BARFUSS CORPORATION
PTY LTD

HARTS RANGE PROJECT
NORTHERN TERRITORY OF AUSTRALIA

ANNUAL REPORT FOR
MINERAL CLAIMS
MCS 235, 236, 237, 238, 239, 240, 241, 242, 243, 244
FOR THE PERIOD ENDING 20th June 2003.

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Flagstaff GeoConsultants Pty Ltd

Report No. MCS235-244-AnnRept-2003.doc
Date: 19 January, 2004
Licensee: Barfuss Corporation Pty Ltd
A.C.N. 006 917 666

1:250,000 MAP SHEET: Illogwa Creek SF 53-15
1:100,000 MAP SHEET: Quartz 5951
KEYWORDS: anorthosite, Harts Range, Harts Range Meta-igneous Complex, Irindina Supracrustal Assemblage, ruby, vermiculite
LICENCE DETAILS:

Licence Numbers: MCS 235, MCS 236, MCS 237, MCS 238, MCS 239, MCS 240, MCS 241, MCS 242, MCS 243, MCS 244

Project Name: Harts Range
(Ruby Mine & Vermiculite Prospects)

Licensee: Barfuss Corporation Pty Ltd

Licensee ACN: 006 917 666

Licence details:

Area: 172 hectares
(MCS 235, 236, 244 each 20 ha; MCS 237-243 each 16 ha)
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1. SUMMARY

The Harts Range Ruby Mine workings lie roughly 130 kilometres north-east of Alice Springs, in the south-east of the Northern Territory. Mining Claims MCS238-MCS244 cover the main area of the workings (the Ruby Mine Prospect) and MCS235-MCS237 extend further north-west over the same sequence of rocks and additional exploratory workings (the Vermiculite Prospect). Barfuss Corporation holds all ten adjoining Mining Claims.

The Project is in the northern Harts Range and topography is frequently rugged. Access is from the north via station tracks running south from the Plenty Highway, past the Entire Bore. Vehicle access within the leases is largely restricted to established tracks.

The lease area is underlain by gneisses and amphibolites of the Harts Range Meta-igneous Complex (or Riddock Amphibolite unit) – part of the Early Proterozoic Irindina Supracrustal Assemblage – in the eastern Arunta Block. The ruby-corundum and vermiculite occurrences are associated with discrete meta-ultramafic bodies within the “Entire Anorthosite” unit.

Previous mining at the Harts Range Ruby Mine was conducted by Mistral Mines in the late 1970s to early 1980s and was restricted to surficial shallow open excavations. The ruby-bearing rocks have not been fully excavated and are known to still contain rubies. The ruby-bearing rocks are interpreted to be within metamorphosed boudinaged ultramafic rocks. The ultramafic bodies outcrop as discrete “pods” which are interpreted to be the surface expression of elongate boudins which may have significant sub-surface extent. Barfuss Corporation considers that there is potential for further economic ruby occurrences in these ultramafic bodies, which might be accessed by deeper excavations and/or underground mining.

The “Vermiculite Prospect” – MCS235 & MCS236 – lies 800-1,000 metres north-west of the northern-most Ruby Mine workings. Exploration for further ruby occurrences in this area by Mistral Mines in the early 1980s located significant vermiculite associated with a large meta-ultramafic body. Barfuss Corporation considers this occurrence to represent a resource which may be minable once its dimensions, extent and grade have been better assessed.

Barfuss Corporation intends to conduct detailed shallow drilling at both the Ruby Mine and Vermiculite Prospects to better locate and define potentially minable resources. Compilation and review of previous data – particularly geological mapping – has been conducted as a prelude to this work. This has produced a detailed digital GIS dataset – in a “real world” co-ordinate system (AMG) (previous mapping was on a local grid only, with no “real world” base). This data will greatly aid and facilitate further work and has led to greater understanding of the distribution and probable relationships between the rock units and mineralisation occurrences.

Barfuss Corporation has also established a base camp / site office at the site of the old Mistral Mines camp, at the north end of the Ruby Mine workings, and has re-established access tracks where necessary.
2. CONCLUSIONS AND RECOMMENDATIONS

Compilation of previous detailed mapping has confirmed the project’s potential. Previous mining exploited only eroded and/or outcropping ruby-bearing rock, and workings consisted of shallow surface excavations only – rarely extending more than a few metres below the original outcrop. In these excavations, the ultramafic bodies containing the ruby-bearing rock do not appear to decrease in size with depth – indicating potential for significant quantities of un-exploited rock remaining below ground. Stratigraphic dip is generally shallow, suggesting that the ultramafic bodies could be mined via sub-horizontal workings, or open-cut in places, without the requirement for significant over-burden removal or shaft-sinking. In addition, many ultramafic occurrences do not appear to have been excavated at all – these may have ruby-bearing potential below surface.

