AVZ Minerals Limited

23 October 2017

INITIAL MINERAL CHARACTERISATION RESULTS POSITIVE FOR

THE MANONO LITHIUM PROJECT

Highlights

- **Initial "mineral characterisation" investigations of the Roche Dure Pegmatite completed, providing important information for Resource Estimation and Pre-feasibility Studies.**

- **Initial results support the potential for high value ore. The mean concentration of Li2O is high and accompanied by a significant presence of tin confirms the potential for lower cost production.**

- **The distribution of lithium grades follows a Normal Distribution, confirming that the Roche Dure Pegmatite is essentially homogenous.**

- **The high degree of homogeneity may permit a wider spacing of drill-holes to define a Mineral Resource and thus potentially reduce the lead-time from drilling to Resource Estimation.**

- **Spodumene confirmed as the lithium mineral species present within the pegmatite.**

AVZ's Executive Chairman, Mr. Eckhof commented *"These results are again confirmation that Manono is a world class project, potentially containing a battery grade product with low levels of detrimental elements such as fluorine, iron and phosphorous, that is expected to be highly sought after for battery production. These initial mineral characterisation results are confined to the Roche Dure pegmatite where a recently drill defined 1,800 metres of strike length will be pattern drilled in the near future."*

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Background

The Manono Lithium Project contains immense pegmatites and the assay results from the preliminary drilling have confirmed that the pegmatites could potentially be the largest hard-rock source of lithium in the world.

AVZ is progressing drilling to define a Mineral Resource, compliant with the 2012 JORC Code, for the Roche Dure Pegmatite. Following this, additional Mineral Resources will be targeted for the other large pegmatites at the project (i.e. the Kyoni, Mpete, Tempete, Carriere De L'Est and Malata pegmatites).

A pre-requisite to defining a Mineral Resource for lithium in a pegmatite is precise knowledge of the mineral species within the pegmatite; grade alone is not sufficient. Although coarse-grained spodumene has been identified with confidence from visual inspection of the drill-core and the assay results corroborate the identification of spodumene, the detailed composition of the pegmatite required verification.

In addition, it is important to understand the concentrations of deleterious elements within the pegmatite, particularly the concentrations of Iron, Phosphorus and Fluorine. High concentrations of these elements in lithium pegmatite ores is undesirable as it adds cost to the processing of lithium minerals and can reduce the amount of lithium extracted.

The need to confirm the mineral species present in the pegmatite, along with a need to understand the proportion of deleterious elements led to the completion of the Initial Mineral Characterisation study for the Roche Dure pegmatite.

Sample Selection Methodology for the Mineral Characterisation

Drill-holes MO17DD001 (235.03m @ 1.66% Li2O & 1001ppm Sn from 24.5m) and MO17DD002 (202.8m @ 1.57% Li2O & 1078ppm Sn from 65.5m) passed through the full thickness of Roche Dure Pegmatite and mostly intersected fresh rock.

The drilling results have been discussed in previous ASX releases (see ASX Announcements 28 July 2017 and 12 September 2017). A total of 444 samples of pegmatite were assayed for a broad suite of elements but not Fluorine, which requires specialised assay methods and is expensive.

Of the 444 samples of pegmatite, 426 samples were of fresh (i.e. unweathered) pegmatite and their assay results were interrogated to determine the mean concentration of iron (expressed as iron (iii) oxide, Fe_2O_3) and phosphorus (expressed as phosphorus (v) oxide, P_2O_5).

From the pulps of the 426 samples of fresh pegmatite, every fifth pulp sample was selected to be submitted for analysis of Fluorine (F) content, resulting in a total of 85 assays of pegmatite for F content. A single sample of greisen peripheral to the Roche Dure Pegmatite was also assayed for F content.

In addition, 11 of the pulps of fresh pegmatite samples, as well as the one sample of greisen peripheral to the Roche Dure Pegmatite, were selected for determination of mineralogy by Quantitative XRD analysis. The 11 pegmatite samples were selected to represent subtly different components of the Roche Dure Pegmatite and thus attain a more comprehensive assessment of the mineralogy of the entire pegmatite.

