## **ALLIANCE MINERAL ASSETS LIMITED**

(Company Registration Number: ACN 147 393 735) (Incorporated in Australia on 6 December 2010)

# INDEPENDENT QUALIFIED PERSON'S REPORT ON THE BALD HILL TANTALUM PROJECT

Unless otherwise defined, all capitalised terms herein shall have the same meanings as defined in the Company's announcement dated 2 September 2014 ("2 September Announcement").

The Board of Directors (the "Board") of Alliance Mineral Assets Limited (the "Company") refers to the 2 September Announcement in relation to the Singapore Exchange Securities Trading Limited's ("SGX-ST") no objection to the Company's application for the Waiver for, *inter alia*, to use 31 March as the effective date of its annual qualified person's report instead of 30 June as required under Rule 1204(23)(a) of the Listing Manual Section B: Rules of Catalist (the "Catalist Rules") of the SGX-ST.

Further to the 2 September Announcement, the Board is pleased to present the attached independent qualified person's report issued by Al Maynard & Associates Pty Ltd dated 16 July 2015 (the "**Report**") prepared in compliance with the requirements of Practice Note 4C - Disclosure Requirements for Mineral, Oil and Gas Companies of the Catalist Rules of the SGX-ST.

As disclosed in the attached Report, the summary of the reserves and resources for the Bald Hill deposit as at 31 March 2015 as per Appendix 7D of the Catalist Rules is as follows:

		Gros Attributa licent	ble to	Net Attr			
Category	Mineral Type	Tonnes (millions)	Grade Ta <sub>2</sub> O <sub>5</sub> (ppm)	Tonnes (millions)	Change from Grade previous Ta <sub>2</sub> O <sub>5</sub> update (ppm) (tonnes %)		Remarks
Reserves							
Proved	Tantalum	0.00	0	0.00	0	0	
Probable	Tantalum	0.02	187	0.02	187	100%	Oxide at Boreline only
Total		0.02	187	0.02	187	100%	
Resources							
Measured	Tantalum	0.00	0	0.00	0	0	
Indicated	Tantalum	2.57	340	2.57	340	17%	
Inferred	Tantalum	0.1	367	0.1	367	20%	
Total		2.67	341	2.67	341	17%	

**Note:** Resource Summary for Bald Hill outside current pits (AMC Consultants 2014, Varley, 2015) at 31 March 2015 using 100ppm  $Ta_2O_5$  lower cut-off. Note that Reserves are exclusive of Resources.

### **ALLIANCE MINERAL ASSETS LIMITED**

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BY ORDER OF THE BOARD

Suen Sze Man Executive Director 16 July 2015

Alliance Mineral Assets Limited (the "Company") was listed on Catalist of the Singapore Exchange Securities Trading Limited (the "SGX-ST") on 25 July 2014. The initial public offering of the Company (the "IPO") was sponsored by PrimePartners Corporate Finance Pte. Ltd. (the "Sponsor").

This announcement has been prepared by the Company and its contents have been reviewed by the Sponsor for compliance with the SGX-ST Listing Manual Section B: Rules of Catalist. The Sponsor has not verified the contents of this announcement. The Sponsor has also not drawn on any specific technical expertise in its review of this announcement.

This announcement has not been examined or approved by the SGX-ST. The Sponsor and the SGX-ST assume no responsibility for the contents of this announcement, including the accuracy, completeness or correctness of any of the information, statements or opinions made or reports contained in this announcement.

The contact person for the Sponsor is Mr Lance Tan, Director, Continuing Sponsorship, at 16 Collyer Quay, #10-00 Income at Raffles, Singapore 049318, telephone (65) 62298088.

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Australia

Australian & International Exploration & Evaluation of Mineral Properties

# **INDEPENDENT QUALIFIED PERSON'S REPORT**

on the

**BALD HILL TANTALUM PROJECT** 

**WESTERN AUSTRALIA** 

PREPARED FOR

# **Alliance Mineral Assets Limited**

Author: Allen J Maynard BAppSc(Geol), MAIG, MAusIMM

Company: Al Maynard & Associates Pty Ltd

Date: 16<sup>th</sup> July, 2015

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Alliance Mineral Assets Limited - Tantalum Project

# 1. Executive Summary

The Bald Hill Tantalum Project ("Property") is located within the state of Western Australia, approximately 580 km east of the state capital, Perth. It is located within the Eastern Goldfields Province of the Archaean Yilgarn Block. The Bald Hill Project area is located about 60km south east of Kambalda and 50 km east of Widgiemooltha in the Coolgardie Mineral Field of Western Australia (Fig 1).

Alliance Mineral Assets Limited {"AMAL" or the Company") has a portfolio of mineral tenements, comprising mining leases, exploration licences, prospecting licences, miscellaneous licences, a general-purpose lease, and a retention lease.

AMAL's primary interest in the area is tantalite mineralisation hosted in a series of pegmatitic sheets and veins intruded into an Achaean metasediment sequence. These sheets and veins are developed along a roughly north—south trend, and vary in geometry, extent, and dip, both to the west and east. The pegmatites contain tantalite, columbite, spodumene, cassiterite, and others as accessory minerals. A tantalite resource has been identified at the Bald Hill project (AMC, 2014) and the development of this resource is the primary objective of AMAL. The exploration potential for additional resources on the Bald Hill Extended and Madoonia projects is considered very high.

Modern exploration for tantalum commenced in the area in the early 1980s and continued in campaigns by several companies until 2000, when a feasibility study established the technical and economic viability for an open-pit mine with an on-site process plant to produce a tantalum-bearing concentrate. Mining and processing operations were profitably undertaken by Haddington International Resources Limited ("Haddington") from 2001 to 2005, when operations ceased due to Sons of Gwalia (ex ASX: "SGW") going into Administration. SGW had a sole exclusive off-take agreement with Haddington which thereby forced the cessation of operations. At the time of mine closure, Haddington reported that there was approximately 2.0 million tonnes (Mt) of Indicated mineral resources remaining in, and adjacent to, several open pits. The mine site has been on care and maintenance since 2005, but Haddington continued to undertake some exploration over the property until 2009.

In 2009, Living Waters Mining (Australia) Pty Ltd ("Living Waters") acquired the project from Haddington and also acquired a number of additional tenements north of the main project area. The Property was transferred to HRM Resources Australia Limited ("HRM") in 2011. On 13 March 2014, HRM changed its name to Alliance Mineral Assets Limited.

Since 2009, Living Waters, and subsequently, HRM/AMAL have undertaken work aimed at recommissioning the process plant (+90% completed) and site preparations for mining the remaining mineral resources. Some limited exploration north of the main mining area has also been completed.

Al Maynard and Associates ("AM&A") undertook site visits to the Bald Hill Tantalite Project on the 18<sup>th</sup> February, 2014 and conducted a follow up visit on the 31 March 2015. A previous field trip for a separate client was conducted in 2002.

The Company already has stated JORC Code compliant Mineral Resource Estimates provided by independent consultants, AMC Consultants (AMC) and these are shown in Table 1 below.

In July 2014, AMAL commenced a Reverse Circulation (RC) drilling program at the Boreline Prospect. The Boreline area is scheduled to be the first area to be mined once the refurbished plant is commissioned and the drilling program was designed to allow detailed mine planning to be undertaken. The drill program comprised of 69 holes for an aggregate of 2,506 metres. Of the 69 holes, 58 holes were directly aimed at defining the Boreline deposit and the other 11 holes were designed to sterilize the proposed waste rock dump.

Another resource drilling program was undertaken at the Far South and North Extended deposits within the Central Zone at Bald Hill during November 2014. The program comprised 64 RC holes for a total of 2700m. A total of 923 samples were submitted to Bureau Veritas Laboratories for assay and used in the resource model. A summary of this drilling is provided in the Drilling section of this report.

The Far South deposit proved more complex than past drilling had indicated with multiple, mineralised pegmatite bodies intersected and these varying in width up to 10m

At the North Extended deposit the holes typically intercepted two strongly mineralised but narrow, 2-4m wide, pegmatite bodies.

All the drill samples were collected for assay, along with duplicate samples for quality control purposes. The samples were assayed by Inductively Coupled Plasma Mass Spectrograph ("ICP") for a suite of elements including Tantalum, Niobium, Tin, Lithium, Caesium and Rubidium. Ray Varley, independent consultant of Geological Resource Management (GRM), estimated the additional resources at Boreline, Far South and North Extended using the 2014 and earlier drilling data.

The current JORC Code 2012 Mineral Resource inventory at 31 March 2015 stands at:- 2.67 million tonnes at 341ppm  $Ta_2O_5$  of which 2.57 million tonnes at 340ppm  $Ta_2O_5$  is Indicated and 0.1 million tonnes at 367ppm  $Ta_2O_5$  is Inferred, as at 31 May 2015. In addition to this resource is an Oxide reserve at Boreline of 20,000 tonnes at an average grade of 187ppm  $Ta_2O_5$ . This small Reserve was estimated prior to this Oxide ore being trial mined and processed as part of the Company's recommissioning of the processing plants on-site and at Kalgoorlie. Once actual operating costs and mining and process plant recoveries are obtained from this trial mining a reliable Reserve estimate will be made for the remaining resources.

AM&A concludes that there are sufficient resources at a sufficient grade to warrant the Company's current trial mining and plant re-commissioning program followed, after the successful completion of an internally conducted feasibility study, by the eventual transition to full scale mining and production of high quality tantalite concentrates.

		Gros Attributa licent	ble to	Net Attr	ibutable	to Issuer	
Category	Mineral Type	Tonnes (millions)	Grade Ta₂O₅ (ppm)	Tonnes (millions)	Grade Ta₂O₅ (ppm)	Change from previous update (tonnes %)	Remarks
Reserves							
Proved	Tantalum	0.00	0	0.00	0	0	
Probable	Tantalum	0.02	187	0.02	187	100%	Oxide at Boreline only
Total		0.02	187	0.02	187	100%	
Resources							
Measured	Tantalum	0.00	0	0.00	0	0	
Indicated	Tantalum	2.57	340	2.57	340	17%	
Inferred	Tantalum	0.1	367	0.1	367	20%	
Total		2.67	341	2.67	341	17%	

Table 1: Resource Summary for Bald Hill outside current pits (AMC Consultants 2014, Varley, 2015) at 31 March 2015 using 100ppm Ta<sub>2</sub>O<sub>5</sub> lower cut-off. Note that Reserves are exclusive of Resources.

AM&A also concludes that there is potential to increase the Mineral Resource, and consequently the Ore Reserves, because there are several prospects that have been previously drill tested and shown to host significant tantalum mineralisation. Additionally, there are a number of prospects where surface sampling has identified tantalum mineralisation that requires further exploration.

AM&A make the following recommendations with respect to further evaluating and increasing confidence in the project:

- Further RC and diamond drilling is warranted at the various deposits to explore for additional resources and improve the understanding of the current resources prior to mining.
- A Whittle study is recommended over the existing resource models to determine the maximum economic depth of the pegmatites and adjust the depth of future drilling to ensure that the maximum economic depth is properly tested.
- Further determinations of bulk density are required to establish higher confidence in grade, metal, and tonnage calculations that feed into future mine production. The determinations can be performed on exposed pegmatite and host rocks in pits, or from diamond core.
- As with previous mining, blasthole sampling should be continued to understand the grade
  variability within each pegmatite, and to assist with blending strategies that would assist with
  maximising the recovery of the target minerals. These blastholes should be geologically logged
  to assist with the mine planning and scheduling process. The collected data should be captured
  and maintained in its own database, contributing to future mineral resource and ore reserve
  estimates.

16<sup>th</sup> July, 2015

The Directors
Alliance Mineral Assets Limited
Unit 6, 24 Parkland Road
Osborne Park, WA, 6017
Australia

Dear Directors,

### 1.0 Introduction

This report has been prepared by AM&A at your request in relation to reporting of the Mineral Resource and Ore Reserves estimates for the Bald Hill Tantalite Project as at 31<sup>st</sup> March, 2015.

### 1.1 Purpose of this report

This report (Report) provides updated Mineral Resource and Ore Reserve estimates at the Bald Hill tantalum property (the Property) located in Western Australia and owned by Alliance Mineral Assets Ltd (AMAL). The Report has been prepared by Al Maynard & Associates Pty Ltd (AM&A) in accordance with Singapore Stock Exchange (SGX) mineral, oil and gas guidelines, having been classified and reported using the guidelines of the Australasian code for Reporting of Exploration Results, Mineral Resources and Ore Reserves prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia, December 2012 (the JORC Code 2012).

Mining for tantalite, a tantalum mineral ( $Ta_2O_5$ ), has previously taken place on the Property. AMAL proposes to re-establish the mining and processing operation (the Project) to produce a tantalite concentrate. The concentrate will be transported to Boulder for further beneficiation to a saleable product grading 25% to 30% tantalite. AMAL proposes to commence the production of concentrate in 2015.

### 1.2 Use of report

The Report summarises the Mineral Resource and Ore Reserves estimates for the Bald Hill Tantalite Project as at 31 March 2015 and should not be used or relied upon for any other purpose. This report has been prepared to meet the SGX Catalist rules and fulfil the requirements specified in Practice Note 4C.

#### 1.3 Reporting standard

The SGX Catalist Rules for mineral company listings (Practice Note 4C)<sup>1</sup> require that a Qualified Persons Report be prepared in accordance with one of a number of allowable international reporting standards.

SGX Listing Rules, Practice Note 4C Disclosure Requirements for Mineral, Oil and Gas Companies.

For the purposes of this report, AM&A has adopted the JORC Code (2012)<sup>2</sup> as the reporting standard. The JORC Code (2012) requires that a public report concerning a company's exploration targets, exploration results, mineral resources, or ore reserves must be based on, and fairly reflect, the information and supporting documentation prepared by a Competent Person. SGX Catalist rules use the term qualified person. In this report, whenever reference is made to a Competent Person as per the JORC Code, it is equivalent to a qualified person as per SGX Catalist rules.

### 1.4 Basis, Scope and Limitations of this report

This Qualified Persons Report has been prepared in accordance with the requirements of the JORC Code (2012) as adopted by the Australian Institute of Geoscientists ('AIG') and the Australasian Institute of Mining and Metallurgy ('AusIMM').

The information presented in this report is based on technical reports provided by AMAL, supplemented by our own inquiries. At the request of AM&A copies of relevant technical reports and agreements were made available.

This, coupled with general knowledge of the area and the recent site visit provides sufficient information to form an opinion as to the current value of the mineral assets. AMAL has provided AM&A with all available technical, relevant financial and other information required for the purposes of preparing the Report.

In performing its services utilising the JORC Code guidelines, AM&A has relied upon and assumed the accuracy and completeness of all material information that has been provided to it by AMAL and its service providers.

AM&A has no reason to believe that the information provided by AMAL or its service providers is materially inaccurate, misleading, or incomplete. AM&A has not audited the information provided to it. However, it has satisfied itself as to the reasonableness of the information it used.

#### 1.5 Site Visits

Al Maynard and Associates ("AM&A") undertook site visits to the Bald Hill Tantalite Project on the 18<sup>th</sup> February, 2014 with a follow up visit on the 31 March 2015. A previous field trip to the site area for a separate client was conducted in 2002.

### 1.6 Statement of Independence

This report has been prepared by Allen J. Maynard BAppSc (Geol) is a member of the Australasian Institute of Mining and Metallurgy (M.AusIMM) and the Australian Institute of Geoscientists (AIG), a geologist with over 35 continuous years in the industry and 30 years in mineral asset valuation. The writer holds the appropriate qualifications, experience and independence to qualify as an independent

Australasian Joint Ore Reserves Committee (JORC), Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code), 2012 edn, effective December 2012, 44 pp., available <a href="http://www.jorc.org/docs/jorc\_code2012(4).pdf">http://www.jorc.org/docs/jorc\_code2012(4).pdf</a>, viewed 5 February 2014.

