MINERAL LEASES C276 & C280
TC35-OSPREY

FINAL REPORT
15 December 1975 – 4 March 2003

LICENSEE:
SANTEXCO PTY LTD
A.B.N. 002 910 296

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SUMMARY

This report records the exploration work carried out on Mineral Leases C276-C280 TC35 Osprey during their 28-year term from the 15th December 1975 to the 25th February 2003.

Mineral Leases C276-C280, are located approximately 24km north northwest of the Tennant Creek Township. MC C276-C280, have previously been explored and reported with ML C96-C97 (TC35 Osprey) and ML C124 (Quartz Hill), to make up the Bishop Creek Leases of the Occidental Reporting Group.

Mineral Leases C276-C280 were held by a number of companies (ADL, Poseidon, Normandy and Santexco) during their 28-year tenure period.

The TC35-Osprey Leases have been extensively explored over the past 28-years with minor success. Two small haematite-magnetite ironstones within chlorite-talc-haematite altered sediments are present, and are variably mineralised in both Au and Cu. Interpretation of the drilling cross sections, combined with magnetic modelling indicates that these bodies are of limited size and do not have any significant depth potential. A resource may be outlined in the western lode but would be small.

As part of Santexco’s tenement rationalisation the identified targets within the Bishops Creek Leases were assessed. The review found that the ironstone bodies Anomaly 1 and Anomaly 2 within the Leases have limited exploration potential. Assay results from the extensive drilling was considered by Giants Reef not to warrant follow up.

This, combined with Giants Reefs initiative to reduce the amount of tenements held by the company, Mineral Leases C164-C165 were surrendered on 4th March 2003.

On surrender Mineral Leases C276-C280 were subsumed by Giants Reef’s Exploration Licence Application 23183 Junction. Giants Reef intend to continue exploration over this land once this Application is granted.
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1. Location of Mineral Lease C276-C280
1. INTRODUCTION
This report records the exploration work carried out on Mineral Leases C276-C280 TC35 Osprey during their 28-year term from the 15th December 1975 to the 25th February 2003.

Mineral Leases C276-C280, are located approximately 24km north northwest of the Tennant Creek Township. MC C276-C280, have previously been explored and reported with ML C96-C97 (TC35 Osprey) and ML C124 (Quartz Hill), to make up the Bishop Creek Leases of the Occidental Reporting Group.

In producing this report, Giants Reef has endeavoured to find as much information as possible to record all the work done on the Mineral Leases over the 28-year period. However, the changes of ownership over that period, together with Giants Reef Exploration’s (Giants Reef) unfamiliarity with the large database acquired as a result of the purchase of Normandy Tennant Creek (NTC) means that there may be some unintentional omissions.

2. LOCATION
Mineral Leases C276-C280, are located approximately 24km north northwest of the Tennant Creek Township, 10km west of the Stuart Highway and can be accessed via station tracks located opposite the Three Ways Roadhouse.

The Leases are located on the Flynn 1:100,000 scale map sheet (5759).

The climate of the Tennant Creek district is mild and dry through most of the autumn to spring months. The summer period is hot with seasonal heavy rainfall between January and March making access within the tenements very difficult during these periods.

Figure 1 shows the Mineral Leases and surrounding tenements during the final year of tenure.

3. TENURE
Mineral Leases C276-C280 were granted to Noblex NL., (an exploration subsidiary of Australian Development Limited) for a 20-year term on the 15th December 1975. Mineral Leases C276-C280, part of the Bishops Creek Leases, covered approximately 68 hectares.

The ML's were granted to Noblex NL in 1975 and transferred to Australian Development Limited (ADL) in 1986. In 1989 ADL became Poseidon Gold Limited (Poseidon) and the Leases were registered under the name of Poseidon Gold Limited. In 1996 the assets of Poseidon was purchased by Normandy Tennant Creek Pty Limited (NTC).

The Leases were renewed by Poseidon for a further 10-years, ending 31st December 2004.

In June 2001, Giants Reef Mining Limited (Giants Reef) purchased NTC and all its assets, including ML C276-C280. After the purchase, NTC was re-named Santexco Pty Ltd (Santexco), and is now a wholly-owned subsidiary of Giants Reef Mining Limited.

The Mineral Leases lie within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station.

