tungsten mining NL
ABN 67 152 084 403

ASX Announcement

Mulgine Hill June 2016 Mineral Resource Update

Emerging Australian tungsten developer, Tungsten Mining NL (ASX: TGN) ("Tungsten Mining" or "the Company") is pleased to report the updated resource for Mulgine Hill, part of the Mt Mulgine Project, located in the Murchison Region of Western Australia.

In December 2015, Tungsten Mining acquired the Mt Mulgine and Big Hill Projects from ATC Alloys Ltd (formerly named Hazelwood Resources Ltd and herein referered to as "Hazelwood"). Mt Mulgine contains two known resources – Mulgine Trench and Mulgine Hill.

Mulgine Trench has been estimated to JORC-2012 standards, however at acquisition, Mulgine Hill and Big Hill (located in the Pilbara region of Western Australia) were classified in accordance with JORC-2004 guidelines. The purpose of this announcement is to advise that the Mineral Resource estimate for Mulgine Hill has now been updated in accordance with JORC-2012. The updated Mineral Resource for Mulgine Hill as of 14 June 2016 is as follows:

Table 1: June 2016 Mineral Resource estimate for Mulgine Hill

Mulgine Hill Deposit – June 2016 Reported above a 0.10% WO_3 cut-off			
Classification	**Tonnes**	**WO_3%**	**Mo ppm**
Indicated	4,700,000	0.21	50
Inferred	3,700,000	0.15	64
Total	**8,500,000**	**0.19**	**56**

Note: Totals may differ from sum of individual numbers as numbers have been rounded in accordance with the Australian JORC code 2012 guidance on Mineral Resource reporting.

A comparison between the previous and current Resource estimates for the Mulgine Hill deposit is provided in Table 2.

Table 2: Mt Mulgine Resource difference

Class	Cut-off Grade	Tonnes	WO_3%
Mulgine Hill (JORC-2012)			
Measured	0.10	0	-
Indicated	0.10	4,700,000	0.21
Inferred	0.10	3,700,000	0.15
Total	**0.10**	**8,500,000**	**0.19**
Mulgine Hill (JORC-2004) [1]			
Measured	0.10	0	-
Indicated	0.10	5,900,000	0.22
Inferred	0.10	2,300,000	0.17
Total	**0.10**	**8,200,000**	**0.21**

Note: Totals may differ from sum of individual numbers as numbers have been rounded in accordance with the Australian JORC code 2012 guidance on Mineral Resource reporting.

References
1. Refer ASX (HAZ) Announcement 5 November 2014, "Hazelwood continues to increase tungsten resource"

The revised Mulgine Hill Mineral Resource estimate has resulted in an increase in total ore tonnes, but as a result of the lower average grade of the Mineral Resource estimate the contained metal (WO_3) has decreased.

Introduction

The previous Mulgine Hill Mineral Resource estimate was commissioned by Hazelwood and completed by Micromine Consulting Services in February 2011 using the guidelines provided by the 2004 edition of the JORC Code. The purpose of this update is to generate a Mineral Resource in accordance with the guidelines provided by the 2012 JORC Code. Five diamond holes were drilled by Hazelwood in 2011 since the previous 2011 Mineral Resource estimate.

Mulgine Hill

The Mt Mulgine Project is located within the Midwest Region of Western Australia, approximately 350km north northeast of Perth. Tungsten Mining has 100% of the tungsten and molybdenum rights on a group of tenements that have been the subject of significant previous evaluation for tungsten and molybdenum.

Two near surface Mineral Resources have been delineated by previous explorers at the Mulgine Hill and Mulgine Trench deposits.

Geology

Tungsten-molybdenum mineralisation at Mt Mulgine is associated with the Mulgine Granite - a high-level leucogranite forming a 2km stock that intrudes the Mulgine anticline (Figure 1). The granite intrudes a greenstone sequence composed of micaceous schists, amphibolite and talc-chlorite schist which were formerly metasediments, mafic and ultramafic rocks respectively.