"Expert" under the definitions of the Valmin Code and JORC Code. The author does not hold any interests in AMAL or in any mineral properties which are subject to this report. AMAL will be invoiced and expected to pay a fee for the preparation of this report. This fee comprises a normal, commercial daily rate plus expenses, in accordance to AM&A's standard rates and is no way contingent upon the conclusions of this report.

#### **Tenure**

AMAL are 100% holders of eight Exploration Licences ("EL"), one General Purpose Licence ("GPL"), eight Miscellaneous Licences ("L"), five Mining Leases ("ML") and one Mining Lease application ("MLA"), eight Prospecting Licences ("PL") and one Retention Licence ("RL"), Error! Reference source not found. and Figure 1. These tenements are all mineral licences located in the Bald Hill area, 105km southeast of Kalgoorlie in the Eastern Goldfields of Western Australia. The Company has assured the CP that they are all licence fees, rates and taxes, exploration expenditures and annual exploration reports have been paid and in good standing.

Asset		Issuer's Interest			Date	Licence		
Name	Holder	(%)	Development Status	Status	Granted	Expiry Date	Area	Unit
E 15/1058	AMAL	100	Exploration Licence	Live	12-03-2009	11-03-2019	9	Block*
E 15/1066	AMAL	100	Exploration Licence	Live	20-08-2009	19-08-2019	39	Block*
E 15/1067	AMAL	100	Exploration Licence	Live	20-08-2009	19-08-2019	39	Block*
E 15/1161	AMAL	100	Exploration Licence	Live	25-01-2011	24-01-2016	1	Block*
E 15/1162	AMAL	100	Exploration Licence	Live	10-01-2011	09-01-2016	3	Block*
E 15/1166	AMAL	100	Exploration Licence	Live	31-08-2010	30-08-2015	5	Block*
E 15/1212	AMAL	100	Exploration Licence	Live	02-05-2011	01-05-2016	16	Block*
E 15/1353	AMAL	100	Exploration Licence	Live	05-08-2013	04-08-2018	70	Block*
G 15/17	AMAL	100	General Purpose Lease	Live	23-01-2001	22-01-2022	1.43	Ha.
L 15/264	AMAL	100	Miscellaneous Licence	Live	11-10-2006	10-10-2027	3.85	Ha.
L 15/265	AMAL	100	Miscellaneous Licence	Live	11-10-2006	10-10-2027	2.33	Ha.
L 15/266	AMAL	100	Miscellaneous Licence	Live	11-10-2006	10-10-2027	1.44	Ha.
L 15/267	AMAL	100	Miscellaneous Licence	Live	11-10-2006	10-10-2027	3.56	Ha.
L 15/268	AMAL	100	Miscellaneous Licence	Live	11-10-2006	10-10-2027	5.77	Ha.
L 15/269	AMAL	100	Miscellaneous Licence	Live	11-10-2006	10-10-2027	7.19	Ha.
L 15/270	AMAL	100	Miscellaneous Licence	Live	11-10-2006	10-10-2027	7.49	Ha.
L 15/348	AMAL	100	Miscellaneous Licence	Live	05-09-2014	04-09-2035	3.16	Ha.
M 15/400	AMAL	100	Mining Lease	Live	30-08-1988	07-09-2030	501.00	Ha.
M15/1305	AMAL	100	Mining Lease	Live	29-12-2000	28-12-2021	97.89	Ha.
M15/1308	AMAL	100	Mining Lease	Live	29-12-2000	28-12-2021	92.53	Ha.
M15/1470	AMAL	100	Mining Lease	Live	13-05-2010	12-05-2031	400.00	Ha.
M15/1811	AMAL	100	Mining Lease	Pending	31-12-2999	31-12-2999	972.69	Ha.
M 59/714	AMAL	100	Mining Lease	Live	27-10-2009	26-10-2030	191.87	Ha.
P 15/5465	AMAL	100	Prospecting Licence	Live	21-07-2010	20-07-2018	149.00	Ha.
P 15/5466	AMAL	100	Prospecting Licence	Live	21-07-2010	20-07-2018	150.00	Ha.
P 15/5467	AMAL	100	Prospecting Licence	Live	21-07-2010	20-07-2018	150.00	Ha.
P 15/5862	AMAL	100	Prospecting Licence	Live	15-10-2014	14-10-2018	199.82	Ha.
P 15/5863	AMAL	100	Prospecting Licence	Live	15-10-2014	14-10-2018	199.80	Ha.
P 15/5864	AMAL	100	Prospecting Licence	Live	15-10-2014	14-10-2018	199.86	На.

P 15/5865	AMAL	100	Prospecting Licence	Live	15-10-2014	14-10-2018	199.86	На.
P 15/5866	AMAL	100	Prospecting Licence	Live	15-10-2014	14-10-2018	198.81	Ha.
R 15/1	AMAL	100	Retention Licence	Live	09-06-2010	08-06-2016	973.00	На.

Table2: Summary of Alliance Minerals Assets Limited tenements. All licences are for minerals exploration and where applicable mining.

<sup>\*</sup>Block = a graticular block = one minute of latitude x one minute longitude = approximately 3km<sup>2</sup>

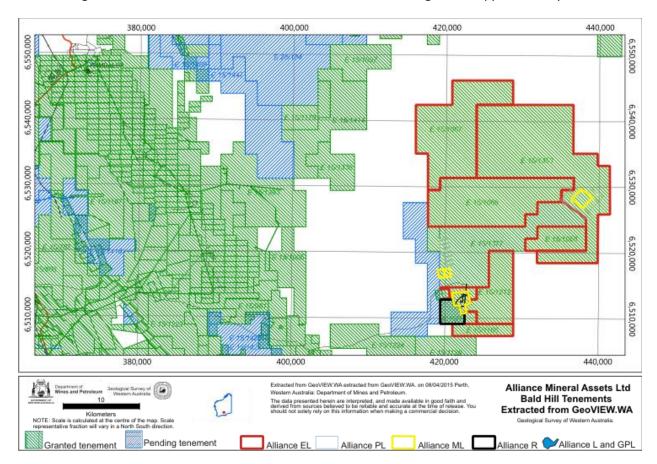


Figure 1: Alliance Mineral Assets Limited tenements.

### **Native Title**

There are no local Aboriginal communities on or near to the project area, although the region is part of the Native Title Claim of the Ngadju-speaking people.

The current Native Title status of all the Company's tenements are summarised in Table .

Tenement Id	Native Title Status
Granted	
M15/1305	Native Title determined to be extinguished
M15/1308	Native Title determined to be extinguished
M15/1470	State Mining Deed
M15/400	Pre-Native Title
P15/5465	RSHA executed between Living Waters and Ngadju

P15/5466	RSHA executed between Living Waters and Ngadju
P15/5467	RSHA executed between Living Waters and Ngadju
P15/5862	RSHA accepted
P15/5863	RSHA accepted
P15/5864	RSHA accepted
P15/5865	RSHA accepted
P15/5866	RSHA accepted
R15/1	GLSC has previously indicated an agreement exists
G15/17	Native Title determined to be extinguished
E15/1058	RSHA between Abeh and Ngadju (being replaced by RSHA between AMAL and Ngadju)
E15/1066	RSHA between Abeh and Ngadju (being replaced by RSHA between AMAL and Ngadju)
E15/1067	RSHA between Abeh and Ngadju (being replaced by RSHA between AMAL and Ngadju)
E15/1161	RSHA between Living Waters and Ngaju
E15/1162	RSHA between Living Waters and Ngaju
E15/1166	RSHA between Living Waters and Ngaju
E15/1212	RSHA between Living Waters and Ngaju
E15/1353	RSHA between AMAL and Ngadju
M59/714	State Mining Deed
Pending	
M15/1811	State Deed required (Mining Agreement with Ngadju)

Table 3: Native Title status. RSHA = Regional Standard Heritage Agreement.

All areas proposed for disturbance by mining activities have had ethnographic surveys completed that have shown that they are clear of Native Title and included in a Mining Proposal that has been approved for mining by the WA Mines Department. An ethnographic survey has also been completed for Creekside Pit on R15/1 but as yet no Mining Proposal has been submitted for mining this deposit to the WA Mines Department.

Should AMAL propose to disturb areas that have not been surveyed or approved for Aboriginal heritage issues further ethnographic surveys will be carried out. AMAL will liaise with the Goldfields Land and Sea Council regarding a Regional Standard Heritage Agreement for each new area to be disturbed.

#### **Royalty**

A royalty is payable to the Western Australian government for all tantalite and other minerals produced at Bald Hill. The royalty is as follows:

- Concentrate material (subject to substantial enrichment through a concentration plant) 5.0 per cent of the royalty value.
- Metal 2.5 per cent of the royalty value.

This system takes into account processing costs incurred after the mine-head point, price fluctuations, the grade of material and the change in the value as mined ore is processed and value is added.

An ad valorem royalty is calculated as a proportion of the 'royalty value' of the mineral. The "royalty value" and components used to calculate the "royalty value" are defined under Regulation 85 of the Mining Regulations 1981 (WA).

#### **Native Title**

Within Western Australia the Native Title Act 1993 (Cwlth), also referred to as NTA, is administered by the State government. This legislation provides for Aboriginal people to claim native title and a process for negotiation and compensation where the land is to be leased out by the State.

Native Title over all the Company's MLs has either been determined to be extinguished or a State Deed has been executed allowing mining to proceed on these leases.

The Mining Lease Application over the previous Retention Lease 15-1 containing the known Creekside and Fenceline Prospects is now subject to stakeholder consultations with the Native Title Holders. The Company attended their first meeting with the Native Title Tribunal on the 17th February 2015 and are moving to the next stage of negotiations to further discussions to a final agreement.

Regional Standard Heritage Agreements are in place for the remaining ELs and PLs.

# Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Bald Hill project is located in the Eastern Goldfields of Western Australia approximately 50 km due east of Widgiemooltha, 62 km southeast of Kambalda and 105 km southeast of Kalgoorlie, Figure 2. Access to site is via a well-made gravel road for 60 km from the bitumen Coolgardie-Esperance Highway. The site is accessible all year round except during periods of high rainfall when the gravel road maybe closed by the shire for short periods until the road dries out again to prevent damage to the road by the passing traffic.

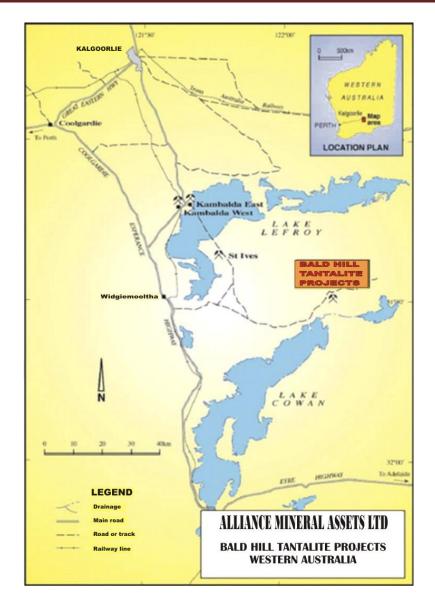


Figure 2: Location map of the Bald Hill tantalite project.

Bald Hill has a semi-arid climate, with the closest weather stations at Norseman, Balladonia, and Kalgoorlie–Boulder recording annual rainfall averages to 2007 of 288, 225, and 261 mm respectively. Rainfall is most consistent during the winter months. However, isolated thunderstorms and remnants of tropical cyclones in the summer months provide sporadic and heavy downfalls that produce substantial runoff. Temperatures in the summer months commonly exceed 35°C, and minimum temperatures during winter commonly drop below 5°C with occasional frosts.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C	46.5	44.9	44.5	38.9	33.4	27.6	28.7	32	36.8	40.9	42.9	45	46.5
Average high °C	33.6	32.1	29.5	25.2	20.6	17.5	16.7	18.6	22.3	25.8	28.9	31.9	25.2
Average low °C	18.2	17.8	16	12.6	8.7	6.2	5	5.5	8	11	14	16.5	11.6
Record low °C	8.8	8.5	5.7	1.7	-1.8	-3.0	-3.4	-2.4	-0.6	-1.0	3.1	5.5	-3.4

Average precipitation mm	23.6	31.2	24	21.3	26.5	28.9	24.9	21.4	14	14.8	17.8	16.4	264.8
Avg. precipitation days (≥ 0.2mm)	3.9	4.5	4.3	5.3	7.1	8.7	9.2	7.5	5.6	4.3	4.1	3.8	68.3

Table 4: Climate data for Kalgoorlie (100 km to northwest) (after Wikipedia).

The physiography of the Bald Hill area is largely controlled by basement rock types that are overlain by extensive regolith and the Cowan paleo-drainage system that was incised during the Jurassic. Relief is typically low with areas dominated by granitic rocks forming an irregular terrain of gentle undulations interspersed by sheetwash zones and deep regolith cover with claypans and sink holes. The metasedimentary rocks and minor mafic and ultramafic rocks are overlain by extensive sandplains. The sandplains adjacent to the northern extent of Lake Cowan has an average elevation of about 275 m above Australian Height Datum (AHD) and is part of the south to southwesterly draining Cowan paleo-drainage channel. The northern margin of Lake Cowan is dominated by a broad east-northeasterly trending ridge formed by the Paleoproterozoic Binneringie Dyke, which rises from the lake floor to an elevation of about 320 m above sea level. The Proterozoic Woodline Formation forms large northeasterly trending, rock-covered ridges and small, isolated conical hills.

A great deal of the original woodland vegetation was cleared for timber for mining operations in the middle of the last century. However, stands of trees untouched by fire or timber cutters indicate a dominance of mixed woodland to open woodland with saltbush understorey. The broad low ridges and sheetwash plains that dominate the Bald Hill area are mainly covered by mixed eucalypt woodland including Eucalyptus salmonophloia (salmon gum), Eucalyptus salubris (gimlet), E. flocktoniae (merrit) and patches of giant mallee (E. oleosa) and black butt (E. lesouefi i, E. dundasii). The eucalypts are intermingled with tall shrubs dominated by broombush (Eremophila scoparia), greybush (Cratystylis concephala), bluebush (Maireana sedifolia), and saltbush (Atriplex vesicaria), with a patchy ground layer of grasses and ephemeral herbs.

Wattle, mulga (Acacia sp.), and broombush are common on granite-derived soils. Shrubs observed less frequently include Exocarpos aphyllus, Santalum acuminatum (quandong), and Santalum spicatum (sandalwood). In areas where there is a sandy to rubbly outcrop of granitic rock, tall trees are absent and replaced by thickets of broombush (Eremophila scoparia). Where there are thick patches of sand overlying granitic rocks, a rich Kwongan\* flora grow, including sedges such as Lepidosperma drummondi. Patches of spinifex are common on granitic and felsic volcanic rocks.

In and around the playa lake system, vegetation is dominated by samphire (Halosarcia sp.), saltbush, bluebush, and greybush. Rounded-leaf pigface (Disphyma crassifolium) commonly grows where quartz dykes are exposed in the salt-lake beds and lake edges.

# **History**

Alluvial tantalite has been mined at Bald Hill periodically from the early 1970s. Gwalia Consolidated Limited undertook exploration for tantalite-bearing pegmatites from 1983-1998. Work included mapping, costeaning, and several phases of drilling using RAB, RC, and diamond coring methods. The work identified mineral resources that were considered uneconomic at the time.

Haddington entered into an agreement to develop the resource whereby the tantalite concentrate would be sold to Gwalia Consolidated subsidiary Greenbushes Tin, and mining commenced in 2001 and continued until 2005 when Greenbushes Tin no longer took third party concentrates for processing. It is estimated that Haddington had mined a total of approximately 1.35 million tonnes of pegmatite ore for approximately 822,353 pounds of  $Ta_2O_5$  as tantalite concentrate sold to Greenbushes Tin during this period.

Haddington continued with exploration until 2009.

Living Waters acquired the project and also acquired a number of additional tenements north of the main project area in 2009 and continued with limited exploration to the north of the main pit area.

