

Australian Abrasive Minerals Pty Ltd

Harts Range HMS Project Annual Technical Report For the period 12th August, 2015 to 11th August, 2016 ML23868



Harts Range – Aturga Creek Deposit from about 472400E, 7457850N

TARGET COMMODITY: GARNET

Map Sheet: Alice Springs, Alcoota, 1:250,000
Riddoch, 1:100,000

PROJECT OPERATOR: Australian Abrasive Minerals Pty Ltd

Author: John Baxter

11th September 2016

CONTENTS

CONTENTS	
CONTENTS	2
FIGURES	2
TABLES	2
EXECUTIVE SUMMARY/ABSTRACT	3
INTRODUCTION	4
Location.....	5
Previous Work and Acquisition	7
Australian Abrasive Minerals Activities	8
GEOLOGICAL SETTING –EXPLORATION RATIONALE	8
Physiography.....	8
Geology and Mineralisation	9
Exploration Index Map	9
Mineralogy and Metallurgy.....	10
Remote Sensing and Geophysics.....	10
Surface Geochemistry	10
Drilling 10	
Geotechnical Studies.....	10
Resource estimation.....	10
Recommendations.....	11
BIBLIOGRAPHY	11

FIGURES

Figure 1 Resource areas ML23868, Red is measured resource green and pink are indicated resources	4
Figure 2 Location Plan for Harts Range Garnet Project 2016	6
Figure 3 Map showing location of ML23868 with respect to tenements in the Harts Range Garnet Project	7
Figure 4 Stylised Cross Section of the Harts Range HMS Deposit (From Doepel, 2003)	9
Figure 5 Exploration Index Map, no exploration was carried out	10

TABLES

Table 1 Resources for ML 23868, Harts Range (Baxter and Stewart, 2009).....	3
---	---

EXECUTIVE SUMMARY/ABSTRACT

The Harts Range HMS Project on ML23868 is located along Aturga Creek, a tributary in the valley of the Plenty River and covering approximately 2,530ha. ML23868 is on the western edge of Australian Abrasive Minerals Harts Range Garnet project that includes ML28614, EL24360, EL24378, EL30318 and EL28696. Australian Abrasive Minerals (AAM) acquired ML23868 in 2016 and will incorporate it into the Harts Range Garnet Project during the forthcoming year. The ML23868 has a garnet resource estimated to contain 10.03Mt of sand containing 0.8Mt of garnet in the measured category and 17.5Mt of sand containing 1.6Mt garnet in the indicated category.

Table 1 Resources for ML 23868, Harts Range (Baxter and Stewart, 2009)

Category	Material (t)	HM%	OS%	SL%	HM (t) in ore	Garnet (t) in ore	AMH (t) in ore
Measured	10,030,000	33.6	7.5	15.6	3,366,000	799,000	2,449,000
Indicated	17,542,000	33.1	9.9	12.6	5,800,000	1,580,000	4,040,000
Total M +Ind	27,572,000	33.3	9.0	13.7	9,170,000	2,380,000	6,490,000

HM=Heavy Mineral, OS=Oversize, SL=Slimes

During the 2015-2016 exploration period Australian Abrasive Minerals Pty Ltd (AAM) have:

- Finalised purchase of the ML from Imperial Granite and Minerals Pty Ltd
- Commenced review and assessment of previous work

Contact Details:

Tenement Holder:

Australian Abrasive Minerals Pty Ltd (90%)
 P.O. Box 886, South Perth WA 6951
 Contact: Curtis Brand
 Email: Curtis@aaminerals.com.au
 Phone: (08) 9315 2177
 Branvest Pty Ltd (10%)
 2/35 Outram St, West Perth WA6005
 P.O. Box 2077, Rossmoyne, WA 6148
 Contact: Robert Brand
 Phone 9457 8957 or 0421 388 222

Tenement Administration:

Austwide Mining Title Management Pty Ltd
 Unit 6, 42 Dellamarta Road, WANGARA WA 6065
 Post Office Box 1434,
 Wangara, WA 6947
 TEL: (08) 9309 0400
 FAX: (08) 9309 0499
 Email: naomi@austwidemining.com.au

Report Author:

John Baxter
 Hermitage Holdings Pty Ltd
 4 Burns Rd, Kalamunda
 Western Australia 6076
 Email: john@hermitage.com.au

This report has been prepared by John Baxter on behalf of Australian Abrasive Minerals Pty Ltd and Branvest Pty Ltd. The text of the report is owned by John Baxter, the copyright of the data belongs to AAM and Branvest. All copyright owners authorise the Minister for Primary Industry and Resources and the DPIR department to copy and publish information in this report when the tenement expires.

