

23 February 2026

HIGH-GRADE HEAVY RARE EARTHS CONFIRMED WITH ASSAYS UP TO 3.73% TREO AT VIRGIN MOUNTAIN, USA

HIGHLIGHTS

USA

- **High-grade results up to 3.73% TREO** have been returned from Lodestar's 2025 reconnaissance sampling over the Virgin Mountain Rare Earth Element (REE) Project in Arizona, USA.
- **Proven high proportion of Heavy Rare Earth Elements (including valuable elements Dysprosium, Terbium and Lutetium)** with over double the previous reported grade (refer ASX announcement 27th October 2025).
- **Heavy Rare Earth Oxides comprise up to 64% of Total Rare Earth Oxide (TREO) consistent across mineralised samples.**
- **A significant REE mineralised structure has been identified at Virgin Mountain with two areas of surface exposure over 225 metres correlating with a 5-kilometre structural trend**
- Assays from reconnaissance **rock chip** samples over the primary structural trend collected by Lodestar Minerals in late 2025 include:
 - CA050, **3.73% TREO**, containing **48% HREO** and **17% Nd/Pr**
 - CA052, **1.81% TREO**, containing **58% HREO** and **14% Nd/Pr**
 - CA049, **1.67% TREO**, containing **62% HREO** and **13% Nd/Pr**
 - CA053, **1.41% TREO**, containing **64% HREO** and **12% Nd/Pr**
 - CA051, **1.00% TREO**, containing **50% HREO** and **16% Nd/Pr**
- Mineralogical studies are pending with results expected in March.
- **High proportion of HREE strengthens U.S. supply chain relevance:** presence of dysprosium, terbium and lutetium at the Virgin Mountain Project positions Lodestar Minerals as a potential supplier of critical heavy rare earths, which are scarce outside China and central to Western efforts to secure independent supply chains.
- **High-value heavy rare earth elements essential for magnets, defence and clean energy –** Dysprosium and terbium are key inputs in high-performance magnets used in EV motors, wind turbines, advanced electronics and defence systems, while lutetium has specialist uses in medical imaging and catalysts, underscoring strong structural demand across future-facing industries.
- Premium HREE results at Virgin Mountain **enhances the project's strategic value and potential to attract partnerships and funding.**

CHILE

- **Three Saints Project:** Diamond drilling in progress – first assays expected this quarter

Lodestar Minerals Limited (“LSR” or “the Company”) (ASX: LSR) is pleased to announce high grade Rare Earth Element assay results from the recently completed surface sampling at its 100% owned Virgin Mountain Project, located in the state of Arizona in the USA.

Commenting on the results, Lodestar Executive Director and Head of Exploration Coraline Blaud said: “Reconnaissance sampling at Virgin Mountain has exceeded our expectations, with the Company’s initial sampling returning higher heavy rare earth grades than previously reported in historical sampling. The consistently elevated levels of HREO, particularly the highly sought after elements dysprosium, terbium, and lutetium, reinforce the project’s potential to host a strategically significant heavy rare earth system that can contribute to a reliable domestic supply chain in the USA.

It is particularly encouraging that, even with limited outcrop exposure, we have been able to define a clear structural trend which provides an exciting target for follow-up exploration. Field observations have validated the interpreted five-kilometre structural trend, substantially expanding the potential scale of the mineralised system. With mineralogical work expected in the coming weeks, we look forward to rapidly advancing exploration at the Virgin Mountain REE Project.”

Disclaimer: All the samples discussed above are selective in nature with a high potential for bias and should not be considered as being representative of the overall mineralised structure or zone.

