MC 38
1991 ANNUAL REPORT
GHEKO PROSPECT
NORTHERN TERRITORY

CENTRAL PACIFIC MINERALS N.L.
REPORT NO. N.T. 277
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JUNE 1992
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1. **INTRODUCTION**

The Cheko Prospect was discovered in 1969 as a result of a geochemical stream sediment reconnaissance sampling programme conducted on The Gardens station, some 50km NE of Alice Springs, Northern Territory (Figure 1). Subsequently, geological mapping of the region, Cobra drill sampling of outcrop, geophysical surveys and a percussion drilling programme have been carried out.

2. **TENURE**

The area is held by virtue of MC 38 (formerly MC 463H) and is 33 hectares. This was granted to Central Pacific Minerals N.L. on 22nd March, 1984. The area was initially held as part of AP 1721.

3. **PREVIOUS WORK**

Details of previous work have been covered comprehensively in recent annual reports. Briefly, the mineralization was found to be principally sphalerite, with some galena and chalcopyrite which could be distinguished in outcrop as gossanous ironstones in association with magnetite and quartz. These were found to occur near an amphibolite-gneiss contact over a strike length of about 25km, during the reconnaissance phase of exploration are consequently, the prospect was first geologically mapped in some detail. Particular emphasis was paid to structural elements.

Prior to commencing drilling vertical field magnetics and induced polarization surveys were done and some forty Cobra drill samples taken for assay for copper, lead, zinc and silver. Although mineralization approaching economic grade was obtained during the programme, the mineralization found was of limited extent.

4. **CURRENT PROGRAMME**

The potential of the prospect was again reviewed in 1991. However, the small size and relatively low price for the commodities involved were such that it was decided that the property should remain on a care-and-maintenance basis. Nevertheless, the means by which the limits of the resource could be increased were also examined.

The geological mapping coupled with the geochemical results remains a useful base from which to begin any further drilling but the complex geological history of the area and the relatively high metamorphic grade (almandine amphibolite) complicate the process.

Two geophysical methods have been used and show some promise. The first used was magnetics. Although no unique relationship between sulphide mineralization and magnetite has been established, the link has been evident from mapping and drillholes (Figure 2).
Vertical field measurements at 30m (100 foot) intervals have resulted in anomalies in excess of 100 gammas and these would be expected to be less than would be obtained using say, 5m station spacings and total field equipment. The relative ease and speed with which the data can be collected and the convenience with which the results can be modelled are all significant benefits of the method.

The other method used was I.P. A number of lines of frequency domain dipole-dipole IP were completed. It is interesting that this type of survey, which was probably the most common of its type in its day, is much less frequently carried out at present and that the strongest anomaly was obtained over the most successful hole, using a proprietary measurement - Metal Factor, which is virtually unused nowadays being less favoured than frequency effect.

The relationship between the drillholes and Metal Factor on the IP pseudosections for 30m (100 foot) spreads is shown in Figures 3 & 4, and the general geological conditions encountered are set out below.

Since the measurements were originally made in feet, it has been found preferable to retain measurements in those units rather than use fractions of metres, in the descriptions below.

PH 1

A moderate zone of sulphide mineralization was intersected between 100 and 115 feet. This zone occurs within the amphibolite and contains abundant pyrite with a trace of chalcopyrite. This hole may have terminated before passing completely through the quartz-haematite zone.

PH 2

Three main zones of sulphide mineralization were intersected within the amphibolite layers. The first zone occurred from 115 to 120 feet, the second from 130 to 135 feet and the third from 140 to 145 feet. The mineralization was mainly pyrite with traces of chalcopyrite. This mineralization occurred in minor quantities throughout a wide zone from 115 feet to 145 feet.

PH 3

Two zones of mineralization were intersected between 70 and 80 feet and 130 to 140 feet. The mineralization was mainly pyrite and occurred within the amphibolite bands.
GHEKO PROSPECT, N.T.
Trace of holes projected onto I.P. Pseudosection

Scale: 1 inch = 66 feet
GHEKO PROSPECT, N.T.
Trace of holes projected onto I.P. Pseudosection

Scale: 1 inch = 66 feet

LINE 500N

Figure 4
Three major zones of sulphide mineralization were intersected. These zones occurred from 125 to 135 feet, 160 to 170 feet and 185 to 200 feet. The last zone contained widely ranging amounts of sulphide. The main type of mineralization was chiefly pyrite with a trace of chalcopyrite.

With magnetite being both abundant and a satisfactory conductor of electricity, it is a potential problem for the use of IP, if not strongly associated with sulphides. The correlation between Metal Factor anomalies and potentially economic mineralization has so far been satisfactory.

Although the prospect will continue on a care-and-maintenance basis, it is concluded that both magnetics and induced polarization methods are potentially useful for future exploration.

5. REFERENCES


McPhar Geophysics, 1970  Report on the Induced Polarization and Resistivity Survey on Several Areas in A to P 1721, Northern Territory, Australia, for Central Pacific Minerals N.L.

