



**HODGSON FE PROJECT**

**EL 26412**

**SECOND ANNUAL REPORT**

**FOR PERIOD**

**14-04-2009 to 13-04-2010**

**Submitted to: NT Dept of Resources : Minerals and Energy Division**

**Submitted by: Australian Ilmenite Resources Pty Ltd  
Batavia Mining Limited**

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## **Summary**

Exploration Licences 26412 was granted on 14<sup>th</sup> April 2008 to Exploration & Resource Development Pty Ltd (ERD), a Darwin based resource sector company for a period of six years.

On February 05<sup>th</sup> 2009 ERD changed its name to Australian Ilmenite Resources Pty Ltd (AIR).

The license area of 500 sub-blocks was originally applied for to target uranium anomalies as well as the iron ore potential in the southerly portion of the EL and the assessment of the diamond prospectivity of the area

This report details all exploration activity carried out over the tenement.

Diamond exploration included an assessment of previous efforts by various companies against the Departmental diamond database.

Uranium exploration has included large scale mapping and interpolation of existing datasets to identify anomalies within the lease area as well as investigations into past reports available within the Departments open file reports.

Iron ore exploration has included a small helicopter based geological survey and sampling program to assess the geology, extent and content of the Sherwin ironstone member exposed in the southerly section of the EL.

## 1. Introduction

The Roper Project encompasses Exploration Licences 22478, 23048, 24655, 24986, 26412, 26522, 26523, 26524 and 26525. Originally all tenements covered and area in excess of 10,000 sq km centred on the eroded dolerite sills of the Roper River region.

This report covers activities on EL 26412 which was granted on 14<sup>th</sup> April 2008 for a period of six years to Australian Ilmenite Resources Pty Ltd.

The area was originally applied for to target potential diamond mineralisation, to further investigate identified uranium anomalies and to gauge the geology and extent of the exposed Sherwin Ironstone member in the southerly section of the license area.

This report outlines exploration activities conducted during tenure Year 1 for EL 26412.

## 2. Tenement

Exploration License 26412 was granted to Australian Ilmenite Resources Pty Ltd on 14<sup>th</sup> April 2008 for a period of six years. No reduction is sought after year 1. Table one lists the Titles Information System data for the tenement and Figure 1 illustrates the area of and location of the tenement.

**Table 1. T.I.S. Download EL 26412**

Item Information		1 of 1
<b>Tenure Type</b>	Exploration Licence	
<b>Number</b>	26412	
<b>Date Effective</b>	14/04/08	
<b>Status</b>	grant	
<b>Area</b>	500 SBKS (1,594.0 sqkm)	
<b>Grant Date</b>	14/04/08	
<b>Expiry Date</b>	13/04/14	
<b>Renewal Application Date</b>		
<b>Renewal Grant Date</b>		

Holders Information		
Name	Percent	Type
AUSTRALIAN ILMENITE RESOURCES PTY LIMITED*		Contact
AUSTRALIAN ILMENITE RESOURCES PTY LIMITED*	100.00%	Current Holder

