SUMMARY

Exploration Licence 9152 was initially taken out to explore for extensions to the northwest trending Orlando Shear or structure.

Work on EL9152 has included a comprehensive review of all previous exploration, an airphoto interpretation, an aeromagnetic interpretation and reconnaissance field checking.

A study of the remotely sensed data revealed that the Orlando Shear passed through the northeast corner of the licence. Reconnaissance fieldwork however indicated that this area was well exposed and no trace of the structure was evident. No new targets were generated and hence the licence was relinquished before its first anniversary.
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FIGURE 2 : Location of Prospects
1.0 INTRODUCTION

Exploration Licence 9152 was granted to Delta Gold Exploration Pty Ltd in September 1995 and this report summarises the exploration work undertaken during the life of the tenement.

This licence covers Lower Proterozoic rocks which are considered prospective for hosting typical, ironstone-type Tennant Creek-style mineralisation as well as structurally controlled, stockwork-type mineralisation such as at Pine Creek. Shear zone-hosted mineralisation such as that found in the Tanami Region is also sought.

2.0 LOCATION AND ACCESS

Exploration Licence 9152 is located in the north-western part of the Tennant Creek mineral field and occurs about one kilometre east of the Orlando Mine.

Access to the licence is good as it is aligned along the main Warrego - Tennant Creek paved road. Access within the licence is also relatively good and provided by well maintained station tracks.

The terrain is absolutely flat and the climate is semi-desert to arid.

3.0 TENURE

Exploration Licence 9152 was granted to Delta Gold Exploration Pty Ltd on the 4th September 1995 for a period of six years. An expenditure commitment of $20,000 was proposed for the first year of tenure. The licence occurs within Phillip Creek Station which is owned and operated by Poseidon Gold N.L.

4.0 PREVIOUS WORK DONE

The Tennant Creek mineral field has been the focus of substantial exploration effort, during many different phases, since gold was first discovered there in the 1930's.

Many companies have held title to the area within EL9152, but very little ground work has been undertaken or at least reported on. Much of the previous exploration has been focussed towards investigating small dipolar aeromagnetic anomalies and as none of these exist within EL9152, very little work has been done.
5.0 GEOLOGY

5.1 Regional

The Exploration Licence under discussion is underlain by Lower Proterozoic formations of the Tennant Creek Inlier. A thick sequence (6,000 - 10,000m) of sediments aged at approximately 1980Ma were deposited on high-grade metamorphic basement rocks dated at between 2300 and 2500Ma. Various episodes of granitic intrusion and felsic volcanism have been dated at between 1650 and 1870Ma which represents both syn-orogenic and post-orogenic activity.

Recent mapping in the Tennant Creek area by the Northern Territory Department of Mines and Energy has resulted in the redefinition of the various rock units and formations.

Units that were previously termed the Whippet, Bernborough and Carraman Formations, as well as the Black-eye member have all been renamed and divided into either the Warramunga on Churchills Head Groups. The Warramunga Group consists largely of interbedded sands and muds of turbiditic origin intercalated with jasperitic banded iron formation and quartz feldspar porphyry sills.

Rocks of the Churchills Head Group are divided into the Flynn and Tomkinson Creek Subgroups. These sediments are comprised predominantly of lithic sandstones with minor interbedded siltstones, volcanic litharenites and felsic volcanic flows.

The Tomkinson Creek Subgroup which occurs to north of the belt has been divided into the older Hayward Creek and the younger Morphett Creek formations. These formations are comprised mainly of siliclastic sediments which range in grain size from siltstones to conglomerates. Minor felsic volcanic flows and dolomitic horizons occur throughout these formations.

Two periods of granitic intrusion have been recognised using Rb-Sr whole-rock dating methods. The Tennant Creek Granite and the Cabbage Gum Granite give dates of about 1850 Ma. In places these granites show a strong foliation parallel to the main E-W Warramunga trend, suggesting that either pre or syn-orogenic intrusion occurred. The Warrego and Red Bluff Granites are dated at 1650 Ma indicating a post orogenic period of intrusion.

The Warramunga Group rocks have undergone a number of orogenic episodes. Regional geological mapping by various groups have determined differing numbers of deformation episodes but consensus seems to have been reached on at least three folding phases. The main folding event has been named phase 2 or D2.
This event was the result of strong north-south compressional forces which lead to east-west trending folds and a very strong, pervasive axial planar cleavage. The folds have a wave length ranging between 10km and 10m while the beds generally dip between 50° and 80° north or south. The cleavage is vertical. The other two phases of folding (D₁ + D₂) are represented by asymmetrical chevron folds and a crenulation cleavage associated with major north-west trending structures such as the Navigator and Quartz Hill faults.

Regional metamorphic effects within the Warramunga Group are generally low grade and range from nil to mid-greenschist facies. A small contact metamorphic aureole extends around the Tennant Creek Granite Complex. This feature is an important age indicator and shows that this granite post-dates the surrounding Warramunga sediments. Rocks of the Churchills Head Group which overly the granite are not affected by the contact metamorphism and are therefore much younger and possibly unconformable with the Warramungas.

