EXPLORATION LICENCE 22296

COX PROJECT

Final Report

FOR THE PERIOD

5 February 2003 TO 24 November 2008

BY

B. White

Date due: 5th February 2009
TENEMENT REPORT INDEX

OPERATOR: Legend International Holdings

PROJECT: Cox

TENEMENTS: Exploration Licence: 22296

REPORT PERIOD: 5 February 2003 to 24 November 2008

DUE DATE: 5 February 2008

AUTHOR: B. White

STATE: Northern Territory

LATITUDE: 134°42'00"E to 135°00'00"E

LONGITUDE: 15°58'00"S to 16°08'00"

MGA easting: 467,800mE to 500,000mE

MGA northing: 8,215,400mN to 8,234,800mN

1:250,000 SHEET: SE53-02 Tanumbirini, SE53-14 Hodgson Downs

1:100,000 SHEET: 5865 Tanumbirini, 5866 Cox

MINERAL FIELD: Merlin Diamond Field

COMMODITY: Diamonds, base metals

KEYWORDS:
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1. **SUMMARY OF EXPLORATION ACTIVITIES**

This report describes the exploration activities conducted over Exploration Licence 22296 (Figure 1) during the period of the 5th of February, 2003, to the 24th of November, 2008. Exploration activities included a historical data review, data compilation, target generation and rock chip sampling.

2. **TENEMENT STATUS**

Exploration Licence 22297 was granted on the 5th of February, 2003, to Astro Diamond Mines N.L. The tenement underwent a compulsory 50% reduction on the 5th of February, 2005, and a waiver of reduction was granted on the 28th of December of that year. Under Dealing 92370, effective on the 30th of July, 2007, the title of the tenement was transferred to Legend International Holdings. The tenement, which forms part of the Cox Project, was surrendered on the 24th of November, 2007.

3. **LOCATION AND ACCESS**

Exploration Licence 22296 is situated approximately 150kms west of Booroloola, NT. The Carpentaria Highway between Booroloola and Daly Waters is the main thoroughfare providing access to the tenement. Access to the tenement from the Carpentaria Highway is provided by unsealed rocks and station tracks.
4. **GEOLOGY**

4.1. **REGIONAL GEOLOGY**

All the economic diamond deposits and other significantly diamondiferous occurrences in Australia occur on the North Australian Craton (“NAC”). The NAC underlies the Kimberley region of northern WA, the northern two thirds of the NT and the north western part of Queensland. It is also host to many significant base metal, gold and uranium deposits. The NAC was formed at about 1850 Ma ago during the Barramundi Orogeny by the amalgamation of Archaean and early Proterozoic rocks which now form the basement rocks to the younger sequence. Proterozoic (1820-1600Ma ) platform cover sediments, Palaeozoic volcanics and sediments, and Mesozoic sediments cover these basement rocks. The Palaeozoic volcanics comprise the Lower Cambrian Antrim Plateau Volcanics (~550Ma) and its equivalents. The only volcanic activity that has occurred on the NAC for the past 500Ma has been the intrusion of diamondiferous kimberlite at 367Ma (the Devonian age Merlin kimberlite field), 179Ma (Jurassic age Timber Creek kimberlite field), and the 25Ma (Tertiary age) lamproite field in the Ellendale (West Kimberley) area.

The large time span for the intrusion of diamondiferous rocks makes the NAC very prospective for diamond exploration. It is expected that kimberlites would occur in the central parts of the NAC and lamproites would be favored in the marginal areas and in cross cutting Proterozoic mobile zones.

The kimberlites and lamproites of the NAC tend to occur along major northwest and northeast trending structures. These structures can be seen in the gravity data crossing the NAC and have a strike length of many hundreds of kilometers. These structures are interpreted to be fundamental fractures in the NAC and are potential channel ways for diamondiferous intrusives.

4.2. **LOCAL GEOLOGY**

The following description of local geology has been adapted from Paine (1963) and Pietsch et. al. (1991).

The tenement is dominated by Proterozoic units, with minor Cambrian units outcropping mostly to the North and North East. Cainozoic sediments are widely distributed across the tenement, and cover the much of the underlying geology. The Cainozoic sediments are more prevalent over the western half of the tenement (Figure 3).

