



ASX ANNOUNCEMENT
24 March 2020

Positive Heavy Mineral Tin and Tantalum Recovery Test Work Results

Highlights

- Total tin recovery of 63%, from combined coarse plus fine fractions, at a grade of 64.1% (SnO_2)
- Tin and tantalum is well liberated and easily recoverable from the -0.5mm HPGR undersize material
- Six initial broad spaced, non-representative, alluvial tin and tantalum samples produced exciting upside potential with assay values ranging from 29.5% to 71.5% SnO_2 (as Cassiterite) and from 2.14% to 4.18% Ta_2O_5 (as Coltan) reported

AVZ Minerals Limited (ASX: AVZ, or “the Company”) is pleased to provide an update on its preliminary tin and tantalum recoveries following the reporting of the flotation test work results at its Manono Lithium and Tin Project (“Manono Project”) in the Democratic Republic of Congo.

AVZ’s Managing Director, Mr. Nigel Ferguson, said: “As part of the recent flotation test programme, we now have initial recovery figures for the tin and tantalum from the undersize, -0.5mm fraction, that can be compared for the first time to the dense media recoveries for these metals from the Phase 2 metallurgical programme. This has allowed us to complete a mass balance for the heavy mineral fractions for the first time. The overall tin and tantalum recovery is 63% but having only been able to split the coltan from the cassiterite in the finer fraction sizes at this time, further work is required, potentially including the use of an on-site smelter to produce metal ingots for both security purposes and ease of transport to market.”

“The tin grades are however, above 60% in both size ranges and are highly saleable products which could potentially contribute to reducing overall operating costs and to supply a significant and growing demand from the electronics market. AVZ is currently in discussions with several potential off take partners in this field.”

“In addition to the hard rock tin and tantalum at Roche Dure, we are now investigating recovery of the alluvial tin and tantalum present in significant quantities across the concession.”

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"As part of our social development programme, and in line with transparency in the supply of these minerals from Manono, we have commenced analysis of these alluvial heavy minerals to determine if the metal values warrant further investigation. A 50kg composite sample collected from across the site confirms tin values ranging from 29.5% to 71.5% cassiterite. This confirms historical reports by independent geological consultants, Bear Dolhbere, of a significant alluvial tin field at Manono and it appears at least initially, that this material may also be economically recovered by working together with the community to maximise returns for both the Company and all stakeholders."

Results Summary – Combined Heavy Minerals from DMS and Flotation Test Work

In addition to the increased understanding of the lithium response to the recent round of flotation test work, a study of the beneficiation of tin and tantalum was also conducted in tandem and the results are reported here. This investigation was conducted on both the concentrates produced by the DMS test programme as well as the -0.5mm fraction, discarded by the SC6 recovery plant and which under the current flowsheet is discarded to tails. This latter material was analysed during the recently reported flotation test programme.

Heavy Mineral Beneficiation

Heavy Mineral (HM) beneficiation was conducted in two parts. The two test work streams included:

- DMS Concentrates: Heavy minerals recovered with lithia in the DMS process would require reprocessing to be recovered through a secondary DMS. Reprocessing of DMS concentrates may also reduce penalty elements, such as Fe, from final lithia concentrates; and
- Fines: -0.5mm HPGR crushed fines, which under a DMS only flowsheet would report direct to tailings. Tin bearing cassiterite and tantalum bearing coltan, are the target minerals from this material.

Heavy Mineral Recovery - DMS Products

The heavy mineral recovery test programme involved retreatment of the DMS concentrates from the Phase 2 - DMS250 test programme using a second dense media cyclone stage cutting at an SG3.4 g/cm³ to separate the spodumene concentrate from the heavier minerals, including the tin and tantalum. Testing was performed on two separate coarse product streams, namely -8+2mm (coarser) and -2+0.5mm (finer) fraction sizes. Magnetic separation was then used to remove deleterious iron and for a preliminary assessment of tantalum removal from cassiterite concentrates. This process however did not recover significant separated tantalum to warrant reporting at these coarser sizes.