INTRODUCTION

The Harts Range HMS Project is located along the valley of the Plenty River comprising ML 23868 with an area of 2,530ha. To date more than \$10M has been spent on the ML. In 2009 Baxter and Stewart (2009) reported that ML23868 contained a garnet resource estimate of 10.03Mt of sand containing 0.7Mt of garnet in the measured category and 17.5Mt of sand containing 1.6Mt garnet in the indicated category. The measured resources and the majority of the indicated resources are within the mining lease, with a small portion of the indicated resource outside the Mining lease in the adjacent EL28696 (Figure 1).

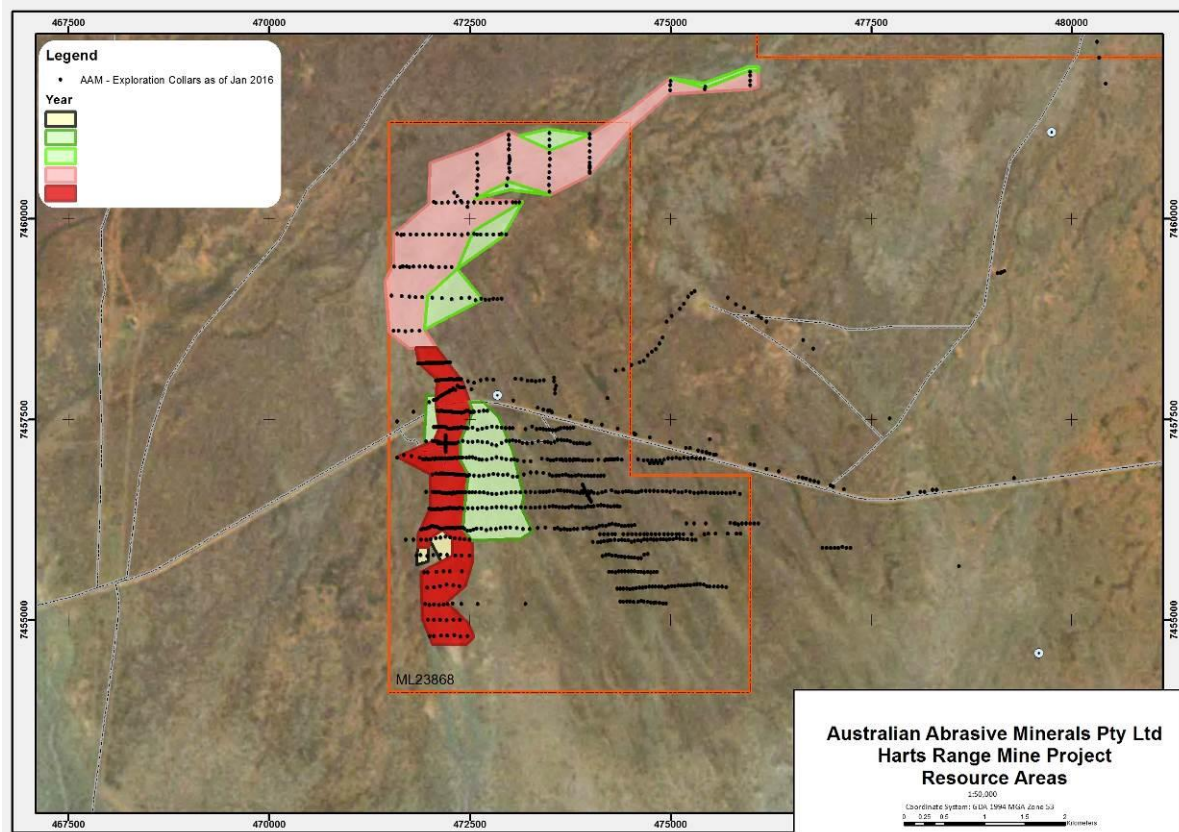


Figure 1 Resource areas ML23868, Red is measured resource green and pink are indicated resources

In 2004 Doepel and Baxter (2004) concluded that the dune area on the eastern side of the Lease contained 25.6Mt of sand with 1.6Mt of garnet in the measured category, 22.6Mt of sand containing 1.2Mt of garnet in the indicated category and 13Mt of sand containing 0.9Mt of garnet in the inferred category.