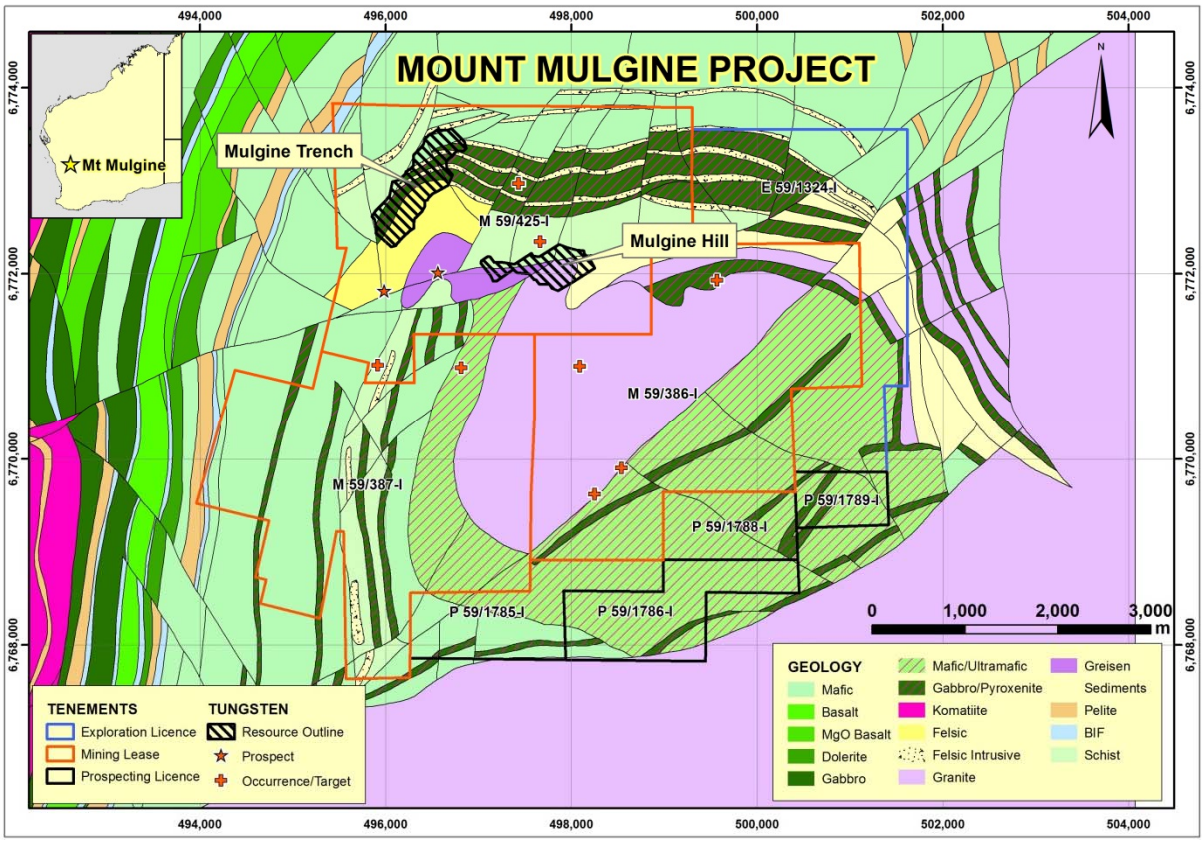

Figure 1. Location of Mulgine Hill Mineral Resource on geology.

The Mulgine Hill Deposit occurs in a well-defined reaction zone along the northern margin of the Mulgine Granite preserved in an arcuate dominantly north northeast trending trough. Within the mineralised zone there is both quartz-muscovite greisen and complexly veined phlogopite pyrite schist. The main mineralised zone is associated with the sub-horizontal upper contact of the phlogopite schists (Figure 2) where scheelite has been deposited either as coarse disseminations within the quartz-muscovite (fluorite-apatite) greisen or within numerous quartz and greisen veins in both the pyritic phlogopite schist and the quartz-muscovite greisen.

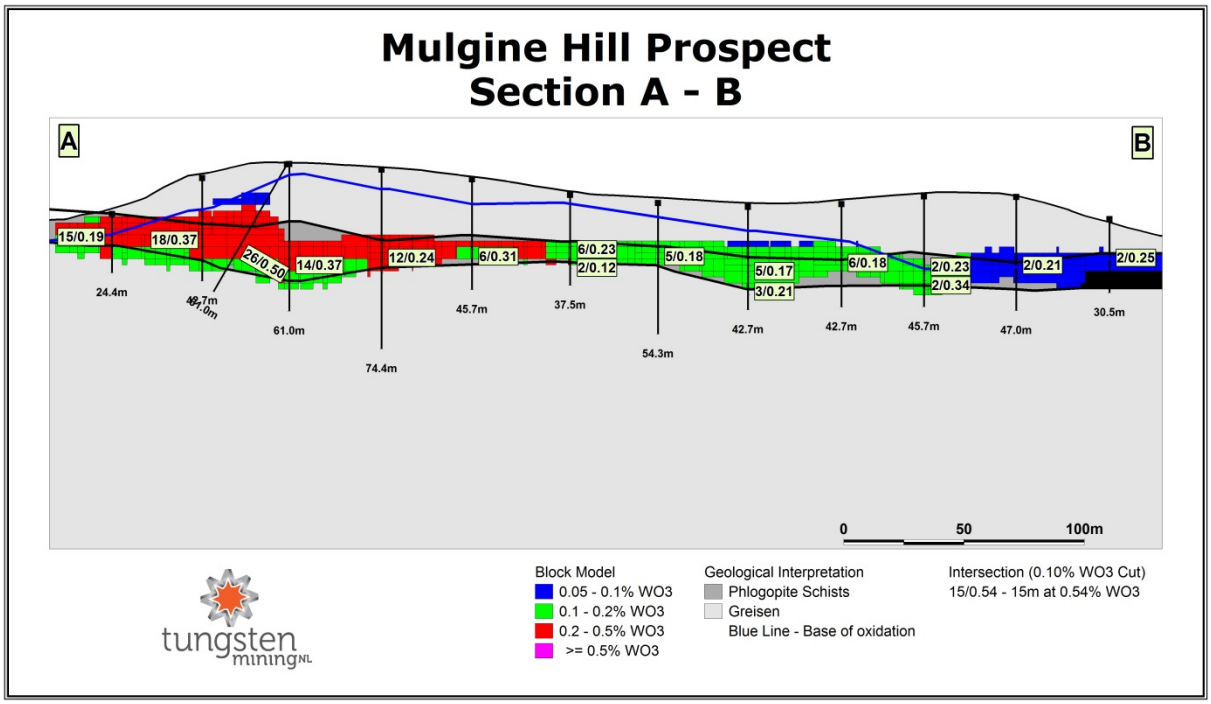

Figure 2. Cross section showing Mulgine Hill Mineral Resource (section location shown on Figure 3).

Drilling

The deposit was sampled using diamond drilling (DD) over several campaigns from 1970 to 1980 and 2011 (Figure 3). Earlier campaigns were conducted by Minefields Exploration NL (Minefields) and Australian and New Zealand Exploration Company (ANZECO). Hazelwood drilled NQ diamond holes in 2011. The majority of the drilling was vertical with a total of 213 NQ and BQ diamond drillholes (10,631m DD, 2,355m precollars) drilled by Minefields and ANZECO. In 2011 Hazelwood drilled five NQ diamond holes (437.3 metres), four of these holes twined earlier Minefields/ANZECO drilling.

Sampling

Minefields and ANZECO diamond holes were logged and UV lamped to determine mineralised material and these intervals were initially samples at 5 feet intervals to 1977 and then 1 - 2 metre intervals in later campaigns. Samples were half core split by either a chisel or diamond saw. Mineralised intervals in precollars were sampled at 1m intervals. Diamond core drilled in 2011 was oriented, photographed and geologically logged prior to cutting in half by an Almonte diamond saw.

