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MAUDE CREEK, NORTHERN TERRITORY

EXPLORATION LICENCE 4914

KATHERINE 1:250 000 SHEET SD 53-9

ANNUAL REPORT FOR THE YEAR ENDING 3RD JUNE 1989

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Placer Exploration Ltd
P.A. Scott
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1. SUMMARY

In August 1988 Placer Exploration purchased the Australian mineral assets of CSR Limited and took over the responsibility for EL 4914. Due to legal tie-ups with the purchase, staff shortages and the wet season, no comprehensive field work was carried out during the reporting period.

An evaluation of the previous exploration by CSR and a brief field visit was made.

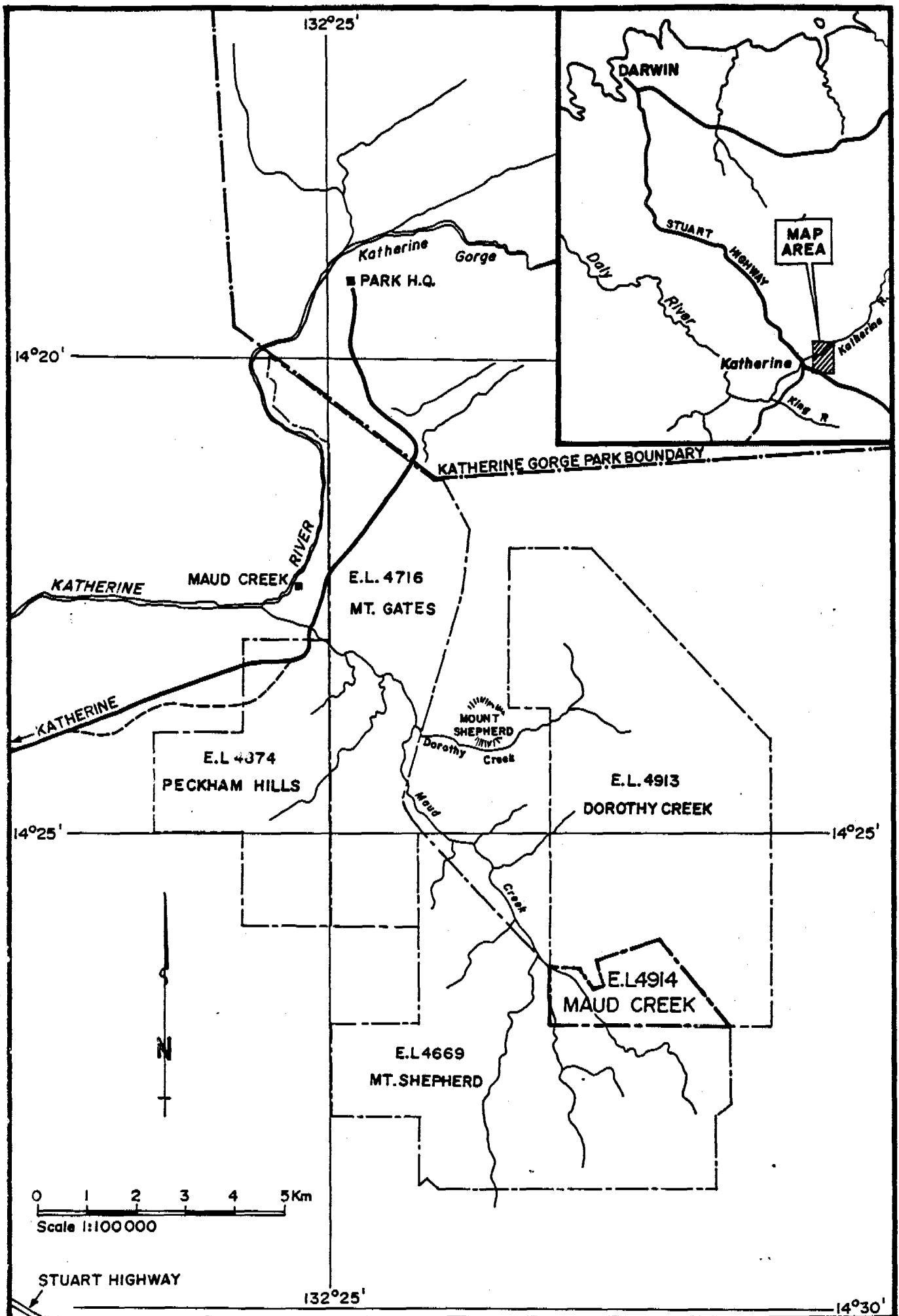


FIGURE 1
LOCATION MAP
E.L.4914 MAUD CREEK N.T.