For personal use only

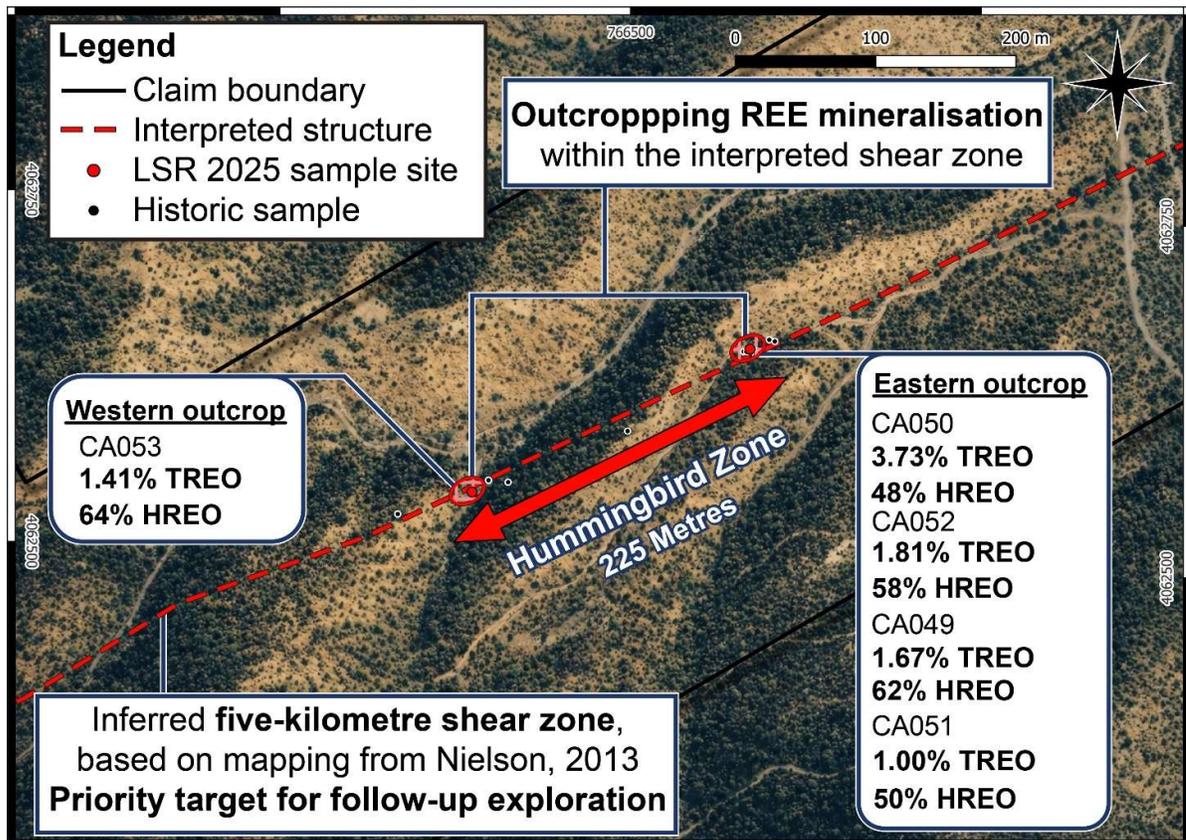


Figure 1: Prospect-scale view of reconnaissance sample results over mapped shear zone

Site Reconnaissance Results

The reconnaissance programme at the Virgin Mountain REE Project aimed to validate existing Rare Earth Element (REE) mineralisation and identify the structural controls on mineralisation. Geological mapping and radiation surveying (Geiger counter) were conducted over the REE mineralised structural trend at the Hummingbird prospect. **Two REE mineralised priority areas have been identified** based on the surface exposure of the structural trend and surface sampling. Initial assays from these two locations returned **over double the reported historic total rare earth oxide (TREO) grade** (refer ASX announcement 27th October 2025).

(The TREO (Total Rare Earth Oxide) is calculated from the addition of La₂O₃, CeO₂, Pr₆O₁₁, Nd₂O₃, Sm₂O₃, Eu₂O₃, Gd₂O₃, Tb₄O₇, Dy₂O₃, Ho₂O₃, Er₂O₃, Tm₂O₃, Yb₂O₃, Y₂O₃, and Lu₂O₃. Note that Y₂O₃ is included in the TREO calculation. HREO% is determined by the formula: $HREO\% = \frac{[Sm_{2}O_{3}+Eu_{2}O_{3}+Gd_{2}O_{3}+Tb_{4}O_{7}+Dy_{2}O_{3}+Ho_{2}O_{3}+Er_{2}O_{3}+Tm_{2}O_{3}+Yb_{2}O_{3}+Y_{2}O_{3}+Lu_{2}O_{3}]}{[La_{2}O_{3}+CeO_{2}+Pr_{6}O_{11}+Nd_{2}O_{3}+Sm_{2}O_{3}+Eu_{2}O_{3}+Gd_{2}O_{3}+Tb_{4}O_{7}+Dy_{2}O_{3}+Ho_{2}O_{3}+Er_{2}O_{3}+Tm_{2}O_{3}+Yb_{2}O_{3}+Y_{2}O_{3}+Lu_{2}O_{3}]} \times 100$)

Table 1: Significant Samples

Full results for all Lodestar and Historical samples are available in Table 2.

Sample ID	Sample Type	Rock Type	TREO	:HREO
CARK049	Grab sample	Intrusive	3.73%	48%
CARK050	Grab sample	Intrusive	1.81%	58%
CARK051	Grab sample	Intrusive	1.67%	62%
CARK052	Grab sample	Intrusive	1.41%	64%
CARK053	Grab sample	Intrusive	1.00%	50%

As a comparison, historical results had a maximum of 1.26% TREO and a content of 57% :HREO.

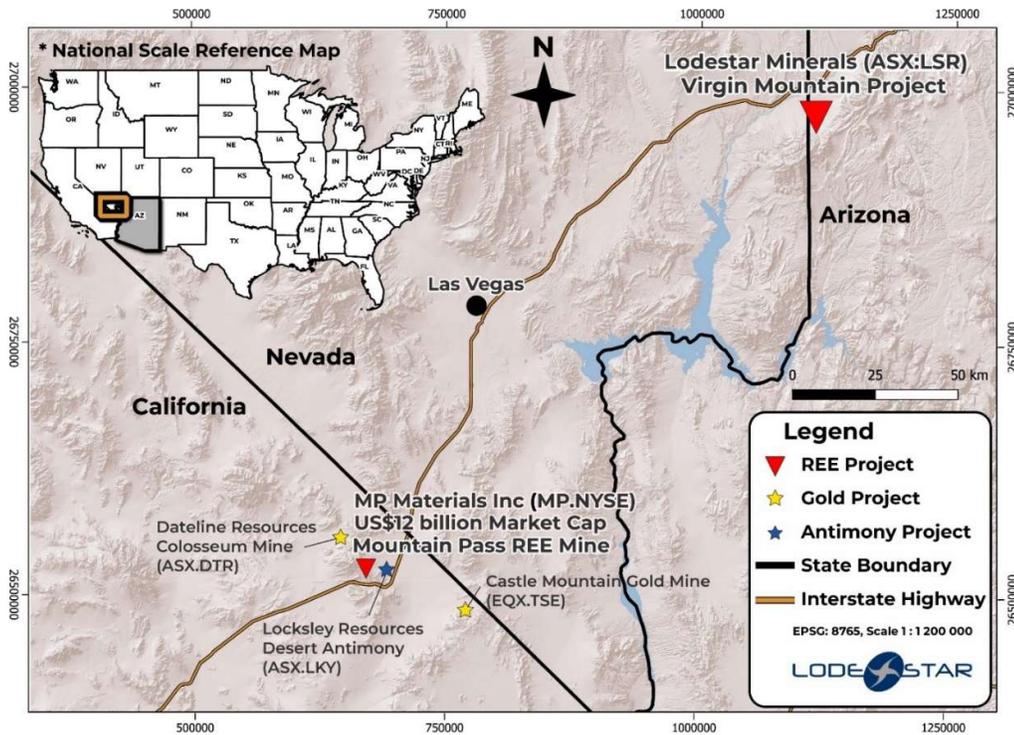


Figure 2: Regional-scale view of Project Location, including National reference map