The Property was transferred to HRM Resources Australia Limited in 2011. On 13 March 2014, HRM changed its name to Alliance Mineral Assets Limited ("AMAL"). Since the acquisition AMAL has continued with RC drilling, especially testing for extensions of the Boreline, North and South open pits.

# **Geological Setting and Mineralisation**

# **Regional Geology**

Bald Hill straddles the boundary between the Geological Survey map sheets Mount Belches and Yardina and lies within the southern part of the Eastern Goldfields Superterrane of the Archean Yilgarn Craton. Granitic and metasedimentary rocks are the main bedrock types, with greenstones to the east and west. Bald Hill lies within the Achaean Mount Belches Formation. Flat-lying Cainozoic Eundynie Group sedimentary rocks unconformably overlie the Archean basement and are commonly found on the western margins of playa lakes.

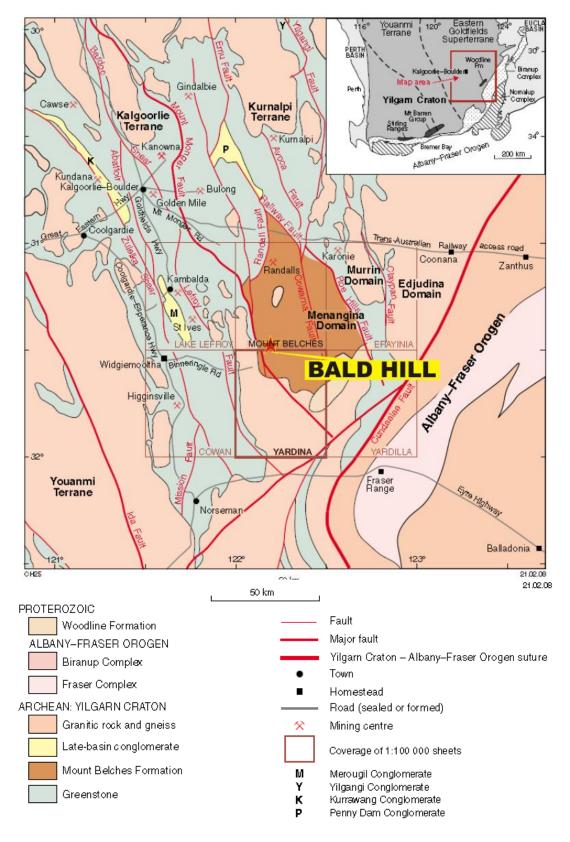


Figure 3: Regional Geology (after Hall and Jones, 2008).

Open to tight upright D<sub>2</sub> folds are well developed in metamorphosed sedimentary rocks of the Mount Belches Formation. D<sub>2</sub> folds have a well-developed axial-planar foliation and fold axes plunge moderately to the northwest, and are the result of east-northeast west-southwest crustal shortening. Regional metamorphism, which probably post-dates D<sub>2</sub>, ranges from greenschist to amphibolite grade and is overprinted by retrograde chlorite replacing garnet and cordierite. Gentle warping of D<sub>2</sub> folds is rare, but is attributed to the collision of the southeastern margin of the Yilgarn Craton with East Antarctica as part of the Mawson Craton during the 1345–1140 Ma Albany–Fraser Orogeny (D<sub>5</sub>). D<sub>5</sub> Albany–Fraser Orogeny-related deformation is also observed in the Proterozoic rocks of the Woodline Formation, with fold axes of open upright folds and gentle warps trending northeast and broadly parallel to the Yilgarn Craton – Albany–Fraser Orogeny contact.

Archean granitic rocks to the west of Bald Hill are dominated by massive to moderately foliated monzogranites to quartz monzonites (–biotite–hornblende). Minor rock types include syeno-granites and a clinopyroxene-bearing syenite.

### Mount Belches Formation (Abe-mh, Abe-mhe, Abe-mhz, Abe-mls)

The Mount Belches Formation is a thick sequence of metamorphosed turbiditic rocks. The Mount Belches Formation is a large fault bound block of metasedimentary rocks that forms a dome above a series of large granitic bodies. Sensitive high-resolution ion microprobe (SHRIMP) U–Pb zircon ages on detrital zircons from Mount Belches Formation sandstone indicate maximum depositional ages of 2666  $\pm$  5 Ma (Krapez et al., 2000) or c. 2667 Ma (Bodorkos et al., 2006). The sequence probably represents deposition by mass-flow traction and turbidity currents in a submarine environment (Painter and Groenewald, 2001).

Mount Belches Formation rocks are dominated by metamorphosed steeply dipping, fine- to coarse grained sandstone, siltstone, and mudstone, with minor conglomerate. Banded iron-formation and chert do not outcrop however aeromagnetic data suggests folded chert at depth beneath Proterozoic rocks of the Woodline Formation and Cainozoic sediments. The sandstone—siltstone sequences (Abe-mh) commonly display graded bedding, parallel and cross-laminations, scours, Bouma sequences, and soft-sediment deformation. Many beds have mudstone as the uppermost interval (now dominated by medium-grained metamorphic biotite or amphibole). In thin section the coarse-grained sandstones and granular conglomerates contain relict detrital-quartz grains (up to 5 mm) interspersed with biotite clots and poikiloblastic plagioclase crystals, with subordinate hornblende, chlorite, muscovite and carbonate, and accessory magnetite, zircon, titanite, tourmaline, pinitized cordierite and apatite. A similar mineral assemblage is found in the mudstone layers, but staurolite, andalusite, and garnet are present where the metamorphic grade is higher and there is a strong schistosity (Abe-mls).

Hornfelsed (Abe-mhe) and metasomatized (Abe-mhz) units of the Mount Belches Formation are most common where metasedimentary rocks are intruded by granitic plutons and dykes, pegmatite veins, quartz veins, as at Bald Hill and the Binneringie Dyke.

## Pegmatites (gp)

Pegmatite dykes and pods (gp), probably Archaean, are common at Bald Hill where they intrude metasedimentary rocks of the Mount Belches Formation and granitic rocks. The pegmatite dykes typically comprise very coarse feldspar, books of muscovite, and interstitial quartz. Pegmatites in granitic rocks are particularly abundant in granites that are near outcrops of the Mount Belches Formation and also near north-northwesterly trending lineaments, faults, or granitic dykes. Thin (centimetre sized) contact metamorphic haloes are present where the pegmatite intrudes metasedimentary rock, and intense quartz veining is localized around some pegmatite dykes and plugs.

Pegmatite dykes 1–8 m thick that intrude the Mount Belches Formation are mined at the Bald Hill mine for tantalum from tantalite.

#### **Economic Minerals at Bald Hill**

The three main minerals of economic importance at Bald Hill are Tantalite (tantalum), Cassiterite (tin) and Spodumene (lithium). Tantalite is the main economic mineral with the other two potentially recoverable as by-products.

#### **Tantalum**

Tantalum is a chemical element with symbol Ta and atomic number 73. Tantalum is a rare, hard, bluegrey, lustrous transition metal that is highly corrosion-resistant. It is part of the refractory metals group, which are widely used as minor components in alloys. The chemical inertness of tantalum makes it a valuable substance for laboratory equipment and a substitute for platinum. Tantalum is also used for medical implants and bone repair. Its main use today is in tantalum capacitors in electronic equipment such as mobile phones, DVD players, video game systems and computers. Tantalum, always together with the chemically similar niobium, occurs in the minerals tantalite, columbite and coltan (a mix of columbite and tantalite). Tantalum is a rare metal fifteen times less abundant in the universe than gold comprising just 1.5×10–4% (average approx. 1.5ppm) of the earth's crust.

Several steps are involved in the extraction of tantalum from tantalite. First, the mineral is crushed and concentrated by gravity separation. This is generally carried out near the mine site. Extraction from the mineral begins with a leaching, a step in which the ore is treated with hydrofluoric acid and sulphuric acid to produce water soluble hydrogen fluorides. The tantalum and niobium hydrogen fluorides are then removed from the aqueous solution by liquid-liquid extraction using organic solvents, such as cyclohexanone or methyl isobutyl ketone. The resulting niobium and tantalum potassium-fluorides (K2[TaF7], K2[NbOF5]) can then be separated by fractional crystallization due to their different water solubilities.

All welding of tantalum must be done in an inert atmosphere of argon or helium in order to shield it from contamination with atmospheric gases. Tantalum is not 'solderable'. Grinding tantalum is difficult, especially so for annealed tantalum. In the annealed condition, tantalum is extremely ductile and can be readily formed as metal sheets.

### **Uses of Tantalum**

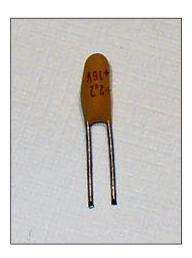


Figure 4 Tantalum electrolytic capacitor (after Wikipedia).

The major use for tantalum, as the metal powder, is in the production of electronic components, mainly capacitors and some high-power resistors. Tantalum electrolytic capacitors exploit the tendency of tantalum to form a protective oxide surface layer, using tantalum powder, pressed into a pellet shape, as one "plate" of the capacitor, the oxide as the dielectric, and an electrolytic solution or conductive solid as the other "plate". Because the dielectric layer can be very thin (thinner than the similar layer in, for instance, an aluminium electrolytic capacitor), a high capacitance can be achieved in a small volume. The size and weight advantages make tantalum capacitors attractive for portable phones, personal computers, and automotive electronics.

Tantalum is also used to produce a variety of alloys that have high melting points, strength, and ductility ideal for making carbide tools for metalworking equipment and in the production of superalloys for jet engine components, chemical process equipment, nuclear reactors, and missile parts. Tantalum can be drawn into fine wires or filaments, which are used for evaporating metals such as aluminium. Since it resists attack by body fluids and is non-irritating, tantalum is widely used in making surgical instruments and implants.

Tantalum is inert against most acids except hydrofluoric acid and hot sulphuric acid, and hot alkaline solutions also cause tantalum to corrode. This property makes it an ideal metal for chemical reaction vessels and pipes for corrosive liquids.

Tantalum is also highly bio-inert and is used as an orthopaedic implant material. The oxide is used to make special high refractive index glass for camera lenses.

Based on estimates published by the United States Geological Survey (USGS) and Geoscience Australia, the world resources of tantalum in 2012 totalled 156 kt. The world's largest holder of tantalum resource is Brazil with an estimated 88 kt, followed by Australia with 60 kt and Canada and Ethiopia with 4 kt each.

Using USGS data, Geoscience Australia estimated world production of tantalum in 2012 to be 765 tonnes (767 tonnes in 2011). Production in 2012 was dominated by Mozambique, with 260 tonnes, which amounted to about 34% of world output. According to the USGS, other main producers were Brazil with 180 tonnes, Congo (Kinshasa) with 95 tonnes, Rwanda with 90 tonnes and Nigeria with 50 tonnes.

#### Tin

Tin is a chemical element with symbol Sn (for Latin: stannum) and atomic number 50. It is a silvery, malleable metal that is not easily oxidized in air, obtained chiefly from the mineral cassiterite where it occurs as tin dioxide, SnO2.

The first alloy, used on a large scale since 3,000 BC, was bronze, an alloy of tin and copper. Pewter, which is an alloy of 85–90% tin with the remainder commonly consisting of copper, antimony and lead, was used for flatware from the Bronze Age until the 20th century. In modern times tin is used in many alloys, most notably tin/lead soft solders, which are typically 60% or more tin. Another large application for tin is corrosion-resistant tin plating of steel. Because of its low toxicity, tin-plated metal is commonly used for food packaging as tin cans, which are made mostly of steel.

#### Lithium

Lithium is a chemical element with symbol Li and atomic number 3. It is a soft, silver-white metal belonging to the alkali metal group of chemical elements. Under standard conditions it is the lightest metal and the least dense solid element.

Estimates for the Earth's crustal content of lithium range from 20 to 70 ppm by weight making it the 25<sup>th</sup> most abundant element. Lithium forms a minor part of igneous rocks, with the largest concentrations in granites. Granitic pegmatites provide the greatest abundance of lithium-containing minerals with spodumene, petalite and lepidolite being the most commercially viable sources.

Lithium and its compounds have several industrial applications, including heat-resistant glass and ceramics, lithium grease lubricants, flux additives for iron, steel and aluminium production, lithium batteries and lithium-ion batteries. These uses consume more than three quarters of lithium production.



Figure 5: Tantalite and spodumene from Bald Hill.

# **Local Geology**

The Company's tenements all are located within the Mount Belches Formation that in part was intruded by pegmatite dykes. These dykes are typically flat dipping but they can range from horizontal to vertical and even can appear folded. These pegmatite dykes host the tantalum (tantalite), tin (cassiterite) and lithium (spodumene) mineralisation.

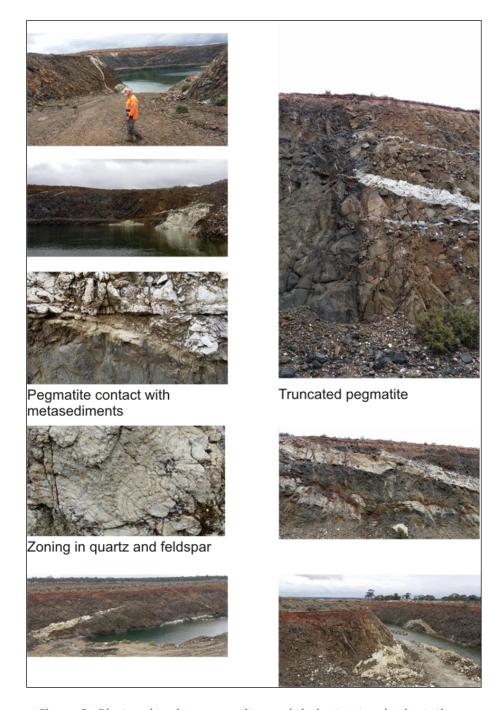


Figure 6: Photos showing pegmatites and their structural orientations.

The Bald Hill area is underlain by generally north-striking, steeply dipping Archaean metasediments (schists and greywackes) and granitoids.

Felsic porphyries and pegmatite sheets and veins have intruded the Archaean rocks. Generally, the pegmatites parallel the regional foliation, occurring as gently dipping sheets and as steeply dipping veins.

The pegmatites vary in width and are generally comprised quartz-albite-orthoclase-muscovite-spodumene in varying amounts. Late-stage albitisation in the central part of the main outcrop area has resulted in fine- grained, banded, sugary pegmatites with visible fine-grained, disseminated tantalite. A thin hornfels characterised by needle hornblende crystals is often observed in adjacent country rocks to the pegmatitic intrusives. Tantalite generally occurs as fine disseminated crystals commonly associated with fine-grained albite zones, or as coarse crystals associated with cleavelandite.

Weathering of the pegmatites yields secondary mineralised accumulations in alluvial/eluvial deposits.

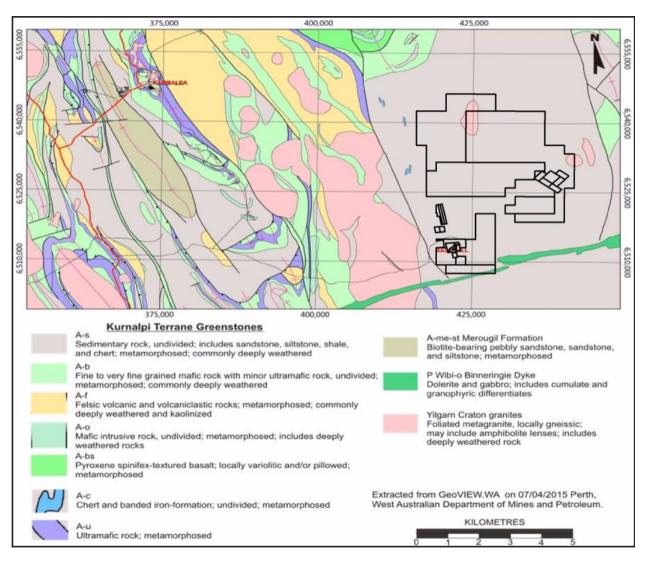


Figure 7: Local Geology.