Discussion of Results

1. Overall Concentrations.

For the 426 samples of fresh Roche Dure Pegmatite, the concentrations of the Lithia or lithium oxide (Li_2O), Tin (Sn), Iron (iii) oxide (Fe_2O_3) and Phosphorus (v) oxide (P_2O_5) were analysed to establish the typical concentrations (Table 1).

Table 1: Concentrations of valuable vs deleterious components

Component	mean concentration	range of concentration	majority composition
lithia (Li_2O)	1.66%	0.05% - 4.63%	70% of samples from 0.86% - 2.45%
tin (Sn)	992ppm	63ppm - 9110ppm	70% of samples from 383ppm - 1490ppm
iron (iii) oxide (Fe_2O3)	1.00%	0.54% - 1.77%	70% of samples from 0.75% - 1.2%
phosphorus (v) oxide (P_2O_5)	0.30%	0.02% - 1.47%	74% of samples from 0.17% - 0.40%

2. Lithium (expressed as lithia, Li_2O) grade distribution

The distribution of lithia concentrations corresponds to a Normal Distribution, which strongly supports the observed overall homogeneity of the Roche Dure Pegmatite.

It is important to note that this homogeneity applies to the pegmatite as a whole, i.e. is a large-scale feature. At smaller scales there are variations in mineral proportions (and thus lithia grades) and there are subtle differences in texture but these differences have a random distribution rather than occurring in distinct zones.

An important consequence of mineralisation being homogenous is that the characteristics of the mineralisation, such as grade, are able to be assumed to be more-or-less consistent, which enables a Mineral Resource to be defined more rapidly.

3. Iron content (expressed as Fe_2O_3)

In nearly all cases, spodumene naturally contains some iron. In addition, there are other minerals within pegmatites that contain iron. High concentrations of iron are deleterious.

The mean concentration of Fe_2O_3 in the Roche Dure Pegmatite is 1.00% and this includes iron that is present in minerals other than spodumene. This iron content is considered to be within the industry accepted range for low iron content.

4. Phosphorus content (expressed as P_2O_5)

Although phosphorus is a deleterious element in spodumene deposits, information on the concentration of P_2O_5 in lithium deposits is not commonly stated. The mean concentration of P_2O_5 in the Roche Dure Pegmatite of 0.30% is considered to be low.

It is important to note that the concentration of P_2O_5 in a spodumene concentrate prepared from the Roche Dure Pegmatite is likely to be less than 0.30%. This is because spodumene contains very little, if any phosphorus; the phosphorus is present in minerals such as apatite that occur with spodumene in the pegmatite. During the preparation of a spodumene concentrate, the phosphorus-bearing minerals will be separated from the spodumene and excluded from the spodumene concentrate. Further test-work will be required to confirm this.

5. Fluorine content.

Fluorine is a deleterious element in spodumene ores because of the possibility of toxic fumes of fluorine or hydrogen fluoride being released during processing of spodumene concentrates to extract lithium.

Fluorine assays have been completed for 85 samples of pegmatite and one sample of greisen from a greisen vein external to the Roche Dure Pegmatite. The Fluorine assay results (along with Li, Li_2O, Sn, Fe_2O_3 and P_2O_5) for these samples are attached at Appendix 1.

The Fluorine concentration in the pegmatite samples ranged from 320ppm F to 2400ppm F, with a mean of 998ppm F (i.e. about 0.10% F). This is considered to be low and compares favourably with mined lithium pegmatites for which the F content is accessible to the public.

The results from these 85 samples are considered to be representative of the entire pegmatite because the mean concentrations of P2O5 and Fe2O3 for the 85 samples match the mean concentrations of P2O5 and Fe2O3 for the entire pegmatite. This is further evidence of the homogeneity of the Roche Dure Pegmatite.

6. Mineral composition

The Quantitative XRD determinations confirmed the impression gained through inspection of the drill-core that lithium mineralisation is comprised entirely of spodumene, although lepidolite (a lithium mica) was identified in the sample of greisen (Appendix 1).

