## BARFUSS CORPORATION PTY LTD

# HARTS RANGE PROJECT NORTHERN TERRITORY OF AUSTRALIA

#### ANNUAL TECHNICAL REPORT FOR

### EXPLORATION LICENCE EL 25764

FOR THE YEAR ENDING 15th SEPTEMBER 2014.

Author: A.R.Caughey

**Exploration & Discovery Services Pty Ltd** 

Date: 22 December, 2014

Licensee: Barfuss Corporation Pty Ltd

A.C.N. 006 917 666

Target Commodities: copper, gold, thorium, uranium, rare earth elements,

gemstones, muscovite

1:250,000 MAP SHEETS: Illogwa Creek SF 53-15

1:100,000 MAP SHEETS: Quartz 5951

Datum / Zone: GDA94 / MGA zone 53

KEYWORDS: Harts Range, Arunta Block, Harts Range Group, Riddock Amphibolite,

uranium, thorium, rare earth elements, copper-gold, niobium, tantalum,

yttrium, samarskite, muscovite

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#### LICENCE DETAILS:

Licence Number: EL 25764

Project Name: Harts Range

Licensee: Barfuss Corporation Pty Ltd

Licensee ACN: 006 917 666

Licence details:

Area: 6.32 square kilometres\*

within 2 square graticular units

(1 minute x 1 minute longitude/latitude)

<sup>\*</sup> actual area, excluding Mineral Claims, is 3.81 square kilometres.

#### **CONTENTS**

**Executive Summary** 

- 1. Introduction & Summary
- 2 Work conducted during the report period
- 3. Work program for the next twelve months

References

#### **FIGURES**

 1. Project Location Map
 1:1,000,000 (HR-loc-1411.wor)

 2. Field Activities
 1:25,000 (EL25764-activities-1411.wor)

**DIGITAL REPORT FILES** 

EL25764\_2014\_A.pdf

#### **EXECUTIVE SUMMARY**

Exploration Licence 25764 is part of Barfuss Corporation's Harts Range Project. The bulk of the project area comprises ELs 29690, 25063 and 25430, plus more recent licences ELs 29950 and 29920. Existing Mineral Claims are also considered part of the project. The Harts Range Project licences cover about 600 square kilometres but EL 25764 covers only a few square kilometres, surrounding the Hart Range Ruby Mine (over which Barfuss Corporation has Mineral Claim coverage). The licence was granted on 16 September 2010 and covers an area originally excised from the grant of EL 25063, at the time of that licence's grant, as it was then covered by "Reserve from Occupation" RO1357.

Underlying geology through most of the project area consists of high-grade metamorphic rocks of the Arunta Block, including the Harts Range Group (part of the Late Proterozoic to Cambrian Irindina Province), with older Aileron Province rocks in the east ("Entia Dome") and west (Strangways Metamorphic Complex, including younger deformation in the Gough Dam Schist Zone). EL 25764 is underlain predominantly by the Riddock Amphibolite unit, west of the Entia Dome. The licence covers only a small area amongst prospects recognised by the company on adjoining Licences and Claims.

Field activity to date has included reconnaissance mapping and prospecting, and inspection of the area for economic muscovite potential by geologists from the Merck Group of Germany. Mineralisation proximal to the licence includes the ruby deposits and a vermiculite deposit in Mineral Claims surrounded by the licence, and east-west pegmatite dyke(s) to the east with very strong uranium-niobium-yttrium-tantalum(-REE) mineral enrichment ("Bobs", "Cusp" and "Malex" prospects). Detailed air-borne geophysical surveying is considered an optimal assessment tool for the Project area and drill testing is being considered.

Barfuss has been in on-going negotiations with a number of other companies regarding possible investment and joint ventures, including the Merck Group (noted above), and a separate prospective investor has travelled from Germany to inspect the project. A Chinese group has also considering investing in parts of the project (via DDM Capital, a Melbourne-based corporate advisory firm) and Barfuss has visited China for discussions. A Confidentiality Agreement has been signed with MMG Limited, which is interested in the project's nickel prospectivity.

Activities during the reporting period included additional sampling of muscovite from pegmatite dykes and high-temperature testing of the same. Some results are encouraging, but no numerical results are available. Other work included on-going ground prospecting for gems, gem materials and vermiculite occurrences.