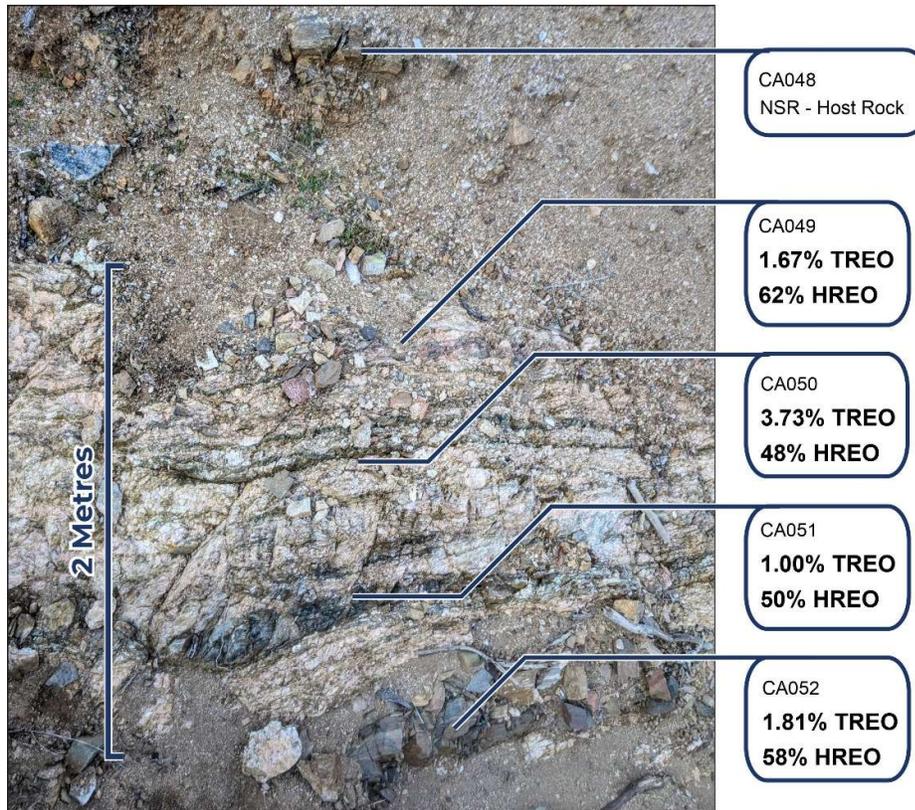


Figure 3: Sample Location of CA048 - 52, mineralogical X-section of mineralised intrusive

Most of the area is covered by alluvial material with limited surface exposure. The mineralised structure was observed at two locations over 225 metres apart. The western exposure of the mineralised structure (See Figure 4) contained collapsed shafts and small pits from historical Uranium exploration, while the ‘Hummingbird’ exposed structure sits to the east (See Figure 3).

The observed foliation and outcrop sit within a documented structural trend/shear zone which stretches over 5 kilometres¹ (see Figure 1). This major structure offers substantial potential to host additional mineralisation. Determining the role this structure plays in the Virgin Mountain REE mineral system will be a fundamental step towards determining the scale of the mineralised system.

Mineralogy

In addition to the geochemical samples, each site has been sampled for mineralogical studies in order to confirm the presence and nature of REE minerals with a proven processing pathway (primarily likely to be Xenotime, Monazite, and Bastnäsite for this mineral system). In the primary exposed zone, a series of mineralised samples were taken across the structure to confirm any lithological variation, as well as an additional sample of the proximal host rock (CA048) as a reference. Results from the mineralogical study are pending, and expected in March.

¹ Nielson 2013, P-T Constraints of Orthogneiss, Metapelites, and Ultra-Mafic Lenses Located in the Virgin Mountains of Northwestern Arizona, The Compass: Earth Science Journal of Sigma Gamma Epsilon, Vol. 85, Article 2 P.13



Figure 4: Sample Location of CA053, proximal to historic Uranium workings

Next steps

Upcoming work will focus on determining the full potential extent of REE mineralisation along the 5km structural trend. The reconnaissance sampling has provided sufficient encouragement for Lodestar to plan a targeted material exploration campaign.

Initial follow-up will involve compiling applicable geophysical data and conducting fieldwork in the coming months, following the melting of the snow cover, to investigate the structure of interest and potential extensions of mineralisation under alluvial cover.

This work program will provide the foundation for future drill planning and/or other ground-disturbing activities.

CHILE – Three Saints drilling

As announced on 4th February 2026, drilling at Three Saints is in progress, following the completion of the RC precollar, a diamond rig has been mobilised and has commenced drilling with a current target depth of 500m.