Heavy Mineral Recovery – Fines

Fines (-0.5mm) that will be produced from the designed recovery circuit contain more than 40% of the total cassiterite and though grades are considered low, it is well liberated and readily extractable. The fines tin and tantalum recovery programme proposed a multistage gravity separation process involving:

- Desliming using a 0.038 mm screen. Particle size separation to reduce the influence of particle size on gravity separation;
- Wilfley Tables to separate heavy minerals from high mass gangue (low density) material to a waste stream; and
- Dressing which involved the removal of iron bearing minerals from HM concentrates and the preliminary investigation to separate cassiterite and tantalum.

Heavy Mineral Mass Balance

Table 1 presents the combined heavy mineral mass balance from both the dense media concentrates and the fines investigation programme.

Bulk Sample Summary	Mass	Grade					Distribution (Total)			
		Li ₂ O	Fe ₂ O ₃	SnO ₂	Ta ₂ O ₅	Nb ₂ O ₅	Li ₂ O	SnO ₂	Nb ₂ O ₅	Ta ₂ O ₅
Full Mass Balance	%	%	%	%	%	%	%	%	%	%
DENSE MEDIA SEPARATION (+0.5 mm)										
DMS Tailings	54.0	0.51	0.53	0.03	0.002	0.01	17	12	45	31
DMS Cassiterite Concentrate	0.1	0.13	6.21	62.65	1.166	1.02	0	33	8	20
DMS Lithia Concentrate	15.49	6.12	0.66	0.10	0.002	0.00	60	12	3	9
FINES (-0.5 mm)										
Fine Tailings	30.36	1.17	0.79	0.06	0.003	0.01	22	14	28	19
Fine Cassiterite Concentrate	0.06	1.60	4.98	60.64	0.516	0.59	0.1	29	4	8
Fine Tantalum Concentrates	0.01	0.62	14.16	5.63	7.432	14.07	0.0	0.3	11	12
Calculated Head	100.0	1.58	0.64	0.13	0.004	0.01	100	100	100	100
Total Heavy Minerals	0.1	0.82	6.04	58.99	1.175	1.46	0.3	63	24	41

Table 1: Bulk Sample Summary – Combined Heavy Mineral mass balance

Fine Tantalum and Niobium distributions are spread between magnetic and non-magnetic (tin) streams which may indicate that coltan is very fine grained and/or a poor separation efficiency in the magnetic separation process. Magnetic separation of the DMS concentrated cassiterite did not recover enough tantalum to warrant reporting which could indicate that there may be a liberation problem at the coarser sizes. This was not the situation in the -0.5mm fraction where the coltan was able to be separated and analysed separately.

The total tin recovery equates to 63% although tantalum and niobium recoveries were lower at 41% and 24% with losses primarily reporting to the fines tailings stream.

Further work will be needed to explore alternative economic and saleable concentrate options (i.e. combined tin/tantalum tin concentrate with tantalum and niobium credits).

Product Quality

Combined heavy mineral concentrate grades are presented in Table 2 and assumes a Sn/Ta product for smelters.

Coarse Heavy Mineral Concentrate	Li ₂ O	Fe ₂ O ₃	Al ₂ O ₃	SiO ₂	TiO ₂	Mn	S	As	P	SnO ₂	Ta ₂ O ₅	Nb ₂ O ₅	PbO
	%	%	%	%	%	%	%	%	%	%	%	%	%
Fines (-0.5mm)	0.8	6.7	4	9	0.6	1.6	1.8	5.6	0.3	65.5	1.3	2	0.020
Coarse (-8+0.5mm)	0.1	6.2	4	16	0.1	0.3	1.0	6.7	0.1	62.6	1.2	1.0	0.000
Indicative HM Concentrates	0.5	6.5	3.9	12.6	0.3	0.9	1.4	6.2	0.2	64.1	1.2	1.5	0.010

Table 2 Combined heavy mineral product grades – as tested



Figure 1: Coarse tin concentrate 0.5 to 8mm

Looking Forward

Tin and tantalum can be recovered from both the (actual) DMS (coarse) and (proposed) Flotation (fine) circuits. Cost/recovery investigations must be carried out to determine how to achieve this and if the determined recoveries return an economic benefit. Likewise it has been noted that entrained sulphur and arsenic will be a major penalty for the combined concentrate option if sold as a simple oxide concentrate. This also includes other metals including Mn which will come with a penalty so further investigation is needed to determine the net smelter return for tin concentrates. Removal of these deleterious elements may be done by flotation, which could be expensive, but they could also be removed in the slag from a smelted ingot product. Further test work is required to optimise the tin and tantalum recoveries and determine the most effective recovery route for both the hard rock and alluvial minerals.