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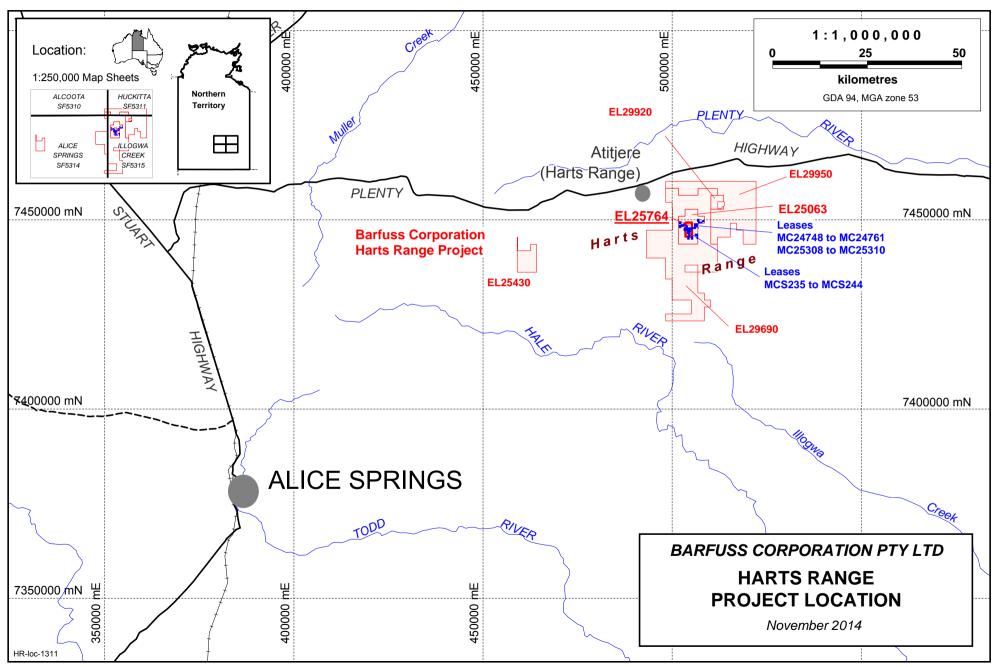


Figure 1

#### 1. INTRODUCTION & SUMMARY

Barfuss Corporation's Harts Range Project comprises ELs 29690, 25063, 25430 and EL 25764, plus newer licences EL 29950 and EL 29920, plus a number of Mineral Claims within the area of ELs 25063 and 25764.

•	EL 29690	(334.06 square kilometres)	(granted 04 Dec. 2013, during the period)
•	EL 25063	(40.77 square kilometres)	
•	EL 25430	(32.37 square kilometres)	
•	EL 25764	(6 square kilometres)	(granted 16 September 2010)
•	EL 29920	(10.03 square kilometres)	(granted 23 April 2014, during the period)
•	EL 29950	(192.7 square kilometres)	(granted 23 April 2014, during the period)
•	Mineral Claims MC 24748-24761 & 25308-25310		(621 hectares)

The exploration licences are contiguous, with the exception of EL25430, which lies to the west. The MCs are within the area of ELs 25063 and 25764. The company also has granted Mineral Claim coverage of the Harts Range Ruby Mine (MCS235-244, 172 hectares) which is also surrounded by EL 25764.

#### This report covers only EL 25764.

[Licences EL 25063 and EL 25430 (and former EL 24552) – granted prior to EL 25764 – were grouped for reporting purposes as GR-132/09.]

The area of EL 25764 was formerly covered by "Reserve from Occupation" RO1357. This RO was in operation at the time the larger surrounding licences were granted – otherwise this small EL area would have been part of the larger licences.

The Harts Range Project lies in the southeast of the Northern Territory, roughly 100 to 160 kilometres northeast of Alice Springs (170 to 260 km by road, via the Plenty Highway) (Figure 1).

Topography and terrain are the Harts Range is frequently rugged, with relief up to 300 to 400 metres in some areas. Access is predominantly from the north via station tracks running south from the Plenty Highway. The rugged terrain generally restricts vehicle access to established tracks.

