AustralianAbrasiveMinerals Pty Ltd

Harts Range Spinifex Bore Garnet Project
Annual Technical Group Report
For the period
16th October, 2013to 15th October, 2014
EL24360, EL24378 & EL28696,
GR078/12

Pump Testing Bore W5P at 489512E, 7466578N

TARGET COMMODITY: GARNET

Map Sheet: Alice Springs, Alcoota, Huckitta 1:250,000
Riddoch, Delny, Dneiper, Jinka 1:100,000

PROJECT OPERATOR: ***AustralianAbrasiveMinerals Pty Ltd***

Author: John Baxter
John Barnett

7th December, 2014

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CONTENTS

FIGURES

TABLES

APPENDICES

EXECUTIVE SUMMARY/ABSTRACT

The Harts Range Spinifex Bore Project tenements EL24360, EL24378, EL28696 and EL30318 are located along the valley of the Plenty River and cover approximately 512km^2 or 136 blocks. EL 30318 is not included in GR078 in the current year. A garnet resource has been identified and estimated to contain 23.1Mt of sand containing 1.2Mt of garnet in the measured category and 44.5Mt of sand containing 2.65Mt garnet in the Inferred category. The tenements also contain a bore field which can supply process water at a rate of 1,210 m^3/day (14 l/s). These are the keystones for project development.

A study of the potential water resources in the Harts Range Spinifex Bore Garnet Project area has been undertaken. From previous work three sources need to be examined. Firstly the Ambalindum Sandstone which supplies water to Spinifex Bore and the current project borefield; secondly an aquifer that is likely to be from fractured rock and calcrete that has been identified by aircore drilling and at Benstead Bore; and thirdly a poorly yielding shallow aquifer in the Tertiary sedimentary basin which has been discounted as a potential aquifer.

During the 2013-2014 exploration period Australian Abrasive Minerals Pty Ltd (AAM) have:

- Completed analysis of samples collected in 2012-2013
- Updated the resource estimation at the Harts Range Spinifex Bore Project
- Undertaken a full review of the water potential in the district
- Completed a drilling programme to assess shallow aquifers in the immediate vicinity of the resource
- Completed a definitive feasibility study
- Successfully negotiated financing of the project to ensure production will begin in 2015

This report outlines the work that has been undertaken.

Contact Details:

Tenement Holder:
Australian Abrasive Minerals Pty Ltd
P.O. Box 2077,
Rossmoyne
Western Australia 6148
Contact: Curtis Brand
Email: Curtis@aaminerals.com.au
Phone: (08) 9315 2177

Tenement Administration:
Austwide Mining Title Management Pty Ltd
GPO Box 1364
Darwin NT 0801
Phone: 08 8981 2799
Fax: 08 8941 0226
Email:rachelc@austwidemining.com.au

Report Authors:
John Baxter
Hermitage Holdings Pty Ltd
9 Marie Way, Kalamunda
Western Australia 6076
Email: john@hermitage.com.au

INTRODUCTION

The Harts Range Spinifex Bore Project tenements included in GR078 are EL24360, EL24378, and EL28696 (Table 1). They are located along the valley of the Plenty River and cover approximately 433km^2 or 111 blocks. Australian Abrasive Minerals Pty Ltd ('AAM') acquired the Harts Range Spinifex Bore Garnet Project from Matilda Zircon Ltd (previously Olympia Resources Ltd) in 2009. To date more than $2M has been spent on the tenements with exploration (Table 2). A garnet resource has been identified and estimated to contain 23.1Mt of sand containing 1.2Mt of garnet in the measured category and 44.5Mt of sand containing 2.65Mt garnet in the inferred category (Coxhell, 2014). The tenements also contain a bore field which can supply process water at a rate of 1,210 m^3/day (14 l/s) (Rockwater,2007).

Table 1 Australian Abrasive Minerals Tenements, September, 2014

Project	Prospects	Tenements	Rent 2013-2014	Commitment	Grant Date
Harts Range					
	Riddoch	EL28696	$ 1,154	$ 16,000	12th Oct 2011
	Spinifex Bore	EL24360	$12,111	$ 101,500	15th Sept 2006
	Irrerlirre	EL24378	$8,037	$ 71,500	15th Sept 2006
	Eldorado Nth#	EL30138	$1,102	$ 13,750	14th May 2014

#EL30318 is not included in GR078

Table 2 Historical Expenditure on the Spinifex Bore Garnet Project

Tenement	Previous Tenement	Previous Expenditure	2012 Expenditure	2013 Expenditure	2014 Expenditure
EL28696	EL10150 (part)	$1,033,817	$30,000	$60,044	$7,124
EL24360		$548,341	$55,130	$32,744	$113,558
EL24378		$71,350	$15,500	$20,475	$24,461
	Total	$1,653,508	$100,630	$113,263	$145,143

All tenements are granted and the rent is $21,302 (including GST and administration fees). There is a current commitment to spend $189,000 across the 3 granted tenements. In 2013-2014 the majority of the funds were directed toward EL24360 with the completion of a feasibility study and including some supplementary drilling. Due to the pending acquisition of mining equipment for development of the project Variation of Covenants on the tenements for 2013-2014 are being sought.

In this reporting period 16th October, 2013 to 15th October, 2014 the main focus has been establishing final approvals for the project, completing a feasibility study, finalising funding of the project and establishing a framework for extending the water resource in the district. A short drilling program was undertaken in 2013 as approved in the Mine Management Plan on EL24360 and EL24378; however the entire program was not completed due to time constraints and the lack of a suitable rig. The location of the drill holes and geology was reported in 2013.

In 2014 a short four holes programme was completed to review the possibility of identifying a shallow water aquifer.

Location

The Harts Range Spinifex Bore Garnet Project, located within the Northern Territory, is approximately 134km northeast of Alice Springs (Figure 1). The project is accessed via travelling north along the Stuart Highway for 68km then east along the Plenty Highway for a further 143km. The first 84km along the Plenty Highway is sealed after which the remainder of the access is unsealed; with lose gravels and corrugations regularly encountered. A turn off onto a pastoral track heading north from the Harts Range police station leads into the project area.

The Plenty Highway provides excellent access to the tenements. From the highway there are numerous tracks that are generally negotiable except after heavy rain. The tenements are mainly north of the Plenty Highway as shown in Figure 2.