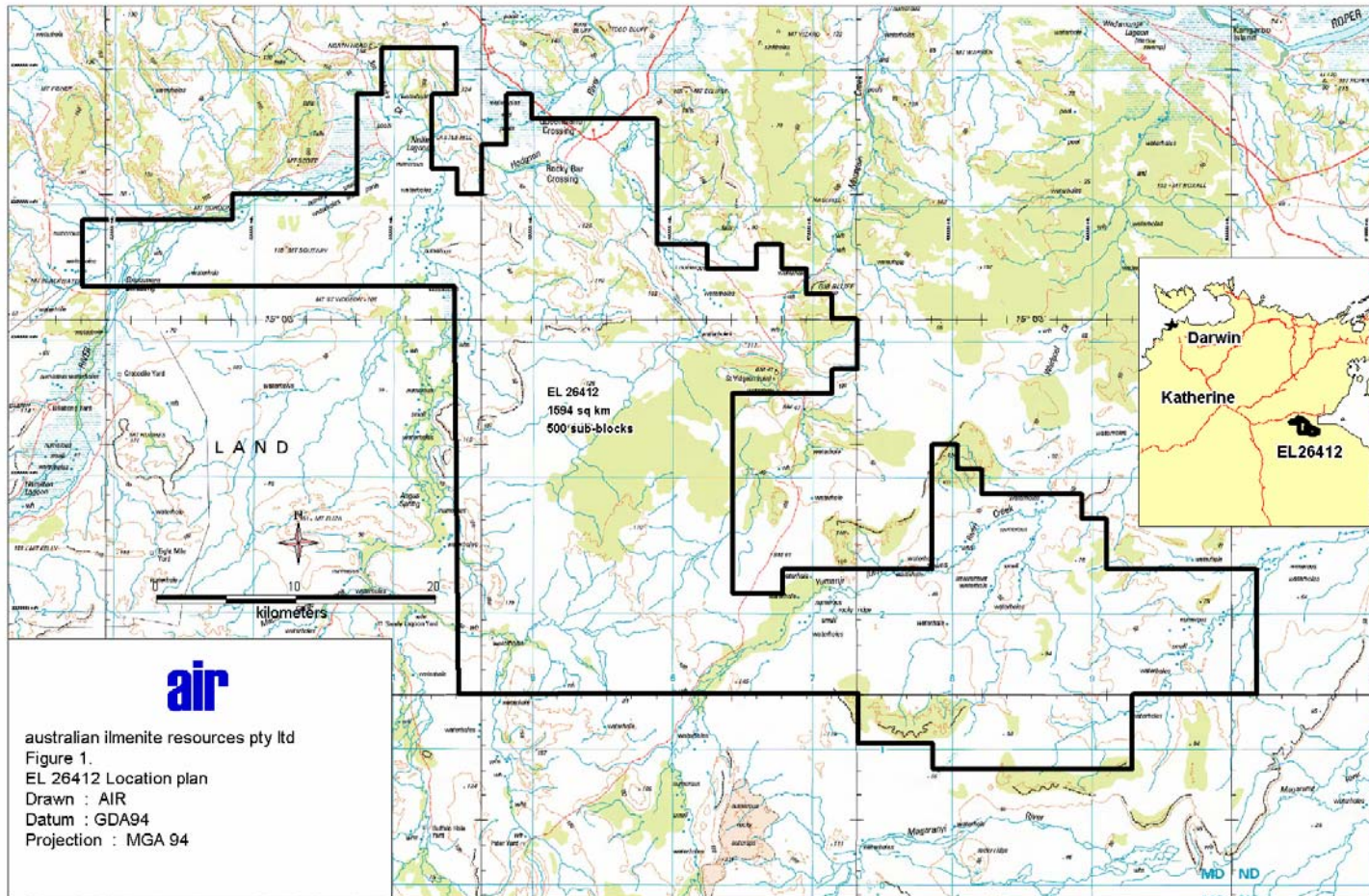
  

Transactional History Information				
Transaction Type	Effective	Expiry	Period	Area

	Date	Date		(km2)
Native Title	29/08/2007	11/03/2008		
Application	29/08/2007		6	1594
Landholder Notification	07/09/2007			
Advertisements	07/11/2007			
Advertisements	07/11/2007			
Offer Of Grant	31/03/2008	30/04/2008	6	1594
Grant	14/04/2008	13/04/2014	6	1594
Gazettals	16/04/2008		1	

**Figure 1. Tenement Location Plan**

Figure 1. Location Plan EL 26412



### **3. Location and Access**

The Roper Project area is located on the Hodgson Downs (SD53-14) and Urapunga (SD53-10) 1:250,000 map sheets with a slight overlap on the Mount Young (SE53-15) map sheet. EL26412 is predominantly on SD53-14 with the northerly section occupying SD 53-10 and the south easterly section jutting into SD53-15.

The tenement EL 26412 covers an area of 1594 sq km centred on the abandoned St Vidgeon Station homestead. The area is poorly serviced by road with the predominant access only via the Roper Highway to the North and restricted to dry season road movements only. There is a sealed airstrip at Ngukurr providing all weather access to the tenement to support flying operations. Pastoral stations covered by the license include Namul Namul, Mt McMinn and St Vidgeons.

The Roper Highway provides access where it passes in the north. Access from this highway is via the St Vidgeon Roper Bar track and other station tracks limited to the dry season (April-November). Within areas where topography is more rugged and in some floodplain access is only by foot or by helicopter.