Most of the pegmatite sampled in this initial characterisation work (from drill holes MO17DD001 and MO17DD002 in the Roche Dure pegmatite) consists of a mixture having the following approximate composition:

- 32% quartz,
- 30% albite feldspar,
- 5% microcline feldspar,
- 8% muscovite mica,
- 20% spodumene and
- 5% “amorphous material” (non-diffracting and thus unidentifiable material).

The low proportion of mica in the Roche Dure Pegmatite is favourable because it reduces the degree of mica-contamination during the production of spodumene concentrates.

Conclusions

Based on this initial characterisation work (from drill holes MO17DD001 and MO17DD002) at the Roche Dure Pegmatite, the following characteristics are evident:

- The lithium within the pegmatite is entirely (or almost entirely) contained within spodumene.
- The general composition of the pegmatite is restricted to a small number of minerals, i.e. a relatively simple composition.
- The pegmatite is a homogenous LCT Albite-spodumene pegmatite having a low mica content.
- The mean concentration of Li_2O is high and accompanied by significant Sn
- The mean concentrations of "penalty" elements is low.

These characteristics enhance the potential to define a world-class lithium resource within the Roche Dure Pegmatite.

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Competent Persons Statement

The information in this report that relates to Exploration Results is based on information compiled by Mr. Peter Spitalny, a Competent Person whom is a Member of the Australasian Institute of Mining and Metallurgy. Mr. Spitalny is a full-time employee of Hanree Holdings Pty Ltd. Mr Spitalny 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 Spitalny consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

APPENDIX 1

XRD Results for 12 Samples Analysed

Sample I.D.	Type of mineralisation	% qtz (XRD)	% alb (XRD)	% mcl (XRD)	% msc (XRD)	% lpd (XRD)	% spd[1] (XRD)	% cst (XRD)	% brl (XRD)	% non-diffracting[2]	Li_2O* (%)	Sn (ppm)	Unit & proportion
28576	Pegmatite containing very high proportion of spodumene	31.2	4.7	1.9	8.4		**45.4**			8	4	540	V H-grade (about 5% of the pegmatite)
28844	Pegmatite containing very high proportion of spodumene	33.2	4.5		3.1		**54**			5.3	4.41	330	as above
29034	Pegmatite containing a high proportion of the spodumene	30.1	22	9.6	6.4		**28.5**		0.5	3	2.24	603	transitional to H-grade but part of the main unit
28654	Pegmatite containing a moderate amount of spodumene	38.3	24.2	4.3	12		**17.9**		0.6	2.8	1.64	731	Moderate grade (about 70% of the pegmatite)
28889	Pegmatite containing a moderate amount of spodumene	29.9	33.4	4.2	8.5		**20.3**	0.06*	0.4	3.4	1.68	941	as above
28930	Pegmatite containing a moderate amount of spodumene	32.3	25.2	10.9	8.6		**17.9**	0.08*		5.1	1.55	1050	as above
28758	Pegmatite with some aplite and a low to moderate amount of	27.6	43		12.1		**15.9**		0.4	0.9	1.33	1040	as above but with some aplite
29025	Pegmatite with some aplite and a low to moderate amount of	29.3	42.4	4.4	7.5		**8.2**	0.2	1	7	0.77	3180	Low grade (about 11%of the pegmatite) but
28966	Pegmatite in which some of the spodumene is altered	26.1	30	22.4	7.8		**9.5**	0.08*	0.6	3.6	0.8	1220	Low grade (about 11% of the pegmatite). Li -
28782	Pegmatite in which all of the spodumene is strongly altered and is green	35.1	34	18.5	8.3					4.1	0.05	1050	Very low grade (about 5% of the pegmatite). Li- loss due to alteration
28728	Pegmatite that is mica-rich and strongly altered with little or no spodumene	41.2	21.9	0.3	19.1				1.1	16.4	0.34	232	as above but also lacking primary Li minerals
28790	Greisen peripheral to the Roche Dure Pegmatite	53	3.8		11.4	14.8		4.1		13.1	0.05	70400	

NB: Hydrothermal alteration can affect spodumene to leach lithium from it and create an amorphous-looking alteration product. This would explain why the XRD failed to detect spodumene in sample 28782; the spodumene had been intensely altered.