Rock chip sampling and mapping, aided by air-photography and satellite imagery, at Bald Hill has identified numerous pegmatite outcrops and exploration targets, Figure 8.

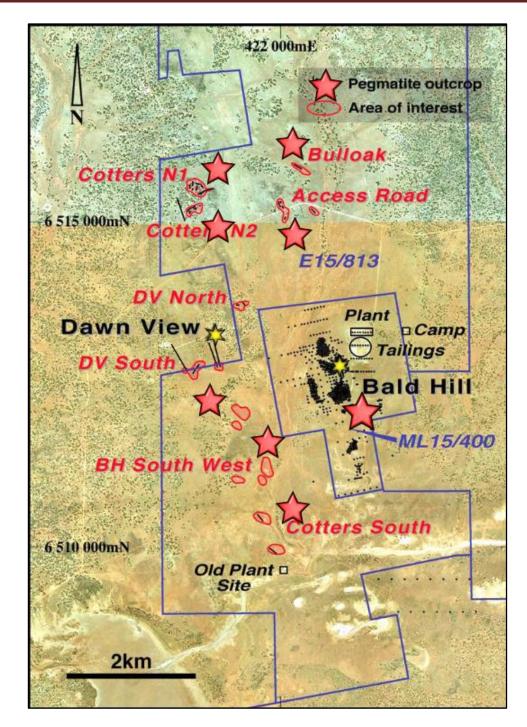


Figure 8: Exploration targets at Bald Hill.

Two prospective pegmatite fields to the north east of Bald Hill were identified by Haddington.

At Madoonia, 20kms north east of Bald Hill, several broad northwest trending lithium anomalies have defined a pegmatite field extending over an area 2.5kms by 2.0kms. Rock chip sampling returned results as high as 469ppm Ta<sub>2</sub>O<sub>5</sub>.

A second north-west trending group of pegmatites was also discovered by a regional RAB drilling program on Bald Hill Extended tenements. The drilling identified an area containing previously unknown pegmatites approximately 5 to 7 kms northeast of Bald Hill known as the Clay Pan Prospect. Pegmatite was intersected in 16 holes in this area and several hidden pegmatites were intersected below 10 metres of cover. Large multi lobate anomalies for pathfinder minerals rubidium and lithium are characteristic of this area.

## **Drilling**

A total of 1,748 drillholes and 62 costeans were completed at Bald Hill between 1983 and November 2014 for a total of 38,823.2 metres of drilling and 1,610m of costeaning,

Table and Figure 9.

The majority of drilling is vertical. There are 132 (-60°) angled drillholes in the database. For 38 angled drillholes, the set up survey is duplicated at the bottom of the drillhole. A total of 54 drillholes in the database have no downhole survey and were treated as vertical.

For costeans, an azimuth with a zero or small dip is recorded to define their orientation. The orientation and lengths were validated against available maps and electronic data sets.

AM&A conducted checks of the collar locations, drillhole depths, geological logging, assay results for a portion of the database from reports for all the drilling including the 2014 drilling completed by AMAL, and electronic data sets.

The water table in the mine site area is at least 15 m below ground surface and confined to steeply dipping, north—south-trending shear zones. Local water bore analyses indicate hypersaline water with total dissolved salts (TDS) >200,000 mg/L and pH 5.8–6.95. Groundwater is not likely to have adversely affected the RC and diamond samples however there is concern that the RAB intersections below the water table could be contaminated.

Hole Series	Туре	Date Drilled	Operator	Number	Metres Drilled	Average Depth
C01-C53	Costean	1983	Sons of Gwalia	62	1610.0	26.0
H01-H12	RAB	1983	Sons of Gwalia	12	122.0	17.4
BH85.08-BH85.31	RC	1985	Sons of Gwalia	8	161.8	20.2
1-69	RC	1987	Sons of Gwalia	69	1240.0	18.0
70-231	RC	1988	Sons of Gwalia	162	1737.0	10.7
M1-M7	Diamond	1996	Sons of Gwalia	7	98.0	14.0
RRC01-RRC18	RC	1996	Sons of Gwalia	18	311.0	17.3
BHD237-BHD0258	Diamond	2000	Haddington	22	314.4	14.3
BHC260-BHC341	RC	2001	Haddington	81	2164.0	26.7
BHC342-BHC559	RC	2002	Haddington	233	6891.0	29.6
BHC690-BHC772	RC	2003	Haddington	178	3512.0	19.7
BHR0627-BHR0646	RAB	2003	Haddington	20	349.0	17.5
BHC885-BHC912	RC	2004	Haddington	28	1253.0	44.8
BHR0773-BHR0884	RAB	2004	Haddington	95	2037.0	21.4
BHC913-BHC1475	RC	2005	Haddington	236	5291.0	22.4
BHR1045-BHR1753	RAB	2005	Haddington	294	4098.0	13.9
BHR1860-BHR2016	RAB	2006	Haddington	85	1864.0	21.9
BHC1477-BHC1521	RC	2006	Haddington	31	833.0	26.9
BHSC01-BHSC36	RC	2010	HRM(AMAL)	36	1341.0	37.3
AMBC001-AMBC133	RC	2014	AMAL	133	5206.0	39.1
Total	RC			1,213	29,940.8	24.7
Total	Diamond			29	412.4	14.2
Total	RAB			506	8,470.0	16.7
Total	Costean			62	1,610.0	26.0

**Table 5: Summary of drillholes.** 

Hole Series	Number Ta₂O₅ Assays	Average Ta <sub>2</sub> O <sub>5</sub>	Min Ta₂O₅	Max Ta₂O₅
1-231	682	389	389	990
AMBC001-AMBC133	1,299	140	1	3,614
BH85.08-BH85.31	39	306	30	750
BHC0260-BHC0341	219	333	24	976
BHC0342-BHC0559	1,078	314	5	979
BHC0575-BHC0772	330	340	5	982
BHC0885-BHC0912	250	296	5	827

BHC913-BHC1475	762	223	5	976
BHD237-BHD0258	328	313	5	2,314
BHR0627-BHR0646	53	315	5	987
BHR0773-BHR0884	78	225	5	972
BHR1045-BHR1279	75	199	5	801
BHR1860-BHR1871	4	1	1	1
BHSC01-BHSC36				
C01-C53	231	431	45	990
H01-H12	32	389	5	810
M1-M7	13	477	140	810
RRC01-RRC18	56	369	10	910
Total/Average	5,529	274	1	3,614

Table6: Summary of assay data.

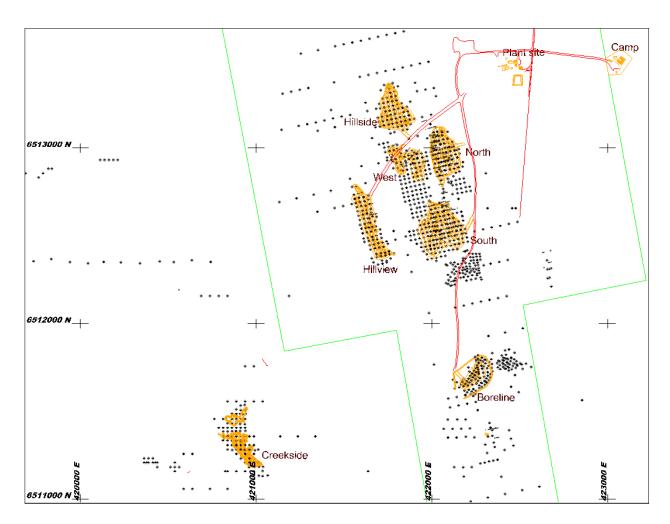


Figure 9: Map showing drill collar locations in vicinity of main deposits.

The majority of the drillholes modelled for resource estimation are vertical and nominally spaced on a 20m by 20m rectangular grid rotated approximately 35 degrees to the east, reflecting the original local grid orientation, except at Creekside where the grid follows the MGA grid orientation. Some of the holes prior to 2014 are closer spaced. The drillhole spacing is considered adequate for Mineral Resource estimation at the classifications reported.

## **Collar Surveys and Topographic Control**

The drill collar coordinates were originally derived from a pegged 50m by 50m local grid surveyed in 1983 that was resurveyed in 1996. These drilling coordinates have been transformed since 2014 to GDA94 coordinates.

Current drilling is surveyed via a Differential GPS by a licenced surveyor to produce GDA94 coordinates.

Although most drillholes have a surveyed collar elevation (relative to mean sea level), there were 127 drillholes with no collar elevation and a further 74 drillholes where there was a mismatch with the topography digital terrain model. The collar elevation for these 201 drillholes was adjusted to match the topography digital terrain model.

The area has a low relief and topographic control, Differential GPS surveys conducted by a licenced surveyor, is of sufficient accuracy for resource estimation and mine planning.

# Sample Preparation, Analyses and Security

There is no record of chip recovery or weights for RC and RAB drilling so it is not possible to establish if a relationship between sample recovery and sample grades exists. Since most of the tantalite is relatively fine-grained and the larger crystals highly brittle, the opportunity for sample bias is considered negligible.

Geological logs exist for all the drillholes in their entirety but assays have generally only been submitted within and adjacent to the pegmatites.

RC samples were collected at 1m intervals and riffle split on-site to produce a subsample less than 5kg. The RC drilling sampling and sample size are considered robust for sampling the tantalite mineralisation. The drillhole logs indicate that most of the samples were dry.

The historic pre-2014 sampling and analytical procedures followed by the then current operators, Sons of Gwalia 1983 – 1996 and Haddington 2000 – 2009, are believed to be in line with general sampling practices at the time the samples were collected. AMC and Varley, after carrying out statistical and graphical analyses of the data, determined that quality of the data was sound. AM&A therefore is of the opinion that the sampling of the RC and diamond drillholes would meet the standards required by the JORC Code (2012) for resource estimation in the categories nominated. The RAB drilling and costean sampling, which cannot be verified as being accurate, is only suitable for assisting with geological interpretation and not for grade interpolation in resource modelling.

Field duplicates, laboratory standards and laboratory repeats were used at varying frequency through the years to monitor sampling and analyses since 2001.

The samples prior to 2014 were all analysed using the XRF assay technique. During the period that mining was in operation the samples were analysed at the site laboratory while the rest of the samples were analysed by independent laboratories. The samples for the July-August 2014 drilling at Boreline and November 2014 drilling in the Central Area were assayed by Sodium Peroxide Fusion / ICP-MS Analysis by Bureau Veritas, Perth, Western Australia (formerly Ultra Trace Pty Ltd) in 5 batches.

#### **PF100** Sodium Peroxide Fusion and Acid Dissolution

An aliquot of sample is fused with Sodium Peroxide in either a zirconia crucible or alumina crucible. The melt is dissolved in dilute Hydrochloric acid and the solution analysed. This process provides complete dissolution of most minerals including silicates. Volatile elements are lost at the high fusion temperatures.

**PF102** ICP-MS Analysis – 6 Elements. All Detection Limits in PPM Inductively coupled plasma mass spectrometry (ICP-MS) is a type of mass spectrometry which is capable of detecting metals and several non-metals by ionizing the sample with inductively coupled plasma and then using a mass spectrometer to separate and quantify those ions.

Sn (10)	Li (1)	Ta (0.5)	Nb (5)	Rb (0.5)	Cs (0.5)
OII (10)		Ta (0.5)	146 (5)	110 (0.0)	03 (0.0)

Table 7: Method codes and elements analysed using XRF102 and detection limits (ppm).

The assays from the Boreline and Central Area drilling were reported in result files containing the QA/QC laboratory standard assays, drill duplicate assays and laboratory duplicate assays. All these standard, laboratory repeats and field duplicate Ta assays were charted for comparison against expected and original results, Figure 10 to Figure 12.

For the July-August and November 2014 drilling 1,299 original assays were reported and 144 duplicates were reported so approximately 10% of the assays were drill sample duplicates.

### **Internal Laboratory Standards**

The standards used and their certified grades are shown below in Error! Reference source not found.

Laboratory Standard	Li	Sn	Та
	ppm	ppm	ppm
Gannet ST-BM-21/310	11	-	
NCS dc 86304 Lithium Ore	10,500	100	-
SARM 3 NIM – L Lujavrite	45	-	23.5
SY - 4	40	-	1

**Table 8: Certified Results for Laboratory Standards.** 

The results were charted for each standard and the charts below show the assay results for each laboratory file with tolerance lines of  $\pm$  3% and  $\pm$  10%.

It can be seen from Figure 10 that the  $Ta_2O_5$  assays for most of the standards are generally within +/- 5% of the expected value but do go to the +/-10% limits. It is noted by AM&A that the standards used are

all lower than the average  $Ta_2O_5$  grade of the resources but the assay results indicate that the sampling and laboratory assays are sound and properly calibrated therefore meeting the requirements for reliable resource modelling.

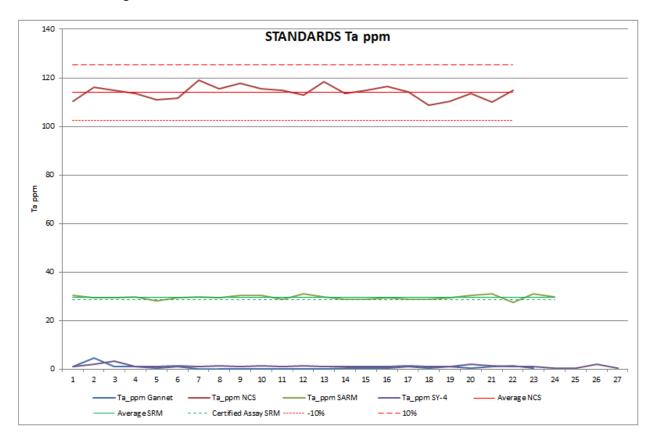


Figure 10: Laboratory Standards results.

### **Drill Sample Duplicates**

The drill sample duplicate assays which were taken approximately every tenth drill sample were compared by plotting a correlation graph between the original and duplicate assays, Figure 11. The two sets of assays correlated well with no unusual outliers indicating that the quality of the sampling and assays is robust.

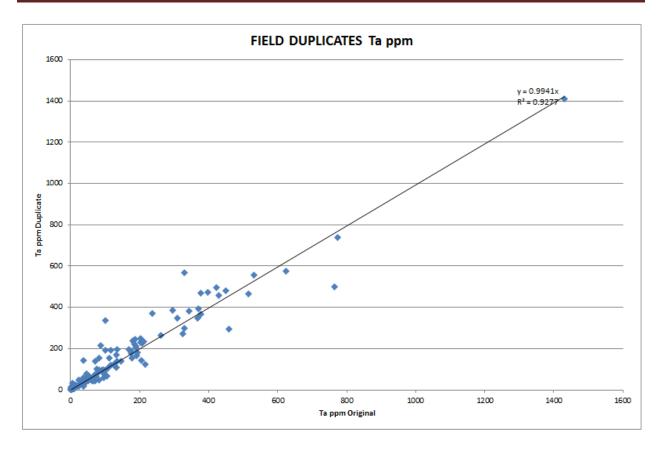


Figure 11: Correlation graph of original Vs field duplicate sample Ta<sub>2</sub>O<sub>5</sub> analyses (2014 drilling only).

The repeat analysis results, with a R<sup>2</sup> correlation coefficient of 0.9277, are considered to be acceptable for resource estimation for the style of mineralisation being modelled.

### **Internal Laboratory Repeats**

The laboratory processed 87 internal laboratory repeat assays for the 1,299 drilling sample assays reported at approximately one for each 15 drilling samples. The assay results were compared by plotting a correlation graph between the original and duplicate assays, Figure 12. The excellent correlation of 0.9937 indicates that there are no obvious problems with the laboratory's assay repeatability.