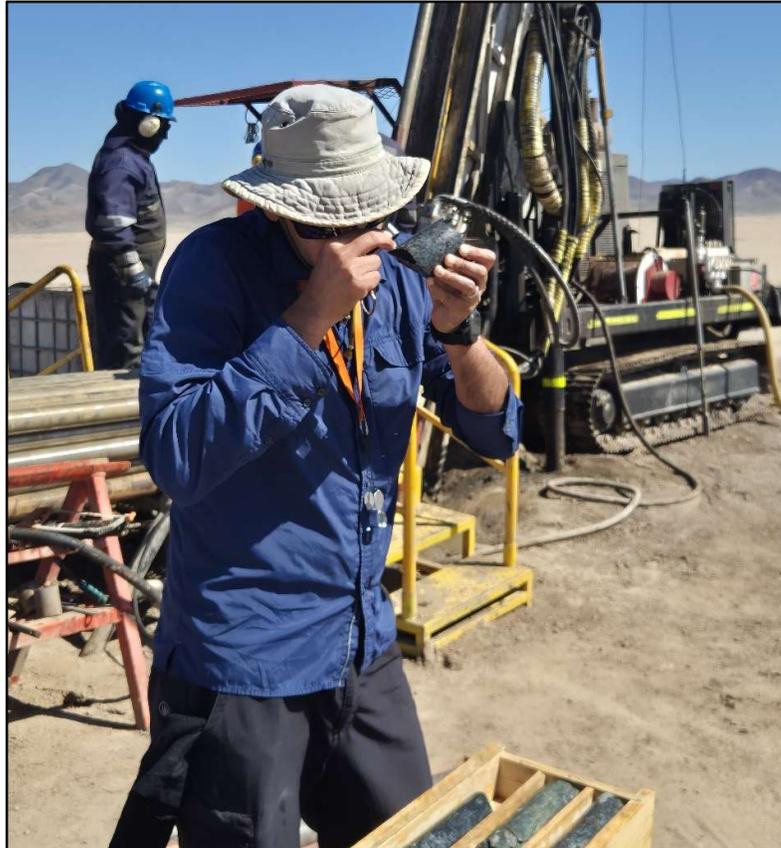


Figure 5: Technical Advisor Gonzalo Henriquez on-site at the Three Saints Project

For personal use only

Table 2 – Summary of Rare Earth Element assay results

Company	Sample ID	Northing	Easting	Sample Type	Rock Type	CeO ₂ ppm	Dy ₂ O ₃ ppm	Er ₂ O ₃ ppm	Eu ₂ O ₃ ppm	Gd ₂ O ₃ ppm	Ho ₂ O ₃ ppm	La ₂ O ₃ ppm	Lu ₂ O ₃ ppm	Nd ₂ O ₃ ppm	Pr ₆ O ₁₁ ppm	Sm ₂ O ₃ ppm	Tb ₄ O ₇ ppm	Tm ₂ O ₃ ppm	Y ₂ O ₃ ppm	Yb ₂ O ₃ ppm	TREO %	Th ppm	U ppm
Lodestar	CARK048	766592.5	4062653	grab sample	Intrusive	58.59	6.31	2.06	0.46	5.42	0.92	27.56	0.34	24.96	6.52	4.87	0.80	0.34	28.19	2.05	10.90	2.80	5.42
Lodestar	CARK049	766592.5	4062653	grab sample	Intrusive	3080.58	918.50	537.67	8.11	690.98	195.88	1213.61	51.17	1710.29	394.72	490.74	135.68	68.41	6810.85	389.09	1112.10	382.20	690.98
Lodestar	CARK050	766592.5	4062653	grab sample	Intrusive	9491.97	1678.86	863.80	16.33	1568.46	329.90	3752.73	81.98	5117.00	1199.26	1374.59	275.70	109.76	10856.38	630.95	3362.70	685.90	1568.46
Lodestar	CARK051	766592.5	4062653	grab sample	Intrusive	2393.78	475.72	259.80	5.21	406.29	94.50	953.72	25.36	1286.42	301.33	346.84	74.01	33.92	3116.33	188.91	827.20	170.20	406.29
Lodestar	CARK052	766592.5	4062653	grab sample	Intrusive	3665.67	939.05	536.30	7.64	776.16	199.20	1461.19	52.19	2076.19	467.69	586.99	142.65	67.95	6768.57	372.81	1276.40	410.00	776.16
Lodestar	CARK053	766397.5	4062545	grab sample	Intrusive	2448.32	794.67	491.48	11.58	533.42	176.18	912.56	54.24	1357.46	319.45	366.32	113.75	65.56	6093.87	389.78	1547.30	366.30	533.42

For personal use only

About Lodestar

Lodestar Minerals is an active critical metals, gold and base metals explorer. In addition to the Virgin Mountain Project, Lodestar's projects include the recent acquisition of the Los Loros Porphyry Cu-Mo & Au Project and the Three Saints Copper & Gold projects in Chile, and the the 100% owned the Ned's Creek Gold and Earahedy projects in Western Australia (Figure 6).

Lodestar also has exposure to lithium via its 27.5M performance rights in ORE Resources (ASX:OR3) (previously known as Future Battery Minerals, ASX: FBM) who own the Coolgardie Lithium Projects.



Figure 6, Global map of Lodestar Projects

This announcement has been authorised by the Board of Directors of the Company.

-ENDS-

Contacts

Coraline Blaud
Executive Director info@lodestarminerals.com.au +61 8 9435 3200

Competent Person Statement

The information in this report that relates to Exploration Results is based on information compiled by Fionnlagh (Finn) Hunter, Principal Geological Consultant, who is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Hunter consents to the inclusion in this report of the matters based on the information in the form and context in which it appears.

This announcement is available to view on the Lodestar website. The company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

For personal use only

JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. 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 (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information. 	<ul style="list-style-type: none"> Samples collected include in situ material, rock chip samples are collected from outcropping rock. A total of 6 rock chip grab samples were taken. Typically, all samples exceed 1 kg. Samples were placed in labelled plastic bags, zip sealed and shipped directly to Intertek Laboratories Tuscon, Arizona, USA, for sample preparation and shipped to Perth, Australia for geochemical analysis. In the field, a Ranger Gieger counter was used to provide semi-quantitative measure of background radiation. Additionally, a Vanta XRF was used to assist site selection, which was calibrated daily. Rock chip samples have been collected to test for mineralization identified in outcrop, hence they may represent high grade samples, and are not considered an unbiased sample.
Drilling techniques	<ul style="list-style-type: none"> Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face- sampling bit or other type, whether core is oriented and if so, by what method, etc). 	<ul style="list-style-type: none"> Not applicable – no drilling carried out.
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"> Not applicable – no drilling carried out.
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"> Geology, alteration and structure were recorded at selected sample sites. These records are qualitative in nature.