5.2 Mineralisation

No known economic mineralisation occurs within Exploration Licence 8469. The area is however underlain by prospective lithologies which host mineralisation elsewhere within the Tennant Creek Inlier. To-date all of the economic mineralisation in the Tennant Creek belt has been exclusively won from ironstone-type orebodies.

Gold was first discovered here in 1933 and since then 124 tonnes of gold have been won from the field, making it Australia’s 6th largest producing area. A total of 130 mines have at one time or another recorded some form of production, although the eleven largest mines are responsible for 97% of production. The four mines listed below have produced 75% of the field’s gold.

<table>
<thead>
<tr>
<th>Mine</th>
<th>Gold (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warrego</td>
<td>46</td>
</tr>
<tr>
<td>Nobles Nob</td>
<td>39</td>
</tr>
<tr>
<td>Juno</td>
<td>25</td>
</tr>
<tr>
<td>Peko</td>
<td>12</td>
</tr>
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</table>

These figures are somewhat outdated as they do not include the more recent production from White Devil.

Significant quantities of both copper and bismuth have also been extracted from the deposits. A full spectrum of deposits occurs, from gold-rich/copper-poor (Juno, 0.4Mt @ 56g/t Au, 0.3% Cu) at the one end to gold-poor/copper-rich (Gecko, 4.9Mt @ 0.8g/t Au, 3.8% Cu) at the other. Elements significantly enriched within the deposits include Pb, Zn, Co, Se and U.
The ironstone orebodies from which all of the field’s mineralisation has been extracted are comprised largely of hematite or magnetite. Varying amounts of quartz, chlorite, talc, dolomite, mica and calcite may or may not occur with the mineralisation.

Of the 650 ironstone lodes located within the belt, only 200 have some form of economic mineralisation, while as little as 30 have produced more than 30kg of Au. Pyrite and chalcopyrite are the most common sulphides carrying the gold. They are not disseminated through the ironstones but occur within discrete breccias and along the ironstone/host contacts. The ironstone lodes have a distinct chlorite feeder zone which often contains disseminated and stinger-type magnetite. These ironstone bodies are usually centred on the BIF, crosscut and sometimes replace it.

The deposits are thought to have the following origin:

(a) The ironstone lodes were formed first before the later Au-Cu mineralising event. Basinal brines were extracted from the sedimentary pile during the early stages of orogenesis and channelled along the main east-west-trending axial planar fractures and cleavage. Fold plunge reversals and northeast trending fractures helped funnel the fluids into discrete positions, resulting in their occurrence at regular intervals along the different anticlinal axes. The banded iron formations acted as either physical or chemical trap sites resulting in the deposition of magnetite dominated ironstones.

(b) Further orogenesis resulted in the fracturing of the ironstones and their host which created abundant channels for hydrothermal activity.

(c) The ore forming fluids are considered to be magmatic and originate from the syn and post orogenic granitic intrusions. The fractured ironstones proved to be ideal chemical trap sites for the gold-copper rich magmatic fluids resulting in small but rich economic deposits.

6.0 WORK COMPLETED BY DELTA

(a) A comprehensive study of all previous exploration was undertaken using open file reports obtained from the Northern Territory Department of Mines and Energy.

(b) A preliminary airphoto interpretation was completed using standard 1:25000 scale, colour aerial photography obtained from the Northern Territory Government. This interpretation was done primarily to define the major structures thought to be controlling mineralisation in this area.
(c) A comprehensive aeromagnetic interpretation was completed using multiset data purchased previously from Austirex. Emphasis was again placed on structural information.

(d) A field reconnaissance trip was undertaken to investigate possible structures indicated on the remotely sensed data.

7.0 RESULTS

The study of previous work done indicated that even though the licence was well located with respect to known mineralisation, very little ground work had been undertaken due to the area’s rather quiet magnetic signature.

Both the airphoto and aeromagnetic interpretations indicated that the main shear or structure hosting the Orlando deposit passed through the northeast corner of the licence. Other parallel northwest trending structures were also indicated on the remotely sensed data.

The field reconnaissance trip revealed that exposure was relatively good over most of the licence, but surface expressions of the structures defined using the remotely sensed data were absent. No indications of ironstone or even jasperitic lithologies were found and hence no targets were generated by this reconnaissance work.

8.0 CONCLUSIONS

No surface expressions of the main Orlando Shear could be found on the licence even though the remotely sensed data indicated otherwise. No other targets were generated within the licence and hence no further work has been recommended.

9.0 RECOMMENDATIONS

As no new targets were generated by the work undertaken the licence has been recommended for relinquishment.

10.0 EXPENDITURE

The following is a breakdown of expenditure incurred during the life of the tenement:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Delta staff salaries</td>
<td>13,011</td>
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<td>Vehicle Usage</td>
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<td>Travel and Accommodation</td>
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<tr>
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<tr>
<td>Indirect Support Costs</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$14,319</strong></td>
</tr>
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</table>
11.0 BIBLIOGRAPHY


APPENDIX I

FIGURE 2