Preliminary Alluvial Test Work Results

Background

AVZ has concentrated its efforts to date on defining a large hard rock lithium resource at Manono. Historically the area around Manono has been known to hold significant alluvial potential. Behre Dolbear Group Inc, reported in July 2011 within their Competent Person Report for Global Tin Corporation, that:

"Until 1949 production was from the eluvial and weathered pegmatite. This represented the most successful period of the mine with production reaching 3,500t/y of tin, from 5,000t of cassiterite concentrate with a grade of 72% Sn."

"OCP Alluvials, 1981, reviewed the available test pit data and concluded that the ore-bearing gravels occur in regular beds varying in thickness from 3 to 10m, comprising sand and well-rounded pebbles with sizes up to 15cm. They considered that the Lukushi alluvials were readily amenable to excavation and treatment by bucket-ladder dredge and proposed a mining rate of 4 Mm³ per year..."

"The volume and grade of the Lukushi resources are comparable to some tin-dredging operations that have been worked profitably in the past....."

"Behre Dolbear's conclusion is that further studies will be required to establish capital and operating cost estimates and also the costs to establish the required infrastructure necessary for a mining and mineral processing project."

There is an obvious potential within the alluvial fields at Manono. Illegal artisanal miners have worked the fields for years, using simple sluice boxes, hand panning and sorting of materials. AVZ understands there is potential to incorporate a significant portion of the alluvial miners into a mining co-operative organised by AVZ and for the benefit of the Company and all stakeholders operating under a safe environment for the first time since tin mining operations halted in 1984. Estimates provided to AVZ by field researchers at Manono range from 50 to +100 tonnes of mixed tin and coltan concentrate per month being won by artisanal.

Initial Preliminary Test Work

Initial preliminary test work was completed on six composite samples from the Manono alluvial fields adjacent to the known major pegmatites, in an effort to determine mineral and metal contents and understand initial potential economic viability to allow additional planning of exploration and assessment work.

The six samples, totalling approximately 50kg, were submitted to Nagrom laboratories of Perth, Western Australia for assessment and analytical determination.

All samples were submitted to the following procedure which was defined and carried out by Nagrom: Blend, cone and quarter from each of the six composites to produce a 1kg sample for test analysis. Complete semi-quantitative XRD, microscopy and full ICP analysis.

All samples were analysed via ICP, XRF and ISE for Li₂O, Fe₂O₃, Al₂O₃, SiO₂, TiO₂, Mn, S, P, SnO₂, Ta₂O₅, Nb₂O₅, Na₂O, PbO, CaO, MgO, K₂O, Rb, F and LOI. All samples were analysed via Full ICP for 60 elements.

Results have shown that the alluvial concentrate produced at the Manono site is clearly rich in tin in the form of cassiterite and other potentially economic minerals. Tin grades of the 6 samples ranged from 29.5% to 71.5% SnO₂ with an average grade of some 53.4% SnO₂.

Given the initial positive nature of the results and possible economic benefit to AVZ, further testwork has been organised and will include separating out the tin from other minerals. It is expected on the back of these results that a work program will be implemented to assess the nature of all alluvial fields within Manono with the view to possibly placing them into production at some stage in the future.

This release was authorised by Nigel Ferguson, Managing Director of AVZ Minerals Limited.

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Competent Persons Statement

The information in this report that relates to metallurgical test work results is based on, and fairly represents information complied and reviewed by Mr Nigel Ferguson, a Competent Person who is a Fellow of The Australasian Institute of Mining and Metallurgy and Member of the Australian Institute of Geoscientists. Mr Ferguson is a Director of AVZ Minerals Limited. Mr Ferguson 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 Resource and Ore Reserves". Mr Ferguson consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.

