender Report	
Report Period:	13 August 2013 to 8 June 2016	
Author:	Abbas Ghasemi	
Submitted By:	Ben LAMB	
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Map Sheets:	*1:250,000 Map Sheet* SF50-12 (ROY HILL)	*1:100,000 Map Sheet* 2753 (MOUNT MARSH)
Target Commodity:	IRON	
Prospects Drilled:		
PoW Number:		
Geophysical Survey Reg No:		
Assays:		

Abstract

Location:	The Mulga Downs 5 prospect is located approximately 196km south-southeast of Port Hedland on the western side of the FMG Cloudbreak to Port Hedland rail line.
Geology:	The tenement is located in the North Pilbara Craton, East Pilbara Granite Greenstone Terrane. Geology of the tenement mostly comprises rocks of the Pilbara Supergroup, which are intruded by numerous granite veins and Sisters Supersuite leucogranite. These rock overly the older granite greenstone basement that comprises the Shaw Granitic Complex Callina Supersuite (3490-3460Ma) in the east (outside the tenement).
Work Done:	Exploration for the reporting period comprised reconnaissance mapping.
Results:	The field work revealed little to no potential for iron mineralisation.
Conclusion:	The assessment of exploration activities on the northern two blocks of E45/3691 indicates that further exploration is not warranted.

1. Introduction

E45/3691 is located 196km south-southeast of Port Hedland and 67km east of Mulga Downs Camp (Figure 1), in the East Pilbara Granite Greenstone Terrane of the northern Pilbara Craton.
Existing geological map and preliminary filed investigation identified outcrops of the Pilbara Supergroup, Sisters Supersuite which were unconformably covered by Cainozoic sediments.
No iron mineralisation was identified within the tenement. With respect to extensive exposures of granitoid rocks and quartz veins, the tenement has the potential to host Au mineralisation. A surface mapping and sampling program has been started to test the potential for Au mineralisation of the tenement.

2. Location and Access Details

E45/3691 is located approximately 196km south-southeast of Port Hedland; west of the Cloudbreak to Port Hedland Railway Line (Figure 1). The tenement can be accessed via the unsealed BHP Port Hedland - Newman railway access road and then the unsealed FMG Cloudbreak to Port Hedland service road (Figure 1).

3. Tenement Details

Tenement Information

Tenement	Grant Date	Expiry Date	Holder	Expenditure ($)	Area Size (KM2)	Area Size (BLK)
E 45/3691-I	13/08/2013	12/08/2018	MULGA DOWNS IRON ORE PTY LTD	14167	2.8	1

E45/3691 was granted on the 13th August 2013 with an area of 3 graticular blocks and forms part of the Mulga Downs Project. The tenement is held by Mulga Downs Iron Ore Pty Ltd (MDIO), a wholly owned subsidiary of Hancock Prospecting Pty Ltd (HPPL).
Two blocks on the northern part of the tenement were voluntarily surrendered on the 5th June 2016 (Figure 2).

4. Geology

4.1 Regional Geology

E45/3691 is located in the Eastern Pilbara Granite Greenstone Terrane of the northern Pilbara Craton.
Geology of the tenement comprises rocks of the Pilbara Supergroup, which are intruded by the Sisters Supersuite leucogranite and numerous granite veins.
The Pilbara Supergroup includes amphibolite of the Kelly Group, unassigned ultramafic to mafic schist and amphibolite. The exposed granitoid rocks in the tenement can be classified into two major groups; the Tambina Supersuite granodiorite to the north and the Sisters Supersuite leucogranite to the south. The volcanoclastic rocks of the Mingah Member of the Fortescue Group unconformably overlie the older granitic units (Figure 3).

4.2 Local Geology

The exposed Pilbara Super Group rocks in the Mulga Downs 5 tenement overly the older granite greenstone basement that comprise Tambina Supersuite (A-TA-mgg) in the northern part of the tenement (Figure 3) and the Shaw Granitic Complex Callina Supersuite (3490-3460Ma) in the east (outside the tenement) (Van Kranendonk et al, 2006).
The tenement is positioned atop of the Chichester Ranges and drains north eventually reaching the Western Shaw River and, south into the Fortescue Marsh. Variably consolidated Cainozoic colluvium and alluvium cover the older exposed rocks in the tenement and recent Quaternary alluvium mostly exposed along the drainages cross the tenement. A northeast trending dolerite dykes crosscut rocks of the Kelly Group on the northern part of tenement (AKEe-mba in Figure 3).