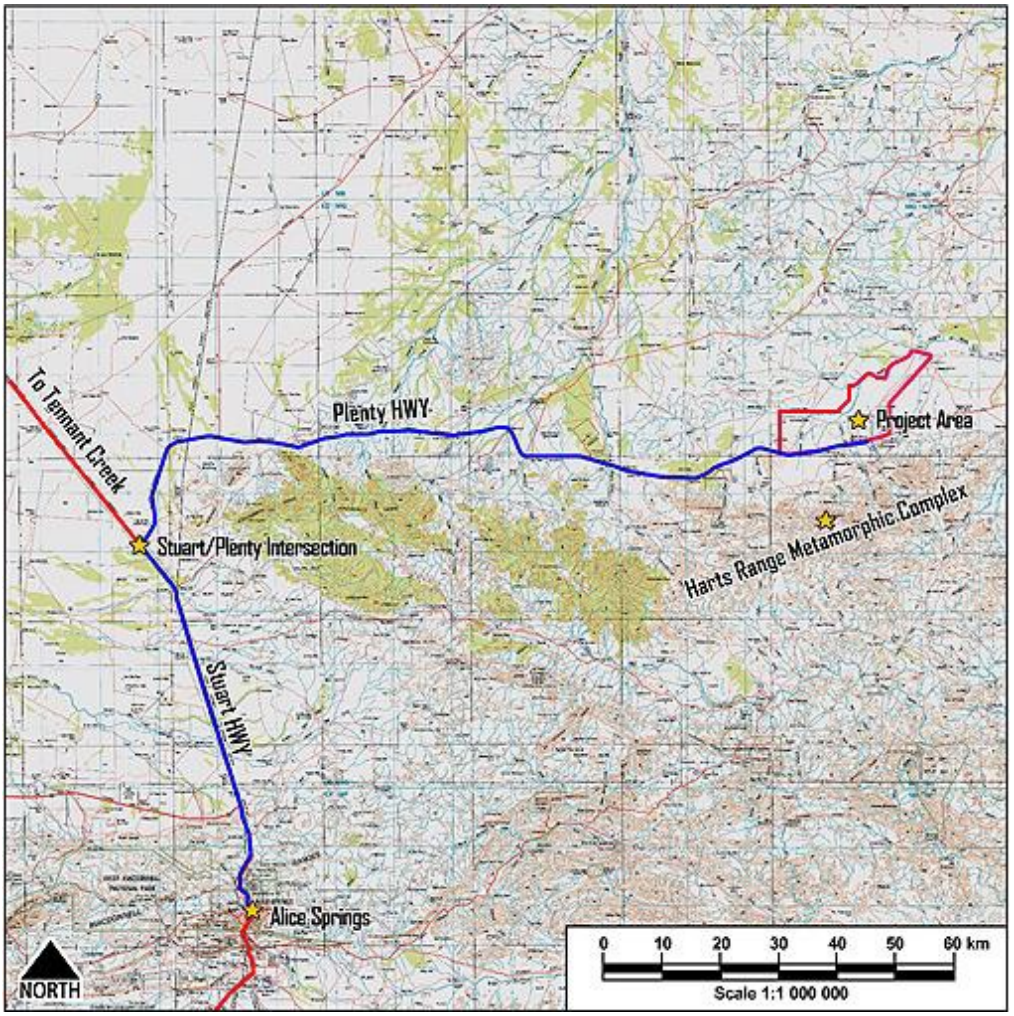

Figure 1 Location Plan for Harts Range Spinifex Bore Project 2013

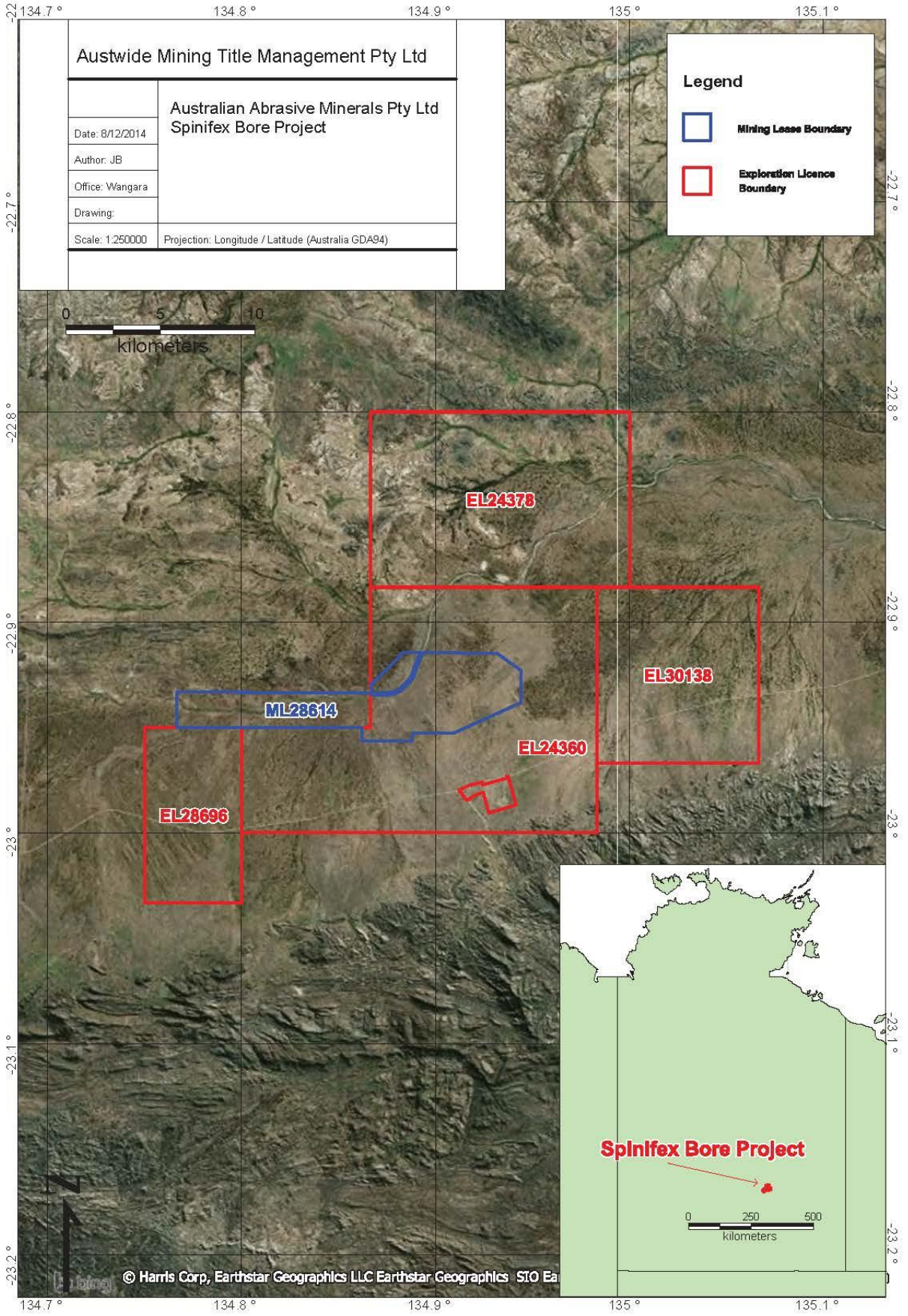

Figure 2 Locations of Australian Abrasive Minerals Pty Ltd Tenements, 2014 including EL30318 not included in GR078

Previous Work and Acquisition

Australian Abrasive Minerals Pty Ltd ('AAM') acquired the Harts Range Spinifex Bore Garnet Project from Matilda Zircon Ltd in 2009. Matilda (previously Olympia Resources Ltd) had previously conducted extensive work on the Aturga Project about 15 km to the west of the Harts Range Spinifex Bore Garnet Project identifying a deposit with 27.5Mt of sand containing 2.4Mt of garnet in Measured and Indicated categories. Matilda had also conducted reconnaissance drilling in the vicinity of the Harts Range Spinifex Bore Garnet Project and reported 51.7Mt of sand containing 3.8Mt of garnet in the Inferred category (Baxter and Stewart, 2009).

Australian Abrasive Minerals Activities

In 2010 Australian Abrasive Minerals undertook a comprehensive resource drilling programme over a portion of the Inferred resource area identified by Matilda and identified 23.1Mt of sand containing 1.2Mt of garnet in the Measured category and 30.6Mt of sand containing 1.6Mt garnet in the Inferred category (Coxhell, 2010).

In 2012 Australian Abrasive Minerals completed a feasibility study on the identified resource in an endeavour to secure finance for development of the deposit. In 2013 AAM undertook a short exploration drilling program with a view to extend the resource and to further understand the stratigraphy in the district. Heavy mineral analysis of this program was completed in 2014.

Subsequently the data was reviewed and an update of the resource estimate by Coxhell (2010) was made. This concluded that the Inferred resources have been increased to 44.5Mt of sand containing 2.65Mt of garnet (Coxhell, 2014).

The breakdown of expenditure in 2013-2014 is shown in

Table 3 Expenditure on tenements 2013-2014

	EL24360	EL24378	EL28696
Geological	$13,107	$6,000	$776
Geochemical Activities	$15,000	$5,000	
Geophysics			
Drilling	24350		
Bulk Sampling			
Rehabilitation			
Pre-Feasibility	$53,101	$7,500	
Office Studies	$3,000	$2,000	$1,848
Overheads	$5,000	$3,961	$4,500
Total	**$113,558**	**$24,461**	**$7,124**

It is essential for the Harts Range Spinifex Bore Garnet Project that there is a supply of water for the life of the project. In 2013-2014 a detailed review of all data relating to stratigraphy in the district was completed with a proposal for further drilling. In 2013-2014 four bores were drilled to test the potential of the calcrete and shallow aquifers.

GEOLOGICAL SETTING –EXPLORATION RATIONALE

Physiography

The Harts Range Spinifex Bore Garnet 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). Australian Abrasive Minerals focussed their exploration in the vicinity of the bore field identified around Spinifex Bore concentrating on the floodplains of the Plenty River and Stones, Ulgarna and Watson Creeks.

The stratigraphy of the region is now well known based on drilling and pitting, that has been conducted on the tenements over the past 10 years. It is summarized in Table 4.

Previous drilling for water on EL24360 has identified that to the south of the project the sand is underlain by Tertiary sediments of the Waite Formation and Ambalindum Sandstone. It is in the Ambalindum Sandstone that the aquifer that will eventually supply the treatment plant for the Harts Range Spinifex Bore Garnet Project. However the potential of improving our understanding of the local stratigraphy and to test the potential of the calcrete layer some drilling was conducted in 2013.

Table 4 Stratigraphy of Harts Range Spinifex Bore Project Area

Range		Lithology	Cement
From	To		
10cm	15m	Red fine-grained silty sand - windblown – dunes to east	Unconsolidated
1.5m	5m	Brown-Orange fine to medium grained sand-floodplain	Partly consolidated with iron coating on grains
0	8m	Calcretised grey-white sand and pebbles-paleochannel	Usually free flowing, but may be partly cemented by calcrete
1m	7m	White-grey sand and cobbles - paleochannel	Often hard well-cemented
1m	2m	Calcrete	Well-cemented
40m	120m	Schist and clay with abundant biotite and chlorite OR Tertiary clay and sand	Lithified

Exploration Index Map

In 2013-2014 four holes were drilled to examine the stratigraphy and potential for shallow aquifers in the project area. There locations are shown on Figure 3.

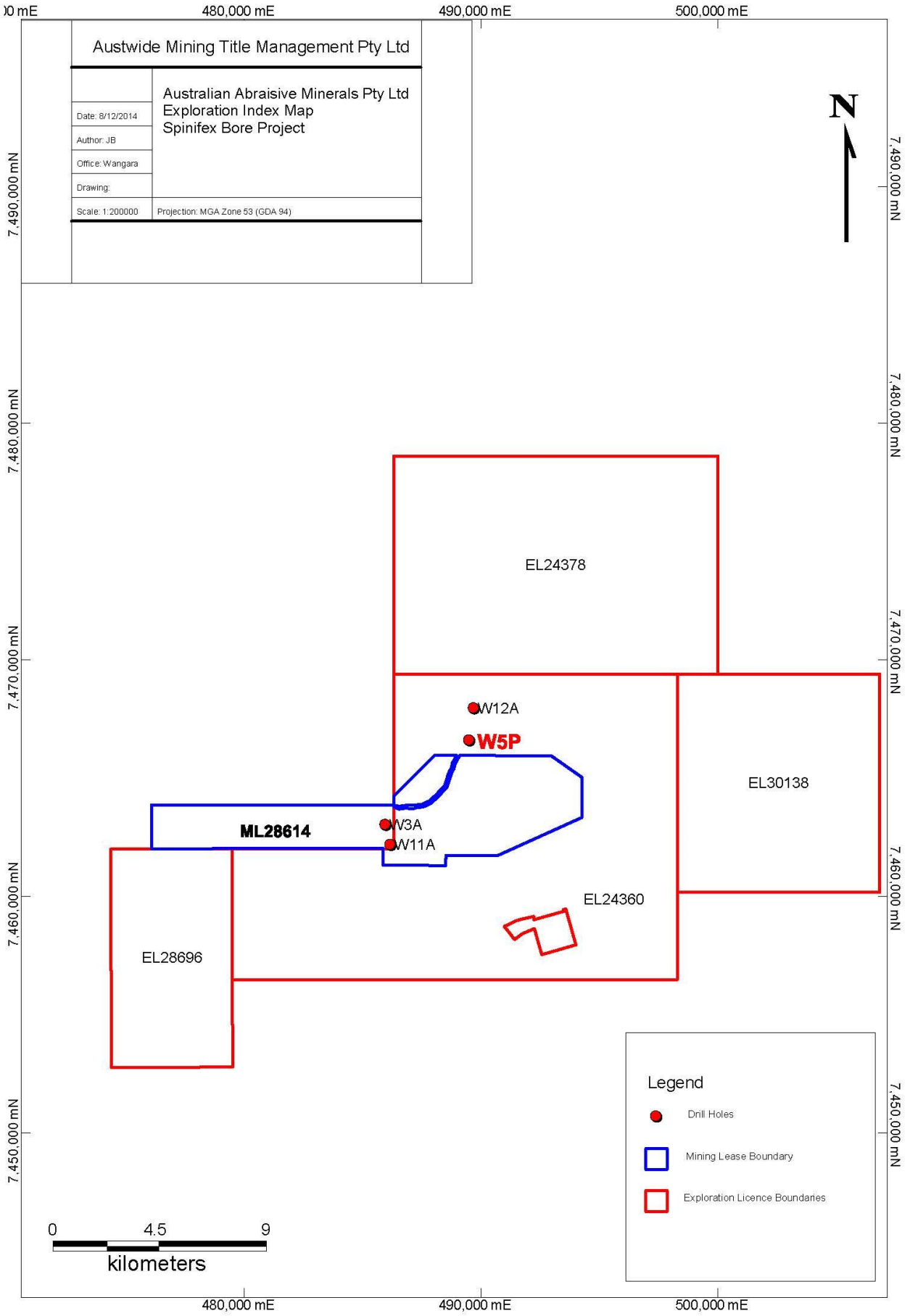

Figure 3 Exploration Index Map

Geological Studies

In October 2013 Australian Abrasives contracted Colling Exploration Pty Ltd Drilling and Field Services to conduct aircore drilling within the project area. The location and geological logs of these holes were reported in the annual report for 2013.

A total of 350 samples were submitted for heavy mineral sand analysis in 2013-2014 by Diamantina Laboratories in Perth and the results are reported on accompanying data files.

In January 2014 the data from the 2013 drilling was incorporated into the resource model by Simon Coxhell who concluded that as well as the previously defined 23.106Mt of sand containing 1.18Mt of garnet in the measured category (Table 5), the drilling has identified 44.55Mt of sand containing 2.65Mt of garnet (Table 6 and Figure 4). The update is included as Appendix 1.

