FINAL REPORT

MINERAL LEASE S 14
BONYA BORE AREA, NT

3 November 1947 to 31 December 1993

BY

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OF

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HUCKITTA SF53-11
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SUMMARY

Mineral Lease S 14 covered the old Bonya Mine workings and is located in the Bonya Hill, Jervois Range area of the Northern Territory. Geologically it is situated in the Early Proterozoic Arunta Block, a polydeformed highly metamorphased orogen comprised of sediments and volcanioclastics and intruded by granites.

The Bonya Hills area has a number of scheelite and copper shows which occur within a calc silicate gneiss unit and amphibolite member of the Bonya Schist. They are interpreted to be genetically linked to granite emplacements (Shaw, R.D. 1990). The same calc silicate unit is host for copper, lead and silver mineralisation at the Jervois mines nearby.

The Bonya Mine mineralisation was discovered by Sharp and Wright. It was worked by Mr K Johannesen and his son in the 1950's and 1960's. There is a small resource remaining of secondary and primary copper mineralisation within a quartz reef.
1. **INTRODUCTION**

Mineral Lease S 14 is located 250 kms north east of Alice Springs in the Jervois Range area of the Northern Territory and is 13 kms north west of the Bonya Hill trig station (Figure 1). It is on the Huckitta 1:250,000 geological map sheet.

Access is gained via the Plenty Highway and then northwards along a track to Baikal homestead and station roads.

The lease was held by Petrocarb Exploration N.L. but pegged by a local prospector/miner Mr Johannesen and was taken out in conjunction with a number of other leases in the area to explore primarily for W, Mo and to a lesser extent Cu mineralisation away from the two main centres of activity at Moyhil and Jervois.

The aim of this report is to outline the work conducted during the period of tenure.

2. **TENURE**

Mineral Lease S 14 was granted on 3rd November, 1947 and and was current for a period of forty-seven years.

Petrocarb purchased the lease and at a later date Petrocarb Exploration NL was incorporated into Nicon Resources Ltd which in turn has become a wholly owned subsidiary of Aztec Mining Company Ltd.

The lease area comprised 9 hectares and covered the old Bonya Mine workings.

3. **CONCLUSIONS**

1. The mineralisation occurs as secondary copper ores and chalcopyrite in a quartz reef structure.

2. L Johannesen estimated there is a potential for 10,000 tonnes of ore within the structure.

4. **PREVIOUS EXPLORATION**

The Bonya Hills area has a number of old tungsten (scheelite) and copper shows which were initially investigated by prospectors. Several shafts were sunk and secondary copper with a little chalcopyrite being won from quartz veins (Bonya Mine). The workings were systematically investigated in the early 1970's by Petrocarb, Fama Mines Pty Ltd and Central Pacific; which included drilling and mining. Gepeko conducted extensive exploration throughout the region in the 1980's.

The Jervois Mine (Cu Pb and Ag) workings are located only 16 kms to the east of MLS 14. An operation to produce copper sulphate by leaching commenced in 1957 and continued sporadically during the early 1960's. A small mining operation (200,000 + pa) commenced production in 1981 (Plenty River Mining Co.) but ceased shortly after opening.
5. GEOLOGY AND MINERALISATION

5.1 Regional Geology

The Jervois - Bonya Hills area is located within the Arunta Block, a polydeformed orogen which originated as a sequence of sediments and volcanioclastics within the period 2400 to 2000 Myr (Stewart, Shaw and Black 1984). The orogen was widely metamorphosed and granites intruded in periods from 1800 Myr to 900 Myr.

The Arunta Block is interpreted to be made up of a partly fault bounded Central Tectonic Province of high grade metamorphic rocks and a few granites, flanked by the northern and southern provinces which contain low grade metamorphic rocks and numerous granite intrusions. (See Figure 2). The block is surrounded on most sides by Proterozoic and Phanerozoic sedimentary cover.

The geology of the block has been subdivided into three divisions and the Jervois - Bonya Hills area is located within Division 2 comprising aluminous and silicious sediments and a few mafic flows and sills.

5.2 Local Geology and Mineralisation

In the Jervois region, division 2 cordierite - biotite schist and chlorite - biotite schist of the Bonya schist contain copper and lead deposits. Chalcopyrite lodes are localised within narrow boudinaged units of chlorite-garnet rock and small silver bearing galena lodes occur within manganese rich calc - silicate rock. The lodes are essentially stratabound and occur within units of magnetite quartzite, BIF and calc - silicate rock in the Bonya Schist (Shaw et al., 1984; Freeman, 1986; Whiting, 1986).

Scheelite occurrences occur alongside and within the same calc - silicate gneiss unit in the Bonya Schist as the base metals (Shaw et al., 1984; Freeman, 1986) however the scheelite occurrences are also localised in the Kings Legend Amphibolite Member of the Bonya Schist. They show a close spatial relationship to pegmatites and small granitoids, themselves at the margins of the large Jinka and Jervois Granite batholiths. These spatial associations suggest the scheelite deposits are genetically linked to granite emplacement (Shaw R D 1990).

6. WORK CARRIED OUT

Mineral Lease S 14 overs the old Bonya Mine in the Bonya Hills area. The mineralisation was discovered by Sharp and Wright. It occurs as secondary copper ores and a little chalcopyrite in quartz veins. There is a trace of gold (pers comm L Johannesen) associated with the copper mineralisation. A shaft was sunk in the early 50's by L Johannesen's father and a 1,000 tonne parcel of ore trucked to Mt Isa. Lindsay Johannesen estimated there is a potential for 10,000 tonnes remaining within a quartz reef. There are no records held by Aztec Mining that revealed any substantial work has been carried out on the lease by Petrocarb.
7. **REFERENCES**


Generalized geological map of Arunta Block, showing major stratigraphic subdivisions and granite. Compiled from geological mapping, airphoto interpretation, and aeromagnetic interpretation by BMR, 1956-1976. Inset map shows location of Arunta Block in Southern part of Northern Territory.

GEOLOGY

Figure 2.