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MAPS

1. Map Showing Roads, Creeks, Contour Form Lines and Survey Points with Survey Number and Ground Level, Latitude & Longitude. Scale 1:5000.


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INTRODUCTION

Mineral Claims N4416 and N4418 are situated adjacent to the old Stuart Highway (now known as Dorat Road), about four kilometres southeast from the township of Adelaide River in the Northern Territory. The two Claims adjoin each other (see Map 1) and thus this report covers the activities of both Claims. The area occupied by the Claims is quite hilly with a difference in elevation between the lowest and highest points of more than fifty metres.

The Claims were granted on the 4th January 1993 for a period of four years and Renewal is sought for a ten year period to enable further detailed exploration to be carried out using established techniques and other techniques which are being developed to assess the gold mineralisation with less disturbance to the surface than other techniques currently used by the Mining Industry in the Northern Territory.

The Pastoral Lease on which the Claims were situated when they were first applied for is being subdivided as Private Land.

The Claims were in existence as at 1st January 1994 and were thus validated by the Native Title Act (Commonwealth) and Validation of Titles and Actions Act (Northern Territory Act). This means that if the titles were invalid because of Native Title, they are now valid and any compensation which may be payable to Native Title Holders will be paid by the Government.
OVERVIEW

Mineral Claims N4416 and N4418 were pegged after the discovery of significant gold mineralisation in this area using the GIGIAC concept. Northern Gold NL conducted a soil survey for gold after the initial discovery and also carried out a shallow drill program in a small portion of the area away from the hard rock gold mineralisation discovery.

Geological mapping and regolith sampling for gold were the next exploration tools used in the Claim areas. It seems that the soil survey for gold did not properly outline the gold mineralisation near surface but rather gave a distorted, more widespread gold anomaly. The reason for this is most likely to be the steep slopes in the area, causing the gold to spread quite considerable distances from the source. The drilling program that followed the soil survey was thus targeted at gold values that were confined to the surface and did not extend to depth. Nevertheless the drilling could have been successful if it had been carried out along the anticline axis and if it had penetrated deeply enough to have reached the GIGIAC which is now known to exist on the surface and is predicted to plunge south at a shallow angle following the plunge of the anticline on which it is formed.

Self Potential readings were taken by a modern recorder during the onset of the wet season between a point within the GIGIAC and a point about 100 metres outside it. A potential of 92 millivolts was recorded after heavy rain had fallen in December. The voltage was minus in respect to the point located in the GIGIAC. Attempts to record voltage four times a day on a DT5 recorder (which uses computer memory banks) to date have failed probably because lightning has damaged the instrument on several occasions and it was returned to the manufacturer for repairs This study will be continued when the Claims are renewed in an effort to determine how long the SP anomaly lasts after the wet season is over and also when and in what manner the anomaly forms at the onset of the rains. Readings taken during the dry season show no regular SP value is present and this is presumed to be because of the lack of moisture in the ground which inhibits the flow of current caused by the weathering of sulphides connected with the GIGIAC.

Conventional seismic reflection techniques are planned to be deployed to pinpoint the position of the GIGIAC at depth. It has been shown at another Gold Prospect near Pine Creek that this is possible and can be used successfully to outline the top of the quartz associated with the GIGIAC. Because of this it should be possible to plan efficiently a drilling program to test the thickness and grade of the gold mineralisation.
DETAILS OF CLAIMS

Both these Mineral Claims were in existence as at 1st January 1994 so that they were validated by the Native Title Act (a Commonwealth Act) and Validation of Titles and Action Act (a Northern Territory Act). This means that if titles were invalid because of Native Title, they are now valid and any compensation payable to Native Title Holders will be paid by the Government.

The Pastoral Lease on which the Claims are situated is in the process of being subdivided into private land blocks.

The Claims were granted on the 4th January 1993 for a period of four years and application for renewal is now made for a period of ten years.

The dimensions of each Claim are the same. Each north-south boundary is 894 metres in length and each east-west boundary is 447 metres long giving each an area of about 33.9 hectares. As can be seen from the accompanying Maps the GIGIAC gold mineralisation is centrally located in relation to the disposition of the two Claims.

