2008/2009 ANNUAL REPORT

EL 9944

Pine Creek Sheet 5270-IV

Burrundie (14/6-IV) 1:50,000 Scale Map Sheet

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SUMMARY

EL 9944 is located approximately 7 kilometers west/north-west of Emerald Springs on the Burundie (14/6-N) 1:50,000 scale map sheet. Exploration activities are based on further proving up of base-metals found through previous exploration. Previous exploration programs covered research studies and detailed analysis of aerial maps including magnetic image maps and slope vector maps. Field trips were carried out to investigate best possible methods for further exploration in the Southern & Eastern parts of the lease. Removal of vegetation to facilitate exploration work and soil sampling was carried out in the last exploration season.

The area covered by the tenement is dominated by rocks of Upper Wildman Siltstone, the Lower to Upper Koolpin Formation, and the Gerowie Tuff. The sediments have been intruded by pre-orogenic sills of Zamu Dolerite and by granitic rocks of the syn-orogenic Cullen Batholith. The Margaret Anticline is the dominate structure in the area, trending north/north-west through the tenement.
1 INTRODUCTION

EL 9944 is located approximately 8 km WNW of Emerald Springs within the Cullen Mineral Field, on the Burrundie (14/6-IV) 1:50,000 scale map sheet. The tenement, which consists of 1 block, 3.22 square kilometers in area, lies between latitudes 13°36' South and 13°37' South and longitudes 131°34' East and 131°35' East (see Figure 1). EL 9944 is situated within Pastoral Lease No 815, Mary River West, held by Equest Pty Limited.

Access is via the Stuart Highway to an easterly turn-off, 2 kilometers north of Emerald Springs and thence along 4WD tracks.

Exploration Licenses 4450, 9103, previously covered the area and considerable exploration has been carried out by various interests with the latest being Northern Gold N. L.
2 GEOLOGY

2.1 Regional Geology

EL 9944 is situated within the Pine Creek Geosyncline, a tight to isoclinally folded sequence of mainly pelitic and arenitic Lower Proterozoic sediments with interlayered tuff units. All rocks in the area have been metamorphosed to low, and in places medium grade, metamorphic assemblages.

The sequence has been intruded by pre-orogenic sills of the Zamu Dolerite and a number of late syn-orogenic to post-orogenic Proterozoic granitoids. Largely underformed Middle and Late Proterozoic, Palaeozoic and Mesozoic strata as well as Cenozoic sediments and laterite overlie the Pine Creek Geosyncline rocks.

2.2 Local Geology

The area covered by the tenements dominated by rocks of Upper Wildman Siltstone (Mt. Partridge Group), the Lower to Upper Koolpin Formation, and the Gerowie Tuff (South Alligator Group). The sediments have been intruded by pre-orogenic sills of Zamu Dolerite and by granitic rocks of the syn-orogenic Cullen Batholith (Hardy, 1994, Holden, 1989 and Matthai et al, 1995).

The Margaret Anticline is the dominate structure in the area, trending north NNW through the tenement. The western limb dips between 45 to 60 degrees to the west with the eastern limb dipping slightly steeper between 60 to 70 degrees to the east. The fold closure plunges at approximately 30 degrees to the south-south-east. The Upper Wildman Siltstone represents the lower most rock unit in the core of the fold. The Wildman Siltstone is flanked by rocks of the Lower Koolpin Formation and two sills of Zamu Dolerite. The stratigraphically
lower sill divides the upper sequence of the Wildman Siltstone, whereas the stratigraphically higher dolerite sill divides the contact between the upper Wildman Siltstone and the Lower Koolpin Formation.

A geological map of EL 9944 is presented as Figure 2 in Socic, 1996.

To the south/west of the tenement a course porphyritic adamellite, cross cuts all Proterozoic sedimentary rocks, and is commonly covered by sandy alluvium and soils.

Medium grade contact metamorphism has occurred along this granite/sediment contact zone and is best observed as hornfels and chiastolic hornfels in carbonaceous siltstones of the Lower Koolpin Formation (Hardy, 1995).