At the Vermiculite Prospect, the presence of at least one sizeable vermiculite body is indicated by previous trenching, with a strike length at surface of 200 metres or more and probable width of 5-10 metres. This vermiculite zone lies on the edge of a large ultramafic body. The ultramafic is 70-100 m wide at surface – assuming its depth extent is similar, and the vermiculite zone extends to depth, there is potential for an economic vermiculite resource here (depending upon grade).

It is intended to conduct shallow (< 100 metres) drill testing at both the Ruby Mine and Vermiculite Prospects. At the Ruby Mine this work is intended to locate and define the extent, direction, dimensions and depth of the ultramafic bodies which host the ruby-bearing rock. Assessing the “grade” of these rocks is more problematical, given the apparently erratic and unpredictable distribution of the ruby-corundum, and the variations in its gem quality. It is likely that mining would have to proceed with, at best, a poor estimate of the ruby potential.

Drilling at the Vermiculite Prospect will test the extent and grade/quality of the vermiculite zone(s) below the trenching conducted to date. Some additional trenching may be conducted to assist in defining the lateral extent of the zones. Prior to any bulk sampling or test mining it is intended to identify whether the deposit is large enough – i.e. has the depth and width continuity – to constitute a minable resource.
3. INTRODUCTION

Barfuss Corporation’s Harts Range Project lies on the north side of the Harts Range in the south-east of the Northern Territory, approximately 130 km north-east of Alice Springs (Figure 1). Mineral Claims MCS235-244 cover 172 hectares (Figure 2). The Mineral Claims cover the workings of the Harts Range Ruby Mine, which was active from the late 1970s to the early 1980s (operated by Mistral Mines NL), plus an adjoining area to the north-west where potentially-economic vermiculite occurrences have been identified. The area is in the north-east corner of the Illogwa Creek 1:250,000 map sheet (SF 53-15).

Ruby-corundum was first identified at this location in 1978. Mining by Hillrise Properties Pty Ltd and/or Mistral Mining NL up until the early 1980s produced “several hundred kilograms of red corundum” (Lawrence, 1992). This work was very poorly documented. Mining was evidently conducted by bulldozer and was terminated at each site when “no more rubies could be seen at surface” (ibid.). The excavations resulting from this work were rarely more than 5 metres deep and in all the workings the dimensions of the ultramafic bodies (which host the ruby-bearing rock) do not appear to decrease with depth.

Very little mining appears to have continued into the early 1980s, but reasonably intensive and systematic surface exploration of the Ruby Mine and surrounding areas was conducted by Mistral Mines in this period. A local grid was established and geological mapping was undertaken (in detail over the Ruby Mine area). No drilling appears to have been conducted but costeaning was undertaken on several ultramafic bodies within and beyond the productive Ruby Mine area. It was during this period that R.W. Lawrence conducted the work that comprised his PhD Thesis for the University of Adelaide (1987).

Little or no further work was done on the mine until Barfuss Corporation conducted exploration over the area including the Ruby Mine in the 1990s, when it was covered by Exploration Licences 23365 and 9434. This work included geophysical interpretation of airborne magnetic and radiometric data (Rutter, 1995, 2001).

The general geology of the project area, and the Ruby Mine in particular, is discussed by Lawrence (1992). The region is in the eastern part of the Arunta Block and the geology is dominated by various gneisses of Early Proterozoic age. The leases lie west of the Inkamulla/Huckitta Domes (‘Huckitta Antcline’) and are underlain by the Irindina Supracrustal Assemblage, which consists predominantly of feldspar-biotite-amphibole-garnet gneisses. This assemblage has been intensely multiply deformed and now has an overall very gentle dip to the west and/or south. The stratigraphy is thus now sub-horizontal and typically outcrops sub-parallel to topographic contours. Within the Irindina Assemblage is the “Harts Range Meta-igneous Complex” (Lawrence, 1992) (equivalent to the Riddock Amphibolite Member), interpreted as predominantly metamorphosed volcanics and intrusives. This complex consists mostly of amphibolitic gneisses (“amphibolites”). Within the Harts Range Complex is the Entire Anorthosite, interpreted to be a high-grade metamorphosed anorthosite. In the Ruby Mine area (and to the north and north-west) this anorthosite is fairly continuous and up to ca. 30 m thick. (The apparent thickness in outcrop is usually greater, due to the shallow stratigraphic dip.) To the east and south, it is more discontinuous. Ruby occurrences at the Harts Range Ruby Mine are very localised within the Entire Anorthosite and occur in what appear to be “pod”-like meta-ultramafic bodies. These are interpreted to be boudins (hence pod-like in outcrop), with cross sections generally less than ten metres in diameter (long dimensions not known). The rubies are associated with small (dimensions usually less than a metre) altered anorthosite inclusions within the ultramafic bodies.