Table 5 Measured Resources Spinifex Bore Deposit (Modal Analysis)

Resource Table

Min Type	Tonnes (ISBD=1.60)	Total HM%	Modal Garnet %	Tonnes Garnet (Modals)	Modals Tonnes Garnet *Minus 1mm*	Modals Tonnes Garnet *Plus 1mm*	Classification
Fluvial	13,736,689	24.22	4.73	649,745	619,992	29,579	Measured
Paleochannel	9,369,726	22.05	5.67	531,263	460,079	71,470	Measured
Total	23,106,415	23.34	5.11	1,181,009	1,080,072	101,049	Measured

Table 6 Inferred Resources 2014 Spinifex Bore Project

Inferred Resources		Area	Depth	Tonnage	Garnet %	Tonnes Garnet
Zone 1		1,865,000	5	14,920,000	7.5	1,119,000
Zone 2		946,400	5	7,571,200	5.3	401,274
Zone 3		469,300	5	3,754,400	5.3	198,983
Zone 4		538,200	5	4,305,600	5.3	228,197
Zone 5		400,000	5	3,200,000	5	160,000
Zone 6		1,350,000	5	10,800,000	5	540,000
Total		**5,568,900**		**44,551,200**	**5.9%**	**2,647,454**

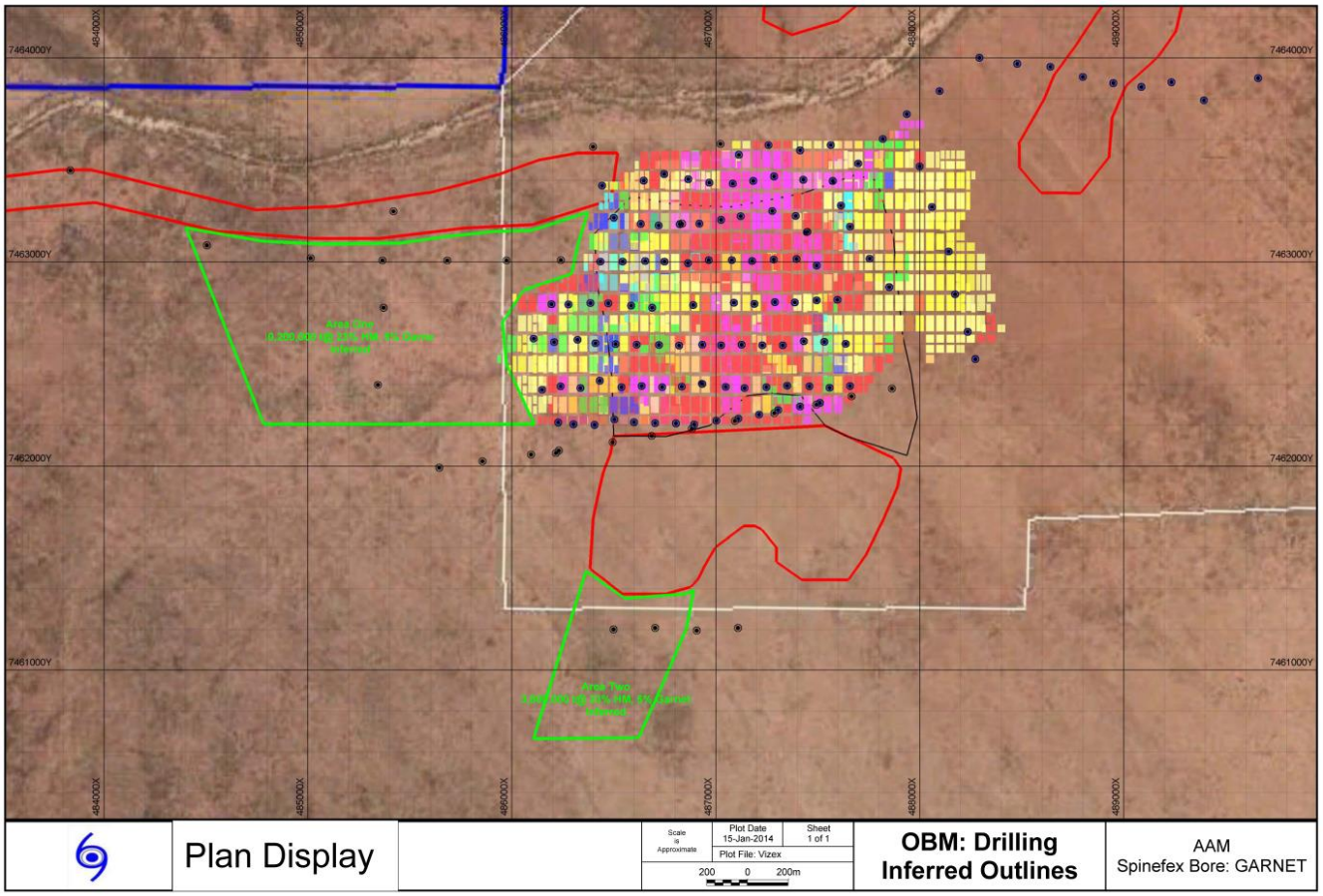

Figure 4 Plan showing the location of the Inferred Resource Blocks with the Measured Resource OBM

In July, 2014 AAM engaged John Barnett and John Baxter to undertake a full review of all previous work on stratigraphy and water potential in the district.

The history can be summarised as follows::

- Alcoa undertook a wide scale drilling programme in 1980 in the district on a uranium search and identified sandstone, possibly Ambalindum Sandstone, in several holes and developed a Tertiary stratigraphy for the district (Chuck, 1980)
- Peter Jolly from the W ater Division in Darwin reviewed the Alcoa drilling in the area and provided a general base line for the basin geology, but this was not followed through
- Ian Mathews brought his experience with the water source at Atitjere to bear and developed a program of work based on Spinifex Bore with the result a borefield yielding 14 l/sec was identified, note this excludes production from Spinifex Bore. It seems from our work that Spinifex Bore is not drilled through the aquifer and may not be in the centre of the basin.
- Rockwater provided a report on the bores including interpreting the pump results and was concerned about the recharge to the Ambalindum Sandstone aquifer.
    - Rockwater modelled the depth of sand interval, suggesting a basin centred northwest of Spinifex bore
    - They made an analysis of the salinity pattern and created a model for the basin. Their analysis suggests that in all but one bore (OLY8) the

drawdowns are satisfactory for five years or more of pumping at a supply of 14 L/s.

- He predicted the basin would continue to provide water for 5 years without depleting the agricultural use of Spinifex Bore
- He considered the aquifer was confined with slow leakage from the overlying clay beds
- The model used simulated groundwater recharge only at the southern edge of the basin
- Rockwater also identified an upper shallow aquifer that was not modelled and is probably not a useful water source for the project

This resulted in a staged exploration and development programme being proposed (Appendix 2) as follows:

Phase 1: Drilling and testing of two sites, HR137(W 3) and HR148(W5) where previously drilled shallow exploration holes had encountered groundwater. Any bore with potential significant yield to be cased and tested by pumping.

Redevelopment by airlifting of five existing bores in the Spinifex Borefield: OLY1, OLY4, OLY7, OLY8 and OLY9.

Phase 2A: If either or both sites drilled in Phase 1 proved successful, drilling of up to six additional sites on magnetic or structural lineaments in the same area.

Phase 2B: If Phase 1/Phase 2A unsuccessful, drilling of up to six sites aimed at identifying potential eastward and western extensions to the Spinifex Borefield.

Phases 1 and 2A were carried out by Tomlin Drilling under the supervision of Hydrogeologist John Barnett, over the period 27 August to 5 September 2014. The location of the bores is shown on Figure 5.

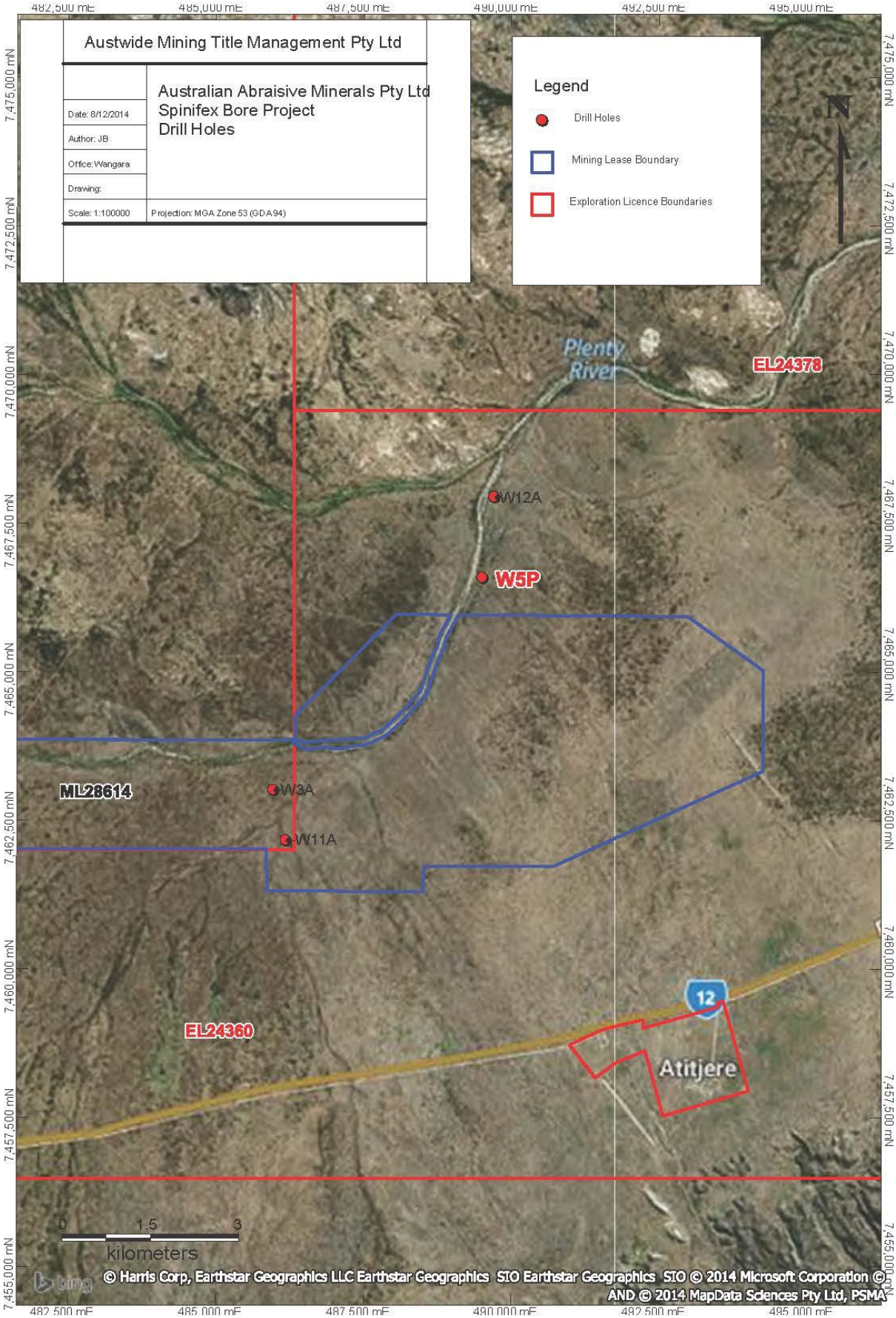

Figure 5 Exploration Bores 2014

The drilling program led to the conclusion that the calcrete was not a particularly strong aquifer and that the potential for shallow aquifers was not good. In particular:

1. Bore W5P has an estimated long-term sustainable yield of 0.9L/s, with EC (electric conductivity) of 4,200 micro S/cm, equivalent to about 2,750 mg Total Dissolved Solids. The water is very slightly alkaline, with pH 7.9.
2. The weathered and fractured rock aquifer to the north and northwest of the Spinifex Borefield has been tested by four exploration bores during the Phase 1 and Phase 2A programme, producing one production bore capable of a long-term sustainable yield of only 0.9 L/s (about 80 kL/day). This aquifer has therefore been shown to be unlikely to provide a significant yield for the AAM Garnet Project.
3. Four of the existing five production bores in the Spinifex Borefield have been redeveloped and are in good condition; these are OLY1, OLY4, OLY7 and OLY9.