Minefields and ANZECO samples were submitted to either General Superintendence Co P/L or AMDEL in Perth for tungsten analysis by XRF. There is no mention of routine insertion of standards and duplicates submitted with these samples. A batch of duplicate samples were, however, sent to external laboratories and these repeated well. Core samples from drilling in 2011 were submitted to ALS Chemex of Malaga for tungsten analysis by XRF.

In addition, 414 duplicate half-core samples were collected from the Minefields and ANZECO holes and submitted to ALS Chemex for a tungsten suite by XRF analysis in 2011. Results from these samples correlated well given the coarse-grained nature of scheelite mineralisation present.

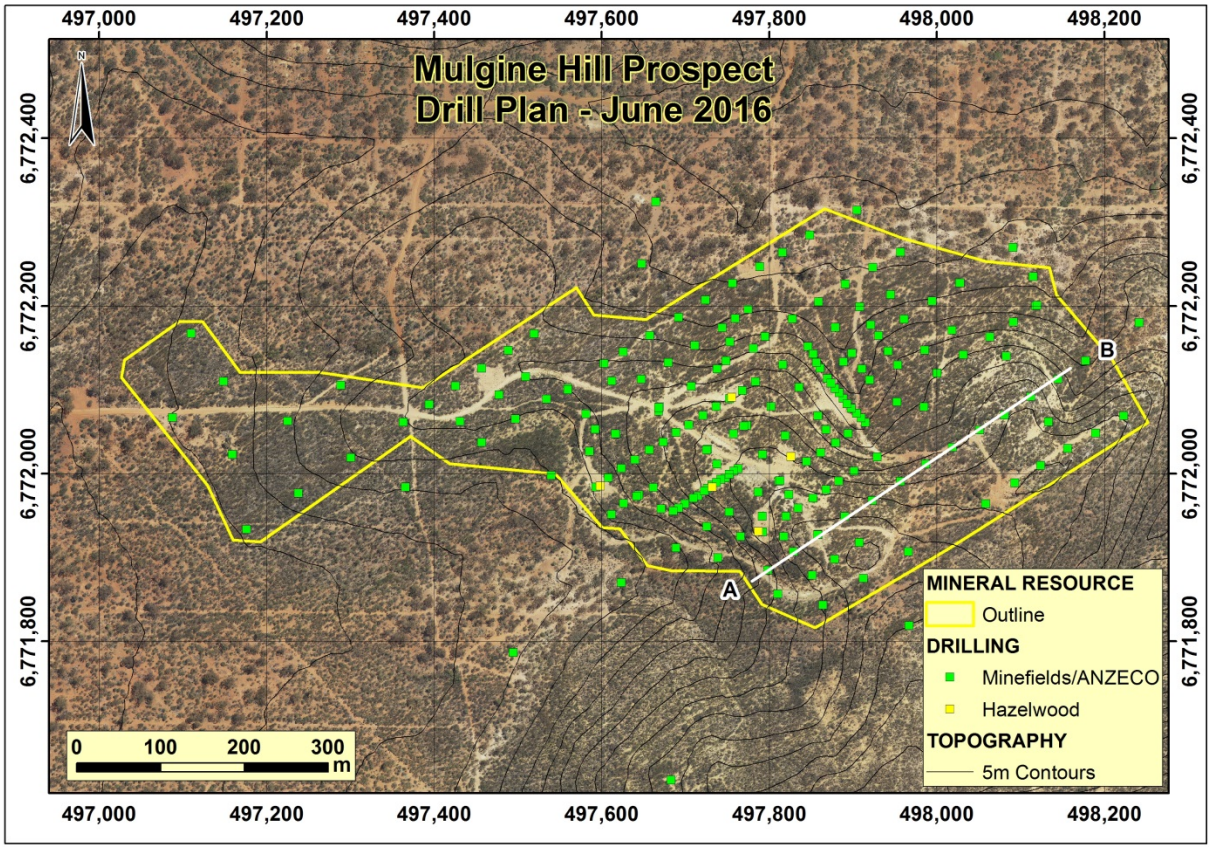

Figure 3 Collar plan showing outline of Mulgine Hill Mineral Resource.

Database

Data used in the Mineral Resource estimate is sourced from excel spreadsheets supplied to Optiro. The drill database was provided by Hazelwood in December 2015 and validated by Tungsten Mining in Micromine software. Data was checked against original hard copy drill logs, sections and plans and validated against UV core photographs. Global consistency was also checked by plotting sections using the database and reconciling assays.

Geological Interpretation

Lithological contacts were interpreted from geological logging to define the upper and lower greisen horizons separated by a mafic schist and ultramafic units (phlogopite schists). The current interpretation represents a refinement of the previous interpretation used for the 2011 Mineral Resource estimate. In addition to geological domains, mineralisation envelopes were constructed based on a nominal 0.025% WO_3 cut-off. Two mineralised domains were interpreted; the Main Zone, which consists of a continuous mineralised horizon associated with the mafic schist/upper greisen contact, and the Hangingwall Zone, which consists of a series of less continuous mineralised envelopes confined to the upper greisen.

Estimation and modelling techniques

Tungsten (WO_3) and molybdenum (Mo) grade estimation used Ordinary Kriging (OK) in Datamine Studio 3 software using 1.52 m (5 feet) composited samples within the tungsten mineralised domains. Domains were treated as hard boundaries for the estimation of tungsten, but not for the estimation of molybdenum. The mineralisation envelopes were flattened prior to grade estimation and top-cuts employed to reduce the influence of high-grade outliers that could affect the quality of a resource estimate.

The Mulgine Hill block model was created with parent block dimensions of 20 mE by 20 mN by 5 mRL. Block sub-celling was allowed down to a minimum block size of 5 mE by 5 mN by 2.5 mRL to represent domain boundaries.

A multiple search pass approach was applied that escalated the search distance if the number of informing samples did not satisfy required minimums. The primary search radii for each domain were set to the maximum range demonstrated by the variogram model. The minimum and maximum number of informing samples remained constant between the primary, secondary and tertiary searches. The primary search radii were doubled for the secondary search and tripled for the tertiary search. Any blocks that did not receive a grade estimate during this process were not assigned a default grade value and thus remain 'un-estimated'.