The project is in the Harts Range area, which is dominated by gneisses and amphibolites of the Riddock Amphibolite Member, part of the Harts Range Group in the Irindina Province (formerly considered Early Proterozoic, now recognised as Late Proterozoic to Cambrian), in Division 2 of the eastern Arunta Block. The project also covers adjacent rocks, predominantly schist, gneiss and some calcsilicates which also belong to the Harts Range Group. The far eastern part of the project also overlies the older Bruna and Entia Gneisses on the western flank of the "Entia Dome" (Aileron Province, Arunta Division 1).

EL 25430, to the southwest, is also underlain by older Aileron province rocks (Strangways Metamorphic Complex), though these are dominated here by younger deformation forming the Gough Dam Schist Zone. Geology is generally dominated by high-grade quartzofeldspathic gneisses and schist, with subordinate amphibolite and calcsilicates.

The Harts Range was a major area of pegmatite-related mica mining in the early-mid- 20<sup>th</sup> century. Other mining in the project area has generally been very small scale, targeting semi-precious gem minerals. Small-scale base metals mineralisation occurs in several areas, however, and some larger deposits have been identified. Base

metal mineralisation in the region includes the Jervois copper deposits, to the northeast, the Molyhil Mine (scheelite-molybdenite (tungsten)) and the Oonagalabi copper-lead-zinc deposit.

More recently, copper-gold mineralisation was investigated by Tanami Gold NL at its Copper Queen group of prospects in 2001-2005 (following earlier work by Kinex at its White Hill Dam prospect in 1984-1987), and Power Nuclear Corporation of Japan (PNC) explored the area for uranium in the 1990s (company reports are listed in the References at the end of this report). The Copper Queen prospects are now mostly east and northeast of Barfuss Corporation's EL25430, with some overlap. Areas investigated by PNC are also covered by the Project. Recent activity has included that of Mithril Resources Limited at its Huckitta Project (mostly southeast of the Barfuss Harts Range Project) where significant copper-cobalt and nickel-copper sulphide mineralisation is being investigated.

The Harts Range ruby deposit was found in the late 1970s and mined from then into the early 1980s by Hillrise Properties and Mistral Mines. Barfuss Corporation has mineral claim coverage of the ruby mine, which is surrounded by EL 25764, and has its site office and camp located there.

In addition to gemstones, and base and precious metals, the Harts Range is also prospective for a variety of industrial minerals. As well as the historic mica deposits, the Mud Tank vermiculite mine is 25-30 km to the west, other vermiculite deposits are known in the area, and potential garnet sand resources have been identified in the region. Barfuss Corporation has a vermiculite-rich deposit within its Ruby Mine mineral claims, within the Riddoch Amphibolite unit, and considers that there is potential for more such mineralisation within the project area.

Barfuss Corporation has conducted mostly non-invasive work on the Harts Range Project leases. Several prospect areas have been identified in different areas of the licences. Investigations included analysis of available geophysical data, geological mapping, rock-chip sampling and ground spectrometer surveys. Several areas are recognised as significantly prospective, requiring further investigation. Rock-chip assays include some highly anomalous results. Numerous areas have been subject to reconnaissance and more detailed investigations, including mapping, rock-chip sampling and ground spectrometer surveys. Identified mineralisation and anomalism includes copper-gold, rare earth elements (REE), uranium, thorium and nickel. This work is documented in detail in previous Annual Reports for the various licences. EL 25764, however, covers only a small area amongst the other licences and prospects. Mineralisation proximal to the licence includes the Harts Range Ruby Mine and a vermiculite deposit in Mineral Claims surrounded by the licence, and east-west pegmatite dyke(s) to the east with very strong uranium-niobium-yttrium-tantalum(-REE) mineral enrichment ("Bobs", "Cusp" and "Malex" prospects, in ELs 25063 and 29690).

Barfuss Corporation's activities were severely curtailed for a number of years by: a protracted legal dispute, involving the freezing of funds earmarked for exploration, from 2007 to late 2009; the failure of a subsequent signed agreement with a South Korean corporation which was to invest \$12m on exploration of Barfuss' Harts Range project; protracted negotiations with a number of other companies, including D'Aguilar Gold Ltd, Commissioners Gold Ltd, the Merck Group (Germany), BOA Advisors Trust LLC (Indiana, USA), and a Chinese group (via a third party); and a very severe, near fatal, illness which afflicted Mr Uwe Barfuss, and required protracted hospitalisation, in 2010-2011.