Barfuss Corporation intends to test for further economic ruby-corundum occurrences in these ultramafic boudins, which might be accessed by deeper excavations and/or underground mining. The company
also considers the vermiculite occurrence northwest of the ruby mine (in MCS236 & MCS237) to be a potentially economic minable resource. Barfuss plans to drill test both these areas.

4. WORK CONDUCTED DURING THE REPORT PERIOD

Field activities on the licences were restricted to limited specimen sampling and field location of previously mapped workings and geology. The company has also upgraded several access tracks, established a bore-water supply, conducted considerable environmental clean-up of debris etc. from the 1980s and re-established a site office / base camp (at the site of the old Mistral Mines NL camp, immediately north of the northern-most Ruby Mine workings).

Most work was focussed on re-assessing and compiling previous mapping, particularly over the Ruby Mine workings. The Ruby Mine environs was surveyed for Mistral Mines NL in the early 1980s and the geology and mine workings were mapped at 1:500 scale by N.C.G Raffan and R.W. Lawrence circa 1981 / 1982. This surveying and mapping was based on a 30-metre-spaced local grid and was printed on a set of eight sheets. This work does not appear to have been digitised or fully interpreted before. Barfuss Corporation (using Flagstaff GeoConsultants Pty Ltd) has digitally captured this surveying and mapping (with some later mapping from Lawrence, 1992) to produce a detailed GIS (geographic information system) dataset of the Ruby Mine geology, topography and mine workings. This has facilitated the extrapolation of the limited previous geological interpretation to cover the whole of the Ruby Mine area. In addition, numerous GPS readings taken along the full north-south length of the workings have been used to correlate the old local grid to the Australian Map Grid (AMG, Zone 53) and the 1966 Australian Geodetic Datum (AGD66), so that the mapping is now estimated to be located to an accuracy of +/- 10 metres. (Prior to this there was no link between the 1981 local grid and any real world datum.) Figure 3 shows the geology interpreted over the Ruby Mine area from this data at 1:1,250 scale.

At the Vermiculite Prospect (MCS236 & MCS237) Barfuss has similarly compiled the (very rough, hand-drawn) previous mapping of trenching conducted in the early 1980s, and interpreted the geology, to produce a detailed GIS dataset. This work also required field-location of the old trenches (using GPS). (Again, the previous mapping had not been tied to any real world datum or grid.) A limited amount of field mapping and additional trenching was also conducted to provide better understanding of the geology and vermiculite zones at surface. Figures 4, 5 & 6 show the topography and trench mapping, interpreted geology and interpreted vermiculite zones, respectively.

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6. EXPENDITURE.

Expenditure of $432,100 for the report period is allocated as follows:

Principal expenses:

- environmental clean-up $18,600
- site preparation 28,500
- water drilling & establishment of water supply 75,000
- marketing research 22,500
- report preparation 16,000
- general administration 37,000
- general overheads 43,200

Consultants
- field work 42,000
- drafting & report preparation 32,000

Field Work
- prospecting & exploration 47,400
- airfares 12,300
- accommodation 22,400
- vehicle expenses 28,000
- fuel 7,200

Total: $432,100

7. FUTURE WORK PROGRAMME.

Both the Ruby Mine and the Vermiculite Prospect are considered to be at or close to a “drill-ready” stage. The mapping compilation conducted to date has provided a thorough understanding of the surface geology and distribution of mineralised rocks. Drill testing is necessary to determine the feasibility of mining.

At the Ruby Mine, very close-spaced drilling is planned – initially to very shallow depths and close to known ruby-related outcrop (i.e. selected ultramafic bodies). This drilling is intended to test for the continuation of the ultramafic bodies/boudins and to locate/confirm the direction of this continuation. Very close spaced drilling is required because of the small cross-sectional diameter (rarely greater than 10 m) of the ultramafic bodies. It is planned that drilling will be “stepped out” as a better understanding of the size and orientation of the ultramafic bodies is gained.
At the Vermiculite Prospect deeper (but still less than 100 m depth) drilling is planned to test for the continuation of the vermiculite zone(s) at depth on the margin of the large ultramafic body. At present the vermiculite has only been identified in trenches roughly 2-3 metres deep. Any estimate of a minable resource will require drill definition.