   The fifth, OLY8, is damaged, probably either at the top or bottom of the screened section or within it. It may still perform satisfactorily as a production bore, providing the pump intake is set at least 5m above the top of the screen.

   The yield of OLY4 is limited by the small diameter of the production casing (100mm).

Mineralogy and Metallurgy

IMO were asked to conduct a detailed review of the Spinifex Bore Feasibility Study completed by AAM. The report is included as Appendix 4.

IMO were asked to examine the +250-2000µm and the +45-250µm streams of the product to assess the production outcomes. Jonathon Childs has reported the following results:

Please refer to Table 1 for estimated ilmenite and zircon production from the +250-2000 µm HMC and +45-250 µm WHIMS streams. Further detail on ilmenite and zircon production is provided within the respective sections on this report.

Table 1: Estimated ilmenite and zircon recovery through HMC and WHIMS streams.

Product Stream	Description	Ilmenite		Zircon	
		tph	tpa	tph	tpa
+250-2000 µm	HMC	1.32	9,832	0.015	111
+45-250 µm	WHIMS	1.36	10,096	0.034	254
Total (+45-2000 µm)	HMC+WHIMS	2.68	19,928	0.049	365

1. **HMC in the -1.7mm +0.15mm fraction**

Heavy liquid separation at SG 2.8 was performed using LST media, with 30.4% of the +0.15,–2.0 mm fraction reporting to "sinks". This equates to 25.3% of the -2.0 mm fraction when slimes are included.

Table 2: HM content of various ore fractions.

Basis	HM Grade (%)
Run-of-mine	23.5
-2.0mm with slimes	26.1
-2.0mm+0.15mm	30.5

2. **Garnet in the HMC**

Results shown in Table 3 show the estimated distribution of HM, garnet and amphibole by particle size and marketing grade within the wet pre-concentration plant and do not account for losses typical of processing.

The mineral distribution and grades were estimated from the more comprehensive mineral size distribution shown in Table 4.

The ilmenite and zircon distribution in Table 4 uses values calculated by the grain counting method and is considered to be less quantitative than other assay methods when dealing with the very low concentrations of these minerals.

Table 3: Estimated garnet distribution within HMC, by product grade.

Grade	Size	Mass	HM			Garnet			Amphibole		
	(µm)	Dist. %	Grade %	Dist. %	tph	Grade %	Dist. %	tph	Grade %	Dist. %	tph
A	+850-2000	16.8	17.3	2.5	6.65	40.9	9.8	2.72	53.4	8.7	3.55
B	+600-850	13.8	24.3	27.2	7.70	35.7	28.5	2.75	58.7	11.3	4.52
C	+250-600	38.1	34.3	38.1	30.02	28.4	39.9	8.53	66.3	43.0	19.89
D	+150-300	14.1	37.1	10.9	12.05	18.7	11.4	2.26	68.4	22.8	8.25
U/S	+45-150	17.3	–	21.3	–	–	10.5	–	–	14.2	–

Table 4: Size by size assay distribution calculated from grain counting results. Note poor agreement of zircon with assayed values.

Size	Mass			HM			Garnet in HM			Amphibole in HM		
µm	Mass (g)	%Dist	%Pass	HM%	%Dist	%Pass	Grade (%)	%Dist	%Pass	Grade (%)	%Dist	%Pass
850	262.7	16.8	83.25	18.3	10.8	89.2	40.4	16.3	83.7	53.1	8.7	91.3
500	301.9	19.3	64.00	25.3	17.1	72.1	35.0	22.4	61.4	60.5	15.8	75.5
300	373.1	23.8	40.21	31.0	25.9	46.2	29.0	28.0	33.4	68.3	26.9	48.5
212	242.4	15.5	24.75	38.0	20.6	25.5	27.3	21.0	12.4	64.6	20.3	28.3
125	163.9	10.5	14.30	47.2	17.3	8.2	15.3	9.9	2.5	74.8	19.7	8.5
45	127.4	8.1	6.18	28.7	8.2	–	8.2	2.5	–	68.2	8.5	–
-45	96.9	6.2	–	–	–	–	–	–	–	–	–	–
Calc. Head	1568.3			30.3			28.66			64.09		
Assay Head				30.4								

Size	Ilmenite in HM (Grain Count)			Zircon in HM (Grain Count)		
µm	Grade (%)	%Dist	%Pass	Grade (%)	%Dist	%Pass
850	0.0	0.0	100.0	0.0	0.0	100.0
500	0.0	0.0	100.0	0.0	0.0	100.0
300	1.3	17.8	82.2	0.0	0.0	100.0
212	0.4	4.4	77.8	0.0	0.0	100.0
125	3.2	29.3	48.5	1.8	90.5	9.5
45	11.2	48.5	–	0.4	9.5	–
-45	–	–	–	–	–	–
Calc. Head	1.72			0.235		
Assay Head	1.62			0.030		

3. Ilmenite

Annually, 15,165 tons of ilmenite will be produced as a HM concentrate component. Significant amounts will be lost through the slimes stream as a large portion of the ilmenite is finer than the proposed 150 µm cut-off size. Table 6 shows the hourly and annual ilmenite production estimated on a 250 µm cut-off size.

Table 5: TiO_2/Ilmenite distribution within +150-2000µm material at 230 tph feed.

Fraction	Mass		TiO_2		Ilmenite		
	Overall Dist. (%)	+150µm Dist. (%)	Grade (%)	Dist. (%)	Grade (%)	tph	tpa
Light Minerals (SG<2.8)	57.9	69.6	0.12	8.1	0.23	0.31	2,288
Heavy Minerals (SG>2.8)	25.3	30.4	1.82	53.7	3.50	2.04	15,165
-150 µm Fines	16.8	–	1.94	38.1	3.73	1.44	10,734
Assay Head	–	–	0.84	–	1.62	3.73	27,744

*Assay head values will differ slightly from calculated masses.
Ilmenite = TiO_2/0.52

Additional recovery of ilmenite from the +45-250µm stream may be possible utilising wet-magnetic separation equipment. Table 6 shows the estimated deportment for each of the HMC and WHIMS products. Recovery for the WHIMS is assumed to be 80% of the material contained in the +45-250µm fraction and requires confirmatory testwork to provide confidence in the assumed value.

Table 6: Ilmenite recovery to HMC (+250-2000µm) and WHIMS (+45-250µm) streams.

Product Stream	Description	Ilmenite	
		tph	tpa
+250-2000 µm	HMC	1.32	9,832
+45-250 µm	WHIMS	1.36	10,096
Total	HMC+WHIMS	2.68	19,928

4. Zircon

Annually, 194 ton of zircon will report to the HM concentrate, based upon the values in Table 7. As is the case with ilmenite, a significant proportion will be lost with the fines stream. Approximately one quarter of the zircon will be lost in the light mineral tailings, presumably due to the presence of zircon in composite particles. Table 8 shows the hourly and annual zircon production estimated on a 250 µm cut-off size, and shows the potential additional recovery of zircon from the +45-250 µm fraction.

There is likely to be a large degree of inherent error present in the ZrO_2 assays as zirconium is a minor ore component and is being reported near to the detection limit for XRF assays. A variation of +/- 0.01% for a single classification can result in a significant change to the distribution of the element.

To produce a plant feed of 1,500 tpa for zircon the ZrO_2 head grade should increase to 0.084%, and for 1,500 tpa of zircon in the HMC, the feed grade must increase to 0.182% ZrO_2.

Table 7 ZrO_2/zircon distribution within +150-2000µm material at 230 tph feed.

Fraction	Mass		ZrO_2		Zircon		
	Overall Dist. (%)	+150µm Dist. (%)	Grade (%)	Dist. (%)	Grade (%)	kg/h	tpa
Light Minerals (SG<2.8)	57.9	69.6	0.01	24.7	0.015	19.9	148.0
Heavy Minerals (SG>2.8)	25.3	30.4	0.03	32.3	0.045	26.1	194.0
-150 µm Fines	16.8	–	0.06	43.0	0.090	34.6	257.7
Assay Head	–	–	0.03	–	0.045	103.0	766.8

*Assay head values will differ slightly from calculated masses.
Zircon = ZrO_2/0.67

As with ilmenite, a degree of additional recovery of zircon from the +45-250µm stream may be possible utilising wet-magnetic separation equipment. Table 8 shows the estimated deportment for each of the HMC and WHIMS products, with recovery for the WHIMS assumed to be 80% of the zircon contained in the +45-250µm fraction. This assumption requires confirmatory testwork to provide confidence in the assumed value.

Table 8: Zircon recovery to HMC (+250-2000µm) and WHIMS (+45-250µm) streams.

Product Stream	Description	Zircon	
		tph	tpa
+250-2000 µm	HMC	0.015	111
+45-250 µm	WHIMS	0.034	254
Total	HMC+WHIMS	0.049	365

5. **Garnetblende (80% hornblende 20% garnet) in the -600 +250 micron fraction.**
Insufficient information is currently available to determine the potential garnetblende grades or production. Testwork on the dry magnetics and air-tabling is required to produce a value with a significant degree of confidence.

Remote Sensing and Geophysics

No remote sensing or geophysics was done during 2013-2014.

Surface Geochemistry

No soil or grab samples were taken during 2013-2014.

Drilling

As described above four exploratory holes were drilled during 2014. The programme was of limited success.

Geotechnical Studies

No geotechnical studies were completed in 2013-2014

Resource estimation

In January 2014 the data from the 2013 drilling was incorporated into the resource model by Simon Coxhell who concluded that as well as the previously defined 23.106Mt of sand containing 1.18Mt of garnet in the measured category (Table 5), the drilling has identified 44.55Mt of sand containing 2.65Mt of garnet (Table 6 and Figure 4).

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APPENDIX 1

Memo to John Baxter
From Simon Coxhell
Re: AAM Spinifex Bore Garnet Deposit: Additional Inferred Resources
Date: 17th January 2014

Executive Summary

The Harts Range Spinifex Bore Project tenements EL24360, EL25098, EL24378 and EL28696 are located along the valley of the Plenty River and cover approximately 512km^2 or 136 blocks. A garnet resource was estimated in 2010 and contains 23.1Mt of sand containing 1.2Mt of garnet in the measured category.