APPENDIX 1. Alluvial Sample Register with Assay Results

Sample ID	Sample Method	Easting (mE)	Northing (mN)	Elevation (m)	Zone	SnO ₂ %	Ta ₂ O ₅ %	Rock Type	Comments
MK Comp	Panned concentrate	551500	9197650	626	35 S	41.7	3.1	Weathered pegmatite	Seived from surface alluvium
MM Comp	Panned concentrate	549600	9196150	611	35 S	53.8	4.2	Weathered pegmatite	Seived from surface alluvium
MW Comp	Panned concentrate	548250	9194900	609	35 S	29.5	2.1	Weathered pegmatite	Seived from surface alluvium
MCH Comp	Panned concentrate	547890	9194250	611	35 S	69.6	3.0	Weathered pegmatite	Seived from surface alluvium
KMP Comp	Panned concentrate	543300	9191560	634	35 S	54.6	3.2	Weathered pegmatite	Seived from surface alluvium
KMR Comp	Panned concentrate	543300	9191560	645	35 S	71.5	2.8	Weathered pegmatite	Seived from surface alluvium

JORC TABLE 1

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
<i>Sampling techniques</i>	<ul style="list-style-type: none"> • <i>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.</i> • <i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i> • <i>Aspects of the determination of mineralisation that are Material to the Public Report.</i> • <i>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.</i> 	<ul style="list-style-type: none"> • Metallurgical samples: Comminution testwork consisting UCS, Bond Indices, SMC and Impact testing were conducted on Comm 1, Comm 2 and Comm 3. Comm1 sample representing the upper zone ore and Comm 2 and Comm 3 representing middle and deeper sections in the ore zone. • These samples consisted of continuous intervals of full PQ core and include spodumene containing and waste intervals identified from core logging records. • Specifically Comm 1 sample consists of approximately 15m from Met01, Comm 2 sample approximately 15m from Met02 and Comm 3 sample approximately 15m from Met03. • Comm sample weights were each 115kg. • Metallurgical samples: Spodumene concentrate testwork to date has been conducted using a single bulk composite, Bulk01, 200kg mass. • This composite was prepared from sub-samples of crushed intervals of full PQ drill core. Each approximate 1m interval was crushed to 25mm with a sub-sample submitted for analysis and a further sub-sample collected for the composite. The final Bulk01 composite sample contained low grade and high grade intervals as well as waste intervals from 4 of the 5 met holes to target a grade close to expected mining lithium grade. • Specifically Bulk01 contains sub-samples from intervals originating from Met01, Met02, Met03 and Met04. • All met hole core intervals were shipped to Nagrom laboratories in Australia. From here core has been shipped to ALS laboratories, Australia. • HLS test results reported in this release were conducted on sub-samples of Bulk01 with a head grade of 1.58% Li₂O. • Head grades have a reporting accuracy of ±0.1%. <p>Alluvial Test Work</p> <ul style="list-style-type: none"> • The samples are reconnaissance grab samples taken from 6 widely spaced locations. The samples are of panned heavy minerals concentrates and all are samples of mixed metal oxides of different sizes with varying amounts of gangue material entrained. • The samples were collected from 6 areas ranging in size from between 100m² and 200m² then combined to create a sample from each area. • These samples are not representative and were collected to examine the elemental make up of the heavy minerals. • The collection of the heavy mineral samples was done by a combination of sieving using sluice boxes then panning off the heavy mineral concentrates. This collection method is typical for this type of reconnaissance style sampling and this information will not form part of a volumetric analysis. • All samples were shipped to Nagrom laboratories in Australia. • Head grades have a reporting accuracy of ±0.1%.

Criteria	JORC Code explanation	Commentary
Drilling techniques	<ul style="list-style-type: none"> • 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). 	<p>The drilling was completed using diamond drilling rigs with PQ used from surface to sample through weathered to fresh-rock and HQ sized drill rods used after the top-of-fresh-rock had been intersected. Most holes are angled between 50° and 75°. All collars were surveyed after completion. All holes were downhole surveyed using a digital multi-shot camera at about 30 m intervals. Apart from drillholes MO17DD001, MO17DD002, MO18DD001 and MO18DD008, all cores were orientated.</p> <p>Alluvial Test Work</p> <p>N/A: This information release does not discuss drilling results.</p>
Drill sample recovery	<ul style="list-style-type: none"> • Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • 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. 	<ul style="list-style-type: none"> • Drill core recovery attained >99% in the pegmatite. • Based upon the high recovery, AVZ did not have to implement additional measures to improve sample recovery and the drill core is considered representative and fit for sampling. • For the vast majority of drilling completed, core recovery was near 100% and there is no sample bias due to preferential loss or gain of fine or coarse material. <p>Alluvial Test Work</p> <p>N/A: This information release does not discuss drilling results.</p>
Logging	<ul style="list-style-type: none"> • 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. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged. 	<ul style="list-style-type: none"> • Drillhole cores were logged by qualified geologists using a data-logger and the logs were then uploaded into Geobank which is a part of the Micromine software system. The cores were logged for geology and geotechnical properties (RQD & planar orientations). A complete copy of the data is held by an independent consultant. The parameters recorded in the logging are adequate to support appropriate Mineral Resource estimation. • All cores were logged, and logging was by qualitative (lithology) and quantitative (RQD and structural features) methods. All cores were also photographed both in dry and wet states, with the photographs stored in the database. • The entire length of all drillholes were logged for geological, mineralogical and geotechnical data. <p>Alluvial Test Work</p> <p>N/A: This information release does not discuss drilling results.</p> <p>There was no logging of the heavy minerals in the field because the heavy minerals, both cassiterite and coltan (tantalum niobium) are black and at small size fractions are indistinguishable to the naked eye.</p>