A total of 1,602 density measurements are present within the drill database and these were averaged within lithological and oxidation domains. These were then used to control the assignment of bulk density values to each lithological domain.

The current drill spacing, combined with kriging efficiency, geological confidence and the quality control standards achieved have been used to divide the deposit into Indicated and Inferred Mineral Resource categories within the Main Mineralised Zone. The Hangingwall Mineralised Zones have poorer geological and grade continuity and blocks within these zones have been classified as Inferred.

Mineral Resource Estimate

The Mulgine Hill Mineral Resource has been reported using a range of lower cut-offs as shown in Table 3 below.

Table 3: June 2016 Mineral Resource estimates for Mulgine Hill at 0.05, 0.10 and 0.15% WO_3 cut-offs.

Mulgine Hill Deposit – June 2016				
Cut –off Grade	**Classification**	**Tonnes**	**WO_3%**	**Mo ppm**
0.05	Indicated	5,100,000	0.20	52
	Inferred	5,100,000	0.13	70
	Total	**10,300,000**	**0.17**	**61**
0.1	Indicated	4,700,000	0.21	50
	Inferred	3,700,000	0.15	64
	Total	**8,500,000**	**0.19**	**56**
0.15	Indicated	3,800,000	0.24	51
	Inferred	1,500,000	0.19	65
	Total	**5,300,000**	**0.22**	**55**

Note: Totals may differ from sum of individual numbers as numbers have been rounded in accordance with the Australian JORC code 2012 guidance on Mineral Resource reporting.

-ENDS-
22 June 2016

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Competent Person's Statement

The information in this report that relates to Mineral Resources is based on, and fairly represents, information and supporting documentation prepared by Paul Blackney, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Blackney is not a full-time employee of the company. Mr Blackney is employed by the resource industry consultancy Optiro Pty Ltd. Mr Blackney has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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'. Mr Blackney consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Exploration Results and Data Quality is based on, and fairly represents, information and supporting documentation prepared by Peter Bleakley, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Bleakley is not a full-time employee of the company. Mr Bleakley is a consultant to the mining industry. Mr Bleakley has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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'. Mr Bleakley consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

About Tungsten Mining

Emerging Australian tungsten developer, Tungsten Mining NL is an Australian based resources company listed on the Australian Securities Exchange. The Company's prime focus is the exploration and development of tungsten projects in Australia.

Tungsten (chemical symbol W), occurs naturally on Earth, not in its pure form but as a constituent of other minerals, only two of which support commercial extraction and processing - wolframite ($(Fe, Mn)WO_4$) and scheelite ($CaWO_4$).

Tungsten has the highest melting point of all elements except carbon – around 3400°C giving it excellent high temperature mechanical properties and the lowest expansion coefficient of all metals. Tungsten is a metal of considerable strategic importance, essential to modern industrial development (across aerospace and defence, electronics, automotive, extractive and construction sectors) with uses in cemented carbides, high-speed steels and super alloys, tungsten mill products and chemicals.

Tungsten Mining has three advanced tungsten projects in Australia: the Mt Mulgine Project in the Murchison region, the Big Hill Project in the Pilbara region and the Kilba Project in the Ashburton region of Western Australia. The Mt Mulgine, Big Hill and Kilba Projects, together represent a tungsten resource inventory of 88.6 Million tonnes at 0.18% WO_3, representing more than 15.5 million MTU (metric tonne units) of WO_3 at a 0.10% cut-off grade.

Tungsten Mining is currently identifying opportunities for near term tungsten production, particularly from the Mulgine Hill and Mulgine Trench deposits within the Mt Mulgine Project.

APPENDIX 1 – JORC 2012 TABLE 1

SECTION 1: SAMPLING TECHNIQUES AND DATA

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (e.g. 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.*	The deposit was sampled using diamond drilling (DD) over several campaigns from 1970 to 1980 and 2011. Earlier campaigns were conducted by Minefields Exploration NL (Minefields) and Australian and New Zealand Exploration Company (ANZECO). Hazelwood Resources Ltd (Hazelwood) drilled NQ diamond holes in 2011. A total of 213 NQ/BQ diamond drillholes (10,631m DD, 2,355m precollars) were drilled by Minefields and ANZECO. The majority of the holes were vertical. Hazelwood drilled five NQ diamond holes (437.3 metres) in 2011, four of these holes twined historical Minefields/ANZECO drilling. In 2016, Tungsten Mining NL (TGN) collected and assayed 251 half-core samples from Minefields and ANZECO holes. These intervals had not previously been assayed and often had visible scheelite in UV photography.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	ANZECO submitted a small number of duplicate samples to external laboratories and these repeated well. There is no reference to standards, duplicates or blanks in reports on Minefields and ANZECO drilling. In 2011, Hazelwood submitted 414 duplicate half-core samples from the Minefields and ANZECO holes to ALS Chemex for tungsten analysis by XRF. Results from these samples correlated well given the coarse-grained nature of scheelite mineralisation present. The coefficient of determination (R2) was 0.68 and the mean was 0.2376% W and 0.2353% W for the original and repeat assays respectively. Hazelwood inserted one standard in 20 samples; however 50% of these weren't assayed for tungsten as there was insufficient sample. Samples submitted by Tungsten Mining in 2016 had standards inserted into the sample stream at a rate of one in 30.