Table 1: Measured Resources (Modal Analysis)

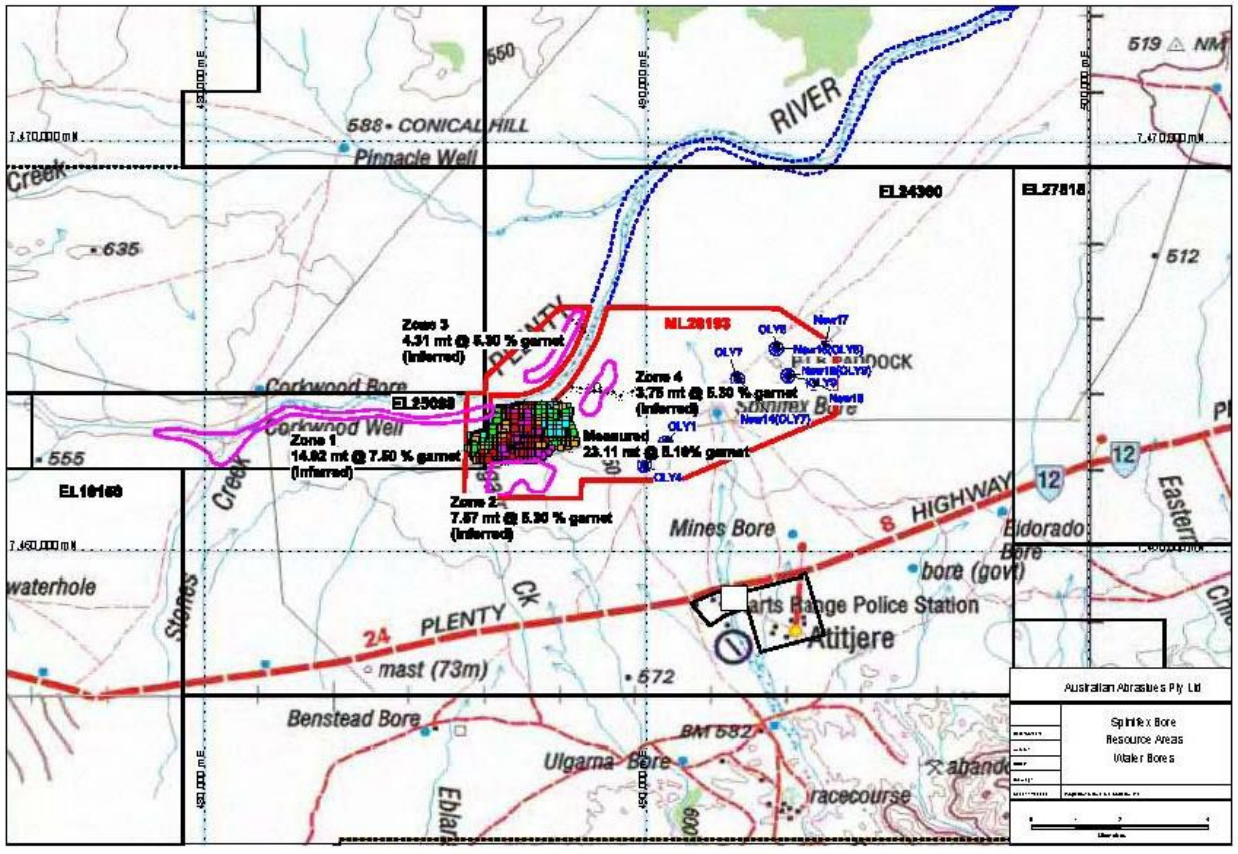
Resource Table

Min Type	Tonnes (ISBD=1.60)	Total HM%	Modal Garnet %	Tonnes Garnet (Modals)	Modals Tonnes Garnet *Minus 1mm*	Modals Tonnes Garnet *Plus 1mm*	Classification
Fluvial	13,736,689	24.22	4.73	649,745	619,992	29,579	Measured
Paleochannel	9,369,726	22.05	5.67	531,263	460,079	71,470	Measured
Total	23,106,415	23.34	5.11	1,181,009	1,080,072	101,049	Measured

Additional Inferred Resources were also estimated and totalled 30.55 million tonnes at an average grade of 6.4% garnet.

Table3: Inferred Resources

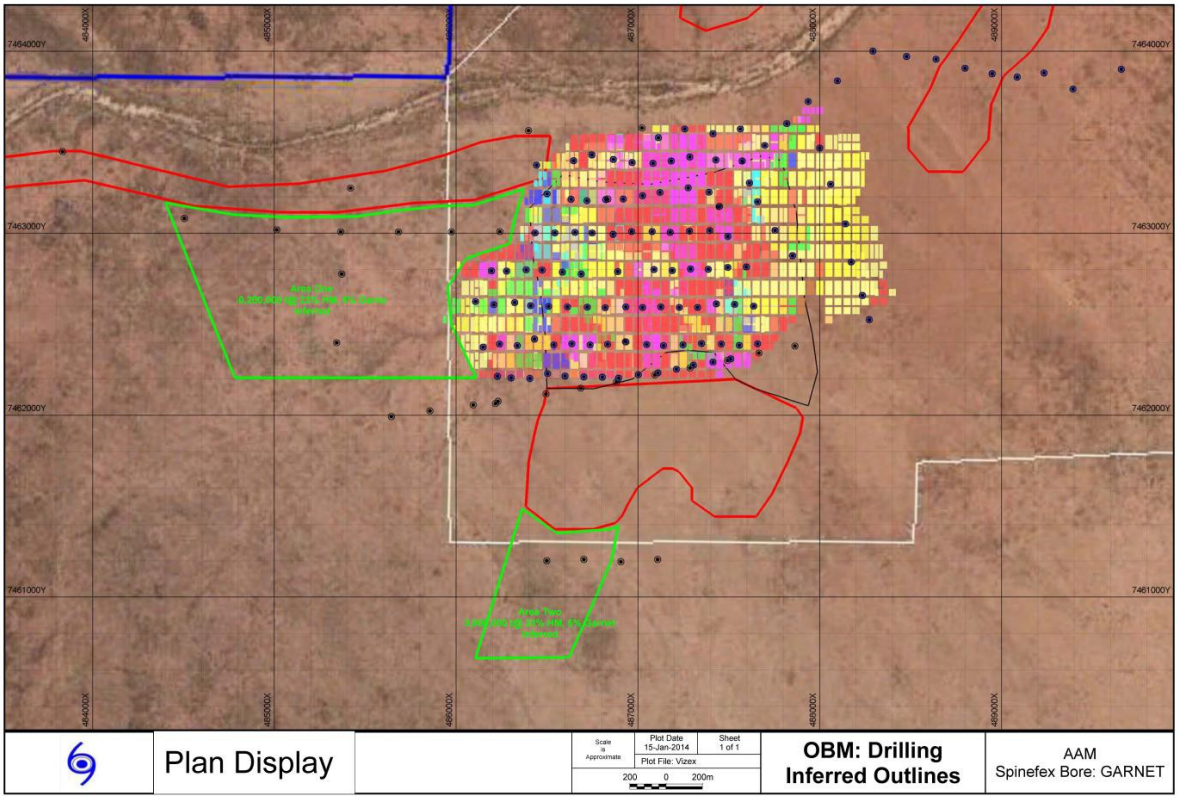
Inferred Resources	Area	Depth	Tonnage	Garnet %	Tonnes Garnet
Zone 1	1,865,000	5	14,920,000	7.5	1,119,000
Zone 2	946,400	5	7,571,200	5.3	401,274
Zone 3	469,300	5	3,754,400	5.3	198,983
Zone 4	538,200	5	4,305,600	5.3	228,197
Total	**3,818,900**		**30,551,200**	**6.4%**	**1,947,454**



In September 2013, an aircore drilling program comprising 26 holes for 393 metres was drilled in the general area of the previously defined resource and resulted in a number of intersections of aeolian/fluvial fine to medium grained sands overlying coarser grained paleochannel material with all units containing approximately 5% garnet, similar to the previous resources in the area.

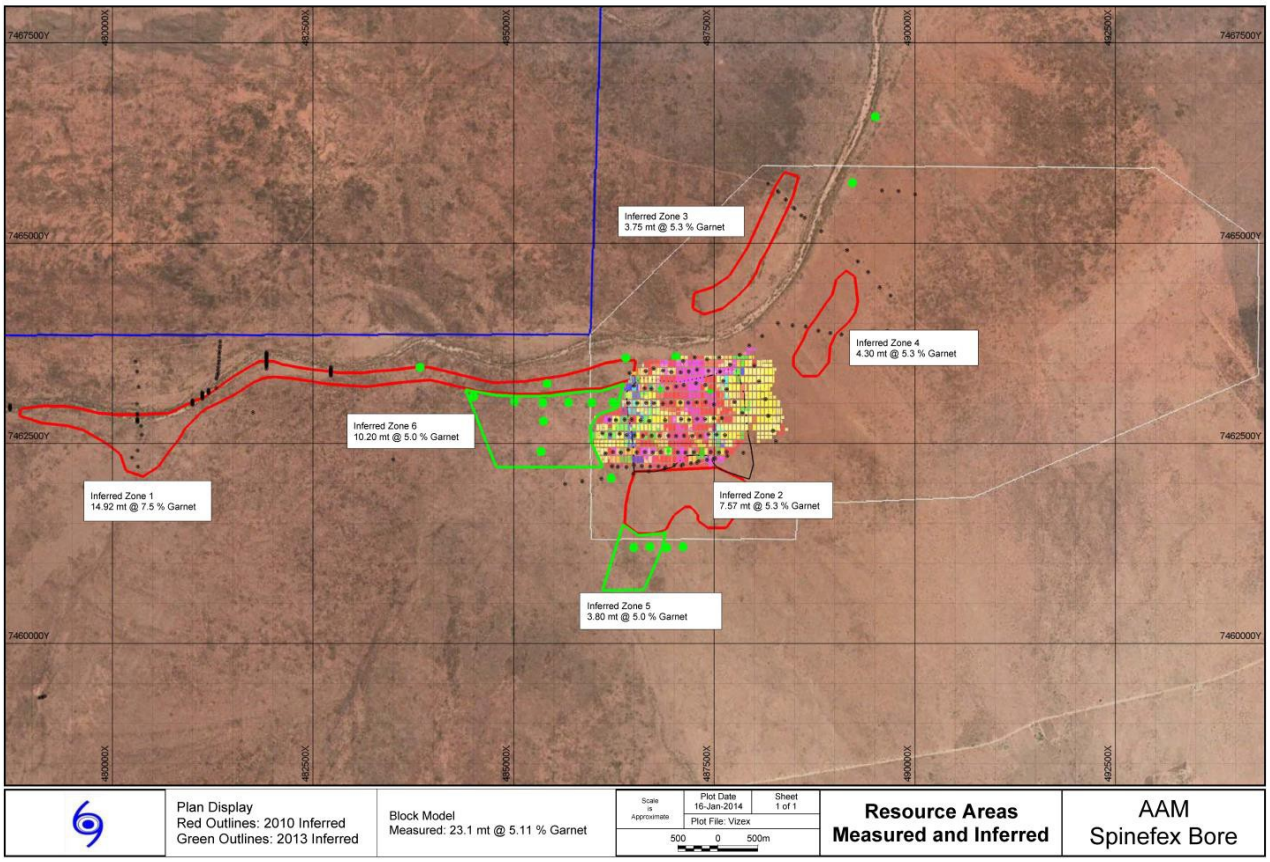
Interpreted polygons have been placed around the recent drill intersections and allows the estimation of additional inferred resources in the area.