In this reporting period 11th August, 2015 to 10th August 2016 the main focus has been on completion of the sale of the tenement by Imperial Granite and Minerals to AAM.

Location

The Harts Range HMS Project, located within the Northern Territory, is approximately 120km northeast of Alice Springs in the Northern Territory. By road it is 105km east of the Darwin to Alice Springs railway line on the Plenty Highway. Access from Alice Springs is north along the sealed Stuart Highway for 70km and then east along the Plenty Highway for 125km, the first 80km of which is sealed. The Plenty Highway provides excellent access to the Mining Lease.

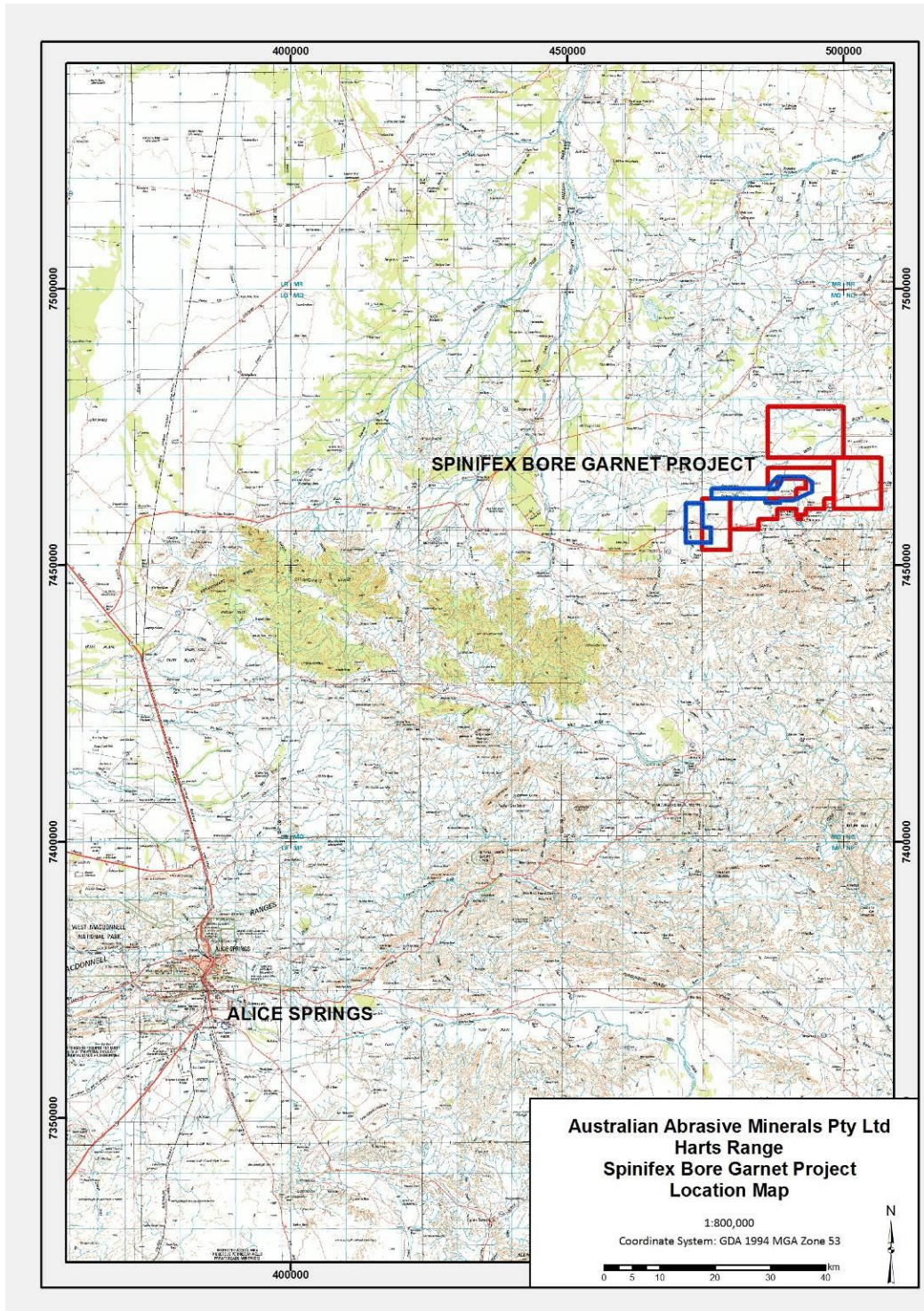


Figure 2 Location Plan for Harts Range Garnet Project 2016

The Mining Lease is on the western side of the Harts Range Garnet Project being developed by AAM (Figure 3)