Each Claim covers an area of approximately 39.90 hectares.
LOCATION AND ACCESS

Most of the two Mineral Claims are situated on the Eastern side of the former Stuart Highway which has now been renamed Dorat Road. Both datum pegs and a small area are on the western side of Dorat Road.

The Claims are about 4 kilometres from the township of Adelaide River going south and south east along Dorat Road. The land subdivision mentioned previously is on the eastern side of Dorat Road.

The access to the Claims from Dorat Road is good with established handmade bush tracks which date back to the early 1940's.

One track enters MCN 4416 at its northern end and proceeds along the actual valley named "Happy Valley" and rejoins Dorat Road at its southern end.

Another track leads south from this track and leads up a very steep slope (4WD only) to the Northern part of the GIGIAC.

Access to MCN 4418 is via a track which was probably constructed as a bypass to Dorat Road during construction &/or repairs.
GEOPHYSICAL WORK COMMENCED

Geophysical prospecting was commenced early after the grant of the Mineral Claims. This took the form of experimental or path finder Self Potential Surveys at various times during the wet and dry seasons to form an opinion on the viability of the method at this prospect.

The Self Potential method has been found useful in many parts of the world to locate sulphide minerals beneath the weathering zone. Although employed as an exploration tool in the Top End of the Northern Territory for many years it was not successful. This is due, in my opinion, to the fact that it was only ever used in the dry season because of the problems of access and to the presence of long wet grass in the wet season. Exploration of Mineral Claims N4416 and N4418 during the wet season has given steady anomalous negative voltage reading over several weeks, giving reason to believe that the Self Potential method could be a useful adjunct to exploration in the Top End.

Unfortunately, efforts to record the voltage over a six month period spanning the wet season have been unsuccessful as lightning induces a high voltage in the cable connecting the two copper sulphate pots and this damages the components in the recorder.

A circuit to prevent high voltages effecting the recorder is being developed and it is planned to try this out during the next wet season pending suitable tests.

Another method which it is believed could be successful at this GIGIAC prospect is the seismic reflection method. Because the GIGIAC is associated with quartz it is feasible that seismic reflection could pinpoint its location at depth. A trial of this method at another GIGIAC prospect near Pine Creek has given reason to believe that this method has promise as a very useful exploration tool.

It is envisaged that this method will be used on these Claims before any drilling programme is planned. Knowing where the GIGIAC is at depth would make the drilling a much less hit or miss operation than it is at most gold prospects in the Top End at the present time.
GEOLOGICAL MAPPING

Plane table mapping was selected as the most suitable method of mapping to give adequate control for geological mapping, sampling and future demands of accurate positioning of drill holes etc. As GIGIACS are relatively small bodies of mineralisation at the surface, they need to be accurately surveyed. Also the plunge of this mineralisation is usually quite shallow in this area of the Pine Creek Geosyncline so accurate levels are necessary to plan holes successfully. Plane table mapping can give the required accuracy and levels and gives a more accurate geological picture because the geologist usually does the plane table surveying thus seeing more of the geology outcropping and putting the survey points in the most appropriate position.

The points surveyed using a plane table with an infrared distance measuring device are shown on an accompanying map as are the relative levels and contour form lines derived from them. Actual observation of the lie of the land was also used to determine the contour form lines, thus eliminating the unnatural contour lines often produced by a computer program.

The results of the geological mapping are also shown on an accompanying map. The structure is an anticline as several reliable dips were read on either limb. However, the axis of the anticline is not shown as there is not enough information as yet to determine its position. It is thought on the evidence available at present that the anticline axial plane dips to the west at a steep angle.

The area to the south of the GIGIAC has not been mapped in detail but the rocks outcropping are mostly greywacke which is mostly fairly coarse grained. It does not show any dips or strikes as it is massive. Detailed mapping may discover outcrops which show dips and strikes.

Further geological mapping is envisaged using the survey points already established.
SAMPLING AND ASSAYING

Different methods of sampling have been used during the exploration of this area. Firstly, the discovery method of sampling was to collect rock from the surface over a distance of 10 metres in an east west direction over the supposed anticline axis. These samples were then assayed for gold. The results of this sampling are included on the accompanying map which shows the sampling results.