For personal use only

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	<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"> Not applicable – no drilling carried out. Not applicable – no drilling carried out. Sample preparation follows industry standard practice. Samples were prepared by SP02 at Intertek Laboratories, sample preparation follows industry standard practice Samples were pulverised and rotary divided to obtain a charge. No duplicate sampling nor analytical checks were performed for any sampling except the laboratory-originated standards and repeats for internal QAQC purposes for geochemical analysis. Sample sizes greater than 1 kg are considered appropriate for the style of mineralization.
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. 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. Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established. 	<ul style="list-style-type: none"> Samples were assayed by Intertek Laboratories Perth, Australia. All samples underwent ICP MS QQQ analysis of a 0.5 g sub-sample after lithium borate digestion for 25 elements (lab code: FB6/MS34). In the field, a Ranger radiation detector was used to provide semi-quantitative measure of background radiation. This is not indicative of direct detection. Additionally, a Vanta XRF was used to assist site selection, which was calibrated daily. Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in-house procedures. These results have passed laboratory and internal standards for this phase of exploration.
Verification of sampling and assaying	<ul style="list-style-type: none"> The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes. Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. Discuss any adjustment to assay data. 	<ul style="list-style-type: none"> Verification of significant results by more than one company geologist. Not applicable – no drilling carried out. Field and laboratory data were collected electronically and entered into an Excel spreadsheet, which was then loaded into the company database. Adjustments made to the assay data were limited to the conversion of reported elemental assays for a range of elements to the equivalent oxide compound as applicable to rare earth oxides. In all instances the original element data will be stored in the database and the equivalent oxide values loaded into appropriately labelled field identifying them as calculated values. Selected checks on these calculated fields did not identify any issues. The oxides were calculated from the element according to the following factors: CeO₂ – 1.2284, Dy₂O₃ – 1.1477, Er₂O₃ – 1.1435, Eu₂O₃ – 1.1579, Gd₂O₃ – 1.1526,

Criteria	JORC Code explanation	Commentary
		<p>Ho2O3 – 1.1455, La2O3 – 1.1728, Lu2O3 – 1.1371, Nd2O3 – 1.1664, Pr6O11 – 1.2082, Sm2O3 – 1.1596, Tb4O7 – 1.1421, Tm2O3 – 1.1421, Y2O3 – 1.2699, Yb2O3 – 1.1387</p> <p>Ratios of each oxide to Total Rare Earth Oxides (TREO) are used to determine the percentages of heavy (HRE) and light (LRE) rare earth oxides. Rare earth oxide is the industry accepted form for reporting rare earths. The TREO (Total Rare Earth Oxide) is calculated from addition of La2O3, CeO2, Pr6O11, Nd2O3, Sm2O3, Eu2O3, Gd2O3, Tb4O7, Dy2O3, Ho2O3, Er2O3, Tm2O3, Yb2O3, Y2O3, and Lu2O3. Note that Y2O3 is included in the TREO calculation. HREO% is determined by the formula:</p> $\text{HREO}\% = \frac{[\text{Sm}2\text{O}3 + \text{Eu}2\text{O}3 + \text{Gd}2\text{O}3 + \text{Tb}4\text{O}7 + \text{Dy}2\text{O}3 + \text{Ho}2\text{O}3 + \text{Er}2\text{O}3 + \text{Tm}2\text{O}3 + \text{Yb}2\text{O}3 + \text{Y}2\text{O}3 + \text{Lu}2\text{O}3]}{[\text{La}2\text{O}3 + \text{CeO}2 + \text{Pr}6\text{O}11 + \text{Nd}2\text{O}3 + \text{Sm}2\text{O}3 + \text{Eu}2\text{O}3 + \text{Gd}2\text{O}3 + \text{Tb}4\text{O}7 + \text{Dy}2\text{O}3 + \text{Ho}2\text{O}3 + \text{Er}2\text{O}3 + \text{Tm}2\text{O}3 + \text{Yb}2\text{O}3 + \text{Y}2\text{O}3 + \text{Lu}2\text{O}3 (\text{TREO})] \times 100}$
Location of data points	<ul style="list-style-type: none"> 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. Specification of the grid system used. Quality and adequacy of topographic control. 	<ul style="list-style-type: none"> Measurement points were located with a handheld GPS using NAD 83 UTM Zone 11 North. Handheld GPS coordinates are regarded as having an accuracy of 3-5m in the east and west directions and 2-10m in elevation (RL). Not applicable at this stage of exploration.
Data spacing and distribution	<ul style="list-style-type: none"> Data spacing for reporting of Exploration Results. 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. Whether sample compositing has been applied. 	<ul style="list-style-type: none"> Rock samples were taken at random intervals where mineralisation is indicated by scintillometer readings, XRF readings or by qualitative structural assessment at the discretion of the field geologist. Not applicable – early-stage exploration only. Not applicable – No compositing applied.
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. 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. 	<ul style="list-style-type: none"> Sampling orientation was appropriate for early-stage exploration as an indicator of mineralisation only. Not applicable – No drilling carried out.
Sample security	<ul style="list-style-type: none"> The measures taken to ensure sample security. 	<ul style="list-style-type: none"> Samples were taken by geological consultants. The samples were numbered, sealed in plastic bags and shipped directly to the laboratory for analysis.
Audits or reviews	<ul style="list-style-type: none"> The results of any audits or reviews of sampling techniques and data. 	<ul style="list-style-type: none"> No detailed audits or reviews have been conducted due to this being early-stage exploration.