Estimated proposed expenditure for the 12 months ending 20 June 2004 is allocated as follows:

Principal expenses:-

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</table>

Ross Caughey  
(Flagstaff GeoConsultants Pty Ltd)  
19 January, 2004

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REFERENCES


Northern Territory Geological Survey, 1979,1980. ‘Quartz’. 1:25,000 mapping, incorporated in the published ‘Quartz’ 1:100,000 geological map sheet (5951)

Rutter, H. (Geophysical Exploration Consultants Pty Ltd.) 1995. ‘An Interpretation of Airborne Magnetic Data from Spriggs Creek, NT for Barfuss Corporation’ *(unpublished report)*

Rutter, H. (Flagstaff GeoConsultants Pty Ltd.) 2001. ‘An Interpretation of Airborne Geophysical Data from the Spriggs Creek area, Harts Range, N.T. for Barfuss Corporation Pty. Ltd.’ *(unpublished report)*
Sources:

Interpreted Geology

(The accuracy of the original mapping cannot be vouched for.) has been positioned to +/- 5 to 10 metres.

All source maps are based on a local grid, with no fix to a real world datum.
If apparent dip is low, true dip may still be high (if strike is at a low angle to trench direction).

- Often appears slightly more hornblendic than Ruby Mine anorthosite
- Inferred to be equivalent of Entire Anorthosite in Ruby Mine area
- Predominantly biotite-garnet (-quartz-feldspar)
- Predominantly hornblende-feldspar (-biotite(-garnet))

Text comments adapted from the original mapping.

Minor
- Moderately common
- Abundant

Calcite & clay
- Verm, anthophyllite, wthd UM?
- Breccia (ca. 40%??)
- Pegmatite

Trench 14
- Verm zones (each ca. 30 cm thick) eastwards)
- Pegmatite

Trench 13
- Verm, anthophyllite with UM patches
- Verm in gneiss (ca. 50%??)
- Anorthosite?

Trench 8
- Verm in gneiss (ca. 10% verm??)
- Verm vein (after UM) with disseminated verm

Trench 9
- Verm in gneiss/verm breccia (ca. 50%??)
- Verm in much disseminated verm

Trench 10
- Verm with UM patches
- Verm in gneiss (mod. fresh)
- Verm in gneiss (biot-hbl-plag)

Trench 2
- Verm possibly over v. weathered gneiss in Trench 10
- Verm increasing in carbonate in Trench 10
- Verm in gneiss (biot-hbl-plag)
- Verm with UM patches

Effect of Trench (dipping shallowly to west)
often appears slightly more hornblendic than Ruby Mine anorthosite - garnet (-quartz?) rock; often 60-90% garnet - inferred to be "Unit 3" amphibolite of the Irindina supracrustal assemblage - predominantly hornblende-feldspar (-biotite(-garnet)) - undifferentiated amphibolitic (hornblendic) gneiss - inferred to be "Unit 2" amphibolite of the Irindina supracrustal assemblage - predominantly hornblende-feldspar (-biotite(-garnet))

often brecciated (with or without)

The rock types appear to be "typical" anorthosite. patches?), garnetiferous anorthosite and
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garnetiferous anorthosite and
garnetiferous anorthosite and
garnetiferous anorthosite and
garnetiferous anorthosite and

The ultramafic bodies lie on the west of the Vermiculite Prospect. The ultramafic bodies probably pitch northwards beneath the Vermiculite Prospect. There may be some ultramafic patches.

The ultramafic on the northern side of Trench 10c appears to be a "typical" anorthosite. The ultramafic on the northern side of Trench 10c appears to be a "typical" anorthosite. The ultramafic on the northern side of Trench 10c appears to be a "typical" anorthosite. The ultramafic on the northern side of Trench 10c appears to be a "typical" anorthosite. The ultramafic on the northern side of Trench 10c appears to be a "typical" anorthosite. The ultramafic on the northern side of Trench 10c appears to be a "typical" anorthosite. The ultramafic on the northern side of Trench 10c appears to be a "typical" anorthosite. The ultramafic on the northern side of Trench 10c appears to be a "typical" anorthosite.
This vermiculite zone appears to be
0.5m-thick verm zone

PEGMATITE

Vermiculite zone

1.5m-thick verm(-biot?) zone

0.5-1m-wide verm vein

Weathering & calcrete development.

which may be obscured near surface by
(coarse) (ca. 25% verm ?)

may indicate soft underlying
possibly after verm; some "OK" verm

55 ?

ca. 3m-thick verm

a bare soily depression here

ca. 4m-thick irregularly veined

veined verm zone

Pit 4

Projection: AGD66, AMG Zone 53

Figure 6