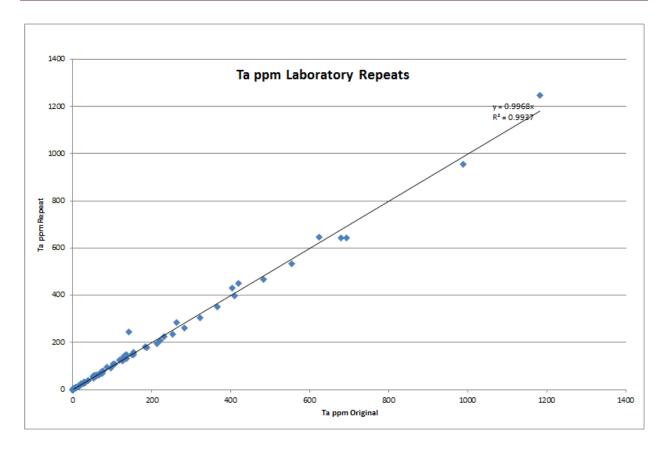


Figure 12: Laboratory repeat assay results.

All drilling data has been loaded to an Access database and rigorously validated prior to use including graphical verification to confirm that that the  $Ta_2O_5$  assays correlated with the assigned downhole lithologies with the pegmatites having the elevated grades.

### **Data Verification**

The original data verification was carried out by Varley. The historic drillhole data, compiled earlier by AMC, was supplied as an Access file by AMAL which was imported into Excel and Gemcom software for validation and errors were detected. All the problems were resolved after consultation with Timothy Monks, AMAL geologist, who was involved with the project since the Haddington era. AMAL supplied the drillhole data for all of the AMBC prefixed holes from the 2014 drilling. This data was also similarly validated and checked for errors which were corrected as required.

The database contains the following:

Collars, Survey (downhole), Geology/Lithology, Weathering, Assays (original), Assays (for estimation; no negative values or zeros). The survey coordinate grid used is GDA94.

AM&A also validated the combined AMC/2014 drilling database statistically and graphically comparing the geological logging with the assays in MineMap software. AM&A are of the opinion that this data was of sufficient accuracy and reliability for resource estimation modelling. The data, including the July-

August and November 2014 drilling, was again verified and subsequently used by Varley for resource modelling at Boreline and Central Area.

#### **Bulk Density**

The GTS 2014 Boreline Block Model Update Report details work done to determine the bulk densities for pegmatite spanning the weathering profiles. The results from this report are shown below in Table 3. Based on these results, bulk densities of 1.92t/m3 for oxide pegmatite, 2.36t/m3 for transitional pegmatite and 2.63t/m3 for fresh pegmatite were used for resource modelling.

Lithology	Weathering State	Sample Location	Bulk Density (t/m³)
Pegmatite	Fresh	South Pit	2.65
		South Pit	2.63
		South Pit	2.62
		South Pit	2.61
		South Pit	2.64
	Mean Fresh	Pegmatite Bulk Density	2.63
	Transitional	Cotter Costean	2.41
		Cotter Costean	2.29
		Cotter Costean	2.39
	Mean Transitional	Pegmatite Bulk Density	2.36
	Oxide	Boreline Pit	1.96
		Boreline Pit	1.90
		Boreline Pit	1.90
	Mean Oxide	Pegmatite Bulk Density	1.92

**Table 9: GTS Report Bulk Density Results.** 

Using drillhole data, the logging of the weathering for holes AMBC001 to 058 was used for base of oxidation and top of fresh rock. These surfaces were expanded to cover the extent of the 3D pegmatite solids and then used to inform the block model by assigning the accepted bulk densities to blocks with >50% by volume within the oxide, transitional and fresh weathering profile surfaces.

## **Mineral Processing and Metallurgical Testing**

The processing plant used by Haddington has been purchased by the Company and will be used to treat the Bald Hill ore to be mined. This plant, when operated by Haddington, recovered 64.3% of the  $Ta_2O_5$  in the ore producing a concentrate averaging 94,900 ppm (9.49%)  $Ta_2O_5$ . Metallurgical test work on drilling samples from Bald Hill by NAGROM on behalf of the Company has indicated that similar recoveries for a  $10\% Ta_2O_5$  concentrate can be expected from the remaining resources including the small reserve, being the Oxide ore at Boreline.

#### Mineral Resource and Ore Reserves

This report, including the resource and reserve estimates, complies with the 2012 edition of the *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves* (the 'JORC Code (2012)'). Key definitions of this code are as follows:

A 'Mineral Resource' is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to an Ore Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes, and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Ore Reserve.

A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes, and is sufficient to confirm geological and grade (or quality) continuity between points of observation where data and samples are gathered. A Measured Mineral

Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Ore Reserve or under certain circumstances to a Probable Ore Reserve.

An 'Ore Reserve' is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which Reserves are defined is usually the point where the ore is delivered to the processing plant.

'Modifying Factors' are considerations used to convert Mineral Resources to Ore Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.

- A 'Probable Ore Reserve' is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve.
- A 'Proved Ore Reserve' is the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors.

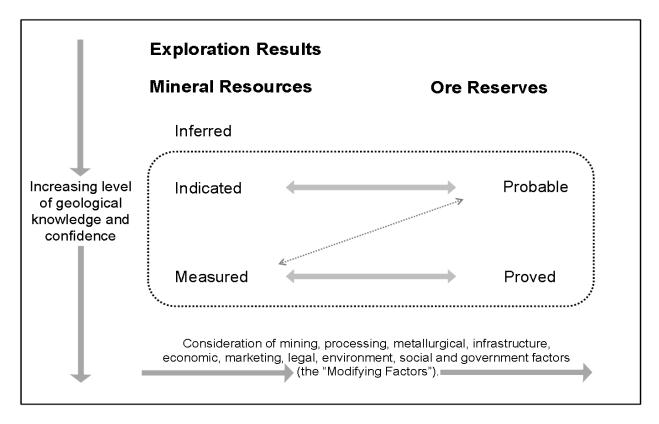


Figure 13. General relationship between Exploration Results, Mineral Resources and Ore Reserves.

All the resource modelling and estimation considered for this report was commissioned by AMAL and carried out by Mr Alex Virisheff of AMC Consultants and Ray Varley of Geological Resource Management in June 2014 and March 2015 respectively. Mr Virisheff is a Fellow of the Australian Institute of Mining and Metallurgy ('AusIMM') and Mr Varley is a Member of The Australian Institute of Geoscientists ('AIG') and are independent contractors/consultants and have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (the JORC Code).

The available data, as previously described, was compiled into a series of Excel spreadsheets for validation purposes. Assay data was checked against original assay sheets where available and, in particular, where the results were considered potentially erroneous by checking graphically of assays against logged lithologies. Errors generated due to from-to and assaying or lithology overlap errors were rectified when the data from the Excel spreadsheets was imported into the software used in the estimation.

Exploration and mining history in the Bald Hill area has shown that tantalite mineralisation is confined to pegmatite intrusions. Geological logs and  $Ta_2O_5$  grades were used to create a series of pegmatite wireframes that constrain the tantalite mineralisation for the purpose of Mineral Resource estimation. Some of the pegmatites are relatively thin so only pegmatites greater than 1 m in thickness were

considered. The geometry of the pegmatites can change rapidly over short distances and, as such, knowledge of their distribution is critical to a robust estimate.

Closed wireframes of minimum thickness >1m were constructed according to the geological understanding of the areas and modified so that they contained  $Ta_2O_5$  grades of >= 100 ppm for AMC and >= 160 ppm for Varley. Lower grades were allowed but only where the grade intercepts of the pegmatites averaged greater than the chosen cut-off. Wireframes were extended halfway between holes and adjacent sections. 1m sample from within the wireframes were used to estimate grades into a block models of 10mY by 10X by 2mZ by AMC and 10mY by 10X by 1mZ by Varley approximating half the drill spacing and equalling the drillhole sampling. Wireframe percentages were calculated for each block. Block estimates were made for the principal components  $Ta_2O_5$  using ordinary kriging controlled by anisotropic variogram models which reflected the overall geology. All estimates used ellipsoid sample searches orientated to the variogram directions. Maximum and minimum samples used for block estimation were chosen to make the average of the estimated blocks and the averaged estimating sample grades as close as possible.  $Ta_2O_5$  and Sn were estimated uncut and top-cut grades. Top-cut grades were decided by inspection of the sample distributions. Other grades were estimated uncut.

A lower cut-off of 160 ppm Ta<sub>2</sub>O<sub>5</sub> was selected after reviewing previous work suggesting cut-off grades.

It was assumed that selective open-pit mining methods will be applied, similar to those that operated from 2001 to 2005 with a minimum mining thickness greater and 1m.

The resource estimates as at 31 March 2015 for the Bald Hill deposits are summarised below in Table.

	Gross Attributable to licence		Net Attributable to Issuer				
Category	Mineral Type	Tonnes (millions)	Grade Ta₂O₅ (ppm)	Tonnes (millions)	Grade Ta₂O₅ (ppm)	Change from previous update (tonnes %)	Remarks
Reserves							
Proved	Tantalum	0.00	0	0.00	0	0	
Probable	Tantalum	0.02	187	0.02	187	100%	Oxide at Boreline only
Total		0.02	187	0.02	187	100%	
Resources*							
Measured	Tantalum	0.00	0	0.00	0	0	
Indicated	Tantalum	2.57	340	2.59	340	17%	
Inferred	Tantalum	0.1	367	0.1	367	20%	
Total		2.67	341	2.67	341	17%	

Table 10: Resource Summary for Bald Hill outside current pits (AMC 2014, Varley 2015) at 31 March 2015 using 100ppm Ta<sub>2</sub>O<sub>5</sub> lower cut-off. Note that Reserves are exclusive of Resources.

### **Exploration Potential**

Further RC and diamond drilling is warranted at the various deposits to explore for additional resources and improve the understanding of the current resources prior to mining.

There are a number of prospects, Figure 8, some with old workings that have well-developed pegmatite bodies hosting tantalite mineralisation, but these have not as yet been explored in enough detail to estimate mineral resources. The Project area also hosts pegmatite occurrences that have not been adequately tested, and is prospective for new pegmatite discoveries. A review of this area was provided by Al Maynard and Associates, 2011 and is summarised in the following paragraphs.

There are a number of prospects located within 5 km of the process plant, on the existing mining lease and exploration licences immediately surrounding the mining lease that have potential to add mineral resources. These are at various stages of evaluation, and include Eastern Pegmatites, Creekside North, Creekside West, Cotter, Cotter West, and Fenceline.

The Bull Oak Dam area is located approximately 5 km to the north-northwest of the process plant, and hosts numerous tantalite-bearing pegmatite dykes that have been delineated and partially tested by the previous leaseholders. Six prospects have been identified to date, and are called the B12/Hill, Pegmatite, Tin Bushes, Old Rich Patch, Soft Pegmatite, and Nothing Special. At each prospect, pegmatite dykes that are tantalite-bearing have been discovered, with rock chip sample results up to 1,190 ppm Ta reported. Exploration is at an early stage.

The Madoonia area incorporates the tenements that lie 10–30 km to the north and north-east of the process plant. Exploration is at an early stage, but pegmatite dykes have been mapped over a significant strike length, suggesting that the area has the potential to host tantalite mineralisation. Previous broad scale reconnaissance exploration has defined a number of low order tantalum anomalies. The potential of this area has not been fully tested and remains a good exploration target.

#### **Ore Reserves**

As set out in the previous IQPR in the offer document, the Company undertook to complete a prefeasibility study to convert its ore resources into reserves "during the second and third quarters of 2014, based on the mineral resources as defined as of 31 March 2014". The Company has since decided to take a more conservative approach by commissioning Gary McCrae of Minecomp Pty Ltd ("Minecomp") to design a limited open pit for only the Oxide resources at Boreline. This Oxide ore is "free dig" and so does not require approval from the WA Mines Department for blasting.

This small open pit was being mined by AMAL during April/May 2015 and the mined ore used to commission the Bald Hill and Boulder processing plants to determine the actual operating costs, mining recovery and mining dilution factors as well as process plant recoveries. These actual costs and mining and processing plant recoveries will then be used by the Company in an internal feasibility study prior to mining the remaining resources at Bald Hill to calculate reserves for the remaining resources at Bald Hill. These forthcoming reserves will include the additional resources in the Central area outlined in the 2014

drilling program and any other resources determined by further drilling planned during 2015. The Company will issue another IQPR when such conversion happens.

The Oxide and Fresh resources at Boreline estimated by Gary McCrae of Minecomp, after the completion of a Whittle study on the Varley resource model using mining and cost parameters provided by AMAL, was estimated to be 60,000 tonnes averaging  $272ppm\ Ta_2O_5$ . The reserve estimate for the Oxide, only within the interim trial pit that was mined April/May 2015 as determined by McCrae, to be 20,000 tonnes at an average grade of  $187ppm\ Ta_2O_5$  allowing for mining losses and dilution. AM&A have verified that this reserve estimate is reasonable and properly considers all the Modifying Factors as required by the JORC Code (2012), especially the mining dilution and ore losses.

Minecomp have run preliminary Whittle shells, using the same parameters used at Boreline, over the AMC resource model of the Central area to determine the potential reserves and identify areas warranting further drilling, Figure 14. Whittle shells are software generated pit shells that consider a range of mining and metallurgical costs and operating parameters to determine which part of a resource can be mined profitably and return a maximum profit. Where the Whittle shell stops at the limit of the model it can be concluded that further drilling is warranted since if the model was extended the Whittle shell is likely to go deeper. Several areas were identified by this study requiring further drilling.

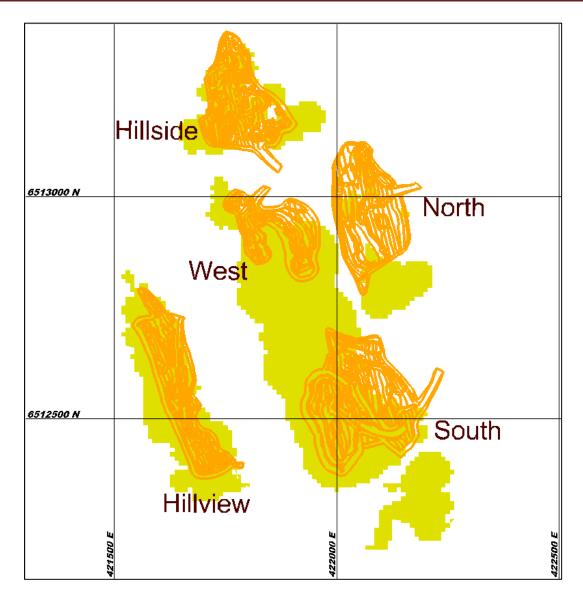


Figure 14 Preliminary Whittle shells over Central area. Yellow areas indicate limits of Whittle shells, orange outlines indicate existing mined pits.

## **Mining Methods**

The hard rock mining in the past has all been by conventional open cut methods. To date approximately 1.35 million tonnes of pegmatite ore has been mined at Bald Hill from six pits, **Error! Reference source not found.** All but three pits; Boreline, South and Hillview, have been backfilled with mining overburden and tailings.

It is envisaged that all new reserves will be similarly mined by open cut methods. All the mining overburden from any new excavations and tailings from the processing plant will be stored as either approved dumps or as backfill in abandoned pits.

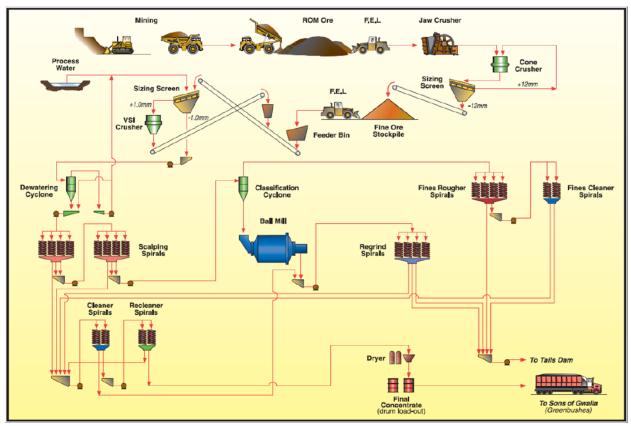
### **Recovery Methods**

The existing processing plant located on site, constructed and previously operated by Haddington, has been re-furbished and upgraded by the Company. This plant screens, pulverises and then, using a bank of spirals, separates out the heavy minerals; including tantalite and cassiterite, to produce a primary concentrate. This concentrate is then sent to the Secondary Beneficiation Plant owned by the Company in Boulder-Kalgoorlie to be further processed to produce a saleable 25-30% concentrate. The Boulder gravity separation plant was initially operating in Perth by Nagrom & Co where it was used to beneficiate the Haddington concentrate as set out in previous IQPR, however Company has since relocated this plant to Boulder. This concentrate is planned to be sold to Mitsubishi for further processing to produce a pure product that is then sold to the end users.