Criteria	JORC Code explanation	Commentary
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information	NQ or BQ diamond holes were logged and UV lamped to determine mineralised material. These mineralised zones were then sampled at dominantly 5 feet intervals to 1977 or 1 - 2 metre intervals in later campaigns. Samples were half core split by either a chisel or diamond saw. One half of the cut core is left in core boxes and retained in core storage at the Minjar core yard unless used for metallurgy or QAQC samples. Mineralised intervals in precollars were sampled at 1m intervals. There is no documentation on how precollar samples were collected. Samples were initially submitted to General Superintendence Co P/L in Perth for XRF analysis. Holes drilled later in the programme were submitted to AMDEL in Perth for tungsten (±Mo, Sb, Mo) by XRF analysis (Method B1/1 or B2) and Mo (±Au, Ag, Bi, Cu, Sb, Zn) by AAS analysis. Diamond core drilled in 2011 was oriented and photographed on site and then sent to the Hazelwood core yard at Malaga, Perth. Geological logging and sampling took place in Malaga. Core was cut in half by an Almonte diamond saw and 1m samples submitted to ALS Chemex of Malaga for tungsten (plus As, Ba, Ca, Cu, Mo, Pb, S, Sn, Ta, Zn) analysis by XRF. In 2016, Tungsten Mining collected generally 1m half core (NQ or BQ) samples cut by previous operators by either chisel or diamond saw. Samples were then submitted to Nagrom Laboratory of Kelmscott for analysis by XRF Tungsten Suite.
Drilling techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. 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).*	Minefields and ANZECO drilled 213 NQ/BQ diamond drillholes (10,631m DD, 2,355m precollars) over multiple campaigns from 1970 to 1980. Holes depths ranged from 11 to 154 m, averaging 61m. Most holes drilled by Minefields and ANZECO were vertical, holes that were inclined had core orientated using a spear to mark the bottom of the core for logging structures. Hazelwood completed 5 inclined NQ diamond holes for 437 metres in 2011 to twin historic drilling. Core was orientated using a REFLEX orientation device. Downhole surveying was conducted using a Reflex multi-shot survey system.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	No records of diamond core recovery were found in the database or on drill logs. Minefields and ANZECO reports referred to core recovery as being excellent. A review of core photography shows there to be no significant core loss. Samples submitted by Tungsten Mining in 2016 were from intervals that were close to 100% core recovery.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During validation of the drill database in 2011, all available core was reconstructed into continuous runs for marking depths and core recovery. This process confirmed there was excellent core recovery.
	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.	Sample Recovery for diamond holes is generally very high within the mineralised zones. No significant bias is expected, and any potential bias is not considered material at this stage. BQ sample size is small given the coarse grained or nuggety nature of the scheelite mineralisation.

Criteria	JORC Code explanation	Commentary
Logging	*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.*	Diamond core was geologically logged with information on structure, lithology and alteration zones recorded. Diamond core trays containing half or quarter core are stored for most holes at the Minjar core yard for future reference. All drill data is digitally captured and stored in a central database.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Diamond core logging included records of lithology, mineralogy, textures, oxidation state and colour. Core was photographed in daylight and selected holes in UV light to estimate scheelite content.
	The total length and percentage of the relevant intersections logged	There is either historical logging or recent re-logging for three quarters of the drill holes.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	For Minefields and ANZECO holes, NQ and BQ core was cut by either a chisel or a diamond saw and 5 feet or 1 – 2 metre half core samples were submitted to General Superintendence Co P/L or AMDEL in Perth. For Hazelwood holes, NQ diamond drill core was cut in half by an Almonte diamond saw and submitted to ALS Chemex of Malaga. In 2016, Tungsten Mining collected generally 1m half core (NQ or BQ) samples cut by previous operators by either chisel or diamond saw.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	There are no records of how Minefields and ANZECO sampled precollars.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Minefields and ANZECO samples were submitted to either General Superintendence Co P/L or AMDEL in Perth. No details were found on sample preparation for samples submitted to General Superintendence Co P/L. Samples submitted to AMDEL were crushed to -1/4 inch, pulverised to -30 mesh in a Braun Pulveriser and a 120 – 150 gram riffle split milled to 98% passing -200 mesh. Hazelwood samples were submitted to ALS Chemex and were crushed to -2mm and then milled to 90% passing 75 microns in a LM5 mill with a chrome free bowl. Samples submitted to Nagrom in 2016 were dried and crushed to 6.3mm using a jaw crusher. Samples in excess of 2kg are riffle splits and pulverised to 80% passing 75µm in LM5 pulveriser.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	There is no mention of routine standards and duplicate samples in Minefields and ANZECO reports. A small number of duplicate samples were sent to external laboratories and these repeated well.
	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.	In 2011, Hazelwood submitted 414 duplicate half-core samples to ALS Chemex for tungsten analysis by XRF. Results from these samples correlated well given the coarse-grained nature of scheelite mineralisation present. The coefficient of determination (R^2) was 0.68 and the mean was 0.2376% W and 0.2353% W for the original and repeat assays respectively.

Criteria	JORC Code explanation	Commentary
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Duplicate sampling of the smaller diameter BQ core indicates that the nuggetty nature of tungsten mineralisation present and small sample size resulted in a relatively high degree of scatter. As noted above duplicates samples correlated well, therefore sample sizes are considered to be acceptable to accurately represent the tungsten mineralisation at Mulgine Hill given the thickness and consistency of the intersections
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	XRF has proven to be a very accurate analytical technique for a wide range of base metals, trace elements and major constituents found in rocks and mineral materials. Glass fusion XRF is utilised for assaying, since it provides good accuracy and precision; it is suitable for analysis from very low levels up to very high levels.
	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.	No downhole geophysical surveys conducted.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	ANZECO submitted a small number of duplicate samples to external laboratories and these repeated well. There is no reference to standards, duplicates or blanks in reports on Minefields and ANZECO drilling. In 2011, Hazelwood submitted 414 duplicate half-core samples from the Minefields and ANZECO holes to ALS Chemex for tungsten analysis by XRF. Results from these samples correlated well given the coarse-grained nature of scheelite mineralisation present. The coefficient of determination (R^2) was 0.68 and the mean was 0.2376% W and 0.2353% W for the original and repeat assays respectively. Field QAQC procedures for the 2016 sampling included the insertion of commercial standards at the rate of one in 30 samples. Assay results have been satisfactory demonstrating acceptable levels of accuracy and precision.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	No independent personnel have verified intersections in DD drilling. Tungsten Mining personnel have conducted a review of all assaying by visual inspection of UV core photography and comparing original drill logs against the drill database.
	The use of twinned holes.	Hazelwood drilled four NQ diamond holes in 2011 to twin historical Minefields/ANZECO drilling. Twin holes intersected mineralisation at target depths; however grades and widths show the nuggety or variable nature of the scheelite mineralisation present.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Minefields and ANZECO drilling was carefully measured, geologically logged and UV lamped prior to sampling. Data was recorded onto paper drill logs and was later transferred into an electronic database. Tungsten Mining have conducted a thorough validation of this data against original paper copies/files. Diamond core drilled in 2011 was oriented and photographed on site and then sent to the Hazelwood core yard at Malaga, Perth. Geological logging and sampling took place in Malaga. Data capture was straight into Excel files. Data for samples collected by Tungsten Mining in 2016 were detailed on paper sample sheets. These were then entered into a Micromine file, visually checked on sections and loaded into a drill database.