Additional Inferred Resources: 2014				
Spinefex Bore: Garnet				
	Area 1	Area 2	Grade	Grade
			HM%	Garnet %
Area (m2)	1,350,000	400,000		
Average Depth (m)	3	2		
Aeolian/Fluvial sand (not cemented)				
Average Depth (m)	2	3		
Fluvial/Paleochannel (not cemented)				
Inferred Tonnage (Aeolian Sand)	6,480,000	1,280,000	23	5
Inferred Tonnage Fluvial/Paleo)	4,320,000	1,920,000	23	5
Total	10,800,000	3,200,000	23	5
Grand Total	**14,000,000**		**23**	**5**



2014: Spinifex Bore: All Inferred Resources

Inferred Resources		Area	Depth	Tonnage	Garnet %	Tonnes Garnet
Zone 1		1,865,000	5	14,920,000	7.5	1,119,000
Zone 2		946,400	5	7,571,200	5.3	401,274
Zone 3		469,300	5	3,754,400	5.3	198,983
Zone 4		538,200	5	4,305,600	5.3	228,197
Zone 5		400,000	5	3,200,000	5	160,000
Zone 6		1,350,000	5	10,800,000	5	540,000
Total		**5,568,900**		**44,551,200**	**5.9%**	**2,647,454**

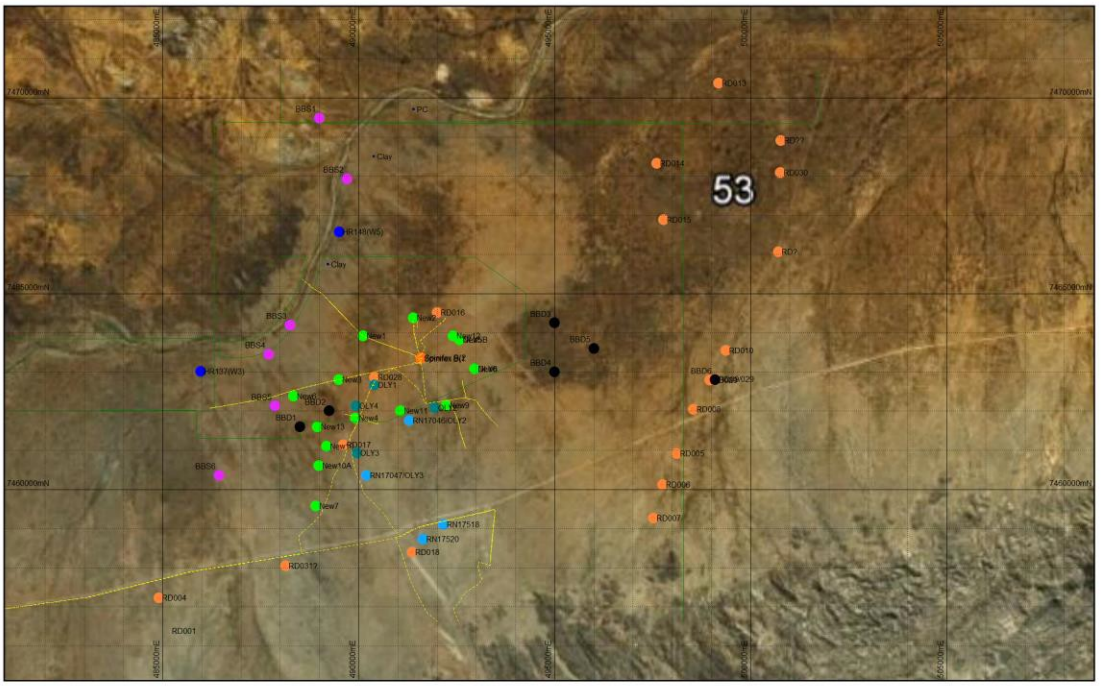


Further drilling in the general area has the potential to add to the known resources. Any further drilling needs to be carefully logged to allow clear discrimination between cemented material and the free running garnet rich sands and gravels which should be able to be readily processed.

APPENDIX 2

AustralianAbrasiveMinerals Pty Ltd

Harts Range Spinifex Bore Garnet Project
Exploration of Stratigraphy, Structure and Water Potential
ML28614, EL24360, EL24378, and EL28696
GR078



TARGET COMMODITY: GARNET

Map Sheet: Alice Springs, Alcoota, Huckitta 1:250,000
Riddoch, Delny, Dneiper, Jinka 1:100,000

PROJECT OPERATOR: **AustralianAbrasiveMinerals Pty Ltd**

Author: John Baxter
John Barnett

31st January, 2014

EXECUTIVE SUMMARY/ABSTRACT

A study of the potential water resources in the Harts Range Spinifex Bore Garnet Project area has been undertaken. From previous work three sources need to be examined. Firstly the Ambalindum Sandstone which supplies water to Spinifex Bore and the current project borefield; secondly an aquifer that is likely to be from fractured rock that has been identified by aircore drilling and at Benstead Bore; and thirdly a poorly yielding shallow aquifer in the Tertiary sedimentary basin which we have discounted for this study.

The study has indicated that there is potential for aquifers intersected in HR137 and HR148 to provide water. These bores will be drilled as production bores and the yield tested in Phase 1A. The expected cost of drilling for the Phase is $28,400 from a quote from Tomlin Drilling of Alice Springs. John Barnett will supervise the drilling in conjunction with the field work component of this scoping study.

Five bores drilled by Olympia Resources will be cleared out by airlifting as part of Phase 1B. The expectation is that this should take 3-6 hours per hole at a cost of $650 per hour. The bores will be capped after clearing.

The expected budget of $106,980 for the completion of the scoping study and Phase 1 of the drilling is summarised in the Table below. There is an expectation that the program will be completed with no delays. However should there be unexpected problems the budget may need revising.

The field component of the program will commence on or about 25th August, 2014 with John Barnett reporting directly to Curtis and Robert Brand. John Baxter will be overseas until 22nd September, 2014.

Scoping Study				
Review of Data				
	Baxter (hrs)	12	$150	$1,800
	Barnett (hrs)	42	$150	$6,300
	Micromine	5	$80	$400
Site Visit	Barnett			
	Airfares			$1,000
	Travel Time (hrs)	16	$150	$2,400
	Vehicle (Days)	3	$240	$720
	Accommodation ASP	2	$230	$460
	Food ASP	2	$40	$80
	Field Accommodation pp	6	$180	$1,080
	Field Food	6	$40	$240
	Barnett Time (days)	3	$1,500	$4,500
	Lowecol (Days)	3	$600	$1,800
Phase 1	Tomlin Drilling, Barnett and Low Ecology			
	Tomlin Drilling per Quote*			$53,600
	Vehicle (Days)	3	$220	$660
	Accommodation Field pp	6	$180	$1,080
	Field Food	6	$40	$240
	Barnett Time	3	$1,500	$4,500
	Lowecol (Days)	3	$600	$1,800
	Bore Clearing (6 hours per bore)	5		19,500
Reporting				
	Barnett (hrs)	20	$150	$3,000
	Baxter (hrs)	10	$150	$1,500
	Micromine (hrs)	4	$80	$320
				$106,980

*Assuming both bores need test pumping
Note: No Contingencies have been allowed

Australian Abrasive Minerals Pty Ltd is the operator for all tenements in this report.

Contact Details:

Tenement Holder:
Australian Abrasive Minerals Pty Ltd
P.O. Box 2077,
Rossmoyne
Western Australia 6148
Contact: Curtis Brand
Email: Curtis@aaminerals.com.au
Phone: (08) 9315 2177

Tenement Administration:
Austwide Mining Title Management Pty Ltd
GPO Box 1364
Darwin NT 0801
Phone: 08 8981 2799
Fax: 08 8941 0226
Email:rachelc@austwidemining.com.au

Report Authors:
John Baxter
Hermitage Holdings Pty Ltd
9 Marie Way, Kalamunda
Western Australia 6076
Email: john@hermitage.com.au

John Barnett
Bird Rd, Kalamunda
Western Australia 6076
Email:johncbarnett@bigpond.com

INTRODUCTION

To date the water search in the Harts Range Spinifex Bore area has been reactive rather than researched and to some extent has been successful by default with a good serve of luck. The history can be summarised as follows:

- Alcoa undertook a wide scale drilling programme in 1980 in the district on a uranium search and identified sandstone, possibly Am balindum Sandstone, in several holes and developed a Tertiary stratigraphy for the district (Chuck, 1980)
- Peter Jolly from the W ater Division in Darwin reviewed the Alcoa drilling in the area and provided a general base line for the basin geology, but this was not followed through
- Ian Mathews brought his experience with the water source at Atitjere to bear and developed a program of work based on Spinifex Bore with the result a borefield yielding 14 l/sec was identified, note this excludes production from Spinifex Bore. It
  seems from our work that Spinifex Bore is not drilled through the aquifer and may not be in the centre of the basin.
- Roger Passmore provided a report on the bores including interpreting the pump results and was concerned about the recharge to the Ambalindum Sandstone aquifer.
  - Roger modelled the depth of sand interval, suggesting a basin centred northwest of Spinifex bore
  - He made an analysis of the salinity pattern and created a model for the basin. His analysis suggests that in all but one bore (OLY8) the drawdowns are satisfactory for five years or more of pumping at a supply of 14 L/s.
  - He predicted the basin would continue to provide water for 5 years without depleting the agricultural use of Spinifex Bore
  - He considered the aquifer was confined with slow leakage from the overlying clay beds
  - The model used simulated groundwater recharge only at the southern edge of the basin
  - Rockwater have proposed a bore northeast of the current bores, ADB1.
- Roger also identified an upper shallow aquifer that was not modelled and is probably not a useful water source for the project
- Roger Passmore and I identified nine possible calcrete/silcrete sites near the resource area and these were drilled with air core; water was encountered in two holes, HR137 or W3 (485975E, 7463006N) had a good flow estimated at 7L/min from the 75mm aircore hole, while HR148 or W5 (489509E, 7466579N) could not be estimated as the rods became stuck due to hole collapse in the aquifer but is reported to be similar.
- Dick and Steve Cadzow have provided local knowledge that quite often the homestead creek, Aturga Creek, Stones Creek Ulgama Creek, Watson Creek and Brett Creek flow strongly where they come from the ranges, but often stop flowing before they get to the Plenty River.

The water supply requirement for the Harts Range Spinifex Bore Garnet Project is understood to be 21L/s for 20 years, the water to be used for ore processing.

Previous works have established a borefield (Spinifex Borefield), capable of supplying 14L/s for at least 5 years, as indicated by computer modelling. As the model is based on conservative values for hydraulic parameters, the life of the borefield is likely to be greater than the estimated 5 years. The projected life of the

Borefield can be verified after 2-3 years monitoring of actual drawdowns in operating production bores.

There is thus a current need to prove an additional 7L/s plus an allowance for standby for pump and bore repair and maintenance: a minimum allowance would be 5L/s.

GROUNDWATER RESOURCES AND POTENTIAL

In 2013 air-core drilling some 5km to the north of Spinifex Bore recorded water above Precambrian basement at two sites: W3 (HR 137; 485975E, 7463006N) and W5 (HR 148; 489509E, 7466579N), at about 21m depth. A sample of water taken from W3 showed that it was of sodium-bicarbonate-chloride type, geochemically distinct from the Spinifex Bore aquifer, which is of sodium-magnesium-chloride- sulphate type. This suggests that a different and separate aquifer may be present in bedrock fracture-zones. A number of such fracture-zones are evident on satellite imagery of the region, with a notable northwest-trending major fracture set.

PROPOSED SCOPE OF REVIEW OF GROUNDWATER PROSPECTS.

The prospects for further groundwater supplies should be reviewed as follows:

- Comprehensive review of previous hydrogeological and geological reports, maps and borehole information, including Northern Territory Government data-base.
- Fracture analysis from satellite imagery and air-photographs.
- Identification of drilling targets.
- Field visit to verify general prospects and specific drilling targets.
- Report.

The above scope of work would nominate priority drilling targets to provide an assured long-term supply of 21L/s for a minimum period of 20 years. Successful exploration sites would be converted to test-production bores suitable for long-term use. Sites with tested yields of 3.5L/s or more would be used for project supply. Any lower-yielding sites could potentially be used as standby for pastoral supply.

LOCATION AND TENEMENTS

The Harts Range Spinifex Bore Project consists of five tenements that have been grouped in terms of area and for the purposes of reporting. The project and tenements are located about 220km east of Alice Springs on the Plenty Highway. The tenements are within the Mt Riddoch and Huckitta Pastoral Leases.

PROPOSED WORK PROGRAMME

A staged exploration and development programme to achieve the above supply objectives is set out below:

PHASE 1A.

Phase 1A consists of drilling and testing of production bores at two sites, HR 137 and HR 148, where previously drilled shallow exploration holes have encountered groundwater.