Key to abbreviations: qtz = quartz; alb = albite; mcl = microcline; lpd = lepidolite; spd[1] = alpha spodumene; cst = cassiterite; brl = beryl; non-difracting[2] = amorphous, unidentified material.

APPENDIX 2
Assay Results for 86 samples analysed for Fluorine content.

Drill-hole I.D.	From(m)	To(m)	Length (m)	Sample ID	Li % 0.01	Li_2O* % 0.01	Sn ppm 5	Fe2O3 % 0.01	P2O5 % 0.01	F ppm 20
MO17DD001	35	36	1.00	28534	1.670	3.596	560	1.11	0.11	1290
MO17DD001	39	40	1.00	28540	0.410	0.883	1280	0.83	0.05	910
MO17DD001	44	45	1.00	28545	0.588	1.266	1180	1.03	0.37	2400
MO17DD001	49	50	1.00	28551	0.638	1.374	1180	0.58	0.21	360
MO17DD001	53.5	54.5	1.00	28556	1.645	3.542	1110	1.11	0.21	490
MO17DD001	57	58	1.00	28560	0.830	1.787	1080	0.83	0.16	630
MO17DD001	62	63	1.00	28566	0.599	1.290	1280	0.75	0.3	560
MO17DD001	67	68	1.00	28571	0.954	2.054	3060	1.05	0.39	1320
MO17DD001	72	73	1.00	28576	1.855	3.994	540	1.29	0.37	2070
MO17DD001	77	78	1.00	28582	1.030	2.218	1410	1.06	0.21	1420
MO17DD001	82	83	1.00	28587	1.145	2.465	687	1.1	0.42	830
MO17DD001	87	88	1.00	28592	0.992	2.136	760	1.08	0.24	910
MO17DD001	92	93	1.00	28598	0.875	1.884	924	0.96	0.35	1010
MO17DD001	97	98	1.00	28604	0.105	0.226	205	0.71	0.41	960
MO17DD001	102	103	1.00	28609	1.450	3.122	837	1.15	0.13	1210
MO17DD001	107	108	1.00	28615	1.055	2.271	1340	1.08	0.27	710
MO17DD001	112	113	1.00	28620	1.005	2.164	826	1.19	0.37	1300
MO17DD001	117	118	1.00	28625	0.872	1.877	910	1.1	0.23	920
MO17DD001	122	123	1.00	28631	0.699	1.505	1260	1.14	0.37	1460
MO17DD001	127	128	1.00	28636	0.874	1.882	869	1	0.23	920
MO17DD001	131	132	1.00	28641	0.871	1.875	1115	0.86	0.21	590
MO17DD001	136	137	1.00	28646	0.045	0.097	125	0.54	0.3	320
MO17DD001	141	142	1.00	28652	1.325	2.853	599	1.07	0.19	720
MO17DD001	146	147	1.00	28657	0.620	1.335	734	1.13	0.45	630
MO17DD001	151	152	1.00	28663	0.537	1.156	9110	1.03	0.54	1650
MO17DD001	156	157	1.00	28669	0.578	1.244	968	0.95	0.31	790
MO17DD001	161	162	1.00	28674	1.145	2.465	1130	0.91	0.18	410
MO17DD001	166	167	1.00	28679	0.735	1.582	1620	0.91	0.35	700
MO17DD001	171	172	1.00	28685	0.793	1.707	852	0.96	0.27	980
MO17DD001	176	177	1.00	28690	0.990	2.131	228	0.99	0.39	930
MO17DD001	181	182	1.00	28695	0.672	1.447	1890	0.97	0.27	820
MO17DD001	186	187	1.00	28701	0.755	1.626	2820	1.04	0.25	810
MO17DD001	191	192	1.00	28706	0.820	1.765	727	1.12	0.18	720
MO17DD001	196	197	1.00	28712	0.611	1.315	2450	0.92	0.23	970
MO17DD001	201	202	1.00	28717	1.090	2.347	454	1.07	0.18	1100
MO17DD001	206	207	1.00	28723	0.662	1.425	497	1.16	0.39	1140
MO17DD001	211	212	1.00	28729	1.090	2.347	280	1.23	0.07	1570
MO17DD001	216	217	1.00	28734	0.883	1.901	192	1.07	0.44	1250
MO17DD001	221	222	1.00	28740	0.853	1.837	282	0.94	0.37	1000
MO17DD001	226	227	1.00	28745	0.948	2.041	425	1.02	0.27	700
MO17DD001	231	232	1.00	28751	0.474	1.021	679	0.9	0.41	1050
MO17DD001	236	237	1.00	28756	1.020	2.196	950	0.97	0.18	970
MO17DD001	251	252	1.00	28773	0.822	1.770	1280	1.17	0.23	1410