Criteria	JORC Code explanation	Commentary
	Discuss any adjustment to assay data.	No adjustments were made, other than for values below the assay detection limit which have been entered as half of the detection limit.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Minefields and ANZECO collar locations were picked-up by a licensed surveyor on the national grid (AMG). This has been transformed to GDA94 Zone 50 in 2011 and old drill pad positions were located and original collars pegged where possible. These holes were picked-up by a licenced surveyor using a DGPS and this confirmed the grid transformation was accurate.
	Specification of the grid system used.	Geocentric Datum of Australia 1994 (GDA94)
	Quality and adequacy of topographic control.	High resolution aerial photography and digital elevation survey was flown by Fugro Spatial Solutions Pty Ltd in October 2013 with expected height accuracy of +/- 0.9 metres.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Drill holes were drilled using 40 x 40 m grid for most of the deposit and 80 x 80 m grid elsewhere. Two close spaced (5 – 10m spacing) sections were drilled to determine grade continuity.
	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.	The current drill spacing, combined with kriging efficiency, geological confidence and the quality control standards achieved have been used to divide the deposit into Indicated and Inferred Mineral Resource within the Main Mineralisation Zone. Hangingwall Mineralisation Zones have poorer geological and grade continuity and blocks within this domain have been classified as Inferred.
	Whether sample compositing has been applied.	No compositing of samples was conducted during sampling.
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	The orientation of drilling was designed to intersect mineralisation perpendicular to the dominant vein geometry and mineralised stratigraphy.
	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.	Structural logging of diamond core has confirmed that drill orientation did not introduce any bias regarding the orientation of mineralised veining.
Sample security	*The measures taken to ensure sample security.*	Samples numbers were recorded on drill logs for Minefields and ANZECO holes. No records of measures taken to ensure sample security were documented in historical reports for these holes. Diamond core for Hazelwood holes was oriented and photographed on site and then sent to the Hazelwood core yard at Malaga, Perth. Geological logging and sampling took place at the Malaga with samples sent directly to the laboratory in Perth. Samples collected by Tungsten Mining were securely sealed and stored on site and delivered by courier to the laboratory in Perth. Sample submissions forms used to track samples were sent with samples as well as emailed directly to the laboratory.

Criteria	JORC Code explanation	Commentary
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	In January 2010, SJS Management conducted a review of the QAQC for drilling at Mulgine Hill. This audit found procedures for drilling, logging and sampling acceptable. However they did find issues with assaying and the small sample size (NQ and BQ) given the coarse-grained nature of tungsten mineralisation present. In 2016, Tungsten Mining conducted a thorough interrogation of the drill database reviewing consistency of data, geological logging, field procedures and sampling/assaying. UV Photographs of core were checked against assay results. Any data that failed validation was checked against original paper copies/files, edited and the validated drill database loaded into Micromine. Global consistency was then checked by plotting sections using the drill database and reconciling assays against geological logging.

SECTION 2: REPORTING OF EXPLORATION RESULTS

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	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.	The Mulgine Hill prospect is located on Mining Lease M59/425-I covering an area of approximately 9.4 km^2. Tungsten Mining has 100% of the mineral rights for tungsten and molybdenum. The current registered holder of the tenement is Minjar Gold Pty Ltd. The normal Western Australian state royalties apply.
	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.	The tenements are in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Minefields and ANZECO drilled 213 NQ/BQ diamond drillholes (10,631m DD, 2,355m precollars) in the 1970s and 1980s. Hazelwood completed 5 NQ diamond drillholes in February 2011. Tungsten Mining have conducted a thorough review of all drilling and sampling procedures that are discussed in Table 1 – Section 1 and 2.
Geology	Deposit type, geological setting and style of mineralisation.	The Hill Deposit occurs in a well-defined reaction zone along the northern margin of the Mulgine Granite preserved in an arcuate dominantly north northeast trending trough. Within the mineralised zone there is both quartz-muscovite greisen and complexly veined phlogopite pyrite schist. The main mineralised zone is along the upper contact of the phlogopite schist where scheelite has been deposited either as coarse disseminations within the quartz-muscovite (fluorite-apatite) greisen or within numerous quartz and greisen veins in both the pyritic phlogopite schist and the quartz-muscovite greisen. Overlying the main zone are multiple less continuous zones hosted by the greisenised granite. These zones are sporadically sampled and further sampling of existing core is planned.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: • easting and northing of the drill hole collar • elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar • dip and azimuth of the hole • down hole length and interception depth • hole length.	Collar data for Tungsten Mining sampling conducted in April 2016 are tabulated.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Intersections for Tungsten Mining sampling in April 2016 are reported for all intervals greater than 2m at 0.10% WO_3 using a lower cut-off grade 0.10% WO_3, no top cut grade and up to 2.0m of internal waste. All high-grade assays >1.0% WO_3 are report beneath the relevant intersection.
	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.	All high-grade assays >1.0% WO_3 are reported beneath the relevant intersection. Interval waste up to 2m is included in intersections provided the adjacent zone and waste are >0.10% WO_3.