Mineral Leases C276-C280 were surrendered by Santexco on the 4th March 2003.
4. GEOLOGY

4.1 Regional Geology

Papers contained in AusIMM Monograph 14 (Geology of the Mineral Deposits of Australia and Papua New Guinea, Volume 1, pp. 829-861) give a good introduction to the regional geology and styles of gold-copper mineralisation of the area.

More recently, the regional geology of the Tennant Creek Inlier has been described in the 1:250,000 Tennant Creek geological map and its explanatory notes, published by the Northern Territory Geological Survey in 1999.

4.2 Local Geology

Mineral Leases C276-C280 cover the Palaeoproterozoic Warramunga Formation sedimentary turbidites and greywacks. The Warramunga Formation is host to virtually all the magnetite-haematite (ironstone-hosted) gold-copper-bismuth mineralisation and ore bodies in the Tennant Creek goldfield.

The Bishops Creek Lease area (including ML C276-280) contains many low-lying hills with abundant outcrop. Much of the area is composed of colluvial scree and dissected colluvial fans. Minor areas of alluvium are associated with the upper reaches of Bishops Creek. Outcrop in the Bishops Creek Leases is dominated by siltstone to fine grained sandstone units of the Warramunga Formation, with tuff, tuffaceous sandstone, and siltstone units of the Bernborough Formation to the northeast, and outcrops of felsic porphyry intruding the Warramunga Formation to the south and west.

The contact of the Bernborough Formation and Warramunga Formation is mapped trending northwest in a line defined approximately by linking the Cleo's Gift workings to Mt Argo, parallel to the axis of a northwest plunging anticline. The Bishops Creek shear is located to the southwest of and approximately parallel to this fold axis. Areas of ironstone outcrop are within shear zones in the Warramunga Formation (West, 1997).

5. WORK DONE DURING THE TERM

5.1 Previous Exploration

Mineral Leases C276-C280 covers the TC35-Osprey Prospect which is a gossanous outcrop with a coincident aeromagnetic anomaly.

Within the region several ironstone bodies outcrop throughout the surrounding hills. These are accompanied by magnetic dipole anomalies historically indicative of concealed ironstone systems. Consequently the region has been extensively explored by early prospectors and exploration companies, as evidenced from small historical workings to the immediate west, including “Occidental (187t @ 12g/t Au, 1937)” and “Cleo's Gift (41t @16.5g/t Au, 1935)”. These deposits and the TC35-Osprey Prospect are situated on the Gecko Fault / Bishop's Creek shear which trends east southeast from the Gecko mine.

Prior to the grant of ML C276-C280 ADL explored EL 96 as managers of Nobles Nob NL's Tennant Creek district interests. Geophysical surveys, geological mapping, sampling and drilling defined the TC35-Osprey Prospect as prospective for the Tennant Creek style Au-Cu-Bi mineralisation.

Within the area of ML C185 (adjacent to ML C276-C280), ADL mapped a gossanous outcrop which has a coincident copper geochemical anomaly. One diamond drill hole was completed in 1973 by Geopeko to test for mineralisation below the gossanous outcrop to a depth of 137m. The drillhole intersected a sequence of sheared shales, rhyolitic tuffs and tuffaceous siltstones, but no significant mineralisation was intersected.
5.2 Work Completed by ADL (1975-1986)

In the early 1970’s ADL explored the area of ML C276-C280 under EL 96 as managers of Nobelex NL’s Tennant Creek District interests. Work over EL 96 included geological mapping, rock chip and trench sampling, geophysical surveying Jacro and diamond drilling. All work completed on TC35-Osprey is presented in Larson (1971), Webster (1971) and ADL (1972, 1974). Geochemistry peaked at 405ppm in the Jacro drilling and 1470ppm in the channel sampling. No anomalous Au values were returned.

Previous drilling over the area by Peko identified 2 mineralised ironstones at depth. Twelve further diamond drill holes were completed by ADL, seven on the eastern lode (Anomaly 2) and five on the western lode (Anomaly 1). A further seven reverse circulation (RC) holes were drilled under Anomaly 2 in 1985 and 1995. Two diamond holes were also drilled under Anomaly 1 in 1989. (Mujdrica, 1995). Surtron Technologies Pty Ltd probed the holes in 1989 for ADL (Surtron, 1989).