Archaean

Tambina Supersuite (A-TA-mgg)

The Tambina Supersuite granitoid rock is the oldest exposed rock on the tenement. The Tambina Supersuite consists of equigranular, leucocratic granodiorite; generally medium grained; predominantly foliated. Tambina granitoid rocks outcrop in the northern part of the tenement and are unconformably covered by Cainozoic sediments (Figure 3).

Pilbara Super Group

Kelly Group (AKEe-mba)

The medium-grained amphibolite and amphibolite schist; derived from basaltic volcanic rocks of the Kelly Group exposed in the northern part of the Mulga Downs 5 tenement. The Sisters Supersuite granitoid rocks and some dolerite dykes cut the Kelly Group.

Sisters Supersuite (A-ST-gl & A-ST mu-gme)

Heterogeneous, fine to coarse grained, weakly foliated biotite-rich leucogranite (A-ST-gl in Figure 3) and fine to medium grained biotite monzogranite (Mulgandinah Monzogranite, A-ST mu-gme in Figure 3 of the Sisters Supersuite intrude all of the older units of the tenement (Figure 4).

Fortescue Group

Only one member of the Tumbiana Formation of Fortescue Group (Mingah Member, A-FOti-bntt) is exposed on the western side of the tenement (Figure 3). The Mingah Member consists of basaltic to andesitic volcaniclastic sandstone and siltstone (with common accretionary lapilli), and local quartz sandstone, shale, with thin lenticular stromatolitic carbonate units and locally thick basalt.

Phanerozoic (Cainozoic)

Cainozoic calcrete (Czk) and variably consolidated alluvial (Cza) and colluvial (Czc) sand, gravel and silt with quaternary sheet wash plain deposits (Qw) and quaternary alluvial (Qa) sediments, unconformably cover the Archaean and all older rocks (Figure 3).

5. Previous Exploration

Prior to the grant of E45/3691, it would appear that no exploration activity had taken place on area the subject of the tenement.

6. Current Exploration

In 2014, field investigations were carried out to select a suitable location for the establishment of a water table monitoring bore. Site access issues for the drilling rig resulted in this bore not being drilled. A desktop flora and fauna study was also carried out on the tenement by Maia Environmental Consultancy during 2014.

7. Current Exploration Summary

7.1 Data Review

A desktop study of the existing data (landsat, aeromagnetic images and GSWA geological data) was carried out over the surrendered blocks. This data review was used in making the reconnaissance geological map of the entire tenement and of the surrendered two blocks. This has resulted in geological boundaries which are slightly different to those shown on the Roy Hill (SF 5012) and Mount Marsh (2753) West Australian Geological Survey mapping. The GIS data has been included with this report.

7.2 Other Activities

Flora Fauna and Vegetation Desktop Study

During 2014, Maia Environmental Consultancy Pty Ltd (Maia) undertook a desktop study on the currently known flora, fauna and vegetation of E45/3691.
The purpose of the desktop study was to gain an understanding of the flora, fauna and vegetation sensitivities in the vicinity of the tenement prior to exploration activities commencing. The information would also be used in approvals application documents and guide the process of applying the most appropriate disturbance management procedures.

Literature and database searches

Maia reviewed the publicly available literature to gather background information on the tenement and available GIS mapping layers and databases were searched to gather data for the desktop study.
A 25 km buffer was placed around the centre point of the tenement and this was used as the search area for the Department of Parks and Wildlife (DPaW) database searches and for the NatureMap and Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) Protected Matters Search Tool searches. A NatureMap search was also carried out using the actual tenement boundary to determine if any flora or fauna records have been recorded within the tenement.

Land Systems (LS)

The Macroy LS is one of the largest mapped in the Pilbara and is mapped over the majority of the tenement. The McKay LS is mapped over a smaller area in the Pilbara and is only mapped over a small portion of the western corner of the tenement. Neither LS is considered to be of high conservation significance; however, both contain habitats that may support conservation significant flora and fauna.