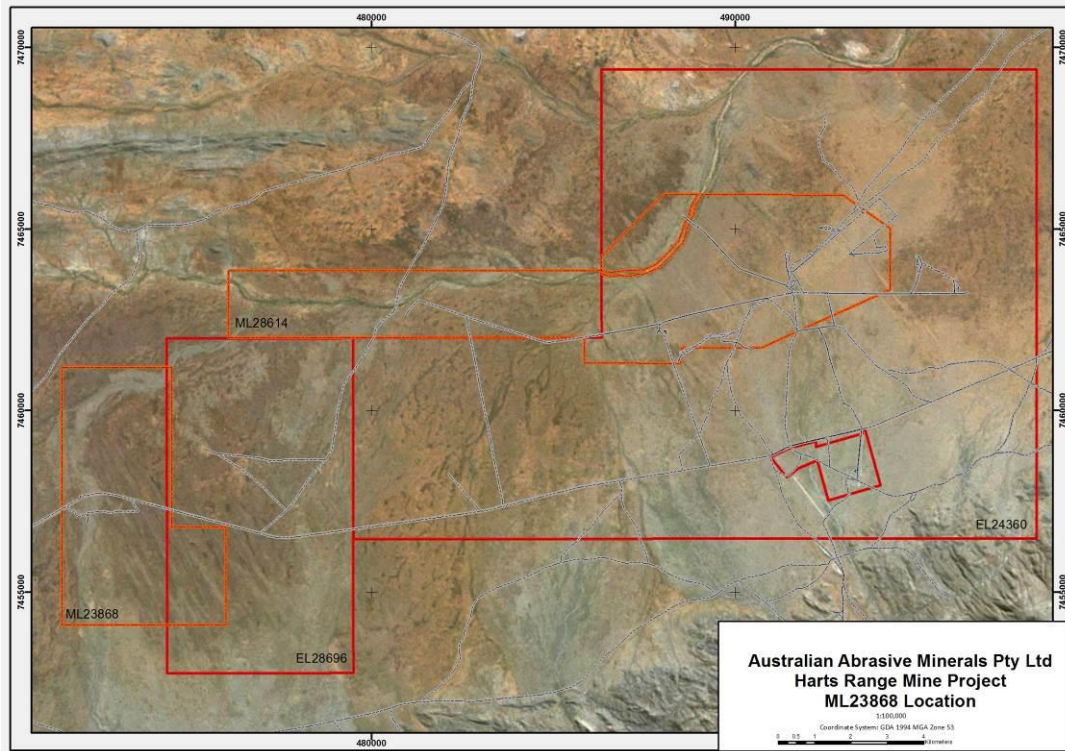


Figure 3 Map showing location of ML23868 with respect to tenements in the Harts Range Garnet Project

Previous Work and Acquisition

Australian Abrasive Minerals Pty Ltd ('AAM') acquired the Harts Range HMS Project from Imperial Granite and Minerals Pty Ltd in 2016. The project had been extensively assessed by Matilda Zircon Ltd (previously Olympia Resources Ltd) identifying a deposit with 27.5Mt of sand containing 2.4Mt of garnet in Measured and Indicated categories.

The history of ML 238686 is as follows:

- In the late 1990's Imperial Granite was the original holder of many EL's Containing Industrial Garnet resources in the Harts Range area.
- In 2000 a deal was struck and the EL's were sold to Olympia Resources. Olympia then proceeded to list on the ASX.
- Olympia spent in excess of \$7 million on reaching a BFS and receiving a granted ML23868.in 2005
- Olympia changed its name to Matilda Zircon in 2008, but no further progress was made toward becoming an operating mine.
- By 2010 Matilda was in breach of the original contract between Imperial and Olympia in that there was a deadline in which to commence mining.
- After legal action the licence was returned to when Imperial controlled 90% and Branvest Pty. Ltd. held 10% interest in the ML.