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Drill-hole I.D.	From(m)	To(m)	Length (m)	Sample ID	Li	Li_2O*	Sn	Fe2O3	P2O5	F
					%	%	ppm	%	%	ppm
					0.01	0.01	5	0.01	0.01	20
MO17DD001	256	257	1.00	28778	0.673	1.449	1670	0.77	0.23	750
MO17DD001	261	262	1.00	28783	0.025	0.054	680	1.04	0.07	320
MO17DD002	78	79	1.00	28846	0.860	1.852	924	0.87	0.25	710
MO17DD002	83	84	1.00	28852	0.280	0.603	1480	0.76	0.32	860
MO17DD002	88	89	1.00	28857	0.690	1.486	868	0.92	0.21	520
MO17DD002	93	94	1.00	28862	0.470	1.012	1110	0.7	0.37	1020
MO17DD002	98	99	1.00	28868	0.370	0.797	1040	0.9	0.34	800
MO17DD002	103	104	1.00	28874	0.830	1.787	1440	0.93	0.32	1010
MO17DD002	108	109	1.00	28879	0.620	1.335	1350	0.94	0.3	1050
MO17DD002	113	114	1.00	28885	0.210	0.452	1390	0.84	0.32	830
MO17DD002	118	119	1.00	28890	0.790	1.701	1190	1.02	0.27	1010
MO17DD002	123	124	1.00	28896	0.570	1.227	1070	0.79	0.16	610
MO17DD002	128	129	1.00	28901	0.150	0.323	565	0.61	0.25	900
MO17DD002	133	134	1.00	28907	0.650	1.399	691	1.09	0.48	930
MO17DD002	138	139	1.00	28912	0.660	1.421	333	0.79	0.34	890
MO17DD002	143	144	1.00	28918	0.310	0.667	548	0.59	0.37	530
MO17DD002	148	149	1.00	28923	0.980	2.110	606	1.06	0.32	770
MO17DD002	153	154	1.00	28929	1.110	2.390	1120	0.89	0.27	760
MO17DD002	158	159	1.00	28935	0.470	1.012	298	0.67	0.23	430
MO17DD002	163	164	1.00	28940	0.910	1.959	676	1.07	0.32	940
MO17DD002	168	169	1.00	28946	0.290	0.624	417	1.27	0.37	1480
MO17DD002	173	174	1.00	28951	0.560	1.206	636	0.83	0.25	980
MO17DD002	178	179	1.00	28957	0.460	0.990	120	0.99	0.46	1450
MO17DD002	183	184	1.00	28963	0.990	2.131	358	1.3	0.25	1210
MO17DD002	188	189	1.00	28968	1.090	2.347	580	0.94	0.16	520
MO17DD002	193	194	1.00	28974	0.660	1.421	958	1.22	0.34	1260
MO17DD002	198	199	1.00	28979	0.940	2.024	1030	0.96	0.41	900
MO17DD002	203	204	1.00	28985	0.950	2.045	872	1.19	0.39	1450
MO17DD002	208	209	1.00	28990	1.210	2.605	2470	1.13	0.27	910
MO17DD002	213	214	1.00	28996	0.600	1.292	273	1.06	0.42	1520
MO17DD002	218	219	1.00	29001	0.610	1.313	166	1.29	0.75	1160
MO17DD002	223	224	1.00	29007	0.640	1.378	1040	1.02	0.47	1200
MO17DD002	228	229	1.00	29012	0.620	1.335	218	1.14	0.36	1470
MO17DD002	233	234	1.00	29018	0.520	1.120	1400	1.09	0.37	900
MO17DD002	238	239	1.00	29023	0.180	0.388	1170	1.16	0.17	1740
MO17DD002	243	244	1.00	29028	0.590	1.270	1640	0.81	0.41	1570
MO17DD002	248	249	1.00	29034	1.040	2.239	603	0.99	0.24	880
MO17DD002	253	254	1.00	29039	0.330	0.710	3390	0.77	0.18	1100
MO17DD002	258	259	1.00	29045	0.910	1.959	1160	1.04	0.28	1080
MO17DD002	263	264	1.00	29050	0.760	1.636	1050	0.97	0.31	1420
85 samples; 20% of fresh pegmatite samples										
MO17DD001	285.35	286	0.65	28789	0.025	0.054	15400	0.89	0.16	1280
1 sample of fresh greisen										