For personal use only

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> 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 security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area. 	<ul style="list-style-type: none"> The Virgin Mountain Project consists of 23 claims (475.18 acres). The project area is 15 km south of Mesquite, and Interstate-15 (I-15). The project sits immediately on the Arizona-Nevada state line. The mineral claims are in good standing with no known impediments.
Exploration done by other parties	<ul style="list-style-type: none"> Acknowledgment and appraisal of exploration by other parties. 	<ul style="list-style-type: none"> Historical sampling was completed by Globex Mining Enterprises Inc. on which this report is based. Their in-country team has visited field locations, collected sample data, and identified prospective areas. References have been made to sporadic historic uranium prospecting; however, limited public information is available. As mentioned in the text above, in 1991 ASARCO sank three shafts (two at 80 feet and a third at 85 feet) and completed two adits of unknown location. Two historic assays are available from 1972 completed by National Lead Industries Inc., these assays significantly exceed TREO levels reported by modern sampling and cannot be confirmed, it is 'likely' that they were crushed and run over a Wilfley Jig Gravity Separation Table.
Geology	<ul style="list-style-type: none"> Deposit type, geological setting and style of mineralisation. 	<p>While further research is required to determine the specific mineral system, the sampled intrusives can be classified geochemically as a granite-related mineral system, likely an NYF pegmatite based on the Cerný (1991) classification scheme.</p> <p>The most appropriate mineral system is summarised by the Geological Survey of Western Australia below (Duuring, 2020).</p> <p>Rare-element pegmatites are divided into two end-member petrogenetic/compositional families (Cerný, 1991; Cerný and Ercit, 2005) as a simple chemical division to emphasise key differences in the geological processes responsible for rare-element mineralization:</p> <p>Lithium-caesium-tantalum (LCT) pegmatites are enriched in Li, Cs, Ta, Be, B, F, P, Mn, Ga, Rb, Nb, Sn and Hf. Examples of major LCT pegmatite deposits include the Tin Mountain pegmatite in the US; Tanco pegmatite in</p>

For personal use only

Criteria	JORC Code explanation	Commentary
		<p>Canada; Altai Number 3 pegmatite in China; the Greenbushes, Wodgina and Pilgangoora pegmatites in Western Australia; Bikita pegmatite in Zimbabwe; and the Kenticha pegmatite district in Ethiopia (e.g. see summaries of Cerný et al., 2005; Bradley et al., 2017).</p> <p>Niobium–yttrium–fluorine (NYF) pegmatites are enriched in Be, Sn, B, Nb > Ta, Ti, Y, rare earth elements (REE), Zr, Th, U, Sc and F, but are depleted in Li, Cs and Rb. Biotite is more common in NYF pegmatites, whereas muscovite is dominant in LCT pegmatites. Notable NYF pegmatite deposits, as summarized by Ercit (2005), include the South Platte granite and pegmatite system in Colorado (Simmons et al., 1987), the Grötingen granite and Abborselät and other associated pegmatites in Sweden (Kjellman et al., 1999), the Lac du Bonnet biotite granite and Shatford Lake pegmatite group in Canada (Buck et al., 1999), and the Stockholm granite and Ytterby pegmatite group, Sweden (Kjellman et al., 1999).</p> <p>Mixed or 'hybrid' rare-element pegmatites have blended rare-element signatures and are considered to be products of contamination of NYF pegmatites at the magmatic or postmagmatic stage. For example, they have been suggested to result from remelting of newly formed NYF pegmatites by metasomatic fluids rich in Li, B, Ca and Mg (Cerný and Ercit, 2005; Martin and De Vito, 2005). Some examples of mixed pegmatites include those at Kimito in Finland (Pehrman, 1945), the Tørdal district of Norway (Bergstøl and Juve, 1988; Cerný, 1991) and the O'Grady batholith in Canada (Ercit et al., 2003).</p> <p>Niobium–yttrium–fluorine pegmatites are identified in most continents and their crystallization ages correspond to major intervals of global continent assembly from the Archean to the Neogene, with a peak at ~1000 Ma corresponding to the Grenville orogeny in Laurentia (McCauley and Bradley, 2014). Niobium–yttrium–fluorine pegmatites are products of pronounced differentiation of anorogenic, A-type granites, which are a common product of bimodal gabbro–granite magmatism in rift zones. Geological processes controlling the genesis of A-type granites include: i) fractionation of direct partial melts from the upper mantle; ii) remelting of basalts that accumulate beneath the thinned lithosphere; iii) partial melting of lower crustal gneisses (Eby, 1990; Christiansen and McCurry, 2008). In the advanced rift setting where A-type granites are commonly generated, the</p>