Discussions are on-going with the Merck Group and the Chinese group, plus prospective German investors and other private investors, and Barfuss has received a written commitment to invest \$5 million in the Project. A Swiss investment group, known to have provided capital for diamond mining in Sierra Leone and gold mining in Mexico, has also approached Barfuss with a view to investing in the project. Barfuss has also signed a Confidentiality Agreement with MMG Limited, which is interested in the project's nickel prospectivity.

Field activity on the licence during the reporting period included specialised high-temperature heat-treatment of selected additional muscovite mica samples, reconnaissance prospecting for further vermiculite mineralisation, and general ground prospecting for gems and gem materials.

Work being considered for the coming reporting period includes a detailed airborne survey over much of the Harts Range Project area and/or drilling, subject to the potential involvement of joint venture partners. Different companies with which Barfuss is in discussions are interested in different resources or commodities, so there may be potential for more than one additional company to become involved in the Project.

Expenditure figures are provided in the separate Exploration Expenditure Report.

#### 2. WORK CONDUCTED DURING THE REPORT PERIOD

Activities were similar to those previously. Given the very small size of this licence, the company's focus is principally on prospects in the adjoining larger licences, or the enclosed mineral claims.

#### Muscovite Sampling.

Muscovite samples collected from elsewhere in the project area in 2011 and sent to Germany for analysis prompted a reconnaissance visit to the project by representatives of the Merck Group, a major global pharmaceutical and chemical company, with headquarters in Germany.

Merck investigated the Harts Range as one of a number of areas in Australia deemed to be potential sources for muscovite mica with chemical and physical properties suitable for its purposes. Historically, the Harts Range mica deposits were sources of large (decimetre-plus) book mica, for uses requiring large mica sheets. Merck's requirements are different, being principally based on the chemistry of the mineral rather than its crystal size.

Merck reported that it considers the potential of the Harts Range region to be huge, and "the Northern Territory has a large potential as mica supplier for Merck". It declared that it regards Barfuss Corporation as its "most important potential partner in the Harts Range" and hoped to make use of the Barfuss site camp and infrastructure, if any mica mining eventuates. Personal communications from the Merck report's author to Barfuss Corporation state that "until now, the best quality Australian mica comes from your leases" (email, December 2011).

Additional mica samples were collected from EL25764 in the reporting period, and tested with special high-temperature heat treatment using Barfuss' own furnace. Some results are very encouraging and further work will be conducted, though no numerical results have been generated.

Sampling was from various pegmatite dykes within the small licence area, as shown in Figure 2.

#### Other activities.

The area was also closely examined for further indications of vermiculite occurrence, such as is known on some

Barfuss Corporation Pty Ltd Exploration Licence EL 25764

Annual report for the period ending 15<sup>th</sup> September, 2014.

of the Mineral Claims which the licence surrounds. Other work included general ground prospecting for gems and gem materials. No new occurrences have been located, but some float rock material in drainages to the north of the Barfuss site office and camp is considered to possibly indicate prospective areas of interest.

Other activities largely focussed on discussions with prospective joint venture partners and investors. Discussions are on-going with the Merck Group and a Chinese group, plus prospective German investors (who have visited the project) and other private investors. Barfuss has signed a Confidentiality Agreement with MMG Limited, which is interested in the project's nickel prospectivity.

#### 4. WORK PROGRAM FOR THE NEXT TWELVE MONTHS.

EL25764 is a small, but central, part of the Harts Range Project. The next phases of work on the project will be partly subject to the involvement of potential joint venture partners. Different companies with which Barfuss is in discussions are interested in different resources or commodities, so there may be potential for more than one additional company to become involved in the project. Work to be conducted may be largely dependent on the interests of such companies.

The company plans to fly a detailed geophysical survey (magnetic and radiometric) over much or all of the Harts Range Project area. This will help identify areas warranting more detailed investigation, and will aid in the geological interpretation of areas already of interest. A low-level, helicopter borne, 50-metre-line-spaced magnetic and radiometric survey is planned.

The company is also considering further preliminary drill testing of selected prospects.

Ross Caughey (Exploration & Discovery Services Pty Ltd) 22 December, 2014

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Barfuss Corporation Pty Ltd Exploration Licence EL 25764

Annual report for the period ending 15<sup>th</sup> September, 2014.

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