Numerous north/east to south/west and east/west cross cut and offset the Margaret Anticline. The faults are preserved as haematite-rich breccias with minor quartz filling (Holden 1989). Large quartz ridges parallel the hinge of the Margaret Anticline.
3 PREVIOUS EXPLORATION

3.1 Historical Perspectives

The earliest work in the area covered by EL 9944 was conducted by mainly Chinese diggers in the 1880’s in what was called “The Margaret Rush” They mainly targeted the coarse alluvial Au in the drainage systems along the hinge of the Margaret Anticline. There is one Wardens Report of Au being mined from a quartz reef in the area. Evidence of this is still visible on the ground.

The following account is provided by Dave Langley, Engineering Surveyor and Prospector (where additions to the original text are made in square brackets).

“From historical records, the first gold rush in the “Top End” of the Northern Territory started in 1871 after workers digging post holes for the overland telegraph line found gold at the headwaters of the Shackle and Pandanus Creeks (near the Grove Hill road east of the Stuart Highway). A rush occurred and many creeks and gullies yielded nuggety gold and many rich gold reefs were found. The rush soon spread far and wide and included the discovery of payable alluvial gold at the Margaret Diggings in 1880 by Mr D B Tennant.

The following information is from filmed copies of the “Northern Territory Times & Gazette” of 22 May 1880 and continuing onwards.

(1) “Mr D B Tennant, in writing to the Warden, says, “Ever since I applied to you for the prospecting claim, on the 6th of April last, there has been an average of over four hundred men continuously working and getting very good gold. Some of the best claims yielding from two to six ounces a day; and there is one instance that came under my notice of fifteen ounces being washed from one
dish of stuff. Six men have sold out and left for Hong Kong with over eighty ounces of gold each - the heaviest piece being thirteen ounces”

(2) “The Chinese on the Margaret Rush [Margaret Diggings] are making money fast - 30, 50, 80 oz nuggets are being picked out [snipped] every day the last one found being over 6lbs [72 ozs] in weight”

(3) “On Saturday the Hong Kong men got a quartz specimen containing, as they told the whites, 150 ounces of gold; and white diggers who saw the lumps of gold come out of it, seem to think it an understatement,”

(4) “[The Warden] received the welcome news that a lump of nearly pure gold weighing Forty-two pounds [504 ozs] had been got by the Chinkies. Not a week passes but large nuggets varying from three to twenty pounds in weight are turned out.”

(5) “We have been looking for an account of the late large find on the Margaret. The report is that from one large boulder, when broken up, no less than 700 ounces were obtained by one Chinaman. The stone was close to the Police camp, was sat on by your correspondent, and four Germans had their fire for cooking alongside of it. The gold was completely covered by a thin coating of quartz, and a Chinaman having broken the skin, discovered the kernel. So much for Chinese luck. It was supposed the Europeans would have made a scramble, but the police were present at the washing and the Europeans were short of pluck.” [quoted from the paper on 1 January 1881].

In 1980 the first detector operator known to visit the area found 87 ounces of nuggets in a week. Since then there has been numerous gold nuggets and gold/quartz specimens detected by various tenement holders and visitors. One small quartz leader (1m long by 7cm thick) with a grade of approximately 10 oz/ton Au was found by a detector operator several years ago. The major
source of the large gold nuggets and gold/quartz specimens has still not been identified.

In a wider context, new patches of nuggets are still being discovered by detector operators in various parts of the NT, most of them in greenfield areas. Langley has previously made an EL report of a 500 oz. patch of nuggets found by a metal detector operator in a rural subdivision near the Arnhem Highway (Steve’s Hill). Other bigger patches have been found in various locations but details of locations have mostly been unreported by private detector operators with no reporting obligations. Two years ago he found a high grade manganese reef on EL 25288 adjoining the eastern border of this EL. Assay results up to 53% Mn were obtained over a 1.8km strike length which is open to the North.”

3.2 Recent Activities

Nord Resources Exploration Pty Limited held part of MCNs 117, 118 and 119 as EL 1601 in 1977, part of which covered EL 9944. Nord Resources conducted extensive searches for base-metals, uranium and gold. From an undisclosed area of the Margaret Anticlinal closure, twelve samples were collected and yielded assay results greater than 0.1 g/t Au and up to 5.1 g/t Au. These results are reported in the Annual Report for EL 1601.