### **4. Physiography**

The project area of EL26412 is dominated by the Roper River to the north and its extensive flood plains which flow east into the Gulf of Carpentaria. Major drainages from the northwest include the Wilton, Mainoru, Jalboi and Moroak rivers and floodplains whilst the Hodgson and Towns rivers provide the main drainage from the east and south.

The EL is within the Gulf fall physiographic classification (Stuart, 1954) where development is on dissected Proterozoic sediments that have produced an undulating topography of low hills and rubble covered ridges with broad areas of alluvial and colluvial plains.

To the west and north sparsely vegetated Bukalorkmi Sandstone forms plateaux and minor escarpments that are deeply dissected by rivers.

### **5. Geology**

#### **5.1 Regional**

EL26412 covers extensive portions of SD5310, SD5314 and SD 5315 and the project area is situated on the flank of the E-W trending Urapunga tectonic ridge which separates the Batten and Walker troughs of the McArthur Basin and also transected by the N-S trending faults of the Showell fault zone. The mid-Proterozoic sequences of the Vizard, Nathan and Roper Groups dominate geology in the area and are separated by unconformities. The area has been progressively mapped by BMR in the early 1960's (Dunn 1963) and NTGS as part of the re-mapping of the Urapunga 1: 250,000 mapsheet (SD53-10)

The Vizard Group is the lowest part of the McArthur Basin cropping within the area and consisting of the stromatolitic dolomites of the St Vidgeon formation which is overlain by the Nagi formation of interbedded quartz sandstone and siltstones. The highest part of the basin sequence cropping are the Mantangula Formation, the Limmen Sandstone and the Mainoru Formation of the Roper Group.

The area has been severed by several N-S faults with some extending NW-SE and displaying a thrust component. The terrain is predominantly flat to undulating with thin Quaternary soils. Dolerite sills intrude the Roper Group to the west and north west of the project area.

## **5.2 Tenement**

The Roper Group stratigraphically sequence low to moderate grade, stratabound sedimentary iron deposits (evident in the southerly section of the licence area) as well as the identified low grade diamondiferous kimberlite dykes of Packsaddle and Blackjack well to the west north west of the project area.

The iron ore deposits are located in the south eastern section of the license area and are part of the Palaeo to Mesoproterozoic McArthurBasin within the Urapunga and Hodgson Downs 1:250,000 map sheets.

These deposits are not as well explored as the documented Sherwin deposits to the west but lie within the same sequence and are visibly similar. Ferenzi (1994) postulated that a theory for the Sherwin ironstone member within this sequence is that it represents an off-shore bar in an active shoal environment that transgressed lagoonal muds and nearshore sands (Moroak sandstone). The ferruginous oolite beds were then transgressed by inner shelf organic rich muds. These iron ore presences are at several stratigraphic levels within the sediments of the Roper Group but the main exploration target for AIR has been the Sherwin Ironstone Member within the Moroak Sandstone.