Summary of Anomalies:

**Anomaly 1**

Anomaly 1 is the weaker of the two magnetic anomalies. Drilling intersected two parallel lodes of mainly chlorite-talc-haematite altered sediments. Both lodes were interpreted to dip 80° SW, striking 115°m. The southern lode is Cu rich, Au poor. The northern lode is Au rich, Cu poor.

The southern lode was drilled over a strike of 60m, and is open to the west and up/down dip, and closed a further 60m east where it bends to the southeast. An estimate of 15,000t of ironstone was later calculated by NTC as feasible (50m x 50m x 2m x 3.5).

The northern lode was drilled over a strike of 75m, and is open along strike to the west, at depth and up dip of the high grade intersections, and closed to the east. An estimate of 70,000t of ironstone was later calculated by NTC as feasible (75m x 140m x 2m x 3.5).

**Anomaly 2**

Anomaly 2 is the stronger magnetic anomaly which outcrops at the surface as two thin ironstone lenses, dipping 70° to the south. The ironstone appears to be both Au and Cu rich with minor Bi intersections.

The ironstone was drilled over a strike of 130m and is open to the east and west, and probably also down plunge to the west. An estimate in the order of 500,000t to 750,000t of ironstone was later calculated by NTC as feasible (90m x 200m x 10m x 3.5).

5.3 Work Completed by Poseidon (1991-1996)

Poseidon explored an area covering ML C276-C2780 with ML C96-C97 and partly with C154 and C185, under Exploration Licence 9150 (Leonardo). Work completed by Poseidon during the life of tenure included rock chip sampling, a ground magnetic survey; and an IP survey which were used to prepare targets for drill testing.

Poseidon carried out vacuum drilling (204 holes, 1048 metres) in 1995 at a grid spacing of 200m x 50m, closing to 100m x 50m over the TC35-Osprey magnetic feature. Also carried out was a program of RAB drilling (7 holes, 357 metres). All the results are presented in Chambers (1996), Ward (1997) and Mouchet (1998).

Bedrock samples peaked at 6.7ppb Au, 360ppb Cu and 22 ppm Bi. A weak but coherent Au-Bi-Cu anomaly was defined coincident with the magnetic feature at TC35-Osprey, and the small outcrops of quartz-haematite ironstone on the Leases.
Two diamond drillholes (OSDD-001 & 002) in the TC35-Osprey area were drilled by Poseidon. Both holes were completed at depth beneath the previous drilling. Best intersection was 1m @ 6.15g/t Au.

An environmental management plan for Poseidon’s Tennant Creek tenements was submitted to the Department of Mines and Energy (Fowler, 1993 & 1998). The plan detailed the rehabilitation strategies to be implemented over various areas, including ML C276-C280, following the completion of exploration and mining operations.


5.4 Work Completed by Normandy (1996-2001)

**TDEM Survey**

Normandy’s in-house geophysical department conducted a Moving Loop Time Domain Electromagnetic (TDEM) resistivity survey that measures resistivity in the vertical plane. A survey was carried out over the Gecko area and surrounds to see if the TDEM could identify the mineralised structures present. The resistive zones tended to coincide with zones of shearing and silicification.

The survey appeared to define the known ironstones, and also highlighted an eastwest trending shear zone.

**Airborne Magnetics Survey**

Kevron Geophysics Pty Ltd flew a large Airborne Magnetics survey in October 1998 which included ML C276-C280. The survey specifications were 40m sensor height, 50m line spacing on a north-south line orientation with 7m in line sample spacing. Elevation was recorded every seventh sample for digital terrain modelling. Review of the radiometrics data indicated that the total count anomalism is related to topographic highs.

Review of the data indicated that a greater level of structural detail could be delineated than from the earlier 1984 GeoPeko airborne magnetic survey.