2. INTRODUCTION

The Maude Creek Licence, EL 4914, was granted to CSR Limited on 3 June, 1986, and was subsequently included in the sale of that company's minerals assets within Australia, to Placer Exploration Limited (PEL) in July 1988.

The tenement is located approximately 25 kilometres northeast of Katherine (Figure 1). The tenement covers an area of 5km.

An evaluation of exploration completed by CSR Limited was made by PEL, however, no field investigations were carried out by CSR or PEL due to the closing of the CSR Darwin office, lack of staff, legal tie-up with the sale of CSR mineral assets/rights, and the wet.

3. REGIONAL GEOLOGY

The Maude Creek area is situated in the extreme southeastern part of the Pine Creek Geosyncline which comprises a 14km thick sequence of Lower Proterozoic sediments, interbedded volcanics and mafic sills (Figure 2.). This sequence was regionally metamorphosed during the 1870 to 1780 m.a. period. During this period, granitoid plutons were emplaced and overlapped with the development of two unconformity-bound felsic volcanic sequences. These volcanic rocks are petrographically very similar to a sub-volcanic granite which outcrops to the north of the Maude Creek area.

A stable hiatus occurred before the deposition of the Kombolgie Formation platform cover and interbedded volcanics of Middle Proterozoic age.

During the Phanerozoic, seas partly covered the region while basalt flows covered the Maude Creek area during the Cambro-Ordovician time.

