EXPLORATION LICENCES

1965 AND 3023

FINAL REPORT

ON EXPLORATION FOR PLATINUM

GROUP METALS AND CHROMITE

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FINAL REPORT ON EXPLORATION FOR PLATINUM GROUP METALS (AND CHROMITE) ON E.L's 1965 AND 3023

1. INTRODUCTION

Exploration licences Nos 1965 and 3023 were granted to Suttons Motors (Darwin) Pty. Ltd. in 1979 and 1981 and a joint venture was entered into between the Sutton Group of Companies and Mobil Energy Minerals Australia Inc. on August 25th, 1978. Mobil found traces of Pt and above average Cu, Ni and Cr values in geochemical samples associated with the Lower Proterozoic Sandy Creek Mafic Complex.

Subsequently, a joint venture agreement was made between Mobil and Geopeko to explore mainly for platinum group minerals on the exploration licences.

A brief field examination by Geopeko geologists confirmed that the prospectivity of the complex for hosting platinum group minerals does not compare favourably with other known areas. Consequently no further exploration on this complex is considered warranted.

2. CONCLUSIONS

The work completed on the Sandy Creek Complex has by no means precluded the possible presence of platinum groups minerals. However, a comparison of this complex with other mafic - ultramafic complexes along the Halls Creek - Litchfield structure indicates that the Sandy Creek Complex must be severely downgraded relative to other areas. The major factors leading to this conclusion are:

* The absence of any outcropping basal ultramafic section of the complex, but the presence of such a zone in other areas.
* The absence of well developed compositional layering within the mafic complex
* The absence of cumulate textures and mottled anorthosites.
* The absence of significant compositional trends and lack of true anorthosites.
* The lack of evidence of chromite bands but the known presence of these bands in "critical zones" in other areas.
* Whereas the zone of Cu and Ni anomalies discovered by Planet Gold Limited may have some potential, the lack of outcrop would result in relatively expensive exploration requirements. Similar geochemical anomalies occur in other areas where better outcrop would lead to easier follow-up and greater chances of success.

3. LOCATION AND ACCESS

The Sandy Creek mafic - ultramafic complex is located 195 kilometres south west of Darwin. Access is via a good quality road (predominantly sealed) to Daly River Crossing, and thence via a good quality graded gravel road which continues southwards to the Daly River Aboriginal Mission. A poor quality dirt track leaves the gravel road approximately 5 kilometres before the mission gate and this leads directly to the complex. This track is about 5 kilometres long and would be imp ss ble in the wet season.

4. REGIONAL GEOLOGY (SUMMARY)

The exploration licences cover the outcropping portion of the Sandy Creek mafic complex. This complex is probably of Lower Proterozoic age and is intruded into the Hermit Creek metamorphic sediments which abut the faulted eastern margin of the Litchfield Block. The mafic complex has been correlated with the Zamu Dolerite and thus dated at around 1940 M.Y. (Page. R., 1980). The complex has itself been intruded by the Litchfield Granite.

The faulted margin of the Litchfield Block is the northern structural extension of the Halls Creek Mobile Zone which hosts other Lower Proterozoic platinum-chromite bearing mafic - ultramafic rocks, (Lamboo Complex - Panton Sill). In addition, the Sandy Creek Complex is located adjacent to the intersection of this structural zone of weakness with the northwest trending faulted southern margin of the Daly River Basin. Consequently, the structural position of the complex and its probable genetic relationship to other known platinum-chromium bearing complexes of a similar age indicated that the body had potential for containing platinum group minerals.

5. LOCAL GEOLOGY

The geology of the complex and its immediate surroundings is comprehensively reported in Mobil Energy Minerals Australia Inc Annual Report for exploration on licences 1965 and 3023 (1982). Only comment on the significant features is included here:

* The complex can be split into four distinct zones. The largest zone consists of medium grained felsic gabbro and contains minor anorthosite and olivine-gabbro bands. A zone of finer grained felsic gabbro which is doleritic and basaltic in part occurs alont the northern margin of the complex. This zone is concordant in part but discordant with the main mass elsewhere. A third zone along the south south west corner of the complex is the most mafic part, containing less plagioclase and more olivine, magnetite and ferromagnesium minerals than the previous two zones. The fourth zone in a non outcropping zone represented by red soil cover and contains the anomalous Ni and Cu areas delineated by Planet in 1969.

* Whereas the four zones of the complex suggest a history of multiple injection of magma, no strong evidence of differentiation is found. (It is suggested that PGE - rich sulphide horizons of the Bushveld and Stillwater Complexes were formed by a new pulse of magma which entered the chambers as a jet or plume. Under these circumstances, density stratification which develops within the hybrid layer produced by the plume destabilizes on cooling and increases the separation of an immiscible sulphide liquid.)

* No macro-layering was observed except for broad photo-linear features, and petrological work indicates no significant compositional trends. Felsic gabbro is by far the dominant rock type.

* The only rock of any ultra mafic affinity was the micro-troctolite which occurred as small boulders of float located within the area of felsic gabbro.

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