The two production bores (adjacent to HR137 and HR148) are to be drilled to a maximum depth of 50m, and cased with 155mm diameter steel casing, slotted against identified aquifer intervals. Any successful bore (i.e. with potential yield of at least 3L/s tested by a weirboard), will be further tested by pumping to determine its long-term sustainable yield. The test will consist of a step-drawdown test followed by a 24 hour constant rate test.

If either or both these sites prove successful, further sites will be tested by drilling in the same area (Phase 2A). If neither is successful, exploration drilling will attempt to extend the existing borefield to the east and west.

PHASE 1B.

This phase includes cleaning out/redevelopment of the five existing production bores (OLY 1, OLY 4, OLY 7, OLY 8 and OLY 9) in the Spinifex Borefield.

It is expected that clearing the 5 existing production bores will require 3-6 hours air lifting on each bore. The bores will be sealed after clearing. Reported details of these bores is as follows:

OLY 1: 152mm dia. steel casing to 104m, screen 92-98m.
OLY 4: 100mm dia. PVC casing to 119m, screen 108-118.
OLY 7: 177mm dia. PVC casing to 77.5m, screen 71.5 - 77.5m.
OLY 8: 177mm dia. PVC casing to 64m, screen 58-64m.
OLY 9: 150mm dia. PVC casing to 23.4m, 177mm dia. 23.4 - 89m, screen 83 - 89m. (Note unusual construction.)

PHASE 2A (SHALLOW DRILLING).

If Phase 1 shallow drilling is successful but further yield is required it is proposed that at a later date Phase 2A and if necessary Phase 2B be undertaken. This proposal has not yet been costed.

Six sites have been provisionally selected for test-drilling, contingent upon the success of at least one of the Phase 1 test-production bores. These are sited on

magnetic or structural lineaments, and will be drilled to an expected maximum depth of 50m, depending on the depth of weathered and/or fractured bedrock at each site. These sites are shown on the front map as BBS1-6 as follows:

489000E; 7469485N
489710E; 7467935N
488260E; 7464195N
487710E; 7463450N
487870E; 7462130N
486450E; 7460355N

PHASE 2B.

If Phase 1 and Phase 2A are unsuccessful, the provisional sites listed below will be test-drilled to identify potential eastward and westward extensions of the Spinifex Borefield aquifer. These sites may require drilling up to a maximum depth of 150m, or possibly up to 200m further to the east where an investigation bore, RD 029, drilled by Alcoa in 1979-1980 recorded clean sand at 174-186m depth.
These sites are as follows:

488500E; 7461600N
489250E; 7462000N
495000E; 7464250N
495000E; 7463000N
496000E; 7463600N.
499100E; 7462800N (adjacent RD029)

If test-drilling of any of the Phase 2B sites is successful, two or three will then be converted to production bores.

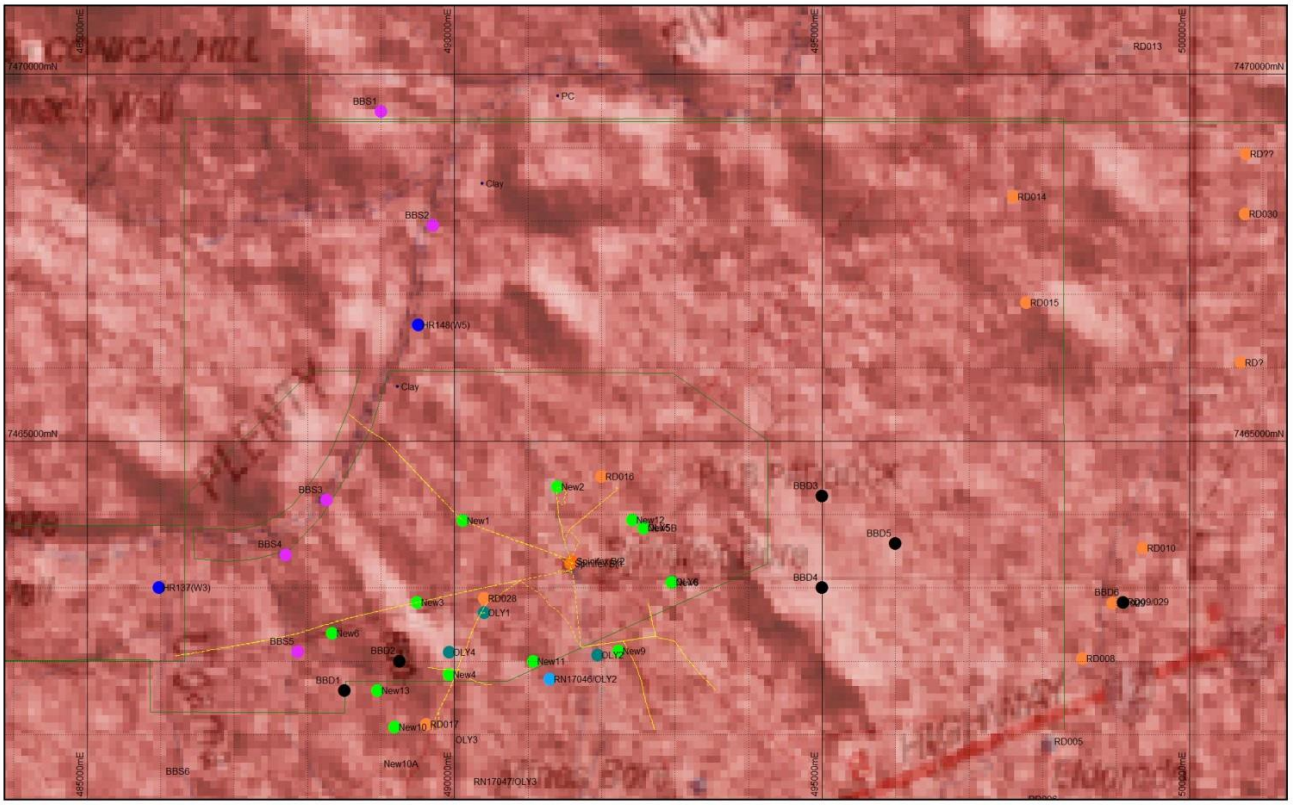


Figure 6 Proposed Bores Over DTM

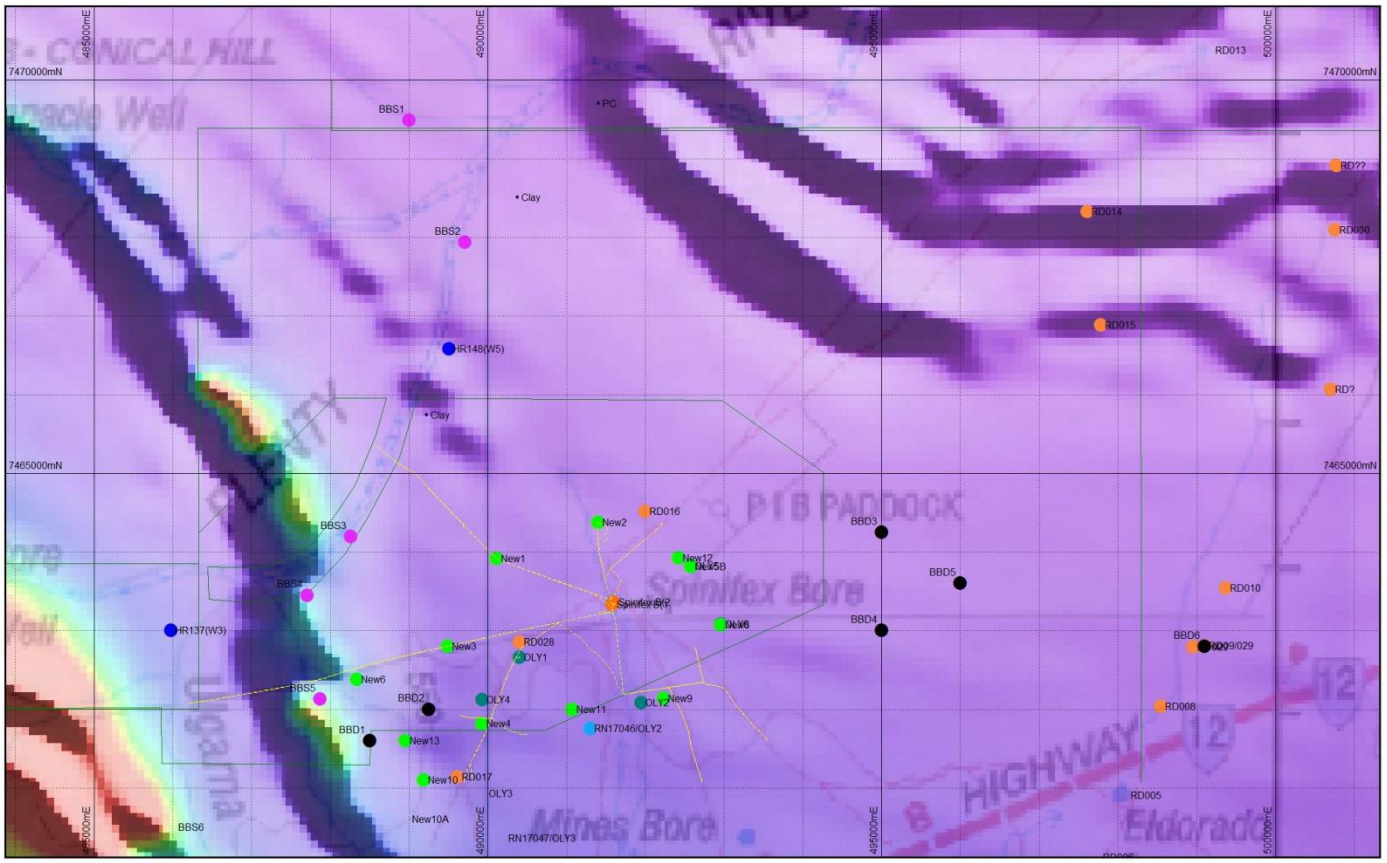


Figure 7 Proposed Bores Over TMI

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APPENDIX 3

23 September 2014

Report on Groundwater Exploration at Spinifex Bore (August-September 2014) For Australian Abrasive Minerals Pty Ltd

1. INTRODUCTION

The water supply requirement for the Harts Range Spinfex Bore Garnet Project is 21L/s for 20 years, the water to be used for ore processing.

Previous works have established a borefield (Spinifex Borefield), capable of supplying 14L/s for at least 5 years, as indicated by computer modelling. As the model is based on conservative values for hydraulic parameters, the life of the borefield is likely to be greater than the estimated 5 years. The projected life of the borefield can be verified after 1-2 years monitoring of actual drawdowns in operating production bores.

There is thus a current need to prove an additional 7L/s plus an allowance for standby for pump and bore repair and maintenance: a minimum recommended standby allowance would be 5L/s.

A staged exploration and development programme to achieve the above supply objectives was proposed as follows:

Phase 1: Drilling and testing of two sites, HR137(W 3) and HR148(W5) where previously drilled shallow exploration holes had encountered groundwater. Any bore with potential significant yield to be cased and tested by pumping.
Redevelopment by airlifting of five existing bores in the Spinifex Borefield: OLY1, OLY4, OLY7, OLY8 and OLY9.

Phase 2A: If either or both sites drilled in Phase 1 proved successful, drilling of up to six additional sites on magnetic or structural lineaments in the same area.

Phase 2B: If Phase 1/Phase 2A unsuccessful, drilling of up to six sites aimed at identifying potential eastward and western extensions to the Spinifex Borefield.