- After reviewing Olympia's database Imperial found that the ML contained substantial Ilmenite, Rutile and Leucoxene as well as the known large quantities of Industrial Almandine Garnet.
- The Project was then referred to as the Harts Range HMS Project

In 2013 Imperial Granite engaged Kydare Management Pty Ltd and Nagrom Mineral Processors to conduct a pilot and bench-scale testwork program on a 10 tonne sample of Harts Range ore has indicated that garnet and mixed garnet/hornblende products can be produced utilising conventional mineral sands processing techniques. Mining and processing of 2.5Mtpa ore using a plant based on the testwork flowsheet produces 40Ktpa garnet, 160Ktpa hornblende and 224Ktpa mixed garnet/hornblende concentrates from a back-calculated ROM grade of 26% garnet + hornblende. Total capital cost for mining and processing plant is estimated at A\$58million and operating costs at A\$67millionpa, including concentrate freight mine to China port. Sales of garnet into water-jet cutting at \$330/t CIF and the hornblende and garnet/hornblende mix into sand-blasting at \$155/t CIF results in a gross operating margin of \$5.9millionpa.

Australian Abrasive Minerals Activities

In July, 2016 Australian Abrasive Minerals took control of the tenement and began the task of consolidating the data collected by Olympia Resources Ltd, Matilda Zircon Ltd and Imperial Granite Pty Ltd and this process is continuing. It is expected that the research completed on the Harts Range Garnet Project will benefit processing of the deposit on ML23868.

GEOLOGICAL SETTING –EXPLORATION RATIONALE

Physiography

The Harts Range HMS Project covers the floodplain of the Plenty River predominantly over the Kanandra Land System. It includes alluvial plains of Stones, Eblana, Ulgama, Watson and Brett Creeks.

The Kanandra System is characterized by sparsely timbered, red sandy plains on the north side of the Harts Range. The system can contain low dunes that particularly occur at the gradation to the Simpson land system which is characterized by large dunes.

The vegetation of the Kanandra system within the project area is dominated by scattered Ironwood trees (*Acacia estrophiolata*), tall shrubs of Witchetty Bush (*Acacia kempeana*), Cassia (*Senna artemisioides* subsp. *filifolia*), low shrubs such as Saltbushes (*Rhagodia* species) and grasses (*Aristida* species and *Eragrostis* species).

Geology and Mineralisation

Garnet bearing sands in paleochannels have been identified along the Plenty River floodplain from Aturga Creek (west of the Project) to Entire Creek (east of the Project).

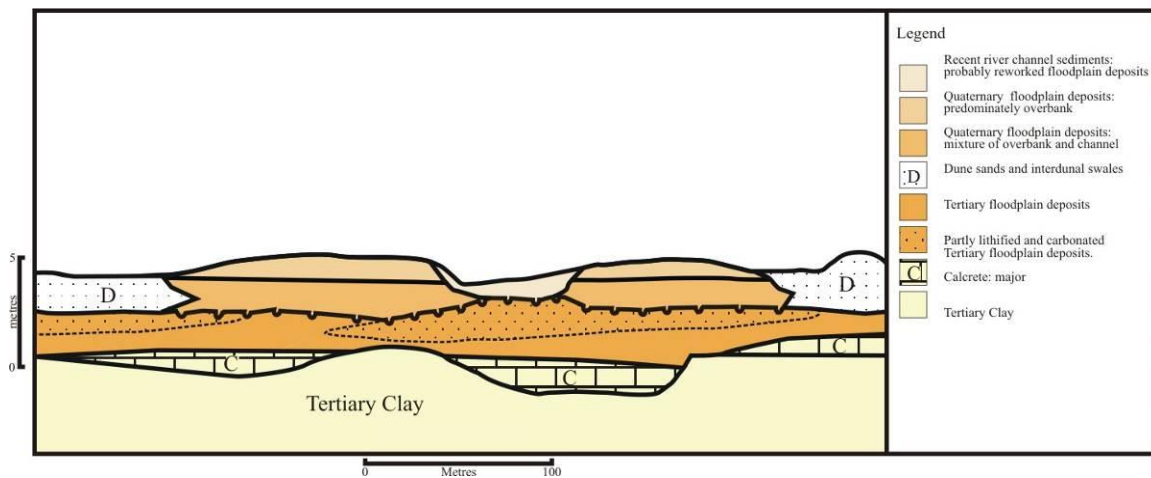


Figure 4 Stylised Cross Section of the Harts Range HMS Deposit (From Doepel, 2003)