JORC Code, 2012 Edition – Table 1
Section 1 *Sampling Techniques and Data*
(Criteria in this section apply to all succeeding sections.)

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 analysed samples were pulps remaining from analysis of drill-core samples. 86 pulp samples were analysed for F content and 12 pulp samples were analysed using Quantitative Powder XRD.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	The pulps are representative of the original drill-core samples. The samples were selected to ensure that they were as representative of the pegmatite as was possible.
	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 1m 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.	The pulps were sub-sampled to provide the required quantity of material for the respective tests. For each of the 86 pulps being tested for F content, a 5g sub sample was taken. For each of the 12 samples being analysed by Quantitative Powder XRD, a 2.7g sub sample was taken which was then micronized.
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.).	This information release does not focus upon drilling results, which have been discussed in previous information releases.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
	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.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
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.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography	This information release does not focus upon drilling results, which have been discussed in previous information releases.
	The total length and percentage of the relevant intersections logged.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
Sub-sampling	If core, whether cut or sawn and	This information release does not focus upon drilling

techniques and sample preparation	whether quarter, half or all core taken.	results, which have been discussed in previous information releases.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The samples from the trench were collected as channel samples comprised of rock-chips. The bagged samples were sent to SGS Lubumbashi (DRC) where they were crushed and pulverized to a pulp. A 120g subset was split from the pulp and sent to SGS Randfontein (RSA) for analytical determination.
	Quality control procedures adopted for all subsampling stages to maximise representivity of samples.	Standard sub-sampling procedures are utilized by ALS (for the F assays) and the Queensland University of Technology (for the XRD analysis) at all stages of sample preparation such that each sub-sample split is representative of the pulp it was derived from.
	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	A comprehensive QA/QC strategy was implemented for the drilling which produced the original samples to ensure the samples were representative and the reliability of assay results could be assessed. The samples from drilling were pulverized, which homogenizes the sample. All standard sub-sampling procedures were followed to ensure that sub-sampling of the pulps did not introduce sample bias.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The pulps are comprised of pulverized material have a particle size of less than 75 microns and have been homogenized. A 5g or a 2.7g sub-sample taken from a pulp sample of 20g-50g will be representative of the pulp.
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.	The pulp samples to be assayed for F content were analysed using method F-IC881, which consists of potassium hydroxide fusion followed by ion chromatography. This is a total digest and is the appropriate method of determining F content. The pulp samples to be analysed by Quantitative XRD were micronized so that the mean particle size was reduced to 5 microns. This extremely fine particle size greatly increases the accuracy of the XRD determination.
	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.	Quantitative Powder XRD was completed on 12 samples of mass 2.7g which had been micronized in a McCrone Mill to produce a homogenous ultra fine-grained powder in which the mean particle size was 5 microns. Step scanned x-ray diffraction patterns were collected for half an hour per sample using a PANalytical X'PertPro powder diffractometer and cobalt K alpha radiation operating in Bragg-Brentano geometry. The collected data was analysed using JADE (V2010, Materials Data Inc.) and X'Pert Highscore Plus (V4, PANalytical) with various reference databases (PDF4+, AMCSD, COD) for phase identification. Rietveld refinement was performed using TOPAS (V5, Bruker) for quantitative phase analysis. An absorption contrast correction (Brindley) was made.
	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.	As sampling undertaken was of a first pass nature, laboratory introduced standards, blanks and repeats were relied upon.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	No verification exploration work has so far been undertaken.
	The use of twinned holes.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	The data from previous exploration are currently stored in hardcopy and digital format on site. A hard drive copy of this is located at the administration office in country and all data is uploaded to the GIS consultants' database in Perth, WA.