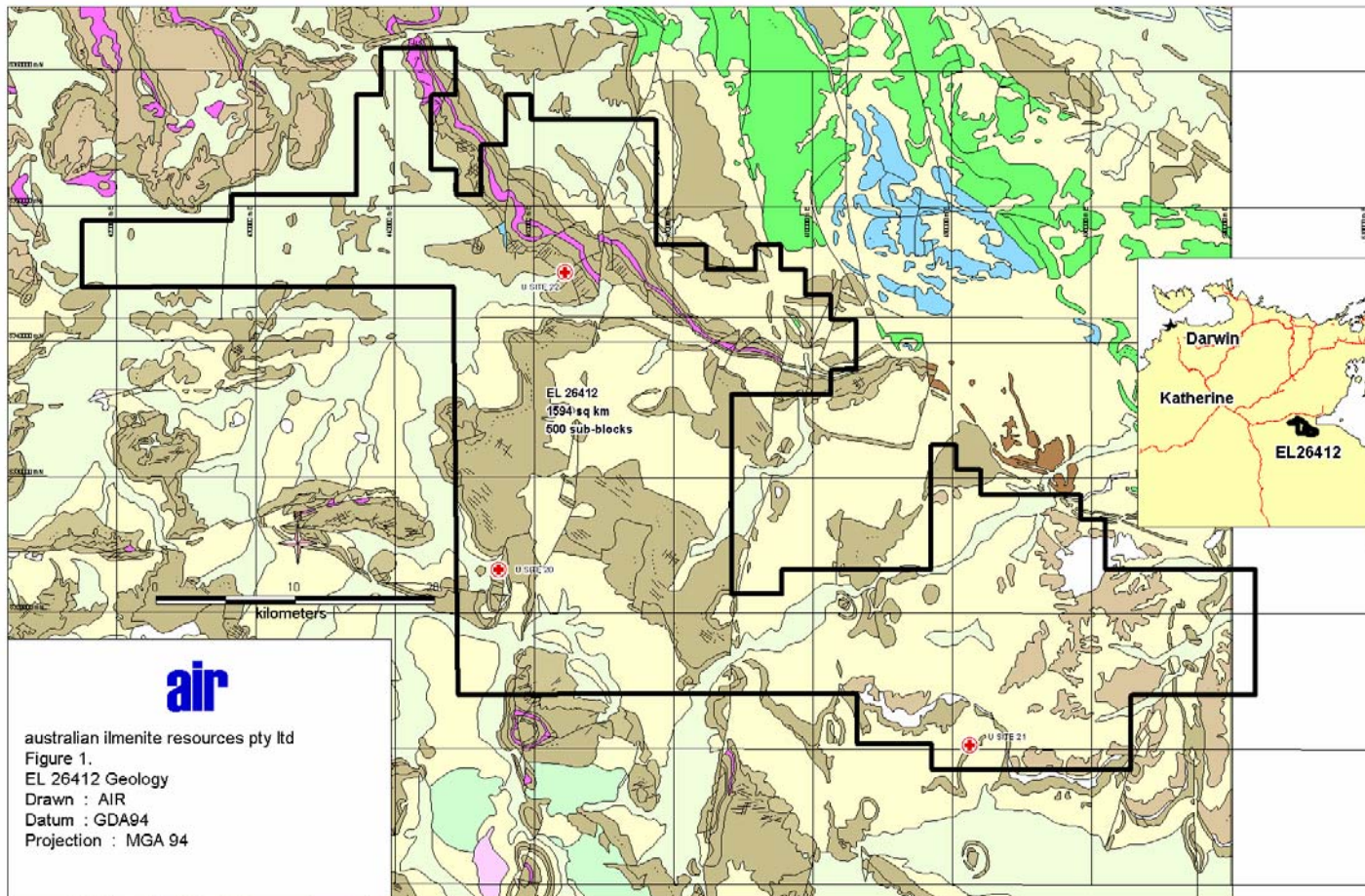
The mapped geology is dominated by the interbedded sandstone, siltstone and mudstone of the Sherwin Formation Subgroup throughout with extensive pisolitic ironstone lenses. Small exposures of rubbly dolerite sills are mapped on adjoining plateau margins and were exposed by drainage erosion.

The absence of Cambrian flood basalts and only remnant outliers of Cretaceous sandstones, both of which are extensive to the west and north, suggest a significant exposure to uplift and erosion within the area permitting exposure of the underlying Proterozoic sediments and dolerite sills.

### **Figure 2. Geology and Structure EL 26412**



Figure 2. Geology and Structure EL 26412



## **6. Previous Exploration**

The area appears to have been explored in the first instance by Enterprise Exploration with a helicopter and ground surveys between the Mann and Limmen Rivers to establish the geology and prospectivity of the area in relation to the similar stratigraphy of the Bulman area.

This was followed in the 1950's with BHP exploring for Iron Ore and finally looking at the liberation characteristics of iron ore samples to the west on Hodgson Downs. BHP identified the pisolitic iron ore SE of St Vidgeons Station along with the larger and similar deposits in Hodgson. BHP noted that the predominant beds were located on Hodgson and concentrated their efforts there leaving the deposits on this EL largely unexplored. BHP took no samples here due to access difficulties.

In 1971 Pechiney Australia conducted an airborne geophysical (radiometric) survey which included this area and found several areas of interest followed up with ground surveys. Their radiometric anomaly 11TR fits our anomaly 21 confirming our sampling. The remainder of their anomalies remained unresolved. Kratos Uranium NL visited the area in 1972 and briefly looked at the idea of anomalous spring water associated with dolerite intrusions.

