FINAL REPORT
DEALING WITH LAND WHERE THERE IS NO ONGOING TENURE

EL 8076

"PLENTY RIVER"

HARTS RANGE REGION, N.T.
NORTHEAST CORNER - ALICE SPRINGS [SF 53-14] 1:250,000
SOUTHEAST CORNER - ALCOOTA [SF 53-10] 1:250,000
SOUTHERN EDGE - HUCKITTA [SF 53-11] 1:250,000

TO N.T. D.M.E
FOR PERIOD TO 12/98

LICENCE HOLDER:
CHAMBIGNE GARNET PTY LTD

REPORT COMPILED BY:
CHAMBIGNE GARNET

12-2-99
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Final Report EL8076  
Chambigne Garnet Pty Ltd
1 SUMMARY

Following five years of exploration and characterisation of the target in this EL Chambigne applied for three whole mineral leases from within EL8076, and a fourth MLA which encompassed an adjoining EL. Subsequent to the mineral lease applications, the areas applied for were surrendered. As all of the EL has been surrendered this necessitates annual and final reports, therefore this report addresses the final report for EL8076, over areas where there is no ongoing tenure.

The EL embodied in this report lies along the eastward-flowing Plenty River, just to the north of the Strangways and Harts Ranges, and exploration focused on alluvial garnet and to a lesser extent, other industrial minerals in the sands of the riverbed.

Areas outside the riverbeds were traversed on numerous occasions during the term of this licence with the view of locating alluvial sandy potentially economic deposits of garnet however none were found.

2 INTRODUCTION AND TENURE

The exploration licence, EL8076 comprising 148 graticular blocks of approximately 477km², was granted to Chambigne Resources Pty Ltd on the 20th of December, 1993. The aim of exploration was to delineate economic reserves of alluvial garnet within the riverbed of the Plenty River and its feeders, and associated colluvium. In this final year of tenure the EL comprised 19 graticular blocks.

At the time of writing this report the NTDME have not tendered to Chambigne the MLA numbers for the mineral lease applications lodged from within EL8076 however we have assigned the following numbers:- PR1; PART OF PR2; PR5 and PR6 (see map).
3 LOCATION AND ACCESS

EL8076 is centred on the eastwards flowing Plenty River, with the location of the EL shown on the tenement location map as Appendix page 1.

Access to the EL is via the Plenty Highway, which runs east from the Stuart Highway, roughly subparallel to the Plenty River, on its southern side. Numerous station roads and tracks run off the Plenty Highway, crossing the Plenty River, and in most places, rough and rarely used but quite navigable tracks run along parts of the banks of the River.

4 GEOLOGY OF EL8076

EL8076 is in the same location, geological setting and on the same river system as two previous EL’s the company held (8384 and 8423) and the three EL’s were explored and reported on in one single annual report.

Chambigne’s garnet resources are all geologically young detrital or alluvial deposits in creeks and river beds, located in the Arunta Block, some 200km ENE of Alice Springs. The source rocks for all these deposits comprise a specific sequence of Proterozoic garnetiferous pelitic gneisses and amphibolites, such that the bulk test samples evaluated can be reasonably expected to reflect the mechanical and chemical properties of future commercial product. There are other garnetiferous units throughout the eastern Arunta Block, but these yield mainly grossular-andradite garnets, whose mechanical and chemical properties may be different and less desirable than the almandine-dominated garnets in Chambigne’s Els and MLs.

The EL lies in the flood plain of the Plenty River, with little in the way of massive outcrops; numerous smaller outcrops and rock bars, however, indicate that for the most part, the riverbed lies in the mid-Proterozoic metamorphic rocks of the Harts Range Group. To the west, some of the shallow feeders cut through deeply weathered and essentially undifferentiated Lower Triassic rocks, but these have no real significance in terms of the garnet genesis or resource volume.
Of the Harts Range Group rocks, the most significant are the Irindina Gneiss, and the Riddock Amphibolite; both are heterogeneous, and may carry from zero to 18 volume% garnet, though the average for the Gneiss is closer to 10%. From a consideration of the regional geology, petrology and topography, it is evident that the sources of most of the garnet in the river sands are the two rock units named previously. There appears to be little if any contribution to the river sands of grossular-andradite garnet from the rare calc-silicate rocks that are garnetiferous, or of almandine-rich garnets from the weakly garnetiferous lower grade schists to the north of the Plenty.

The geological-lithological distribution of rocks adjacent to the ELs can be seen on the Alice Springs, Alcoota, Illogwa Creek and Huckitta 1:250,000 Geological maps. For a better appreciation of the distribution of petrological types, refer to the Geology of the Strangways Range Region, the Arltunga-Harts Range Special, and the Quartz 1:100,000 geological maps.

It is of particular note, in relation to garnet grades, that there is little direct creek or river-fed input into the Plenty River from the north. In fact, much of the alluvium from the high ground to the north of the Plenty is “captured” by the Bundey and Marshall Rivers and their tributaries.

To the west end of the EL the sediment input to the Plenty is exclusively derived from the rocks of the Harts Range Group and comprises the mainly garnetiferous Irindina Gneiss and Riddock Amphibolite.

The Entire Creek, which empties into the Plenty at around 135° 17' 40" is demonstrably garnetiferous (deriving this mineral within the Huckitta Dome, from large exposures of Irindina Gneiss; see the first annual report for EL8829, 1996). This recharge is the last flux of garnet into the Plenty. As the river flows east, and begins to derive progressively more of its alluvial load from the southern (non-garnetiferous) flood plain, garnet grades will begin to drop eastwards, by dilution.
No purely geological mapping was carried out in any part of the EL. Written summaries of the regional geology of the areas encompassed by the EL is presented in the notes to accompany the Geology of the Strangways Range Region, and the Arltunga-Harts Range Special 1:100,000 geological maps. There is no equivalent in print for the Quartz Geological map, however the compilation notes appear as BMR Record 23, 1982, [Shaw et al.]. The previous geological summary was compiled directly from the above mentioned references, which are not presented here.

5 EXPLORATION

Only reconnaissance exploration was performed outside the area of the riverbeds but no samples were taken.

With respect to EL8076 in this period, Chambigne applied for a mineral lease (PR6) over the balance of the river system within the EL, thus all of the blocks within this EL have now been surrendered.