Criteria	JORC Code explanation	Commentary
<p><i>Sub-sampling techniques and sample preparation</i></p>	<ul style="list-style-type: none"> • If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • 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. • Whether sample sizes are appropriate to the grain size of the material being sampled. 	<ul style="list-style-type: none"> • Cores were cut longitudinally in half and sampled at a nominal 1 m length. • All the exploration drilling was carried out using diamond core drilling. • The sample preparation for drillhole core samples incorporates standard industry practice. The half-core samples were prepared at ALS Lubumbashi and the ALS sample preparation facility on site at Manono, with holes from MO18DD021 onwards being prepared at Manono. • At AVZ's onsite sample preparation facility the half-core samples of approximately 4-5 kg are oven dried, crushed to -2 mm with a 500 g sub-sample being split off. This 500 g sub-sample is then pulverised to produce a pulp with 85% passing -75um size fraction. A 120 g subsample is then split from this. The certified reference material, blank and duplicate samples are inserted at appropriate intervals and then the complete sample batch is couriered to Australia for analysis. • Standard sub-sampling procedures are utilised by ALS Lubumbashi and ALS Manono at all stages of sample preparation such that each sub-sample split is representative of the whole it was derived from. • Duplicate sampling was undertaken for the drilling programme. After half-core samples were crushed at the ALS Lubumbashi and ALS Manono preparatory facility, an AVZ geologist took a split of the crushed sample which was utilised as a field duplicate. The geologist placed the split into a pre-numbered bag which was then inserted into the sample stream. It was then processed further, along with all the other samples. The drilling produced PQ and HQ drill core, providing a representative sample of the pegmatite which is coarse-grained. Sampling was mostly at 1 m intervals, and the submitted half-core samples typically had a mass of 3-4 kg. <p>Alluvial Test Work</p> <ul style="list-style-type: none"> • All samples were collected using water to concentrate them then put into sample bags at the collection point. Prior to transportation the samples were air dried. • The samples are typical in that all of the samples present as a fine grained 'black' sand and this is the usual presentation of the alluvial / elluvial heavy minerals retrieved from weathered parts of the pegmatite at Manono. • The sample weights varied in size from 3.2 to 16.9 kilogrammes which is sufficient to carry out mineral identification testwork and assays.

Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i> <i>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.</i> <i>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.</i> 	<ul style="list-style-type: none"> Diamond drillhole (core) samples were submitted to ALS Lubumbashi and ALS Manono (DRC) where they were crushed and pulverised to produce pulps. These pulps were couriered to Australia and analysed by ALS Laboratories in Perth, Western Australia using a sodium peroxide fusion of a 5g charge followed by digestion of the prill using dilute hydrochloric acid thence determination by AES or MS, i.e. methods ME-ICP89 and ME-MS91. Samples from the drilling completed in 2017 i.e. MO17DD001 and MO17DD002, were assayed for a suite of 24 elements that included Li, Sn, Ta & Nb. Samples from the drilling completed in 2018 were assayed for a suite of 12 elements; Li, Sn, Ta, Nb, Al, Si, K, Fe, Mg, P, Th and U, with Li reported as Li_2O, Al as Al_2O_3, Si as SiO_2, K as K_2O, Mg as MgO, Fe as Fe_2O_3 and P as P_2O_5. Peroxide fusion results in the complete digestion of the sample into a molten flux. As fusion digestions are more aggressive than acid digestion methods, they are suitable for many refractory, difficult-to-dissolve minerals such as chromite, ilmenite, spinel, cassiterite and minerals of the tantalum-tungsten solid solution series. They also provide a more-complete digestion of some silicate mineral species and are considered to provide the most reliable determinations of lithium mineralisation. Sodium peroxide fusion is a total digest and considered the preferred method of assaying pegmatite samples. For the drilling, AVZ incorporated standard QAQC procedures to monitor the precision, accuracy and general reliability of all assay results from assays of drilling samples. As part of AVZ's sampling protocol, CRMs (standards), blanks and duplicates were inserted into the sampling stream. In addition, the laboratory (ALS Perth) incorporated its own internal QAQC procedures to monitor its assay results prior to release of results to AVZ. The Competent Person is satisfied that the results of the QAQC are acceptable and that the assay data from ALS is suitable for Mineral Resource estimation. AVZ utilised Nagrom in Perth for external laboratory checks to compare results received from ALS Perth. The Competent Person is satisfied that the results from the umpire laboratory are acceptable and that the assay data from ALS is suitable for Mineral Resource estimation. Geophysical instruments were not used in assessing the mineralisation. <p>Alluvial Test Work</p> <ul style="list-style-type: none"> The 6 sieved samples were packed by AVZ personnel in Manono then sent by DHL courier direct to the Nagrom Laboratories in Perth, Western Australia for constituent analyses (XRD) and assay. At Nagrom the samples were dried and homogenised with a portion of each being sent for individual XRD analysis. The samples were not crushed.
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Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> All samples were analysed using ICP, XRF and ISE for Li₂O, Fe₂O₃, Al₂O₃, SiO₂, TiO₂, Mn, S, P, SnO₂, Ta₂O₅, Nb₂O₅, PbO, CaO, MgO, K₂O, Rb, F and LOI1000. All samples were assayed using the Full ICP for Ag, Al, As, Au, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Na, Nd, Ni, P, Pb, Pr, Rb, Re, Sb, Sc, S, Si, Sm, Sn, Sr, Ta, Tb, Te, Th, Ti, Tl, Tm, U, V, W, Y, Yb, Zn and Zr. Geophysical instruments were not used in assessing the mineralisation.
<i>Verification of sampling and assaying</i>	<ul style="list-style-type: none"> <i>The verification of significant intersections by either independent or alternative company personnel.</i> <i>The use of twinned holes.</i> <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i> <i>Discuss any adjustment to assay data.</i> 	<ul style="list-style-type: none"> MSA observed the mineralisation in the majority of cores on site, although no check assaying was completed by MSA. MSA observed and photographed several collar positions in the field, along with rigs that were drilling at the time of the site visit. Twinned holes for the verification of historical drilling, were not required. Short vertical historical holes were drilled within the pit but are neither accessible nor included within the database used to define the Mineral Resource. Drilling data is stored on site as both hard and soft copy. Drilling data is validated onsite before being sent to data management consultants in Perth where the data is further validated. When results are received they are loaded to the central database in Perth and shared with various stakeholders via the cloud. QC results are reviewed by both independent consultants and AVZ personnel at Manono. Hard copies of assay certificates are stored in AVZ's Perth offices. AVZ has not adjusted any assay data. <p>Alluvial Test Work AVZ has not adjusted any assay data.</p>
<i>Location of data points</i>	<ul style="list-style-type: none"> <i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i> <i>Specification of the grid system used.</i> <i>Quality and adequacy of topographic control.</i> 	<ul style="list-style-type: none"> The drillhole collars have been located by a registered surveyor using a Hi-Target V30 Trimble differential GPS with an accuracy of +/- 0.02 m. All holes were downhole surveyed using a digital multi-shot camera at approximately 30 m intervals, except MET02 and MET03 which were drilled vertically. AVZ provided high resolution topographic contours, surveyed at 50 cm elevation differences. For the purposes of geological modelling and estimation, the drillhole collars were projected onto this topographic surface. In most cases adjustments were within 1 m (in elevation). Coordinates are relative to WGS 84 UTM Zone 35M. <p>Alluvial Test Work The sample locations are general with the samples being collected from areas rather than discrete sample points. The rough centres of the collection points are summarised in the Appendix 1.</p>