Figure 15: Photos of processing plant at Bald Hill.

Only partial historic production records from the Haddington mining and processing operations, Figure 16, are available. Production records from July 2002 (approximately one year after mining commenced) until November 2005 (when the processing plant ceased operating) provided to the CP by the Company indicate that 1,135,000 tonnes of ore was processed by Haddington at an average head grade of 426ppm  $Ta_2O_5$ . From this ore 3,264 tonnes of concentrate averaging 94,900 ppm (9.49%)  $Ta_2O_5$ was sold to Greenbushes indicating that 64.3% of the  $Ta_2O_5$  in the ore was recovered in the concentrate with the remaining 35.7% of the  $Ta_2O_5$  lost in the tailings at an average grade of 153 ppm  $Ta_2O_5$ . It is not known for certain the source pit of this ore processed, or its degree of weathering, however it is most likely to have been sourced from all the pits from almost entirely within the fresh zone.



Reproduced from Haddington Annual Report 2002.

Figure 16: Process flow-sheet as at 2002 (Haddington Annual Report for 2002).

## **Environmental Studies, Permitting and Social or Community Impact**

The W.A. Department of Mines and Petroleum (DMP) promotes best environmental management practices by delivering environmental regulatory and policy services to maximise the responsible development of the State's mineral resources.

The DMP Environment Division assesses mineral exploration and development applications made within Western Australia and audits and inspects mineral activities to ensure their operation is consistent with the principles of responsible and ecologically sustainable exploration and development.

Environmental approvals are granted in accordance with the Mining Act 1978 (WA).

Clearing permits are granted under delegation from the Department of Environment Regulation in accordance with the provisions of the Environmental Protection Act 1986 and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

Environmental approvals are required before mining and mineral processing commences, including a mine closure plan, with detailed progress reports required to be submitted annually by the Company to the DMP.

The Company has gained all the environmental approvals for mining and processing oxide pegmatite, requiring no blasting, from Boreline and is awaiting final approvals for the storage of explosives required for the mining of the primary fresh ore from the Boreline and South pits.

### **Capital and Operating Costs**

Only limited Ore Reserves, of the Oxide resources at Boreline, have been estimated for the Property and therefore an accurate financial analysis for the recommencement of mining and processing is not possible. These reserves were being mined in a small open pit by AMAL during April/May 2015 and the mined ore used to commission the Bald Hill and Kalgoorlie processing plants to determine the actual mining and processing plant operating costs in addition to mining recoveries and dilution factors as well as process plant recoveries. These costs and mining and processing factors will be used in a forthcoming feasibility study conducted internally by AMA prior to the continued mining of the remaining resources on the Property.

The limited mining, recommissioning the process plant and general infrastructure, and new accommodation facilities at the site is expected to cost approximately A\$7 - 8 million.

The Company has made preliminary estimates of the operating costs based on extensive use of contractors, particularly for mining and transport services. Indicative operating costs are approximately A\$26 to A\$28 per tonne of ore processed. AM&A has no reason to doubt the reasonableness of these estimates.

## **Economic Analysis**

The price for Tantalite ore has fluctuated considerably during the last few years averaging just over A\$100/lb since early 2014, Figure 17. Prior to 2012 the price was much steadier at about US\$80/kg. The marked increase in early 2012 was due to sudden increased demand in the electronics industry and reduced supply from traditional suppliers, mainly in Australia, as reserves were depleted.

The price the Company will receive for its tantalite concentrate will depend on several factors including both the Ta grade of the concentrate and its contained tantalite. The concentrate will contain impurities that will dilute the tantalite content and the Ta content of the mineral tantalite varies depending on its chemical composition. The mineral tantalite (Fe,Mn)(Ta,Nb) $_2$ O $_6$  has a Ta content of between 52-86% Ta $_2$ O $_5$  depending mainly on its Nb (niobium) content which is in solid solution with Ta.

Other factors that could affect the price received for the Company's concentrate due to possible problems for the refinery producing pure products from the concentrate that include:

- levels of deleterious elements in the concentrate such as uranium, thorium, arsenic and antinomy;
- the presence of nuisance minerals like clay;
- and the size of the tantalite grains.

Historically the concentrate produced by Haddington at the Bald Hill Mine site was a high quality concentrate with very low levels of uranium, thorium, arsenic and antinomy as well as clay so it was sold at a premium price to Greenbushes Limited so it could be blended with poorer quality, inferior concentrates from other sources to produce a smelter feed that had acceptable smelting properties.

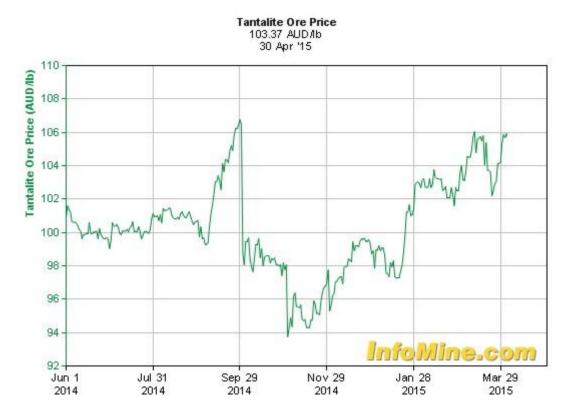


Figure 17: Tantalite market price since June1 2014 to 31 March 2015 (after InfoMine).

#### Other Relevant Data and Information

There is no other data not included in this report and known to AM&A that would assist with the understanding of the Bald Hill project.

## **Interpretation and Conclusions**

The general geology of the Property is reasonably well-understood. It is comprised of a series of pegmatitic sheets and veins intruded into an Achaean metasediment sequence. These sheets and veins are developed along a roughly north—south trend, and vary in geometry, extent, and dip, both to the west and east. The pegmatites contain tantalite, columbite, spodumene, cassiterite, and others as accessory minerals, although their distribution is less well-understood.

Exploration has focused on identifying near-surface pegmatites, by costeaning and shallow drilling, supplemented by some geophysics. The drilling methods used included RAB, RC, and minor diamond coring. The sampling was predominantly 1m in length. The data generated has been captured in a

number of databases, spreadsheets, other files, and documents, and has, in part, been validated by AMC and Varley. Overall, the exploration approach has been conducted in line with general industry practices of the time.

AMC estimated that the Bald Hill tantalum project Mineral Resource as of 31 March 2014 comprises 2.58Mt averaging 352ppm  $Ta_2O_5$  at a lower cut-off of 100ppm  $Ta_2O_5$ . Most of this resource is located in the Central Mine Area adjacent to the five open pits that have been subject to previous mining, and additional resources are located at both Boreline and Creekside.

Most of the resource was categorised as Indicated Mineral Resource. No Measured Mineral Resource has been determined, primarily because of the uncertainties associated with database integrity, a lack of understanding of the detailed controls on tantalum mineralisation, and the paucity of bulk density data.

AMAL completed further RC drilling at the Boreline, Far South and North Extended deposits with Ray Varley of GRM using this data to estimate additional resources of 0.54Mt averaging 311ppm  $Ta_2O_5$  at a lower cut-off of 160ppm  $Ta_2O_5$ .

The current total resource at Bald Hill stands at 2.69 Mt at 342ppm  $Ta_2O_5$  of which 2.59 Mt at 342ppm  $Ta_2O_5$  is Indicated and 0.1 Mt at 367ppm  $Ta_2O_5$  is Inferred.

AMAL commissioned a limited reserve estimate and pit design by McCrae of Minecomp for the Oxide resource at Boreline. McCrae estimated a Probable Reserve of 20,000 tonnes at an average grade of 187ppm Ta<sub>2</sub>O<sub>5</sub>. This reserve was being mined in a small open pit by AMAL during April/May 2015 and the mined ore used to commission the Bald Hill and Kalgoorlie processing plants. This trial mining and process plant commissioning will be used to determine the actual operating costs, mining recoveries and dilution factors as well as process plant recoveries that will be used for estimating and reporting reserves from resources in the future.

AM&A concludes that there are sufficient resources at a sufficient grade to warrant the Company's planned trial mining and plant re-commissioning program followed, after the successful completion of an internal conducted feasibility study, by the eventual transition to full scale mining and production of high quality tantalite concentrates.

AM&A considers that there is potential to increase the Mineral Resource, and consequently the Ore Reserves, because there are several prospects that have been previously drill tested and shown to host significant tantalum mineralisation. Additionally, there are a number of prospects where surface sampling has identified tantalum mineralisation that requires further exploration.

#### Risks

The following risk analysis has been adopted by the Competent Person in assigning risk factors to various aspects. Risk has been classified from major to minor as follows:

**Major Risk**: the factor poses an immediate danger of a failure which, if uncorrected, will have a material effect (>15% to 20%) on the project cash flow and performance and could potentially lead to project failure.

**Moderate Risk**: the factor, if uncorrected, could have a significant effect (10% to 15%) on the project cash flow and performance unless mitigated by some corrective action.

**Minor Risk**: the factor, if uncorrected, will have little or no effect (<10%) on project cash flow and performance.

#### **Overall Risks**

The likelihood of a risk event occurring within a nominal 7 year time frame has been considered as:

**Likely**: will probably occur

**Possible**: may occur

**Unlikely**: unlikely to occur

The degree or consequence of a risk and its likelihood are combined into an overall risk assessment, as shown below:

Likelihood of Risk		Consequence of Risk		
(within 7 years)	Minor	Moderate	Major	
Likely	Medium	High	High	
Possible	Low	Medium	High	
Unlikely	Low	Low	Medium	

**Table 11: Risk Assessment Guidelines.** 

#### **Project Risks**

This Section identifies the areas that Competent Person regards as the major risks associated with an investment in the Bald Hill project.

The main risks pertaining to this project are as follows:

- Resource risk due to changes in geological interpretation, assumed mining and processing parameters and new geological information and or sampling data;
- Commodity prices and exchange rates are constantly changing;
- Risks inherent in exploration and mining include, among other things, successful exploration and identification of ore reserves, satisfactory performance of mining operations if a mineable deposit is discovered and competent management;
- Risks associated with obtaining renewal of tenements upon expiry of their current term, including
  the grant of subsequent titles where applied for over the same ground. The grant or refusal of
  tenements is subject to ministerial discretion and there is no certainty that the renewal of
  tenements will be granted.
- The risk of material adverse changes in the government policies or legislation of Western Australia that may affect the level and practicality of mining activities;

- Environmental management issues with which the Company may be required to comply from time to time. There are very substantive legislative and regulatory regimes with which the Company needs to comply for land access and mining which can lead to significant delays.
- Native Title is believed to be extinguished over the mining leases. The status of Native Title over the other leases and licences that make up the Company's tenement package has not been determined by the CP as they do not cover the reported resource and planned mining areas.
- Poor weather conditions over a prolonged period which might adversely affect mining and exploration activities and the timing of earning revenues;
- Unforeseen major failures, breakdowns or repairs required to key items of mining and processing equipment, mining plant and equipment or mine structure resulting in significant delays, notwithstanding regular programs of repair, maintenance and upkeep;

This is not an exhaustive list. Further clarification of the major risks follow:-

#### Resource

Estimates of Mineral Resources may change when new information becomes available or new modifying factors arise. Interpretations and assumptions on the geology and controls on the mineralisation on which Resource or Reserve estimates based on may be found to be inaccurate after further mapping, drilling, sampling or through future production. Any adjustment could affect the development and mining plans, which could materially and adversely affect the potential revenue from the Project and the valuation of the Project. If the Resources are over estimated in either quantity or quality of ore, the profitability of the project will be adversely affected. If however the quantity or quality is underestimated the profitability of the project will be enhanced. The Bald Hill Project is in the premining and mineral processing production stage. Mineral value fluctuations, dilution, grade and mining losses all could potentially change the value of the Resource estimate.

#### **Mining Risk**

Mining risks include the uncertainties associated with projected continuity of an ore deposit, fluctuations in grades and values of the product being mined, and unforeseen operational and technical problems.

Mining may be adversely affected or hampered by a variety of non-technical issues such as limitations on activities due to seasonal changes, industrial disputes, land claims, legal challenges associated with land ownership, environmental matters, mining legislation and many other factors beyond the control of the Company, including many that are partly or wholly unforeseeable.

The cost of maintaining mining properties which depends on the Company having access to sufficient development capital, poses another form of risk.

Changes in the Western Australia mining law and regulations may affect the feasibility and profitability of any mining operations.

#### **Commodity Price and Demand, and Exchange Rates**

The Company's project is prospective for mainly Tantalite (tantalum) but also Cassiterite (tin) and Spodumene (lithium) and various other minerals as perceived by the Company. Therefore it would be reasonable to expect that the Company's market appeal, and in the event it commences mining any of the other commodities besides tantalite, its revenue will be affected by the price of such minerals. Mineral and metal prices may fluctuate widely and are affected by numerous industry factors beyond the Company's control.

#### **General Economic Factors and Investment Risks**

General economic conditions may affect inflation and interest rates, which in turn may impact upon the Company's operating costs and financing. Other factors that may adversely affect the Company's activities in Western Australia include changes in government policies, natural disasters, industrial disputes, and social unrest. Some of these risks include:

#### **Currency Exchange Rate Fluctuations**

Fluctuations in currency exchange rates can affect the value of operating and capital costs.

#### **Taxation**

Changes to tax legislation and regulation or their interpretation may affect the value of mine output.

#### **Unforeseeable Risks**

There are likely to be risks that AM&A are unaware of or do not fully appreciate at any point in time. Over time or with the benefit of hindsight these sometimes become apparent. Such risks may be related to legislation, regulation, business conditions, land access, conflicts and disputes at a local or international level, data issues and a variety of other unforeseen eventualities.

A summary of the main Project risks are included, summarized and ranked by their importance as follows in **Error! Reference source not found.**.

Risk Issue Likelihood Consequence	Likelihood	Consequence Rating	Risk
Geological			
Resource tonnes and grades significantly not	Possible	Major	Medium
achieved beyond the limits implied by the			
JORC resource classifications			
Economic Conditions			
Commodity Price	Possible	Moderate	Medium
Loss of Demand	Unlikely	Major	Medium
Inflation Increase	Possible	Moderate	Medium
Change in Interest Rate	Possible	Moderate	Medium
Sovereign Risk	Possible	Moderate	Medium
Fundamental			
Environmental			
Unexpected Unauthorised Ecological Damage	Unlikely	Moderate	Low

Risk Issue Likelihood Consequence	Likelihood	Consequence Rating	Risk
Extra costs in environment restoration	Possible	Minor	Low
Contamination of Local Water System	Possible	Minor	Low
Capital and Operating Costs			
Capital Costs	N/A	N/A	N/A
Operational Risk			
Operating Costs	N/A	N/A	N/A

**Table 12: Summary of Main Project Risks.** 

#### **Recommendations**

The following recommendations are made with respect to further evaluating and increasing confidence in the project:

- Further RC and diamond drilling is warranted at the various deposits to explore for additional resources and improve the understanding of the current resources prior to mining.
- A Whittle study is recommended over the existing resource models to determine the maximum economic depth of the pegmatites and adjust the depth of future drilling to ensure that the maximum economic depth is properly tested.
- Further determinations of bulk density are required to establish higher confidence in grade, metal, and tonnage calculations that feed into future mine production. The determinations can be performed on exposed pegmatite and host rocks in pits, or from diamond core.
- As with previous mining, blasthole sampling should be continued to understand the grade
  variability within each pegmatite, and to assist with blending strategies that would assist with
  maximising the recovery of the target minerals. These blastholes should be geologically logged
  to assist with the mine planning and scheduling process. The collected data should be captured
  and maintained in its own database, contributing to future mineral resource and ore reserve
  estimates.