Criteria	JORC Code explanation	Commentary
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Not applicable.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Most holes are vertical and intersect mineralisation at between 60 - 90°. True thickness will be between 70 – 100% of the intersection thickness.
Diagrams	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 drill hole collar locations and appropriate sectional views.	Refer to diagrams in the body of text.
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.	All Intersections greater than 2m at 0.10% WO3 from recent sampling by Tungsten Mining are reported. Holes that Tungsten Mining sampled and had no significant mineralisation are listed.
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.	Mineralogical and metallurgical studies on the Hill deposit greisen and schist ore zones showed scheelite was well liberated liberated below 0.3mm and gave good recoveries in a simple gravity circuit using jigs and tables. Evidence gathered to date show that no major metallurgical problems are expected to affect the overall viability of the project. Preliminary metallurgical test work has shown that the ore as represented by the samples tested, is readily concentrated to 65% WO_3 concentrate at an estimated recovery of 80%. The level of tin, phosphorus, flourine and arsenic in the concentrate may be of concern to potential customers, but as at the end of 1982, no leaching tests had been conducted to test whether these elements could be reduced or removed altogether. Ore sorting test work to remove gangue material prior to milling and gravity treatment showed that both UV and photometric type sorting could find application and significantly reduce the processing plant footprint, capital and operating costs.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive	Tungsten Mining are proposing to complete RC and diamond drilling to test extensions to known shallow mineralisation, collect metallurgical samples and twin existing holes. Tungsten Mining are also proposing to sample potential tungsten mineralisation not sampled in Minefields and ANZECO holes.

SECTION 3: ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria	JORC Code explanation	Commentary
Database integrity	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.	The Mount Mulgine Project was recently acquired by Tungsten Mining from Hazelwood. The bulk of the drilling was completed by Minefields and ANZECO between 1970 and 1980. Both Minefields and ANZECO produced graphical geological logs of a high standard that describe lithology, textures, structures and sampling. This data has been used for geological interpretation and grade interpolation. Data from these logs have been checked and data entered by Tungsten Mining where necessary. Diamond core drilled in 2011 was oriented and photographed on site and then sent to the Hazelwood core yard at Malaga, Perth. Geological logging and sampling took place in Malaga with data capture straight into Excel files.
	Data validation procedures used.	Tungsten Mining, where possible, reviewed the original source data (i.e. original drill logs, lab assay reports, cross sections and plans) in order to validate the historical database. Optiro conducted additional data validation checks as part of the drillhole desurveying process such as •missing assays and collars •below detection limit values •overlapping and duplicated sample intervals •comparison of assay and geology depths against collar end of hole depths •assay column swaps All issues found were resolved prior to commencing statistical analysis. Whilst the identified database related issues have been resolved, there remains the possibility that when drillhole data is transferred to a formal drillhole data management system, further issues will be identified. In Optiro's opinion, Tungsten Mining's database related efforts have reached a point of diminishing returns and any issues identified in the future will be of a relatively minor nature
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	A site visit was not carried out by Optiro.
	If no site visits have been undertaken indicate why this is the case.	A site visit was undertaken by Tungsten Mining in April 2016 to evaluate previous exploration and confirm the geological interpretation.
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	There is a reasonable level of confidence in the geological interpretation which divides the deposit into major lithological domains and oxidation horizons. Mineralised zones are designated by elevated tungsten grades
	Nature of the data used and of any assumptions made.	The lithology and oxidation domains are based on geological logging codes and observations from core photographs. Mineralisation domains are based on tungsten assay data with some input from UV light photographs of core. Mineralisation is defined by assay grades exceeding a nominal 0.025% WO_3 cut-off. Two mineralisation domains were interpreted; the Main Zone, which consists of a mineralisation horizon associated with the mafic schist/upper greisen contact, and the Hangingwall Zone, which consists of a series of mineralisation envelopes confined to the upper greisen. Unsampled drillhole intervals are assumed to have grade lower than the mineralisation threshold although there is both UV light photography and preliminary assay testing of unsampled intervals that demonstrate that this is a conservative assumption in localised areas.

Criteria	JORC Code explanation	Commentary
		The Main Zone mineralisation presents as a continuous blanket like horizon and appears robust based on the current drillhole data. Further assaying of unsampled intervals may modify the margins of this domain.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The Hangingwall Zone is considerably less continuous and the geometry of the interpreted zones may change considerably as more data is gathered. Sporadic elevated tungsten grade intersections located outside these two domains have not been estimated due to a lack of discernable continuity.
	The use of geology in guiding and controlling Mineral Resource estimation.	There is a clear relationship between the mafic schist/upper greisen contact and the Main Zone mineralisation horizon. This relationship influences the geometry of the Main Zone mineralisation which is primarily based on elevated tungsten grade.
	The factors affecting continuity both of grade and geology.	Lithological boundaries are reasonably defined by the available drillhole data. Grade continuity is visually obvious within the Main Zone but grade continuity modelling suggests that further close spaced data would benefit the definition of grade continuity, both in terms of directional controls and ranges.
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 Mulgine Hill Mineral Resources extends approximately 500 m in a north-south direction and extends for a maximum distance of 1100 m in an East-West direction. Mineralisation is flat lying with an average thickness of 10 to 20 m, and is close to surface (extending to a max depth of 80 m below surface).
Estimation and modelling techniques	*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.*	Tungsten and molybdenum grade estimation used Ordinary Kriging (OK) in Datamine Studio 3 software. Drill grid spacing ranges from a nominal 40 m by 40 m grid, which increases to a nominal 75 m by 75 m grid outside of the central area of the deposit. Drillhole sample data was flagged using domain codes generated from three dimensional mineralisation domains, lithology wireframes and oxidation surfaces. Sample data was composited to a 1.52 metre downhole length using a best fit-method. Variography analysis of the composite data within the mineralisation domains for tungsten and globally for molybdenum provided kriging parameters. Top-cuts were applied prior to block grade estimation. Mineralisation boundaries were treated as hard for tungsten and soft for molybdenum estimation. Other estimation parameters, such as block size, minimum and maximum sample numbers were derived from KNA.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The previous Mulgine Hill Mineral Resource Estimate was completed in 2011 using a similar geological interpretation but no mineralisation boundaries. The current resource model was compiled to address the guidelines of the 2012 JORC Code and the grade extrapolation that was prevalent in the 2011 model. No previous mining activity has taken place in this area
	The assumptions made regarding recovery of by-products.	No assumptions have been made regarding recovery of by-products. Molybdenum has been estimated as it may be partly recovered. The molybdenum grades suggest it is not a viable economic source in its own right. The possibility exists that some precious metals are associated with the tungsten mineralisation, but this has not been addressed by the resource modelling as only very limited data is available.