Criteria	JORC Code explanation	Commentary
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> • <i>Data spacing for reporting of Exploration Results.</i> • <i>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.</i> • <i>Whether sample compositing has been applied.</i> 	<ul style="list-style-type: none"> • Drillhole were completed on sections 100 m apart, and collars were 50 to 100 m apart on section where possible. In situations of difficult terrain, multiple holes were drilled from a single drill pad using differing angles for each drillhole. • In the Competent Person's opinion, the spacing is sufficient to establish geological and grade continuity consistent with Measured, Indicated and Inferred Mineral Resources. • Samples were composited to 1 m intervals, since it was the most occurring sample length. <p>Alluvial Test Work The samples were not collected on a regular pattern.</p>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> • <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i> • <i>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.</i> 	<ul style="list-style-type: none"> • The drillhole orientation was designed to intersect the Roche Dure Pegmatite at, or nearly at, 90° to the plane of the pegmatite. • No material sampling bias exists due to drilling direction. <p>Alluvial Test Work N/A</p>
<i>Sample security</i>	<ul style="list-style-type: none"> • <i>The measures taken to ensure sample security.</i> 	<ul style="list-style-type: none"> • When utilising ALS Lubumbashi, chain of custody was maintained by AVZ personnel on-site to Lubumbashi. Samples were stored on-site until they were delivered by AVZ personnel in sealed bags to the laboratory at ALS in Lubumbashi. The ALS laboratory checked the received samples against the sample dispatch form and issued a reconciliation report. • At Lubumbashi, the prepared samples (pulps) were sealed in a box and delivered by DHL to ALS Perth. • ALS issued a reconciliation of each sample batch, actual received vs documented dispatch. • The ALS Manono site preparation facility was managed independently by ALS who supervised the sample preparation. Prepared samples were sealed in boxes and transported by air to ALS Lubumbashi and were accompanied by an AVZ employee, where export documentation and formalities were concluded. DHL couriered the samples to ALS in Perth. <p>Alluvial Test Work The chain of custody was maintained by AVZ personnel on-site to Lubumbashi. Samples were stored on-site until they were delivered by AVZ personnel in sealed bags to DHL in Lubumbashi and from there direct to Nagrom Laboratories in Perth. Nagrom checked the received samples against the sample dispatch form and issued a reconciliation report.</p>

Criteria	JORC Code explanation	Commentary
Audits or reviews	<ul style="list-style-type: none"> • <i>The results of any audits or reviews of sampling techniques and data.</i> 	<ul style="list-style-type: none"> • The sampling techniques were reviewed by the Competent Person during the site visit. • The Competent Person considers that the exploration work conducted by AVZ was carried out using appropriate techniques for the style of mineralisation at Roche Dure, and that the resulting database is suitable for Mineral Resource estimation.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> • <i>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.</i> • <i>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.</i> 	<p>The Manono licence was awarded as Research Permit PR13359, issued on the 28th December 2016 to La Congolaise d'Exploitation Miniere SA (Cominiere). It is valid for 5 years. On the 2nd February 2017, AVZ formed a joint-venture (JV) with Cominiere and Dathomir Mining Resources SARL (Dathomir) to become the majority partner in a JV aiming to explore and develop the pegmatites contained within PR 13359. Ownership of the Manono Lithium Project is AVZ 60%, Cominiere 30% and Dathomir 10%.</p> <p>All indigenous title is cleared and there are no other known historical or environmentally sensitive areas.</p>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> • <i>Acknowledgment and appraisal of exploration by other parties.</i> 	<p>Within PR13359, exploration of relevance was undertaken by Gecamines which completed a programme of drilling between 1949 and 1951. The drilling consisted of 42 vertical holes drilled to a general depth of around 50 - 60 m. Drilling was carried out on 12 sections at irregular intervals ranging from 50 - 300 m, and over a strike length of some 1,100 m. Drill spacing on the sections varied from 50 - 100 m. The drilling occurred in the Roche Dure Pit only, targeting the fresh pegmatite in the Kitotolo sector of the project area.</p> <p>The licence area has previously been mined for tin and tantalum through a series of open pits over a total length of approximately 10 km excavated by Zairetain SPRL. More than 60 Mt of material was mined from three major pits and several subsidiary pits focused on the weathered upper portions of the pegmatites. Ore was crushed and then upgraded through gravity separation to produce a concentrate of a reported 72% Sn. There are no reliable records available of tantalum or lithium recovery as tin was the primary mineral being recovered.</p> <p>Apart from the mining excavations and the drilling programme, there has been very limited exploration work within the Manono region.</p>