## **Competent Person statement**

### AM&A Competent Person for Mineral Resources: Mr Allen J. Maynard

I Allen J. Maynard, confirm that I am the Principal of Al Maynard & Associates Pty Ltd (AM&A) and that I directly supervised the production of the report titled "Independent Qualified Person's Report of the Bald Hill Tantalum Project, Western Australia" with an effective date of 31 March 2015, in accordance with SGX Catalist Rule 442.

I confirm that my firm's partners, directors, substantial shareholders and their associates and I are independent of Alliance Mineral Assets Limited (the Company), its directors, and substantial shareholders. In addition, my firm's partners, directors, substantial shareholders and their associates

#### Alliance Mineral Assets Limited - Tantalum Project

and I have no interest, direct or indirect, in the Company and will not receive benefits other than remuneration paid to AM&A in connection with the independent qualified persons report (IQPR). Remuneration paid to AM&A in connection with the IQPR is not dependent on the findings of this report.

I have read and understood the requirements of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).

I am a Competent Person as defined by the JORC Code, 2012 Edition, having greater than five years' experience that is relevant to the style of mineralisation and type of deposit described in this report, and to the activity for which I am accepting responsibility.

I verify that this report is based on and fairly and accurately reflects, in the form and context in which it appears, the information in my supporting documentation relating to Exploration Results and Mineral Resources.

I am a Member of The Australian Institute of Geoscientists and The Australasian Institute of Mining and Metallurgy in good standing. I have not been found in breach of any relevant rule or law and is not denied or disqualified from membership of, subject to any sanction imposed, the subject of any disciplinary proceedings or the subject of any investigation which might lead to a disciplinary action by any regulatory authority or any professional association.

I have reviewed the report to which this Consent Statem	ent applies.
(Signed)	
Allen J. Maynard- Competent Person	12 <sup>th</sup> June, 2015

#### References

- Altura Mining Limited, June 2010. Annual Environmental Report Bald Hill Tantalite Project for period April 1 2009 to March 31 2010. Submitted to DMP 23 June 2010.
- Cooper and Associates, February 2001. Bald Hill Tantalum Project Tailings Storage Notice of Intent.

  Prepared for Haddington Resources Limited.
- Cooper and Associates, July 2001. Bald Hill Tantalum Project Tailings Storage Operating Manual.

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- D E Cooper & Associates, August 2002. Bald Hill Tantalum Project In-Pit Tailings Storage Notice of Intent.

  Prepared for Haddington International Resources Limited.
- Griffin, TJ, 1989, Widgiemooltha Western Australia, Sheet SH 51-14 International Index, 1:250 000 Geological Series-Explanatory Notes, Second Edition, 43p.
- Haddington Resources Limited, October 2000. Notice of Intent: Bald Hill Tantalite Project.
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- Hetherington Exploration & Mining Title Services Pty Ltd, April 2011. Report on the tenements of the Bald Hill Tantalite Project. Prepared for HRM Resources Australia Limited.
- Maynard, A.J. 2009. Independent geological report on the Mineral Resources and Exploration Assets of HRM Resources. Prepared for HRM Resources Australia Limited
- Newby, K R and Hnatiuk, R J, 1984. Vegetation and Flora in the Biological Survey of the Eastern Goldfields of Western Australia, Part 2. Widgiemooltha Zanthus Area. Record of the WA Museum, Supplement 18.
- O'Connor R, March 2005. Report on an Ethnographic Survey of E15/798. Prepared for Haddington Resources Limited.
- O'Connor R, February 2006. Report on an Ethnographic Survey of two proposed exploration areas on Binneringie Station. Prepared for Haddington Resources Limited.
- Painter, MGM, and Groenewald, PB, 2001, Geology of the Mount Belches 1:100 000 sheet: Western Australia Geological Survey, 1:100 000 Geological Series Explanatory Notes, 38p.
- Varley, R., 2015: Bald Hill Tantalum Deposit Bald Hill near Widgiemooltha Western Australia, Boreline Area July August 2014 Drilling M15/400 March 2015 Resource Estimate, Unpub.

Varley, R., 2015: Bald Hill Tantalum Deposit Bald Hill near Widgiemooltha Western Australia, North Pit Extended and Far South November 2014 Drilling M15/400 February 2015 Resource Estimate, Unpub.

#### **World Wide Web**

Geoscience Australia

http://www.australianminesatlas.gov.au/aimr/commodity/tantalum.html

InfoMine

http://www.infomine.com/investment/metal-prices/tantalite-ore/

Wikipedia

http://en.wikipedia.org/wiki/Tantalite

http://en.wikipedia.org/wiki/Tantalum

http://en.wikipedia.org/wiki/Tin

http://en.wikipedia.org/wiki/Lithium

http://en.wikipedia.org/wiki/Kalgoorlie

## JORC Code, 2012 Edition - Table 1, Bald Hill Boreline Resource. - (After Varley)

## **Section 1 Sampling Techniques and Data**

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Surveying, mapping &amp; analysis of costeans, RC, RAB drillholes.</li> <li>Costeans sampled along walls.</li> <li>2-3kg drill samples collected at 1m intervals.</li> <li>Samples jaw crushed and riffle split to 100-150g for pulverizing by roll milling and ring grinding.</li> <li>XRF determination of Ta<sub>2</sub>O<sub>5</sub>, Nb<sub>2</sub>O<sub>5</sub> &amp; Sn by SGS Australia Pty.</li> <li>No evidence of certified standards or blanks. Field duplicates submitted at 1 in 25 in drilling &amp; 1 in 10 costeaning.</li> <li>Assays greater than 800ppm Ta<sub>2</sub>O<sub>5</sub> repeated by laboratory.</li> <li>Check assays completed at Greenbushes Analytical Laboratories 1996-1999. 2000 - 2009</li> <li>RC &amp; RAB samples collected at 1m intervals in intersected pegmatites.</li> <li>Samples riffle split to two 2.5kg samples pulverized and analysis at laboratory as duplicates. Average of assays in database.</li> <li>Field duplicates added to end of 2004 drilling.</li> <li>Certified blanks and standards of appropriate Ta<sub>2</sub>O<sub>5</sub> grade reported in laboratory results.</li> <li>Repeat analyses on approximately 10% of samples 2001-2013.</li> <li>2014</li> <li>RC samples at 1m intervals.</li> <li>Samples split to 3-4kg pulverized and analysis at laboratory.</li> <li>Standards of appropriate grade &amp; lab repeats reported in laboratory results.</li> <li>Field duplicates taken &amp; submitted for analysis at 1 in 10 in drilling.</li> </ul>

Criteria	JORC Code explanation	Commentary
Drilling techniques	<ul> <li>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul> <li>RC and RAB drilling conducted in line with general industry standards.</li> <li>Most drilling is vertical.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>Chip recovery or weights for RC and RAB drilling were not conducted.         Not possible to establish if relationship between sample recovery and sample grades exists.     </li> <li>Tantalite is relatively fine-grained.</li> <li>Opportunity for sample bias is considered negligible.</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>Geological logs exist for all drillholes with lithological codes via an established reference legend.</li> <li>Drillholes have been geologically logged in their entirety but assays have generally only been submitted through and adjacent to the pegmatites.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>RC samples were collected at 1m intervals and riffle split on-site to produce a subsample less than 5kg.</li> <li>The RC drilling samples are considered robust for sampling the tantalite mineralisation.</li> <li>It appears most samples were dry.</li> <li>Sampling is in line with general sampling practices of that time.</li> <li>Field duplicates, laboratory standards and laboratory repeats were used to monitor analyses.</li> <li>Sample size for RC drilling is considered appropriate for the tantalite mineralization.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul> <li>The XRF assay technique is considered to be robust. Standards, blanks and duplicates were submitted in varying frequency throughout the exploration campaigns.</li> <li>Bald Hill operated as a producing mine until 2006, during which verification of assay results from drilling was conducted.</li> <li>No geophysical methods were used to determine assay results.</li> </ul>

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>The correlations made between closely spaced holes is considered reasonable.</li> <li>The Ta<sub>2</sub>O<sub>5</sub> assays show a marked correlation with the pegmatite intersections via elevated downhole grades.</li> <li>Drill logs exist for all holes either as electronic files or hardcopy.</li> <li>All drilling data has been loaded to a database and rigorously validated prior to use.</li> <li>Graphical verification was made to see that elevated Ta<sub>2</sub>O<sub>5</sub> assays correlated with the assigned downhole lithology.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drillholes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>Collar coordinates were derived from a 1983 50m by 50m local grid.         This was resurveyed in 1996.     </li> <li>The drilling coordinates prior to 2014 have been transformed to produce GDA94 coordinates.</li> <li>Current drilling is surveyed via a Differential GPS to produce GDA94 coordinates.</li> <li>The area is of low relief and topographic control is of reasonable accuracy.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Boreline Area.</li> <li>The majority of the drillholes are nominally spaced at 20m by 20m on a rectangular grid rotated approximately 35deg to the east. Some of the holes prior to 2014 are closer spaced. The spacing of holes is considered adequate for the Mineral Resource estimation and classification.</li> <li>There is no evidence of sample compositing.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>The majority of drilling is vertical.</li> <li>The tantalite-bearing pegmatites are generally flat to shallowly dipping in nature. Therefore, the majority of drilling intercepts are assumed to be only marginally greater than true width, with minimal opportunity for sample bias.</li> </ul>
Sample security	The measures taken to ensure sample security.	The procedures applied were aligned to the industry practices prevailing at the time of sample collection, despatch, and analysis. Given the

Criteria	JORC Code explanation	Commentary
		relative grade and value of the commodity, the procedures are considered to be adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	<ul> <li>Prior to 1989 Fugro Spatial Solutions Pty Ltd were commissioned to confirm collar locations of a selected number of drillholes.</li> </ul>

## **Section 2 Reporting of Exploration Results**

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul> <li>The portfolio of mineral tenements, comprising mining leases, exploration licences, prospecting licences, miscellaneous licences, a general-purpose lease, and a retention lease are in good standing.</li> </ul>
Exploration	Acknowledgment and appraisal of exploration by other parties.	Alluvial tantalite has been mined periodically from the early 1970s.
done by other parties		<ul> <li>Gwalia Consolidated Limited undertook exploration for tantalite-bearing pegmatites from 1983-1998. Work included mapping, costeaning, and several phases of drilling using RAB, RC, and diamond methods. The work identified mineral resources that were considered uneconomic at the time.</li> </ul>
		<ul> <li>Haddington entered agreement to develop the resource and mining commenced in 2001 and continued until 2005.</li> </ul>
		Haddington continued with exploration until 2009.
		<ul> <li>Living Waters acquired the project in 2009 and continued with limited exploration to the north of the main pit area.</li> </ul>
Geology	Deposit type, geological setting and style of mineralisation.	The Bald Hill area is underlain by generally north-striking, steeply dipping Archaean metasediments (schists and greywackes) and granitoids.
		Felsic porphyries and pegmatite sheets and veins have intruded the Archaean rocks. Generally, the pegmatites parallel the regional foliation, occurring as gently dipping sheets and as steeply dipping veins.
		The pegmatites vary in width and are generally comprised quartz-albite- orthoclase-muscovite-spodumene in varying amounts. Late-stage

Criteria	JORC Code explanation	Commentary
		<ul> <li>albitisation in the central part of the main outcrop area has resulted in fine- grained, banded, sugary pegmatites with visible fine-grained, disseminated tantalite. A thin hornfels characterised by needle hornblende crystals is often observed in adjacent country rocks to the pegmatitic</li> <li>intrusives. Tantalite generally occurs as fine disseminated crystals commonly associated with fine-grained albite zones, or as coarse crystals associated with cleavelandite.</li> <li>Weathering of the pegmatites yields secondary mineralised accumulations in alluvial/eluvial deposits.</li> </ul>
Drillhole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:         <ul> <li>easting and northing of the drillhole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul> <li>All drillholes have northing and easting collar coordinates in GDA94.</li> <li>Although most drillholes have a collar elevation (relative to mean sea level), there were 127 drillholes with no collar elevation and a further 74 drillholes where there was mismatch with the topography digital terrain model. The collar elevation for these 201 drillholes were derived from the topography digital terrain model.</li> <li>The majority of drilling is vertical. There are 132 (-60°) angled drillholes in the database. For 38 angled drillholes, the set up survey is duplicated at the bottom of the drillhole. A total of 54 drillholes in the database have no downhole survey and were treated as vertical.</li> <li>For costeans, an azimuth with a zero or small dip is recorded to define their orientation. The orientation and lengths were validated against available maps and electronic data sets.</li> <li>AMC conducted checks of the collar locations, drillhole depths, geological logging, assay results for a portion of the database from reports, and electronic data sets.</li> </ul>
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>No aggregated intercepts are reported.</li> <li>Metal equivalents have not been used.</li> </ul>

Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	<ul> <li>The majority of drilling completed at has used vertical holes. The tantalite-bearing pegmatites are generally flat to shallowly dipping in nature. Therefore, the majority of drilling intercepts are assumed to be only marginally greater than true width.</li> </ul>
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drillhole collar locations and appropriate sectional views.</li> </ul>	Drilling locations are shown in the report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Not applicable
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	<ul> <li>The water table in the mine site area is at least 15 m below ground surface and confined to steeply dipping, north–south-trending shear zones. Local water bore analyses indicate hypersaline water with total dissolved salts (TDS) &gt;200,000 mg/L and pH 5.8–6.95.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Further RC and diamond drilling is warranted at the various deposits to explore for additional resources and improve the understanding of the current resources prior to mining.</li> </ul>

## **Section 3 Estimation and Reporting of Mineral Resources**

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>Available data have been compiled into a series of Excel spreadsheets for validation purposes.</li> <li>Assay data were checked against original assay sheets where available and, in particular, where the results were considered potentially erroneous.</li> <li>Errors generated due to from-to and assaying or lithology overlap errors were rectified when the data from the Excel spreadsheets was exported into the software used in the estimation.</li> </ul>

Criteria	JORC Code explanation	Commentary
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Al Maynard and Associates ("AM&amp;A") undertook site visits to the Bald Hill Tantalite Project on the 18th February, 2014 with a follow up visit on the 31 March 2015. A previous field trip to the site area for a separate client was conducted in 2002.</li> </ul>
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>Exploration and mining history in the Bald Hill area has shown that tantalite mineralisation is confined to pegmatite intrusions.</li> <li>Geological logging and Ta<sub>2</sub>O<sub>5</sub> grades have been used to create a series of pegmatite wireframes that constrain the tantalite mineralisation for the purpose of Mineral Resource estimation. The pegmatites are relatively thin with pegmatites greater than 1 m in thickness being considered. The geometry of the pegmatites can change rapidly over short distances and, as such, knowledge of their distribution is critical to a robust estimate.</li> </ul>
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The Boreline Area resource has grid dimensions of approximately 240m north by 350 east and 40m depth from surface.
Estimation and modelling techniques	<ul> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> <li>Any assumptions behind modelling of selective mining units.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.</li> </ul>	• Closed wireframes of minimum thickness >1m were constructed according to the geological understanding of the areas and modified so that they contained Ta₂O₅ grades of >= 160 ppm. Lower grades were allowed but only where the grade intercepts averaged >160ppm. Wireframes extended halfway between holes and adjacent sections. 1m sample composites from within the wireframes were used to estimate grades into a block model of 10mY by 10X by 1mZ approximating half the drill spacing and equalling the drillhole sampling. Wireframe percentages were calculated for each block. Block estimates were made (using Gemcom software) for the principal components Ta₂O₅ and Sn using ordinary kriging controlled by anisotropic variogram models (using GeoAccess software)which reflected the overall geology. Other grades for Nb₂O₅, Cs, Li,Rb, U and Th were estimated using inverse distance squared. All estimates used ellipsoid sample searches orientated to the variogram directions. Maximum and minimum samples used for block estimation were chosen to make the average of the estimated blocks and the averaged estimating sample grades as close as possible. Ta₂O₅ and Sn were estimated uncut and top-cut grades.