Criteria	JORC Code explanation	Commentary
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements that may impact metallurgical processing are known to exist at Mulgine Hill.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The Mulgine Hill block model was created with parent block dimensions of 20 mE by 20 mN by 5 mRL. Block sub-celling was allowed down to a minimum block size of 5 mE by 5 mN by 2.5 mRL to represent domain boundaries. Grade estimation used a three pass search. The primary search radii were based on variogram models and varied for each domain. Minimum and maximum informing sample numbers remained constant between the primary, secondary and tertiary searches. The primary search radii were doubled for the secondary search and tripled for the tertiary search. The maximum number of samples that could be utilised from a single drillhole was not limited for the estimation of tungsten, but was limited to 5 for the estimation of molybdenum. Any blocks that did not receive a grade estimate during this process were not assigned default grade values.
	Any assumptions behind modelling of selective mining units.	No selective mining units were assumed in this estimate.
	Any assumptions about correlation between variables.	No correlation exists between tungsten and molybdenum globally, by lithology, or by domain. Any molybdenum produced would likely only be as a by-product of tungsten production.
	Description of how the geological interpretation was used to control the resource estimates.	Drillhole sample data was flagged using domain codes generated from the mineralisation, lithological and oxidation interpretations. Mineralisation domains were treated as hard boundaries in the estimation of tungsten, and as soft boundaries in the estimation of molybdenum. Lithology and oxidation were used to control density assignment
	Discussion of basis for using or not using grade cutting or capping.	Top-cut analysis of tungsten and molybdenum was undertaken by viewing log probability plots and by identifying values at which the population distributions started to become discontinuous. Top-cuts were employed to reduce the influence of high-grade outliers that could affect the quality of a resource estimate. Based on the disintegration analysis, tungsten top-cuts were assigned to all domains and a global molybdenum top-cut was assigned.
	The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	Comparative checks were carried out between interpretation wireframe and subsequent block model volumes. No discrepancies were found. Estimated block grades were compared to the input drill data on a domain basis using visual appraisal, domain average grade comparisons and grade swath plots in the three grid axis directions. Reasonable outcomes were obtained, particularly in the context of the moderate nugget, moderate grade continuity environment. Visual validation of grade trends and distributions was carried out. No mining has taken place; therefore no reconciliation data is available.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	The tonnages are estimated on a dry basis.

Criteria	JORC Code explanation	Commentary
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied*	A cut-off grade of 0.05% WO3 for the stated Mineral Resource Estimate is determined from current and anticipated economic parameters.
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.*	Potential mining of the Mulgine Hill deposit will be by surface mining methods involving standard truck and haul mining techniques. The geometry of the deposit will make it amenable to mining methods currently employed in many surface operations in similar deposits around the world. The current block grade estimate includes internal and some edge dilution and assumes bulk mining on five metre high benches.
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.*	No assumptions have been made regarding metallurgical factors. Preliminary historical test work undertaken from 1976 to 1982 has shown that the ore as represented by the samples tested, is readily concentrated to 65% WO_3 concentrate at an estimated recovery of 80%. The level of tin, phosphorus, flourine and arsenic in the concentrate may be of concern to potential customers, but as at the end of 1982, no leaching tests had been carried out to test whether or not these elements could be reduced or removed altogether. Upgrading treatment of concentrate may be feasible via chemical means by pressure leaching with soda ash to decompose the scheelite to produce a solution of sodium tungstate. Ore sorting test work to remove gangue material prior to milling and gravity treatment showed that both UV and photometric type sorting could find application and significantly reduce the processing plant footprint, capital and operating costs.
Environmental 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*	No assumptions have been made and these will form part of future works.
Bulk density	*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.*	A total of 1,602 density measurements are present within the database. These were averaged within the lithological and oxidation domains and applied to the block model for tonnage estimation as follows. Dry density was measured. Domain / Density Oxide zone 2.61 Ultramafic 2.94 Upper Greisen 2.68 Mafic Schist 2.89 Lower Greisen 2.68

Criteria	JORC Code explanation	Commentary
	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,	Measurements were taken using the "Archimedes Principle" water displacement technique on diamond drillcore from the Mulgine Hill Prospect. Measurements were taken from both BQ and NQ core, and also from both whole core, half and quarter cut core.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Average density values were assigned relative to lithological and oxidation conditions.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories*	The Mineral Resource classification at Mulgine Hill is based on confidence in the geological and grade continuity, along with the 40 m by 40 m drillhole grid informing the core of the deposit (with two infill section lines on 10 m in-section spacing also present.). These grid conditions, combined with geological confidence and grade continuity achieved from variography modelling has divided the Main Zone mineralisation into Indicated and Inferred regions. Due to the poorer geological and grade continuity within the Hangingwall Zone mineralisation all blocks have been classified as Inferred. Blocks with assigned grades, and blocks with tungsten and molybdenum grades within the background domain have not been classified as mineral resources. No Measured Mineral Resources have been defined.
	Whether appropriate account has been taken of all relevant factors (i.e. 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).	The resource classification process addresses all known contributing issues
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The Mineral Resource estimate appropriately reflects the view of the Competent Persons
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	This is an update to the 2011 Mulgine Hill Mineral Resource estimate. No audits have been undertaken on the 2016 Mineral Resource Estimate at this stage.
	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	The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the JORC Code (2012 Edition). No attempt has been made to quantify relative accuracy and confidence at this stage of analysis.
	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	The statement relates to global estimates of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available	No production data is available.