1992 through till 2005 saw the area explored for diamonds by Stockdale, Normandy, Ashton, CRAE (RioTinto) and Aberfoyle Resources with limited success. Several micro and macro diamonds found by sample but never replicated. All companies surrendered tenement and remained uninterested in the iron ore. Recently RioTinto and Gravity Capital flew the area with their "Falcon" technology with no result worthy of drilling follow up. Legend International Holding again looked at the area for diamonds and surrendered in 2008.

Red Metals also explored the area for base metals in the Vizard Group and surrendered in 2006.

During the 1990's tenement in the area was held by Roper Resources, and several samples taken of the ironstone. These are now reported by Western Deserts Resources who have adjacent tenement.

The area has been extensively explored for diamonds with the latest forays into the area being the previous tenement holders (Rio Tinto and Gravity Diamonds JV) finding nothing of interest. Prior to this Stockdale Prospecting, Ashton and CRAE all contributed to the diamond exploration initiatives and geology of the area.

During a helicopter survey in the area in mid 2008 by this organisation several old drill grid lines were discovered at 1km spacing over the ironstones in the south of the tenement. No confirmed drill collars could be found and no rehabilitation appears to have been attempted.

## **6. Exploration Activities**

### **6.1 Uranium**

As previously reported there are 3 possible uranium anomalies worthy of follow up with ground based survey methods. This work was not completed in 2009 due to staff illness and overseas marketing trips to China.

## **6.2 Diamonds**

A decision was made based on past reports to cancel any search for diamonds within EL26412 after a researching past documentation for a second time.. A full list of these reports accompanies this document in the bibliography.

## **6.3 Iron Ore**

The first significant iron ore find in the NT was made in 1911 at Murphy's prospect near Roper Bar. This small discovery drew BHP Ltd to the area in 1955 and led to an investigation of the Roper River oolitic iron ore deposits. Diamond drilling, bulk sampling and some metallurgical testing of deposits near Hodgson Downs (Deposits T, U, V and W) Mount Fisher (Deposit M) and Sherwin Creek (Deposits A, B, C and E) was carried out between 1956 and 1961. BHP named the deposits after the alphabet with deposits from A to Z.

This work included geological mapping, drilling (38 diamond drillholes totalling 1793 m), shaft sinking, sampling and metallurgical testing of composite samples. Samples from cliff exposures and test shafts were submitted to the CSIRO for petrological examination; results of this work were presented in a number of unpublished reports (Baker and Edwards 1956, Edwards 1956a, 1956b 1957a, 1957b) and in a published report by Cochrane and Edwards (1960). BHP analysis of the resource concluded that the iron within the ore was bonded physically and not chemically therefore relatively easy to beneficiate with the then current technology.

The area mapped by BMR has been visited several times during Tenure Year 2 to assess drill rig access, map fence lines and tracks and to sample and map any surface outcrop material if available. The vast majority of surface expression of the ironstone is in the east of the mapped unit and samples taken assayed at 54% Fe. The geological mapping is correct on the 1:250,000 Hodgson map with the exception of some additional outcrop and subcrop dipping gradually to the east. Hypothesis suggests that the ironstone member dips gently to the north north east and a drilling program in 2010 will test this hypothesis. A SMMP has been accepted by the Department of Resources for this purpose.

The majority of the material previously mapped appears to be a ferruginous sandstone as found at Hodgson deposits that averages 35% Fe. A series of N/S grid lines was located suggesting that the area had been drilled systematically in the past even though no reports can be found from any research done by the author within the Minerals and Energy Library. No rehabilitation appears to have undertaken and it leaves me perplexed. The grid lines appear to be about 2 – 3 years old with minimal vegetation regrowth.

## **7. Rehabilitation**

All helicopter and vehicle surface sample sites were rehabilitated on completion of sampling. No tracks or grids were constructed and all vehicles were soft tyred resulting in zero rehabilitation requirements.

No further ground intrusive activities requiring rehabilitation were carried out during tenure year 1 and natural rehabilitation by the past few wet seasons has seen total rehabilitation occurring with the exception of the grid lines mentioned earlier in this report.

## **7. Conclusions and Recommendations**

Following on-ground exploration and overall Roper Project data reviews and research on published reports AIR has come to the following conclusions.

1. Selective sampling for diamonds is no longer recommended in the Project Area.
2. Ground truthing of the 3 radiometric anomalies is warranted with sampling.
3. Further sampling and mapping is required on the ironstones to complete initial outcropping ore estimates
4. Drilling program and aerial survey.

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