Calvert River Manganese was granted EL 5006 in October 1987, which is also adjacent to the northern boundary of EL 9944 and incorporated MCNs 117, 118 and 119. Calvert River exploration included air photo interpretation, lithological mapping and rock sampling (Holden 1989). Rock chip sampling returned encouraging results with samples from a shear zone in the fold hinge, returning assay values between 3.0 g/t Au and 7g/t Au. However, no agreement was made between the title holders of MCNs 117, 118 and 119 and Calvert River Manganese to continue exploration within these mineral claims. Subsequently EL 5006 was relinquished in 1989 on the grounds that there was insufficient
geological evidence, outside the existing mineral claims, to justify further exploration.

Northern Gold N.L. completed an extensive exploration program over EL 7754 which also covers EL 9944 during the 1994/95 field season. Exploration included surveying, infill soil sampling, geological mapping, rock chip sampling and scout RC drilling. The soil sampling program targeted two previously identified anomalies. A total of 402 samples were collected. The results returned indicated a relatively strong elliptical anomaly in the east, with peak values of 295 ppb Au, 240 ppm As and 230 ppm Cu. In the west of the tenement a weaker elongated anomaly was identified, returning peak values of 45 ppb Au, 220 ppm As and 198 ppm Cu. A spot high of 1315 ppb Au was returned from the west (Hardy, 1995).

Twenty five regional rock chip samples were collected from the central and northern blocks of the tenement. The results indicated that gold mineralization in the area is associated with gossanous quartz breccias (Hardy, 1995).

A total of 34 RC drill holes were completed for 1,281 metres along six northing lines and one easting line. The program intersected low-grade bedrock mineralization at Margaret Diggings. Of the 34 RC holes, nine returned intersections between 0.70g/t Au and 2.72g/t Au (Hardy, 1995).

The drilling identified two north-northwest striking echelon zones of Au mineralization, which have been offset by an east-west fault, along the western limb of the Margaret Anticline (Hardy, 1995).

During 1996, Northern Gold N.L. completed a work program based on digital data acquisition and manipulation. Landsat Imagery, SPOT Imagery and AGSO mapping were obtained and used in conjunction with aerial mapping and previous exploration to determine the best method of exploration to be used on the licence. GIS and satellite imagery were used to log soil types and to interpret
the structural geology of the region (Socic. 1996).

Interpretation of the GIS and remote sensing imagery showed anticlinal structures trending north-west to south-east through the tenement. Along the anticlinal fold axis, extensive outcrops of Zamu Dolerite are present, bounded by the sub-cropping Koolpin Formation and the Mount Bonnie Formation (Socic, 1996).

Recent alluvial mining activity exposed bed rock in several areas at the Margaret Diggings. Geological mapping of these areas was carried out in an attempt to identify the source of the alluvial gold mineralization (Socic, 1996).

A regional RAB drilling program was also completed by Northern Gold N.L. targeting regional soil gold anomalies and testing for strike extensions of high grade soil anomalies. A total of 105 holes were drilled (MN01 - MN62, MN65 -MN84, MN86 - MNI08) for 738 metres.
4 EXPLORATION PROGRAM FOR 2008/09

During the 2008/09 exploration season, a work program was completed which involved additional research studies and detailed analysis of aerial maps including magnetic image maps and slope vector maps. The data obtained was coupled with previous year’s programs and used in conjunction with aerial mapping, site visits and previous digital data interpretations, to determine the best method of an intense exploration program to be used on the licence area in future period. Removal of vegetation to facilitate exploration work and soil sampling was carried out in the last exploration season.
5 CONCLUSION

Interpretation of the data indicates further investigation needs to be carried out in the north & east areas of the block. Further geological mapping and sampling is required in this region to determine the extent of mineralisation in the area.
6 EXPENDITURE FOR 2008-2009

Please refer to the Summary of Operations and Expenditure in the Northern Territory Exploration Expenditure for Mineral Tenement form.
7 PROPOSED EXPLORATION PROGRAM FOR 2009-2010

As per the conclusion drawn above, consideration as to the value and extent of continuing exploration on the block EL 9944 is being considered.
8 COMMON TYPES OF GOLD DEPOSITS

The following discussion is included as a source of convenient reference. Gold forms in close association with certain host rocks. Three environments or styles are most common: greenstone belts, porphyry deposits, and epithermal deposits.