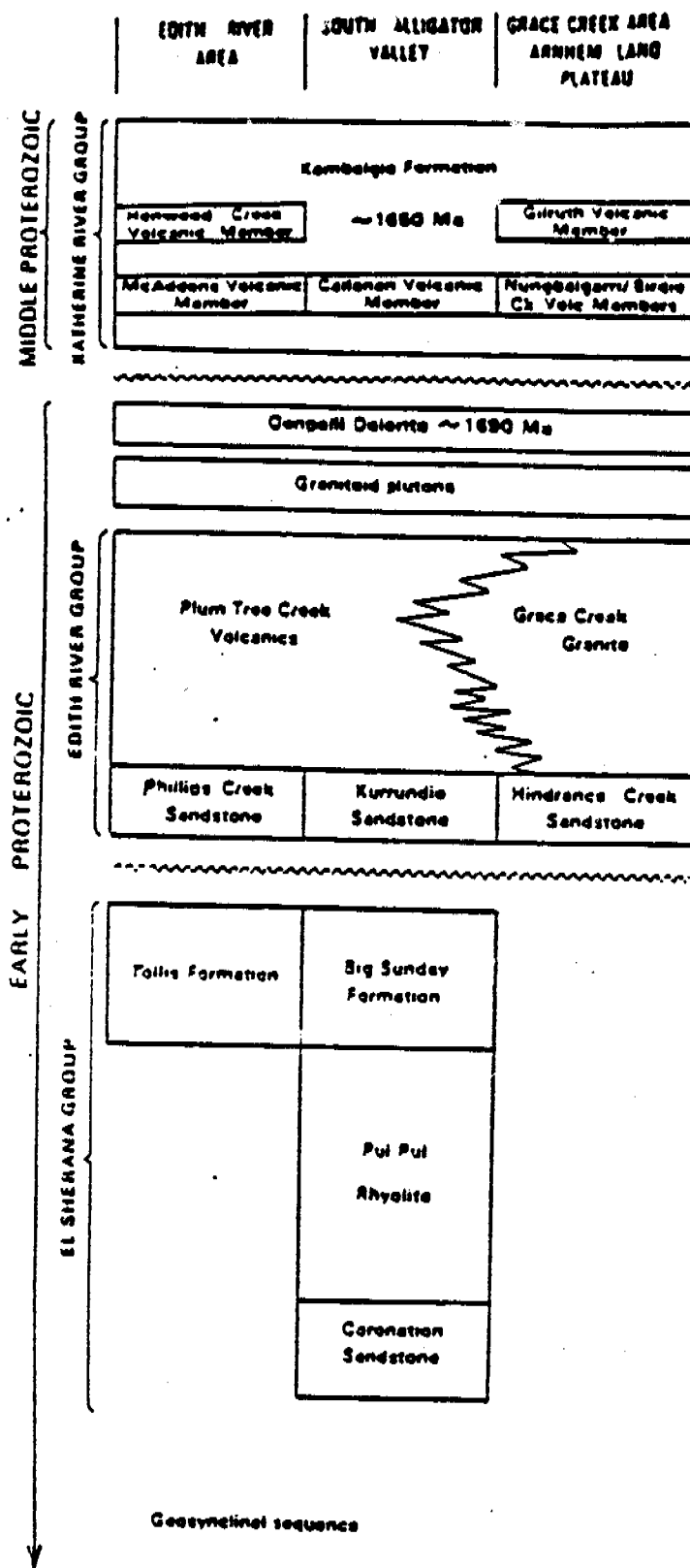


FIG. 2

DIAGRAMMATIC STRATIGRAPHY OF
THE EDITH RIVER/KATHERINE GORGE AREA
(AFTER NEEDHAM et al 1985)

4. PREVIOUS EXPLORATION BY CSR

CSR investigated the Maude Creek Licence area as part of a larger project area which included adjoining EL's 4669, 4716, 4874 and 4913. Two styles of mineralisation were investigated:

- (a) gold within the Maude Dolerite similar to Archaean greenstone-style mineralisation;
- (b) epithermal gold within a volcanic or hydrobreccia.

CSR conducted a programme comprising an airborne magnetic/radiometric survey, geological mapping and soil, stream sediment and rock-chip geochemical sampling. Zones of intense carbonate alteration were found in the Maude Dolerite.

5. EVALUATION BY PEL

PEL examined the Dorothy Creek Licence area as part of an evaluation of the larger project area which includes the adjoining EL's 4669, 4716, 4874 and 4914 and encompasses the Maude Creek Goldfield. A summary of this evaluation is contained below.

Following a literature review of historical data, work completed by CSR Minerals in 1985-86 and a field visit to the region, two areas warrant further investigation: Maude Creek Goldfields area and the Chessman area.

A. Maude Creek Goldfield Area

Approximately 400 tonnes of ore has been produced from some 20 shallow shafts and potholes averaging some 1 - 1.5 ounces gold per tonne. Shafts 20 - 40 feet deep with drives 50 - 100 feet were common. The gold was reportedly very fine grained in all but the Maude Hill - Trig Point series of lodes. It was associated with sulphides at a shallow depth, and gold extraction was a problem. The quartz-haematite lodes follow to main shear directions: NE to SW and NW to SE, with dips either to the north or south. Individual lodes mined varied from a few centimetres to a metre in width.

Mineralogy

The geochemical associations of the lodes are Au - Cu - As/Pyrite. Petrology suggests that the "Haematite" association with the quartz veins is after pyrite or arsenopyrite in the oxide zone. This association is common in the Pine Creek Goldfields to the North.

Genesis

The lodes are epigenetic shear related and probably derived from a phase of the intermediate depth 'microgabbro' or 'basic dolerite' intrusive described in petrological reports. This appears to be a multi-phase intrusive with a late stage being the so called Maude Creek Dolerite sill. The lode systems appear to be hosted mainly in the intrusive but also cuts the Tollis Formation tuffs and basalts.

CSR Exploration

CSR investigations in 1985 were directed towards locating disseminated gold in the Maude Creek Dolerite using an analogy to the W.A. Archaean greenstone Fe/Au style mineralisation as proposed by Phillips and Groves (1983). The concept relied heavily on wallrock alteration recognition, i.e., carbonate-chlorite haloes regionally, and potassium metasomatism and iron sulphides adjacent to mineralisation. In following this concept the style of mineralisation actually present at Maude Creek appears to have been overlooked.

Following a soil sampling program 25 shallow trenches were excavated and selectively rock chip sampled. One metre composite samples were collected over the more intensively sheared/alterd or veined sections of the trenches. This sampling on examination was found to be inadequate with some trenches unsampled, and in several instances the target lithology - Maude Dolerite (Pdm 3 unit) which was moderate to intensely chloritised and sericitised not sampled at all. The one metre samples were composited after preparation to 5 metres and assayed. If the composite assay returned greater than 0.5ppm Au, the individual one metre samples were submitted for assay.