The geology of the Olympia deposits in the Harts Range has been described by Doepel (2003), who identified the following geological units:

- River Wash: Sands and gravels of the active channels of Aturga Creek and the Plenty River.
- Floodplain Deposits: Consolidated, but unaltered and unlithified, mostly from 1.5 to 4.5m thick.
- Dunes: Fixed sand-dunes, up to 20m thick. They contain carbonate alteration and some lithification, especially towards their base.
- Swales: Between the dunes. They are finer-grained than the dunes and more strongly lithified.
- Paleochannels: Older floodplain and river channel deposits unconformably beneath the floodplain, dune, and swale units. They are lithified and subject to carbonate alteration in part.
- Tertiary Clay: Tertiary clay unconformably underlies the above units. It is known from water bores in the area to be in excess of 100m thick in places. It is cream or green in colour, and contains minor sand grains.

The relationships between the units are shown in Figure 4.

The best quality garnet is obtained from the River Wash, Floodplain and Paleochannel units.

Exploration Index Map

No exploration was completed in 2015-2016 during negotiation for purchase of the tenement by AAM from Imperial Granite.



Figure 5 Exploration Index Map, no exploration was carried out

Mineralogy and Metallurgy

No mineralogy or metallurgy was conducted in 2015-2016

Remote Sensing and Geophysics

No remote sensing or geophysics was done during 2015-2016.

Surface Geochemistry

No soil or grab samples were taken during 2015-2016.

Drilling

No drilling was conducted during 2015-2016.

Geotechnical Studies

No geotechnical studies were completed in 2015-2016.

Resource estimation

No further resource estimations were undertaken in 2015-2016.

Recommendations

After analysis of the available data from Olympia Resources, Matilda Zircon Ltd, Imperial Granite and Minerals Pty Ltd and Nagrom it is recommended that:

- Complete a confirmation drilling program of up to 50 holes to confirm QA/QC on previous work
- Review of the resource reporting to upgrade the existing report that is compliant with JORC 2004 to comply with JORC 2012

BIBLIOGRAPHY

Baxter, J.L., 2006. *Resource and Exploration Drilling Programme 2006. Aturga Minesite, Marshall River, Jinka & Spinifex Bore North*. Olympia Resources Ltd internal report OLY06/093.

Baxter, J.L. and Doepel, J.J.G., 2004. *Riddoch Garnet-AMH project. Resource and Reserves report (updated May, 2004, Olympia Resources Ltd*. CRM Report WA04/020.

Baxter, J.L. and Stewart, S., 2009, *Revision Of Resources At Aturga Abrasives Project Including Detailed Mineralogy January 2009: Olympia Report OLY09/001*

Baxter, J.L., 2012, *Jinka/Mt Riddock Regions, Annual Technical Group Report For the period 16th October, 2011 to 15th October, 2012, EL24360, EL24378, EL24641, and EL25098 , GR078/09*

Bunter, J., Goodall, N. and Gazzard, P., 2008, *Preliminary Report On Metallurgical Test Work Program: Olympia Report OLY09/011*

Chuck, R.G., 1980, *Annual Report on Exploration in EL1861, Mount Riddoch, NT for the period 22nd May 1979 to 21st May 1980: Alcoa Report*

Doepel, J,J,G., 2003. *Harts Range Project 2002 Drilling Report, Exploration Licences 10150 & 9190, Operator: Olympia Resources NL*. CRM Report WA03/001.

Lennartz, R., 2007. *Aturga Minesite, Spinifex Bore and Exploratory Water Bore Drilling Report*. CM&ES Report OLY07/009.

Price, G., 2013, *SUMMARY REPORT, Mount Riddock bulk sampling program ML23868- Report for Imperial Granite and Minerals Pty Ltd*.

Stewart, S. and Baxter, J.L., 2008, *Update of Resources at Aturga Abrasives Project, June, 2008 Olympia Resources Report OLY08/003*

Stewart, S., 2008, *Mineralogy Report 2008 Harts Range Garnet Project Northern Territory Olympia Report OLY08/033*

Wilkinson, T., and Brittliffe, T., 2013, Harts Range Mineral Sands: Report for Imperial Granite and Minerals Pty Ltd Rept T1400/Q0061