Proterozoic units that are exposed over the tenement belong to the Tawallah and Roper Groups. The basement unit exposed on the tenement belongs to the Wollogorang Formation of the Tawallah Group. The Palaeoproterozoic Wollogorang Formation consists of a 10m bed of coarsely crystalline magnesian dolomite.
Legend:
- Czb - black soils
- Czl - laterite and lateritic rubble and soil
- Czs - residual soil, ferruginous gravel, sand and talus
- Kl - laterised claystone
- Qa - alluvium
- Tg - impure grey limestone
- Cz - Czermski sandstone
- Clb - Massive, feldspathic quartz sandstone
- Clc - fine grained, micaceous sandstone siltstone and shale
- Clp - medium and coarse quartz sandstone
- Ctt - tuffaceous quartz sandstone with glauconite
- Clf - laterised claystone
- Pri - quartz sandstone, feldspathic and micaceous sandstone
- Pre - white, fine to medium quartz sandstone
- Prh - medium grained quartz sandstone
- Prb - micaceous siltstone, shale, buff quartz sandstone
- Pr - jointed quartz sandstone
- Prj - quartz sandstone, flaggy micaceous sandstone
- Pro - shale, micaceous siltstone
- Prr - flaggy micaceous and feldspathic sandstone with glauconite
- Pru - flaggy micaceous siltstone, shale, fine sandstone
- Ptn - pink quartz sandstone, polymictic and volcanic conglomerate
- Pto - dolomitic siltstone, silty dolomite, dolomitic sandstone
- Ptr - feldspathic quartz sandstone with glauconite
- Pte - altered dolerite or basalt
- Ptn - pink quartz sandstone, polymictic and volcanic conglomerate
- Pn - pink quartz sandstone, polyfyclic and volcanic conglomerate
- Po - dolomitic siltstone, silty dolomite, dolomitic sandstone
- Pn - pink quartz sandstone, polyfyclic and volcanic conglomerate
- Pto - dolomitic siltstone, silty dolomite, dolomitic sandstone
- Pte - altered dolerite or basalt
- Ptn - pink quartz sandstone, polymictic and volcanic conglomerate
- Joints
- Fault

Compa.: Legend International Holdings, Inc.
Loc.: MELB
File: EL2296_Geo_230109
Plot: Geology
Figure: 3
The Wollogorang Formation is overlain by the Tanumbirini Volcanic Member that is interbedded with the Masterton Formation, and combined, form the top of the Tawallah Group. The Masterton Formation comprises a massive and blocky pink quartz sandstone combined with polymictic and volcanic conglomerate units. The Tanumbirini Volcanic Member comprises acid volcanics and volcanic conglomerate, the conglomerate being derived from the acid volcanic rocks via contemporaneous erosion.

The Proterozoic Roper Group is well represented across the tenement displaying a nearly complete stratigraphic sequence that is only covered in places by Cainozoic sediments. The lowest unit in the Roper Group, the Limmen Sandstone, lies unconformably over the Masterton Formation, and in places may lie on the Tanumbirini Volcanic Member. The Limmen Sandstone consists of blocky, mauve white quartz sandstone, medium to fine feldspathic and micaceous sandstone, micaceous haematitic siltstone and fine sandstone.

The majority of the Roper Group consists of micaceous siltstone and shale that form part of the Limmen Sandstone, Mainoru, Corocoran and Cobanbirini Formations. These units are mostly haematitic, and probably deposited in relatively deep water. Alternating with these units are well sorted arenites that display well developed sedimentary structures, cross bedding and ripple marking, implying shallow water deposition.

Outcrops of the regionally important Cambrian Bukalara Sandstone are restricted to the North East of the tenement and does not form a major part of the local geology. The Bukalara Sandstone is a massive, feldspathic, medium to coarse grained quartz sandstone.

Cretaceous lateritised claystone is widely distributed across the western half of the tenement. In some locations, laterisation may extend as deep as thirty (30) metres, having been extensively leached and possibly later silicified.

The Cainozoic cover sediments consist of residual soils, sand and alluvial material. The cover sediments are distributed principally along the major waterways that cross cut the tenement.

5. **EXPLORATION**

5.1. **SUMMARY**

Exploration across tenement EL22296 was conducted as part of the exploration programme across the Cox Project. Exploration activities focused on target generation, involving a historical data review and data compilation followed by rock chip sampling (Figure 4).
5.2. DATA REVIEW

Previously published reports were reviewed with a focus on past diamond exploration conducted in the area. Of particular interest were reports that described the location of macro and micro diamond occurrences and the presence and nature of diamond indicator minerals.

5.3. FIELD WORK

In 2006, the first phase of exploration consisted of ground verification of previous diamond and indicator results across the Cox Project. The site investigations were focused on Cretaceous sediments within areas identified in the historical reports. Streams that had previously shown anomalous results were resampled and analysed for indicator minerals using microprobe analysis. Several samples were taken across the Cox Project, of which three (3) were sourced from streams within EL22296. Results from these three (3) samples were not encouraging.

5.4. DISCUSSION

Conclusions drawn from the data review indicated that this tenement would not be highly prospective for diamondiferous kimberlites. Microdiamonds found in the region have been interpreted as having originated from kimberlitic source rock(s) of considerable distance to the south of the tenement. Rock chip sampling did not alter this assessment.

6. CONCLUSION

The potential for this tenement to host kimberlite rocks is considered to be low. The presence of microdiamonds, although initially promising, has been interpreted to be sourced from rocks to the south of the tenement. The lack of indicator minerals and locally sourced micro or macro diamonds suggests that the tenement is not prospective for diamondiferous kimberlites, and it is recommended that the tenement be surrendered at this time.
7. BIBLIOGRAPHY