**Target Generation**

Exploration in the TC35-Osprey area by NTC was focussed on target generation. This involved the continued review of all available data and the application of more recent geological concepts to historical data to produce new interpretations. In April 2000, a Regional Exploration Tenement Status and Geological Review was compiled by NTC. Conclusions pertaining to the the TC35-Osprey Leases was reported as:

“The TC35 anomaly does not appear to represent concealed magnetic ironstones, hosted by magnetite-bearing sediments. The TC35 anomaly is approximately 700nT, and is a separate discrete feature from the larger ‘Picasso’ magnetic ridge. Past drilling of TC35 has intersected substantial widths of magnetite-haematite-quartz ironstones in at least two ‘lodes’. Geophysical modelling of this anomaly produces an ironstone model that fits very well with the known body.”
“The amount of drilling completed on both the ironstones appears to have precluded the existence of a high grade mineralised system in the upper sections of the ironstones. The amount of ironstone present is small, and modelling of the magnetic anomaly does not indicate that a substantial amount of magnetite would be expected at depth. Some potential remains up-dip and along strike of the high grade Au intersections made in the two diamond drill holes (DDH 418 & DDH 424), although the tonnage appears to be small.”

Environmental Audit
An environmental audit covering all historical disturbances in the Tennant Creek mineral field was undertaken in 1998. The audit located and detailed all occurrences of substantial disturbance including mine workings, tracks, dumps, drillholes, excavations, buildings and rubbish.

A full account of all exploration work conducted over Mineral Leases C276-C280, can be found in the Annual reports by Normandy for year ending 25th March 1999 (P. Mouchet, 1999), year ending 25th March 2000 (V. Orton, 2000) and year ending 25th March 2001 (V. Orton, 2001).

5.5 Work Completed by Santexco (2001-2003)
In June 2001, Giants Reef purchased NTC and all its assets, including Mineral Leases C276-C280.

Literature Review
A number of days were spent searching documents and literature belonging to the Santexco tenements purchased from NTC by Giants Reef.

Assessment and Potential
Santexco undertook a brief assessment of the Mineral Leases using all available geological and geophysical information. Santexco concurred with the conclusions of NTC’s Regional Exploration Tenement Status and Geological Review (Section 5.4).

Internal Tenement Review
In September 2002 an internal review of the Giants Reef tenement portfolio and a classification of exploration opportunities included a detailed assessment of all the Santexco tenements purchased from NTC. This assessment included an evaluation of the Bishops Creek Leases, which included Mineral Leases C276-C280.

As part of Santexco’s tenement rationalisation the identified targets within the Bishops Creek Leases were assessed. The review found that the ironstone bodies Anomaly 1 and Anomaly 2 within the Leases have limited exploration potential. Assay results in the extensive drilling were considered by Giants Reef not to warrant follow up.

As part of Santexco’s tenement rationalisation Mineral Leases C276-C280 were recommended for surrender.

Licence Surrender
Based on the conclusions of the internal report, combined with Giants Reef’s initiative to reduce the amount of tenements held by the company, the Mineral Leases C276-C280 were surrendered on 4th March 2003.

On surrender Mineral Leases C276-C280 were subsumed by Giants Reef’s Exploration Licence Application 23183 Junction. Giants Reef intend to continue exploration over this land once this Application is granted.
6 REHABILITATION

All line clearing carried out was done with a front-end loader with the bucket lightly skimming the surface to leave the rootstock intact and ready to regenerate.

The vacuum holes were filled, capped and covered over, and the RC and diamond were holes capped shortly after the completion of the last drill program. Sample bags were removed and the sites tidied with a front-end loader.

No further substantial disturbance activities were undertaken on over Mineral Leases C276-C280 and the area was left to vegetate naturally.

An Environmental Management Plan for Poseidon’s rehabilitation strategies implemented over various areas, following completion of exploration of exploration programs was submitted to the Department of Mines and Energy (Fowler, 1993 & 1998). An environmental audit covering all historical disturbances in the Tennant Creek mineral field was undertaken by Normandy in 1998.
7. CONCLUSIONS

Mineral Leases C276-C280 were held by a number of companies (ADL, Poseidon, Normandy and Santexco) during their 28-year tenure period.

The TC35-Osprey Leases have been extensively explored over the past 28-years with minor success. Two small haematite-magnetite ironstones within chlorite-talc-haematite altered sediments are present, and are variably mineralised in both Au and Cu. Interpretation of the drilling cross sections, combined with magnetic modelling indicates that these bodies are of limited size and do not have any significant depth potential. A resource may be outlined in the western lode but would be small.

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8. REFERENCES