Criteria	JORC Code explanation	Commentary
		Top-cut grades were decided by inspection of the sample distributions.  Other grades were estimated uncut.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	<ul> <li>The density used is considered to be equivalent of a dry in situ bulk density.</li> </ul>
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	<ul> <li>A cut-off of 160ppm Ta<sub>2</sub>O<sub>5</sub> was selected after reviewing previous work suggesting weathering cut-off grades.</li> </ul>
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	It is assumed that selective open-pit mining methods will be applied, similar to those that operated from 2001 to 2005 with a minimum mining thickness greater and 1m.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	<ul> <li>The extraction method employed previously was successful in extracting the tantalum minerals. It has been proposed that a similar process would be used in the future, and it is assumed it would be also successful in extracting the mineral.</li> </ul>
Environmen-tal factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	<ul> <li>Previously, the generated waste materials were used to backfill mined- out pits or delivered to a tailings storage facility. For any new operation, it is expected that this approach would again be used.</li> </ul>
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul> <li>Density determinations obtained via weathering profile grab samples indicate average bulk densities of 1.92t/m3 for oxide pegmatite, 2.36t/m3 for transitional pegmatite and 2.63t/m3 for fresh pegmatite.</li> </ul>

Criteria	JORC Code explanation	Commentary
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>The Mineral Resources have been classified by considering the Slope of the Regression (SoR) for each block which has been calculated during kriging.</li> <li>Measured – none due to the large drillhole spacing.</li> <li>Indicated – SoR &gt;0.85.</li> <li>Inferred – SoR =&lt;0.85 and &gt;0.65.</li> <li>Unclassified – SoR =&lt;0.65.</li> </ul>
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	No audits or reviews have been completed.
Discussion of relative accuracy/confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul> <li>No statistical or geostatistical method was applied.</li> <li>Factors impacting the accuracy and confidence of the Mineral Resources:</li> <li>Accuracy of historical drilling data used within the current drilling areas is unknown.</li> <li>Geological control of the tantalite mineralisation within the pegmatites is not fully understood. Hence at a local scale the spatial continuity and geometry of mineralisation between drillholes cannot be predicted with certainty.</li> </ul>

## JORC Code, 2012 Edition - Table 1, Bald Hill North Pit Extended & Far South Resources. - (After Varley)

## **Section 1 Sampling Techniques and Data**

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Surveying, mapping &amp; analysis of costeans, RC, RAB drillholes.</li> <li>Costeans sampled along walls.</li> <li>2-3kg drill samples collected at 1m intervals.</li> <li>Samples jaw crushed and riffle split to 100-150g for pulverizing by roll milling and ring grinding.</li> <li>XRF determination of Ta<sub>2</sub>O<sub>5</sub>, Nb<sub>2</sub>O<sub>5</sub> &amp; Sn by SGS Australia Pty.</li> <li>No evidence of certified standards or blanks. Field duplicates submitted at 1 in 25 in drilling &amp; 1 in 10 costeaning.</li> <li>Assays greater than 800ppm Ta<sub>2</sub>O<sub>5</sub> repeated by laboratory.</li> <li>Check assays completed at Greenbushes Analytical Laboratories 1996-1999.</li> <li>2000 - 2009</li> <li>RC &amp; RAB samples collected at 1m intervals in intersected pegmatites.</li> <li>Samples riffle split to two 2.5kg samples pulverized and analysis at laboratory as duplicates. Average of assays in database.</li> <li>Field duplicates added to end of 2004 drilling.</li> <li>Certified blanks and standards of appropriate Ta<sub>2</sub>O<sub>5</sub> grade reported in laboratory results.</li> <li>Repeat analyses on approximately 10% of samples 2001-2013.</li> <li>RC samples at 1m intervals.</li> <li>Samples split to 3-4kg pulverized and analysis at laboratory.</li> <li>Standards of appropriate grade &amp; lab repeats reported in laboratory results.</li> <li>Field duplicates taken &amp; submitted for analysis at 1 in 10 in drilling.</li> </ul>
Drilling techniques	<ul> <li>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul> <li>RC and RAB drilling conducted in line with general industry standards.</li> <li>Most drilling is vertical.</li> </ul>

Criteria	JORC Code explanation	Commentary
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>Chip recovery or weights for RC and RAB drilling were not conducted. Not possible to establish if relationship between sample recovery and sample grades exists.</li> <li>Tantalite is relatively fine-grained.</li> <li>Opportunity for sample bias is considered negligible.</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>Geological logs exist for all drillholes with lithological codes via an established reference legend.</li> <li>Drillholes have been geologically logged in their entirety but assays have generally only been submitted through and adjacent to the pegmatites.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>RC samples were collected at 1m intervals and riffle split on-site to produce a subsample less than 5kg.</li> <li>The RC drilling samples are considered robust for sampling the tantalite mineralisation.</li> <li>It appears most samples were dry.</li> <li>Sampling is in line with general sampling practices of that time.</li> <li>Field duplicates, laboratory standards and laboratory repeats were used to monitor analyses.</li> <li>Sample size for RC drilling is considered appropriate for the tantalite mineralization.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul> <li>The XRF assay technique is considered to be robust. Standards, blanks and duplicates were submitted in varying frequency throughout the exploration campaigns.</li> <li>Bald Hill operated as a producing mine until 2006, during which verification of assay results from drilling was conducted.</li> <li>No geophysical methods were used to determine assay results.</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>The correlations made between closely spaced holes is considered reasonable.</li> <li>The Ta<sub>2</sub>O<sub>5</sub> assays show a marked correlation with the pegmatite intersections via elevated downhole grades.</li> <li>Drill logs exist for all holes either as electronic files or hardcopy.</li> <li>All drilling data has been loaded to a database and rigorously validated prior to use.</li> <li>Graphical verification was made to see that elevated Ta<sub>2</sub>O<sub>5</sub> assays correlated</li> </ul>

Criteria	JORC Code explanation	Commentary
		with the assigned downhole lithology.
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drillholes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>Collar coordinates were derived from a 1983 50m by 50m local grid. This was resurveyed in 1996.</li> <li>The drilling coordinates prior to 2014 have been transformed to produce GDA94 coordinates.</li> <li>Current drilling is surveyed via a Differential GPS to produce GDA94 coordinates.</li> <li>The area is of low relief and topographic control is of reasonable accuracy.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>North Pit Extended &amp; Far South Areas.</li> <li>The majority of the drillholes are nominally spaced at 25m by 25m on a rectangular grid rotated approximately 12.5deg to the west. Some of the holes prior to 2014 are closer spaced. The spacing of holes is considered adequate for the Mineral Resource estimation and classification.</li> <li>There is no evidence of sample compositing.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>The majority of drilling is vertical.</li> <li>The tantalite-bearing pegmatites are generally flat to shallowly dipping in nature. Therefore, the majority of drilling intercepts are assumed to be only marginally greater than true width, with minimal opportunity for sample bias.</li> </ul>
Sample security	The measures taken to ensure sample security.	<ul> <li>The procedures applied were aligned to the industry practices prevailing at the time of sample collection, despatch, and analysis. Given the relative grade and value of the commodity, the procedures are considered to be adequate.</li> </ul>
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	<ul> <li>Prior to 1989 Fugro Spatial Solutions Pty Ltd were commissioned to confirm collar locations of a selected number of drillholes.</li> </ul>

# **Section 2 Reporting of Exploration Results**

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul> <li>The portfolio of mineral tenements, comprising mining leases, exploration licences, prospecting licences, miscellaneous licences, a general-purpose lease, and a retention lease are in good standing.</li> </ul>

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>Alluvial tantalite has been mined periodically from the early 1970s.</li> <li>Gwalia Consolidated Limited undertook exploration for tantalite-bearing pegmatites from 1983-1998. Work included mapping, costeaning, and several phases of drilling using RAB, RC, and diamond methods. The work identified mineral resources that were considered uneconomic at the time.</li> <li>Haddington entered agreement to develop the resource and mining commenced in 2001 and continued until 2005.</li> <li>Haddington continued with exploration until 2009.</li> <li>Living Waters acquired the project in 2009 and continued with limited exploration to the north of the main pit area.</li> </ul>
Geology	Deposit type, geological setting and style of mineralisation.	<ul> <li>The Bald Hill area is underlain by generally north-striking, steeply dipping Archaean metasediments (schists and greywackes) and granitoids.</li> <li>Felsic porphyries and pegmatite sheets and veins have intruded the Archaean rocks. Generally, the pegmatites parallel the regional foliation, occurring as gently dipping sheets and as steeply dipping veins.</li> <li>The pegmatites vary in width and are generally comprised quartz-albite-orthoclase-muscovite-spodumene in varying amounts. Late-stage albitisation in the central part of the main outcrop area has resulted in fine- grained, banded, sugary pegmatites with visible fine-grained, disseminated tantalite. A thin hornfels characterised by needle hornblende crystals is often observed in adjacent country rocks to the pegmatitic</li> <li>intrusives. Tantalite generally occurs as fine disseminated crystals commonly associated with fine-grained albite zones, or as coarse crystals associated with cleavelandite.</li> <li>Weathering of the pegmatites yields secondary mineralised accumulations in alluvial/eluvial deposits.</li> </ul>
Drillhole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:         <ul> <li>easting and northing of the drillhole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case</li> </ul>	<ul> <li>Although most drillholes have a collar elevation (relative to mean sea level), there were 127 drillholes with no collar elevation and a further 74 drillholes where there was mismatch with the topography digital terrain model. The collar elevation for these 201 drillholes were derived from the topography digital terrain model.</li> <li>The majority of drilling is vertical. There are 132 (-60°) angled drillholes in the database. For 38 angled drillholes, the set up survey is duplicated at the bottom of the drillhole. A total of 54 drillholes in the database have no downhole survey and were treated as vertical.</li> <li>For costeans, an azimuth with a zero or small dip is recorded to define their</li> </ul>

Criteria	JORC Code explanation	Commentary
		electronic data sets.
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>No aggregated intercepts are reported.</li> <li>Metal equivalents have not been used.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	<ul> <li>The majority of drilling completed at has used vertical holes. The tantalite- bearing pegmatites are generally flat to shallowly dipping in nature. Therefore, the majority of drilling intercepts are assumed to be only marginally greater than true width.</li> </ul>
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drillhole collar locations and appropriate sectional views.</li> </ul>	Drilling locations are shown in the report.
Balanced reporting	<ul> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	Not applicable
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	<ul> <li>The water table in the mine site area is at least 15 m below ground surface and confined to steeply dipping, north–south-trending shear zones. Local water bore analyses indicate hypersaline water with total dissolved salts (TDS) &gt;200,000 mg/L and pH 5.8–6.95.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Further RC and diamond drilling is warranted at the various deposits to explore for additional resources and improve the understanding of the current resources prior to mining.</li> </ul>

## **Section 3 Estimation and Reporting of Mineral Resources**

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>Available data have been compiled into a series of Excel spreadsheets for validation purposes.</li> <li>Assay data were checked against original assay sheets where available and, in particular, where the results were considered potentially erroneous.</li> <li>Errors generated due to from-to and assaying or lithology overlap errors were rectified when the data from the Excel spreadsheets was exported into the software used in the estimation.</li> </ul>
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Al Maynard and Associates ("AM&amp;A") undertook site visits to the Bald Hill Tantalite Project on the 18<sup>th</sup> February, 2014 with a follow up visit on the 31 March 2015. A previous field trip to the site area for a separate client was conducted in 2002.</li> </ul>
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>Exploration and mining history in the Bald Hill area has shown that tantalite mineralisation is confined to pegmatite intrusions.</li> <li>Geological logging and Ta<sub>2</sub>O<sub>5</sub> grades have been used to create a series of pegmatite wireframes that constrain the tantalite mineralisation for the purpose of Mineral Resource estimation. The pegmatites are relatively thin with pegmatites greater than 1 m in thickness being considered. The geometry of the pegmatites can change rapidly over short distances and, as such, knowledge of their distribution is critical to a robust estimate.</li> </ul>
Dimensions	<ul> <li>The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.</li> </ul>	<ul> <li>The North Pit Extended Area resource has grid dimensions of approximately 130m north by 160 east and 50m depth from surface.</li> <li>The Far South Area resource has grid dimensions of approximately 220m north by 250 east and 75m depth from surface.</li> </ul>
Estimation and modelling techniques	<ul> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> </ul>	• Closed wireframes of minimum thickness >1m were constructed according to the geological understanding of the areas and modified so that they contained Ta₂O₅ grades of >= 160 ppm. Lower grades were allowed but only where the grade intercepts averaged >160ppm. Wireframes extended halfway between holes and adjacent sections. 1m sample composites from within the wireframes were used to estimate grades into a block model of 10mY by 10X by 1mZ approximating half the drill spacing and equalling the drillhole sampling. Wireframe percentages were calculated for each block. Block estimates were made (using Gemcom software) for the principal components Ta₂O₅ and Sn using ordinary kriging controlled by anisotropic variogram models (using GeoAccess software)which reflected the overall geology. Other grades for Nb₂O₅, Cs, Li,Rb, U and Th were estimated using inverse distance squared. All estimates used ellipsoid sample searches

Criteria	JORC Code explanation	Commentary
	<ul> <li>Any assumptions behind modelling of selective mining units.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.</li> </ul>	orientated to the variogram directions. Maximum and minimum samples used for block estimation were chosen to make the average of the estimated blocks and the averaged estimating sample grades as close as possible. Ta <sub>2</sub> O <sub>5</sub> and Sn were estimated uncut and top-cut grades. Top-cut grades were decided by inspection of the sample distributions. Other grades were estimated uncut.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	The density used is considered to be equivalent of a dry in situ bulk density.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	<ul> <li>A cut-off of 160ppm Ta<sub>2</sub>O<sub>5</sub> was selected after reviewing previous work suggesting weathering cut-off grades.</li> </ul>
Mining factors or assumptions	<ul> <li>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</li> </ul>	It is assumed that selective open-pit mining methods will be applied, similar to those that operated from 2001 to 2005 with a minimum mining thickness greater and 1m.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	<ul> <li>The extraction method employed previously was successful in extracting the tantalum minerals. It has been proposed that a similar process would be used in the future, and it is assumed it would be also successful in extracting the mineral.</li> </ul>
Environmen-tal factors or assumptions	<ul> <li>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</li> </ul>	<ul> <li>Previously, the generated waste materials were used to backfill mined-out pits or delivered to a tailings storage facility. For any new operation, it is expected that this approach would again be used.</li> </ul>
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> </ul>	<ul> <li>Density determinations obtained via metallurgical testwork and pegmatite pit grab samples indicate an average bulk density of 2.6t/m3.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>The Mineral Resources have been classified by considering the Slope of the Regression (SoR) for each block which has been calculated during kriging.</li> <li>Measured – none due to the large drillhole spacing.</li> <li>Indicated – SoR &gt;0.75.</li> <li>Inferred – SoR =&lt;0.75 and &gt;0.5.</li> <li>Unclassified – SoR =&lt;0.5 or low number of estimating composites or wireframe thickness = 1m.</li> </ul>
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	No audits or reviews have been completed.
Discussion of relative accuracy/ confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul> <li>No statistical or geostatistical method was applied.</li> <li>Factors impacting the accuracy and confidence of the Mineral Resources:</li> <li>Accuracy of historical drilling data used within the current drilling areas is unknown.</li> <li>Geological control of the tantalite mineralisation within the pegmatites is not fully understood. Hence at a local scale the spatial continuity and geometry of mineralisation between drillholes cannot be predicted with certainty.</li> </ul>