Criteria	JORC Code explanation	Commentary
Geology	<ul style="list-style-type: none"> • <i>Deposit type, geological setting and style of mineralisation.</i> 	<p>The Project lies within the mid-Proterozoic Kibaran Belt - an intracratonic domain, stretching for over 1,000 km through Katanga and into southwest Uganda. The belt strikes predominantly SW-NE and is truncated by the N-S to NNW-SSE trending Western Rift system. The Kibaran Belt is comprised of a sedimentary and volcanic sequence that has been folded, metamorphosed and intruded by at least three separate phases of granite. The latest granite phase (900 to 950 million years ago) is assigned to the Katangan cycle and is associated with widespread vein and pegmatite mineralisation containing tin, tungsten, tantalum, niobium, lithium and beryllium. Deposits of this type occur as clusters and are widespread throughout the Kibaran terrain. In the DRC, the Katanga Tin Belt stretches over 500 km from near Kolwezi in the southwest to Kalemie in the northeast comprising numerous occurrences and deposits of which the Manono deposit is the largest. The geology of the Manono area is poorly documented and no reliable maps of local geology were observed. Recent mapping by AVZ has augmented the overview provided by Bassot and Morio (1989) and has led to the following description. The Manono Project pegmatites are hosted by a series of mica schists and by amphibolite in some locations. These host rocks have a steeply dipping penetrative foliation that appears to be parallel to bedding. There are numerous bodies of pegmatite, the largest of which have sub-horizontal to moderate dips, with dip direction being towards the southeast. The pegmatites post-date metamorphism, with all primary igneous textures intact. They cross-cut the host rocks but despite their large size, the contact deformation and metasomatism of the host rocks by the intrusion of the pegmatites seems minor. The absence of significant deformation of the schistosity of the host rocks implies that the pegmatites intruded brittle rocks. The pegmatites constitute a pegmatite swarm in which the largest pegmatites have an apparent en-echelon arrangement in a linear zone more than 12 km long. The pegmatites are exposed in two areas; Manono in the northeast, and Kitotolo in the southwest. These areas are separated by a 2.5 km section of alluvium-filled floodplain which contains Lake Lukushi. At least one large pegmatite extends beneath the floodplain. The pegmatites are members of the LCT-Rare Element group of pegmatites and within the pegmatite swarm there are LCT albite-spodumene pegmatites and LCT Complex (spodumene sub-type) pegmatites.</p>

Criteria	JORC Code explanation	Commentary
Drill hole Information	<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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. 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. 	<ul style="list-style-type: none"> See table in Appendix 1.
Data aggregation methods	<ul style="list-style-type: none"> 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. 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. The assumptions used for any reporting of metal equivalent values should be clearly stated. 	<ul style="list-style-type: none"> Exploration Results are not reported, therefore no data was aggregated for reporting purposes. No equivalent values are used or reported.
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> 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'). 	<ul style="list-style-type: none"> Exploration Results are not reported. There is no relationship between mineralisation width and grade. The geometry of the mineralisation is reasonably well understood however the pegmatite is not of uniform thickness nor orientation. Consequently, most drilling intersections do not represent the exact true thickness of the intersected pegmatite, although intersections are reasonably close to true thickness in most cases.
Diagrams	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> The relevant plans and sections are included in this document and in Appendix 2.
Balanced reporting	<ul style="list-style-type: none"> Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practised to avoid misleading reporting of Exploration Results. 	<ul style="list-style-type: none"> Exploration Results are not reported.
Other substantive exploration data	<ul style="list-style-type: none"> 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 style="list-style-type: none"> No other exploration data is available.

Criteria	JORC Code explanation	Commentary
<i>Further work</i>	<ul style="list-style-type: none"> • <i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i> • <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i> 	<ul style="list-style-type: none"> • Diamond drill testing beneath the pit will be carried once the pit has been drained of water. • Further mining studies are planned. <p>Alluvial Test Work</p> <p>The 6 samples will be combined into 2 bulk composite samples and examined for further characteristics including but not limited to magnetic and electrostatic responses as well as separation techniques.</p> <p>Further concentration studies are planned.</p>