Criteria	JORC Code explanation	Commentary
		<p>mafic and felsic melts are mostly metaluminous. The melts are near or above silica saturation, with the granites notably depleted in Ca and P, and possessing heavy rare earth element (HREE) enrichment (London, 2018). Like the LCT pegmatites, NYF pegmatites are often controlled by structures, fabrics and bedding in country rocks. However, regional zonation patterns around parental granites do not appear to occur in NYF pegmatite fields (Simmons and Webber, 2008). Rather, the NYF pegmatites are commonly hosted within granites (e.g. in the Pilbara Craton; Sweetapple and Collins, 2002).</p> <ul style="list-style-type: none"> References used to ensure technical data in the report is based on recent research include: <ul style="list-style-type: none"> Baker, R 1998, The escape of pegmatite dikes from granitic plutons: constraints from new models of viscosity and dike propagation: <i>The Canadian Mineralogist</i>, v. 36, no. 2, p. 255–263. Bergstøl, S and Juve, G 1988, Scandian ixiolite, pyrochlore and bazzite in granite pegmatite in Tørdal, Telemark, Norway. A contribution to the mineralogy and geochemistry of scandium and tin: <i>Mineralogy and Petrology</i>, v. 38, no. 4, p. 229–243, doi:10.1007/BF01167090. Bradley, DC, McCauley, AD and Stillings, LL 2017, Mineral-deposit model for lithium-cesium-tantalum pegmatites: United States Geological Survey, Reston, VA, Scientific Investigations Report 2010-5070, 58p. Brisbin, WC 1986, Pegmatite emplacement mechanics: <i>American Mineralogist</i>, v. 71, no. 4, p. 644–651. Buck, HM, Cerný, P and Hawthorne, FC 1999, The Shatford Lake pegmatite group, southeastern Manitoba: NYF or not? <i>The Eugene E. Foord Memorial Symposium on NYF-type Pegmatites</i>, v. 37, p. 830–831. Cawood, PA, Hawkesworth, CJ and Dhuime, B 2013, The continental record and the generation of continental crust: <i>Journal of the Geological Society</i>, v. 125, no. 1-2, p. 14–32, doi:10.1130/B30722.1. Cerný, P 1989, Exploration strategy and methods for pegmatite deposits of tantalum, in <i>Lanthanides, Tantalum and Niobium</i> edited by P Möller, P Cerný and F Saupé: Springer-Verlag, p. 274–302. Cerný, P 1991, Rare-element granitic pegmatites. Part I: Anatomy and internal evolution of pegmatite deposits: <i>Geoscience Canada</i>, v. 18, p. 49–67. Cerný, P, Blevin, PL, Cuney, M and London, D 2005, Granite-related ore deposits: <i>Economic Geology 100th Anniversary Volume</i>, p. 337–370. Cerný, P and Ercit, TS 2005, The classification of pegmatites revisited: <i>The</i>

Criteria	JORC Code explanation	Commentary
		<p>Canadian Mineralogist, v. 43, no. 6, p. 2005–2026, doi:10.2113/gscanmin.43.6.2005.</p> <p>Christiansen, EH and McCurry, M 2008, Contrasting origins of Cenozoic silicic volcanic rocks from the western Cordillera of the United States: Bulletin of Volcanology, v. 70, no. 3, p. 251–267, doi:10.1007/s00445-007-0138-1.</p> <p>Demartis, M, Pinotti, LP, Coniglio, JE, D'Eramo, FJ, Tubía, JM, Aragón, E and Agulleiro Insúa, LA 2011, Ascent and emplacement of pegmatitic melts in a major reverse shear zone (Sierras de Córdoba, Argentina): Journal of Structural Geology, v. 33, no. 9, p. 1334–1346, doi:10.1016/j.jsg.2011.06.008.</p> <p>Deveaud, S, Gumiaux, C, Gloaguen, E and Branquet, Y 2013, Spatial statistical analysis applied to rare-element LCT-type pegmatite fields: an original approach to constrain faults-pegmatites-granites relationships: Journal of Geosciences, v. 58, no. 2, p. 163–182, doi:10.3190/jgeosci.141.</p> <p>Duuring, P 2020, Rare-Earth Pegmatites: A Mineral Systems Analysis: Geological Survey of Western Australia, Technical Report, Record 2020/7, 47p, DOI:10.13140/RG.2.2.35634.84166</p> <p>Eby, GN 1990, The A-type granitoids: A review of their occurrence and chemical characteristics and speculations on their petrogenesis: Lithos, v. 26, no. 1, p. 115–134, doi:10.1016/0024-4937(90)90043-Z.</p> <p>Ercit, TS 2005, REE-enriched granitic pegmatites in Rare-element geochemistry and mineral deposits edited by RL Linnen and IM Samson: Geological Association of Canada Short Course Notes 17, p. 175–199.</p> <p>Ercit, TS, Groat, LA and Gault, RA 2003, Granitic pegmatites of the O'Grady batholith, N.W.T., Canada: A case study of the evolution of the elbaite subtype of rare-element granitic pegmatite: The Canadian Mineralogist, v. 41, no. 1, p. 117–137, doi:10.2113/gscanmin.41.1.117.</p> <p>Fuchsloch, WC, Nex, PAM and Kinnaird, JA 2018, Classification, mineralogical and geochemical variations in pegmatites of the Cape Cross-Uis pegmatite belt, Namibia: Lithos, v. 296-299, p. 79–95, doi:10.1016/j.lithos.2017.09.030.</p> <p>Galeschuk, CR and Vanstone, PJ 2005, Exploration for buried rare element pegmatites in the Bernic Lake region of southeastern Manitoba, in Rare-element geochemistry and mineral deposits edited by RL Linnen and IM Samson: Geological Association of Canada, Short Course Notes 17, p. 159–173.</p> <p>Kjellman, J, Cerný, P and Smeds, S-A 1999, Diversified NYF pegmatite populations of the Swedish Proterozoic: outline of a comparative study: The</p>