Another sampling method was employed by Northern Gold NL who collected soil samples along east west lines, sieved them and assayed the finer material for gold. This method produced many relatively high gold values and indicated that a large percentage of the area sampled could be considered as prospective as far as gold mineralisation beneath was concerned. The Company drilled on a small part of the gold anomalous area and concluded that the gold content of the weathered rock sampled, although relatively low was sufficient to explain the gold content of the soil samples. The results of this soil survey are not shown on the accompanying maps as they are not considered particularly relevant and they were taken before the Mineral Claims were applied for.

Rock chip sampling was carried out by Northern Gold NL and the results of this work are shown on the accompanying maps although the actual position of each sample is not accurately known, but the accuracy is probably good enough when combined with later more accurate sampling to give the true position of the GIGIAC.

Lastly Regolith sampling was carried out. In this instance the method used was to dig deeply into the soil with a hand mattock to point of refusal. A geological hammer was then used to dig out rock fragments from the bottom of this trench over a length of 2.5 metres along the trench till a 2 kilogram or more sample resulted. The rock fragments were as free of soil as possible. Each sample was then assayed for gold. Results of this work and the position of the trenches and samples is shown on the accompanying maps.

Rock chip samples taken by Northern Gold NL were also assayed for arsenic with results varying from quite low values to around 2000 parts per million. These results are shown on the relevant Exploration Licence Annual Report.
DRILLING

Drilling was undertaken by Northern Gold NL prior to the Mineral Claims being applied for. Open hole blast drilling methods were employed and samples were collected every metre or two.

The collars of the drill holes are quite close together as can be seen on the accompanying map. The holes were left open so that water could be obtained from them if necessary. However, the holes have caved and silt has filled them in during wet seasons. This is unfortunate as the holes could have been of use as shot holes to put small amounts of explosive in to act as a seismic source for the proposed seismic reflection survey.

No significant disturbance of the surface has occurred throughout the so far short life of the Mineral Claims. The drilling was carried out on a flat drainage channel and no track building was required to enable access for the drill rig.
CONCLUSIONS

The details of work carried out on Mineral Claim N4416 and Mineral Claim N4418 is contained in this report and on the accompanying maps.

Innovative and effective exploration has been carried out and the results are (at the least) encouraging. Further work has been outlined and when the Claims have been renewed this work should be completed as soon as the Company has the necessary funds. In this regard, costs should be minimal up to the stage of drilling. Of course at this stage the decision to drill or not to drill should be easy, as the preceeding exploration should be able to give a firm indication as to the presence or not of the continuation of the already discovered GIGIAC at depth. If the seismic work establishes that the GIGIAC continues to an exploitable depth, then the main question remaining will be the gold grade and actual dimensions of the mineralisation.

The drill program will be easy to design as hopefully the seismic reflection exploration will have established the position of the top of the target so there will be no need for hit or miss drilling.

Because of this and the still experimental nature of the application of well established exploration techniques to unusual targets it is recommended that the Claims be renewed for the allowable term of 10 years. This will enable the trial and perhaps the perfection of the outlined techniques as mentioned in this report which will then become widely available for more successful exploration in the Northern Territory.
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MINERAL CLAIMS N4416 N4418

MAP 1

MAP SHOWING ROADS, CREEKS, CONTOUR FORM LINES AND SURVEY POINTS WITH SURVEY NUMBER AND GROUND LEVEL LATITUDE AND LONGITUDE

SCALE 1:5000

0 250m
MAP SHOWING SOLID GEOLOGY
AND DRILL HOLE COLLARS

SCALE 1:2500

LEGEND

- GREYWACKE SOME SHALE
- CONGLOMERATE
- SHALE
- DRILL HOLE COLLAR

TRUE NORTH
LEGEND

Gold assay results of regolith samples taken from trench in positions indicated.

Gold assay result of rockchip sample. Position not accurate.

Common boundary of Claims

90 metres to SE corner MCN 4418

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MINERAL CLAIMS N4416 N4418

GOLD ASSAYS IN g/t OF REGOLITH AND ROCKCHIP SAMPLES

0 50m

SCALE 1:500

MAP 3

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MINERAL CLAIMS N4416 N4418

MAP SHOWING AREA
WITH ASSAY RESULTS
GREATER THAN 0.1 g/t
GOLD

SCALE 1:500

John Shields 12/97