This does not make allowance for bias in assay or sampling or preparation and was done without quality control checks. Numerous 0.1 to 0.4 ppm Au composite results were not re-assayed at 1 metre intervals and numerous gaps between anomalous assays were not sampled.

The most significant assays were returned from the Battery line of reef on the Eastern side of Maude Creek. Trenches either side of a peristant quartz haematite shear were mineralised for 15-20 metres either side of the shear. A line of IP completed by the NT Geological Survey during investigations on the Katherine Gorge National Park encroached onto this reef and gave a strong chargeability anomaly adjacent to the shear.

Discussion

Several other areas in the Maude Creek Goldfield have not been investigated. The series of lodes to the northwest of the Battery line near Maude Hill Trig point; two parallel persistant quartz-haematite/shear zones south of the main workings; and several shears to the west of the workings. The trenching and sampling completed by CSR has not adequately tested either the main workings or the Battery reef shear.

Two potential economic targets exist for the area:-

- (a) Moderate tonnage low grade open cut potential;
- (b) Low tonnage high grade individual shear lodes.

B. Chessman Area

The area is interpreted to be a graben structure within the Tollis Formation infilled with basic to intermediate volcanics. Breccias near the margins were interpreted as 'Epithermal' by CSR geologists. Petrological descriptions of the same rocks vary from 'fractured pervasively silicified hydrothermal volcanic breccias' to 'quartz sand supported polymict sedimentary breccias with subsequent quartz veining'. They at least agree that it is a breccia and has had silica added.

Anomalous rock chip samples of small gossans and anomalous trench and drillhole samples display a Au - Cu - As association similar to Maude Creek Goldfield mineralisation. No intrusive dioritic rocks have been recognized in the very limited geological mapping that has been completed.

Minor rock chip sampling of the breccias has been completed and several of the samples appear to be 50 to 200 metres composites.

Limited soil sampling and trenching in the Chessman area indicates that gold mineralisation is associated with a sheared/altered and quartz veined contact between volcanics and Tollis Formation? sediments. This contact does not necessarily coincide with the major silica breccia zones which may however have been a conduit for mineralising fluids.

Encouraging geochemical results were returned in drillhole CMPDH7 which was anomalous from 73 - 90 metres with gold ranging from 0.07ppm to 1.55ppm and arsenic to 400ppm.

It is obvious that little is understood about the geology or mineralisation of the prospect. Aeromagnetics of the area show strong trends and their relationship to the breccias, graben margins and the sediment volcanic interface is not known.

6. RECOMMENDATIONS(a) Maude Creek Goldfield Area

The potential mineralisation elucidated upon above can be tested by the following program:

- Re-establish the grid over the area.
- Detailed geological/structural mapping (not previously done).
- Complete a detailed IP survey of the area. The sulphide association and shear related lodes should provide good resolution for IP and resistivity.
- An initial Reverse Circulation drilling program targetted on a combination of the above results to indicate grade and potential in both oxide and sulphide zones (15 x 100m holes).
- Estimated cost of program: A\$100 000

b) Chessman Area

A better understanding of the geological controls on the mineralisation is required and the following program is recommended:

- Detailed geological mapping be completed in the area to explain the relationships outlined in the evaluation section above;
- Carry out a detailed soil sample survey over the sediment/volcanic interface as defined by mapping;
- Complete a systematic rock chip sampling program over the major breccia zones;
- Complete an IP survey over defined zones to help target an initial RC drilling program;
- Rank targets and complete an initial Reverse Circulation Drilling program in conjunction with the Maude Creek program (7 x 100m holes);
- Estimated cost of program: A\$50 000

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- MEYWORTH, D.S. 1987, Dorothy Creek, Northern Territory Exploration Licence 4913, Kathering 1:250 000 Sheet SD 53-9 Annual Report for Year Ended 3rd June, 1987. EMR 110/87 (unpub.)
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- PHILLIPS, G.W. and GROVES, D.I., 1983, The Nature of Archaean Gold-bearing Fluids as Deduced from Gold Deposits of Western Australia: Geological Society of Australia Journal v. 30, p. 25 - 39.