Criteria	JORC Code explanation	Commentary
		<p>Eugene E. Foord Memorial Symposium on NYF-type Pegmatites, v. 37, p. 832–833.</p> <p>Konzett, J, Schneider, T, Nedyalkova, L, Hauzenberger, C, Melcher, F, Gerdes, A and Whitehouse, M 2018, Anatectic granitic pegmatites from the eastern alps: A case of variable rare-metal enrichment during high-grade regional metamorphism - i: Mineral assemblages, geochemical characteristics, and emplacement ages: The Canadian Mineralogist, v. 56, no. 4, p. 555–602, doi:10.3749/canmin.1800008.</p> <p>London, D 1992, The application of experimental petrology to the genesis and crystallization of granitic pegmatites: Canadian Mineralogist, v. 30, p. 499–540, 42p.</p> <p>London, D 2008, Pegmatites: Mineralogical Association of Canada, The Canadian Mineralogist Special Publication 10, 347p.</p> <p>London, D 2018, Ore-forming processes within granitic pegmatites: Ore Geology Reviews, v. 101, p. 349–383, doi:10.1016/j.oregeorev.2018.04.020.</p> <p>Martin, RH and De Vito, C 2005, The patterns of enrichment in felsic pegmatites ultimately depend on tectonic setting: The Canadian Mineralogist, v. 43, no. 6, p. 2027–2048, doi:10.2113/gscanmin.43.6.2027.</p> <p>McCauley, A and Bradley, DC 2014, The global distribution of granitic pegmatites: The Canadian Mineralogist, v. 52, no. 2, p. 183–190, doi:10.3749/canmin.52.2.183.</p> <p>Müller, A, Ihlen, PM, Snook, B, Larsen, RB, Flem, B, Bingen, B and Williamson, BJ 2015, The chemistry of quartz in granitic pegmatites of southern Norway: Petrogenetic and economic implications: Economic Geology, v. 110, no. 7, p. 1737–1757, doi:10.2113/econgeo.110.7.1737.</p> <p>Pehrman, G 1945, Die Granite pegmatite von Kimito (S.W. Finnland) und ihre Minerale: Acta Academiae Aboensis: Mathematica et physica, v. 26, 84p.</p> <p>Simmons, WB, Lee, MT and Brewster, RH 1987, Geochemistry and evolution of the South Platte granite-pegmatite system, Jefferson County, Colorado: Geochimica et Cosmochimica Acta, v. 51, no. 3, p. 455–471, doi:10.1016/0016-7037(87)90061-5.</p> <p>Simmons, WS and Webber, KL 2008, Pegmatite genesis: state of the art: European Journal of Mineralogy, v. 20, no. 4, p. 421–438, doi:10.1127/0935-1221/2008/0020-1833.</p> <p>Sweetapple, MT 2017, Granitic pegmatites as mineral systems: examples from the Archaean, in PEG2017 8th International Symposium on Granitic Pegmatites: NGF Abstracts and</p>

Criteria	JORC Code explanation	Commentary
		<p>Proceedings edited by A Müller and N Rosing-Schow: Geological Society of Norway, Kristiansand, Norway, p. 139–142.</p> <p>Sweetapple, MT and Collins, PLF 2002, Genetic framework for the classification and distribution of Archean rare metal pegmatites in the North Pilbara Craton, Western Australia: Economic Geology, v. 97, p. 873–895.</p> <p>Tkachev, AV 2016, Evolution of metallogeny of granitic pegmatites associated with orogens throughout geological time: Geological Society, London, Special Publications, v. 350, p. 7–23, doi:10.6084/M9.FIGSHARE.3454913.V1.</p> <p>Trueman, DL and Cerný, P 1982, Exploration for rare-element granitic pegmatites, in Granitic Pegmatites in Science and Industry edited by P Cerný: Mineralogical Association of Canada, Short Course Handbook 8, p. 463–494.</p> <p>Webber, KL, Falster, AU, Simmons, WB and Foord, EE 1997, The role of diffusion-controlled oscillatory nucleation in the formation of Line Rock in pegmatite–aplite dikes: Journal of Petrology, v. 38, no. 12, p. 1777–1791, doi:10.1093/петroj/38.12.1777.</p> <p>Webber, KL, Simmons, WB, Falster, AU and Hanson, SL 2019, Anatectic pegmatites of the Oxford County pegmatite field, Maine, USA: The Canadian Mineralogist, v. 57, no. 5, p. 811–815, doi:10.3749/canmin.AB00028.</p> <p>Witt, WK 1992, Heavy-mineral characteristics, structural settings, and parental granites of pegmatites in Archaean rocks of the eastern Yilgarn Craton: Geological Survey of Western Australia, Record 1992/10, 54p.</p>
<p>Drill hole information</p>	<ul style="list-style-type: none"> • <i>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:</i> <ul style="list-style-type: none"> ○ <i>easting and northing of the drill hole collar</i> ○ <i>elevation or RL (Reduced Level - elevation above sea level in metres) of the drill hole collar</i> ○ <i>dip and azimuth of the hole</i> ○ <i>down hole length and interception depth</i> ○ <i>hole length.</i> • <i>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</i> 	<ul style="list-style-type: none"> • Not applicable – no drilling carried out

Criteria	JORC Code explanation	Commentary
	<p>report, the Competent Person should clearly explain why this is the case.</p>	
Data aggregation methods	<ul style="list-style-type: none"> In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. 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"> Not applicable – no data aggregation methods 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. <ul style="list-style-type: none"> 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 (eg 'down hole length, true width not known'). 	<ul style="list-style-type: none"> Not applicable – no drilling carried out.
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"> Relevant diagrams have been included within the text of the report. Plan views are included to demonstrate the preliminary geological interpretation.
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 practiced to avoid misleading reporting of Exploration Results. 	<ul style="list-style-type: none"> All rock chip assay results reported herein.
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; 	<ul style="list-style-type: none"> The results are considered indicative only of mineralisation in the area.

Criteria	JORC Code explanation	Commentary
	<p><i>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.</i></p>	
<p>Further Work</p>	<ul style="list-style-type: none"> <i>The nature and scale of planned further work (eg 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"> Compiling applicable geophysical data and conducting follow-up fieldwork in the coming months, following the melting of the snow cover, to investigate the structure of interest and potential undercover extensions of mineralisation. Diagrams showing the preliminary geological trend/shear zone are included in the body of the report above.