(1) Greenstone Belt Deposits

Gold is found in Archean (rocks older than 2.5 billion years) greenstone belts in Australia, southern Africa, and Canada. Greenstone belts are volcanic-sedimentary sequences, which include ultramafic rocks, dolerite, basalt, chert, sandstone, shale, tuff, banded iron-formation and other rock types. These rocks are very complex, having undergone metamorphism, folding, faulting, and shearing. Gold is most commonly found along the edges of greenstone belts and associated with structural features. Intensely altered and fractured basalt is a common host rock. The gold is thought to be mobilized by hydrothermal solutions during regional metamorphism. The solutions probably contain only a few parts per billion gold but great volumes of solution can precipitate their gold in a small zone with favorable chemical conditions. The deposit itself is usually a quartz vein that carries the gold or adjacent altered rock. A classic example of gold hosted in greenstone is the Golden Mile in Kalgoorlie, Western Australia. Dolerite refers to dike rocks with plagioclase crystals in pyroxene crystals. By 1993, 40 million ounces of gold has been mined from the Golden Mile. Another example of gold hosted in greenstone is the St. Ives deposit near Kambalda, Western Australia. Three mines have produced more than 2.1 million ounces of gold from 1980-1993. Another 5.4 million ounces of gold remains in the deposits. The gold is found in altered rocks in all parts of the stratigraphic sequence. The occurrence of Zamu dolerite in the Pine Creek area to which reference is made in this report is discussed in Matthai et al, 1995.
(2) Porphyry Deposits

Gold and copper are found in ore bodies associated with porphyry. Porphyry is a general term applied to igneous rocks of any composition that contain conspicuous phenocrysts (crystals) in a fine-grained groundmass. The term is from a Greek word for purple dye and was first applied to a purple-red rock with phenocrysts of alkali feldspar that was quarried in Egypt. Diagram from ITAM Copper by the Minerals Council of Australia. This type of deposit forms beneath strato volcanoes and is associated with subduction zones. Erosion strips off overlying rocks to expose the mineralization. Gold and copper are found in sulfide minerals disseminated throughout the large volumes of intrusive rock (strictly speaking, this ore is associated with volcanic systems, usually not the volcanoes themselves). This requires large amounts of rock to be mined, often in open pits. The deposits are commonly 3-8 km across and copper may be less than 1% of the rock. Porphyry deposits are zoned in alteration (potassic/sericitic/argillic/propylitic) and mineralization.

(3) Epithermal Deposits

Epithermal refers to mineral deposits that form in association with hot waters. The deposits form within 1 km of the surface and water temperatures are about 50-200 degrees C. Shallow bodies of magma supply heat. The rising hot water carries dissolved gold and other elements. The water boils about 300 m below the surface and hydrogen sulfide gas escapes. This causes the gold to precipitate. The boiling zone is the target for mineral exploration. Veins commonly host the economic minerals. New Guinea is an epithermal deposit discovered in 1982. The island is made of three volcanoes including Luise caldera, where the deposit formed. The rocks are trachybasalt lava flows, breccia, and tuffs. The mineralized rocks are highly altered. Most of the ore is in breccia thought to have been a boiling zone for rising fluids. The deposit formed between 350,000 and 100,000 years ago. It is estimated that the deposit
contains 21.3 million ounces proven and probably another 42 million ounces as a geological resource. Most of the gold is fine particles in pyrite (FeS) grains. Hot springs and fumaroles are still active on the caldera floor.
9 REFERENCES


APPENDICES
A - List of Plans
Figure 1  EL 9944 – Burrundie (14/6-IV) 1:50,000 scale map.
Figure 3  Lease Plan of Area in relation to adjacent areas.