	Discuss any adjustment to assay data.	The results of F concentration have not been altered but have been merged with previously reported assay results.
Location of data points	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.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
	Specification of the grid system used.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
	Quality and adequacy of topographic control.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	This information release does not focus upon drilling results, which have been discussed in previous information releases. Instead, it focuses upon the detailed composition of the samples derived from the drilling.
	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 85 samples analysed for F content comprise every fifth sample of unweathered pegmatite and cover the entire intervals of unweathered pegmatite intersected by drill-holes MO17DD001 and MO17DD002. This is 20% of the total number of samples of unweathered pegmatite and is considered representative of the pegmatite as a whole. For the Quantitative XRD, the samples were selected to ensure that all the different modes of mineralisation were analysed.
	Whether sample compositing has been applied.	The analysed samples are not composite samples.
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 samples were obtained from drill-holes that passed through the entire thickness of the pegmatite. Care was taken to ensure that all modes of mineralisation were sampled and that samples were analysed from throughout the intersected pegmatite.
	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.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
Sample security	The measures taken to ensure sample security.	Chain of custody has been maintained by ALS.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	The sampling techniques and data have been reviewed and the assay results are believed to give a reliable indication of the Fluorine mineralisation within the samples. Similarly, the spread of samples representing modal differences that were analysed by Quantitative XRD is adequate to ensure that the inferred overall composition of the pegmatite is considered reliable.

Section 2 Reporting of Exploration Results

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

Criteria	**JORC Code Explanation**	**Commentary**
Mineral tenement and land tenure status	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 Manono licence has been recently awarded as a Research Permit PR 13359 issued on the 28th December 2016 and valid for 5 years. All indigenous title is cleared and there are no other known historical or environmentally sensitive areas.
	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.	See above, no other known impediments.

Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Within PR13359 exploration of relevance was undertaken by Geomines whom completed a program of drilling between 1949 and 1951. The drilling consisted of 42 vertical holes drilled to a general depth of around 50 to 60m and reaching the -80m level. Drilling was carried out on 12 sections at irregular intervals ranging from 50m to 300m, and over a strike length of some 1,100m. Drill spacing on the sections varied from 50 to 100m. The drilling occurred in the RD Pit only, targeting the fresh pegmatite in the Kitotolo sector of the project area. The licence area has been previously mined for tin and tantalum including "coltan" through a series of open pits over a total length of approximately 10km excavated by Zairetain sprl. More than 60Mt of material was mined from three major pits and several subsidiary pits. 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. Apart from the mining excavations and the drilling program, there has been very limited exploration work within the Manono extension licences.

Geology	Deposit type, geological setting and style of mineralisation.	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 comprises 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 My ago) is assigned to the Katangan cycle and is associated with widespread vein and pegmatite mineralization 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-echalon arrangement in a linear zone more than 12km 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.
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.	This information release does not focus upon drilling results, which have been discussed in previous information releases.

	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.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
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.	Results discussed in this release have not been reported as weighted averages and cut-off grades have not been utilized.
	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.	Results discussed in this release have not been reported as aggregate intersections
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Results discussed in this release have not been reported as metal equivalent values
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	This information release does not focus upon drilling results, which have been discussed in previous information releases.
	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').	This information release does not focus upon drilling results, which have been discussed in previous information releases.
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.	This information release does not focus upon drilling results, which have been discussed in previous information releases.
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.	Assay results discussed in this release have either been reported previously, accompanied by complete appendices listing the results, or are included in the appendix attached to this report. Assay results have been discussed as ranges and means and the typical values are stated.
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.	Information of this type will be reported as it is generated by the company.
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).	Information of this type will be reported as it is generated by the company.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not	Information of this type will be reported as it is generated by the company.

	commercially sensitive.	