Phases 1 and 2A were designed to test a weathered and fractured rock aquifer to the north of, and hydrogeologically distinct from, the Spinifex Borefield aquifer.

Phases 1 and 2A were carried out by Tomlin Drilling under the supervision of Hydrogeologist John Barnett, over the period 27 August to 5 September 2014. The results are set out below.

2. PHASE 1 AND 2A DRILLING AND TESTING

The two sites at HR137 and HR148 were drilled, with promising results obtained at HR148 (the new bore being designated W 5P), but not at HR137 (termed W 3A). W5P was cased and test-pumped.

Two exploratory sites were drilled as Phase 2A, neither of which gave encouraging results, so this phase was then abandoned.

Summary of the four bores is as follows:

TABLE 1: BOREHOLE DETAILS

NAME	CO-ORDINATES EAST	NORTH	DRILLED DEPTH (m)	CASING DEPTH (m)	SLOTTED (m)	YIELD (L/s)	WATER LEVEL (m)*	E.C (micro S/cm)
W5P	489512	7466578	54	53.3	23.3 -473	0.9	12.0	4,200
W3A	485975	7463006	42	-	-	0.1	10.6	-
W11A	486186	7462160	36	-	-	-	-	-
W12A	489710	7467935	45	-	-	-	-	-

Notes: *Below casing top

Further details of the four individual bores are given below:

2.1 Bore W5P (RN019054)

This was drilled on the site of an original aircore bore drilled to 21m and recorded as wet.

Bore W5P was drilled at 250mm to 6m, and 200mm nominal diameter steel surface casing was installed to that depth. Drilling was continued to 54m, at 200mm diameter, airlifting at 2.5L/s during drilling, as measured by weir-board. The bore was then cased with 155mm steel casing, with 4.8mm wall thickness, to 53.3m, slotted from 23.3m to 47.3m, and fitted with a welded steel bottom cap.

The aquifer interval in the bore is from 23m to 43m, consisting of weathered and fractured quartz-hornblende-mica schist.

The bore was test-pumped with an initial three-step step-drawdown test, followed by a constant rate test at 1.8L/s. The constant rate test was intended for a duration of 24 hours, but was terminated at 11 hours when drawdown approached the pumping depth towards the bottom of the aquifer.

The step-drawdown test results are summarised below.

TABLE 2: STEP-DRAWDOWN TEST, BORE W5P

STEP	DISCHARGE RATE Q (L/s)	DRAWDOWN SW (m)*	Sw/Q
1	1.9	10.1	5.32
2	3.0	15.4	5.13
3	4.1	20.4	4.98

Note: *Corrected for recovery from previous step.

The drawdown to discharge ratio over the range of tested rates was constant within 5 percent, indicating an efficient bore, possibly with some very slight continuing development.

Drawdown after 10 hours of pumping in the constant rate test was 23.5m, corrected for recovery from the preceding step-drawdown test. The drawdown rate increased markedly over the next hour as the bottom of the aquifer was approached, and the test was terminated at that point.

Analysis of the constant rate test results indicates a long-term sustainable yield of

0.9L/s (78 kL/day).

A water sample taken at the end of the constant rate test showed the water to be of sodium-chloride-sulphate type, similar to the Spinifex Bore aquifer. The water is slightly alkaline, with Total Dissolved Solis content of 2,673 mg/L.

2.2 Bores W3A, W11A and W12A

Bore W3A was drilled to 42m, through 9m of alluvial sand and calcrete into quartz-hornblende-mica schist. The schist is very weathered from 9-23m, reduced to grey-green and grey clay, weathered and soft from 23-30m, and hard, fresh and unfractured below 30m. It contains a few quartz veins, but made very little water, 10 litres per 80 seconds, essentially the same as the original aircore bore HR137.

The schist contains abundant garnet crystals. The bore was backfilled and abandoned.

Bore W11A, sited on a magnetic trend line about 900m south-southeast of Bore W3A, was drilled to 36m into quartz-hornblende-mica schist bedrock, the final 10m being very slightly weathered to fresh, hard and unfractured. There was only very slight seepage of groundwater from above 26m. The bore was backfilled and abandoned.

Bore W12A is sited on a structural trend about 1.5km north-northeast of W5P. The bore intersected a contact zone between weathered granite or granite-gneiss and quartz-hornblende-mica schist, but only very minor groundwater seepage. It was drilled to 45m, the final 10m being hard, unfractured, slightly weathered to fresh schist. The bore was backfilled and abandoned.

2. REDEVELOPMENT OF PRODUCTION BORES

Five existing production bores in the Spinifex Borefield were redeveloped by airlifting and air-surging. Details of these five bores are tabulated below:

TABLE 3: PRODUCTION BORES, SPINIFEX BOREFIELD

BORE	CO-ORDINATES		CASED DEPTH (m)	CASING TYPE	SCREEN DEPTH (m)	WATER LEVEL 5/9/14 (mbct)
	EAST	NORTH				
OLY1	490411	7462664	104	Steel 152mm 1D	92-98	33.10
OLY4	489929	7462125	118	PVC 102mm 1D	108-118	37.51
OLY7	492035	7464236	77.5	PVC 160mm 1D	71.5-77.5	31.68
OLY8	492929	7464994	64	PVC 160mm 1D	58-64	30.05
OLY9	493151	7464292	89.4	PVC 150mm 1D 0-23.4, PVC 160mm 1D 23.4-83.4	83.4-89.4	CAPPED (Not Measured)

Bores OLY1, 4, 7 and 9 all cleared up very quickly after initially producing slightly turbid water, with suspended clay. Bores OLY4 and OLY7 also produced a little very fine sand during the first half hour of airlifting.

Bore OLY8 continued to produce significant amounts of fine to coarse sand, even after six hours of airlifting. The bore also produced a number of large pebbles, up to
25mm minimum dimension, too large to enter the screen. This indicates that the bore is damaged, and that either the bottom cap is damaged or missing, or that the screen itself is damaged, or that the screen has parted from the casing. The bore may still function satisfactorily if the pump is placed a minimum of 5m above the top of the screen. The bore was cleared out to 2m above the base of the screen, but could not be cleared right to the base because of continuing ingress of sand.

4. CONCLUSIONS

4. Bore W5P has an estimated long-term sustainable yield of 0.9L/s, with EC (electric conductivity) of 4,200 micro S/cm, equivalent to about 2,750 mg Total Dissolved Solids. The water is very slightly alkaline, with pH 7.9.
5. The weathered and fractured rock aquifer to the north and northwest of the Spinifex Borefield has been tested by four exploration bores during the Phase 1 and Phase 2A programme, producing one production bore capable of a long-term sustainable yield of only 0.9 L/s (about 80 kL/day). This aquifer has therefore been shown to be unlikely to provide a significant yield for the AAM Garnet Project.
6. Four of the existing five production bores in the Spinifex Borefield have been redeveloped and are in good condition; these are OLY1, OLY4, OLY7 and OLY9.

The fifth, OLY8, is damaged, probably either at the top or bottom of the screened section or within it. It may still perform satisfactorily as a production bore, providing the pump intake is set at least 5m above the top of the screen. The yield of OLY4 is limited by the small diameter of the production casing (100mm).

5. RECOMMENDATIONS

1. Any additional groundwater supplies for the Spinifex Bore Garnet Project should be sought by exploring for extensions of the aquifer to the east and west of the existing Spinifex Borefield.
2. The available yield at the OLY4 production bore site could be increased by redrilling this bore and installing 150mm diameter production casing and screen.

John Barnett
Hydrogeologist

W5P Co-Ordinates 489512E; 7466578N

0-4m	Sand	Red-brown, silty, fine to very coarse grained, subrounded to rounded, moderately to poorly sorted, a few pebbles to 15mm. Quartz, ironstone, minor mica, a few garnets 3-4m
4-6m	Sand	As above, poorly sorted, grains of calcrete, minor angular fragments of silcrete.
6-9m	Calcrete	Pink and white, minor sand as above.
9-12m	Calcrete and Sand	Sand medium to very coarse-grained, generally well sorted.
12-23m	Saprolite	Very weathered bedrock-silty, clayey, fine-sand size fragments of quartz and mica, some larger angular fragments of quartz-hornblende-mica schist , weathered and iron-stained, 18-23m.
23-25m	Weathered Schist	Quartz-hornblende-mica, iron-stained fractures, abundant quartz fragments.
25-27m	Schist	As above, slightly weathered, minor quartz.
27-33m	Clay	Grey-green, minor weathered schist.
33-37m	Schist	As above, iron-stained fractures, slightly weathered, large fragments of iron-stained quartz.
37-43m	Schist	Very slightly weathered, minor quartz, abundant iron-stained fractures 41-43m.
43-44m	Quartz	Iron-stained fractures, minor schist as above.
44-47m	Schist	Fresh, minor iron-stained fractures, minor quartz.
47-54m	Schist	Quartz-hornblende-mica, fresh, hard, unfractured.

W3A Co-Ordinates 485975E; 7463006N

0-5m	Sand	Silty, red-brown, fine to medium grained, well sorted, quartz, ironstone, trace mica. Minor calcrete 3-5m.
5-7m	Calcrete	Pink and white, and sand, as above. Minor white clay and garnets.
7-9m	Sand	Grey-green, medium to very coarse grained, poorly sorted, subrounded to rounded quartz, garnets abundant 7-8m, minor 8-9m.
9-23m	Clay	Grey-green, becoming pale grey 16-23m, quartz, mica and garnets, fine to medium grained sand size, hornblende also present 19-23m. Saprolite.
23-24m	Quartz	Large angular fragments, commonly iron-stained. Slight water return.
24-30m	Quartz-Mica Schist	Garnetiferous, very weathered, soft.
30-42m	Quartz-Hornblende-Mica Schist	Garnetiferous, hard, fresh, unfractured. Minor angular quartz, more abundant quartz 34-35m.

W3(S) ≡ W11A Co-Ordinates 486186E; 7462160N

0-1m	Silty Sand	Red-brown, very fine-grained, very well sorted, subrounded to rounded, quartz, minor ironstone, trace mica.
1-3m	Silty Sand	Red-brown, fine to medium with a few coarse grains, well sorted, quartz and ironstone.
3-5m	Sand	Fine to very coarse grained, poorly sorted, otherwise as above, and Calcrete, pink and brown.
5-26m	Saprolite	Grey-green clay, with sand size quartz grains, minor mica and garnets. Some white clay and hornblende 21-26m
26-36m	Quartz-Hornblende-Mica Schist	Slightly garnetiferous, very slightly weathered to fresh, hard, unfractured. Very minor angular quartz.

W5N ≡ W12A Co-Ordinates 489710E; 7467935N

0-1m	Silty Sand	Red-brown, fine-grained, very well sorted, subrounded to rounded quartz, ironstone, minor mica.
2-6m	Sand	Red-brown, fine to very coarse-grained mainly fine-medium, poorly sorted, subrounded to rounded quartz, ironstone, minor mica. A few chips of silcrete 3-4m, minor garnets 5-6m.
6-7m	Sand and Gravel	Fine to gravel size, very poorly sorted, subrounded to rounded, orange and white quartz, ironstone, minor garnets. Also some white clay with angular quartz.
7-20m	Clay	White to pale yellow, with angular quartz, clear, minor smokey..? Weathered granite.
20-26m	Clay	Yellow, with angular quartz, angular fragments of yellow-dark brown ironstone (? Contact zone)
26-45m	Quartz-Hornblend-Mica-Schist	Soft, very weathered 26-28m. Weathered 28-35m. Slightly weathered to fresh, unfractured 35-45m.