Conservation Significant Flora

No groundwater dependent ecosystem (GDE) reliant on surface expression of groundwater exists on the tenement and surrounding study area. The northern section of the Project tenement could have moderate potential for groundwater interaction. It is possible that the vegetation in the northern section of the tenement could be an inflow dependent ecosystem (IDE) and any changes to inflow in these areas could affect the vegetation of the area.
Beard vegetation sub-association 93.4 is mapped over a large area of the Pilbara. This sub-association has a low prioritisation for reservation in the Chichester sub-region.
No Threatened Flora species protected by the EPBC Act or the Western Australian Wildlife Conservation Act 1950 (WC Act) have been recorded within 25km of the centre of the tenement.
Four Priority (P) Flora species have been recorded in the 25km search area: Eremophila spongiocarpa (P1), Stylidium weeliwolli (P2), Bulbostylis burbidgeae (P4) and Goodenia nuda (P4). None of these records fall within the tenement boundary.

Weeds

No weeds on any of the national weeds lists or declared plant pests have been located within the tenement or search area.
The EPBC Act Protected Matters Search Tool listed one invasive species (or its habitat) which could occur within the search area: Cenchrus ciliaris (Buffel Grass).
The NatureMap search results listed no weed species in the 25km search area.
Although the database searches listed one weed species with records within the 25km search zone, a number of additional weed species have been recorded during other surveys carried out in the vicinity of the tenement.
It is therefore probable that weed species occur in the tenement, particularly along drainage lines and in lower lying areas.

Conservation Significant Fauna

The results produced by the EPBC Act Protected Matters Search Tool listed seven EPBC Act species or the species' habitat (excluding migratory species) as having the potential to occur in the 25km search area and seven migratory species.
Seven fauna species protected by the WC Act were listed in the results of the NatureMap and DPaW database searches.
The DPaW database and NatureMap search results listed 10 Priority Fauna species (one P1, one P3 and eight P4) as having been recorded previously in the vicinity of the tenement search area.
The EPBC Act Protected Matters Search Tool listed eight feral animals that could occur in the area (Camel, Cat, Dog, Donkey, Horse, House Mouse, Rabbit and Fox), and the NatureMap search listed four feral animals with records in the search area (Camel, Donkey, Horse and European Cattle).
This desktop study includes the results of fauna database searches only and if more information is required vertebrate fauna specialists could carry out a more detailed study, which could include definition of any significant habitats for the conservation significant species that could occur within the tenement.

Environmentally Sensitive Areas

No Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) occur in or within 25km of the centre of the tenement. The tenement does not lie in an environmentally sensitive, Schedule 1, Red Book or former leasehold area and neither is it close to any conservation estate.

Survey Conclusions

Based on the results of the desktop study, the implementation of the HPPL standard work procedure for ground disturbing exploration activities will minimise any potential impact on the tenement and its surrounds.
Conducting environmental and heritage surveys, obtaining DMP programme of works approval, applying the internal HPPL ground disturbance permit process and auditing compliance with approval conditions will ensure that any impact from exploration activities are localised and short term; such that there is an insignificant risk to the local and regional environment.

8. Conclusion and Recommendations

The extensive exposures of granitoid rocks mapped in the tenement during the preliminary field investigation have the potential for Greenstone-hosted quartz-carbonate vein Au mineralisation. The assessment of exploration activities on the northeast part of E45/3691 proved that it did not warrant further exploration or extending the tenure.

9. References

Van Kranendonk, M.J., 2004, Mount Marsh geological map, 100,000 Geological Series, Department of Minerals and Energy, Geological Survey of Western Australia.

Van Kranendonk, M.J., Hickman, A.H., Smithies, R.H., Williams, I.R., Bagas, L. and Farrell, T.R. (2006). Revised Lithostratigraphy of Archean Supracrustal and Intrusive Rocks in the North Pilbara Craton, Western Australia: Department of Industry and Resources, Geological Survey of Western Australia, Record 2006/15.

Appendices

No Appendices as text are available