Laramide Age Dykes Enhance Silver Mountain Prospectivity

Highlights

- Age-dating of latite dykes encountered in drill core shows multiple pulses of magmatic events which further support the potential for a mineralised copper porphyry deposit at Silver Mountain
- Dates fall within the Laramide (Late Cretaceous to Early Tertiary) age of 75 to 55 million years old, a period of magmatic activity and associated mineralisation for world-class deposits in Arizona and North America
- Along with very encouraging geophysical anomalies, structural trends, rock types and numerous historical workings, these Laramide age dykes offer further evidence for a buried mineralised copper porphyry deposit

Eagle Mountain Mining's Managing Director, Charlie Bass, said:

"Other than actual drilling, the lengthy process of age-dating certain important rocks at Silver Mountain is the last piece of the puzzle that indicates there could well be a buried porphyry. Age-dating is very important in Arizona and the Western US for targeting copper porphyry deposits. Other important indicators are the structural setting, correct rock types and various supporting geophysical data. The confirmation of Laramide age latite dykes at Silver Mountain is highly encouraging, as this geological age is when many world-class copper porphyry deposits formed in Arizona. Examples include Freeport-McMoRan's Bagdad, Miami, Morenci and Sierrita mines, BHP's San Manuel-Kalamazoo mine, BHP-Rio Tinto's Resolution mine and Asarco's Mission, Ray and Silver Bell mines. Furthermore, the presence of multiple pulses of magmatic activity suggests a sustained period of mineralising potential, which is common at many of these, and other deposits. These age-date results, combined with our understanding of the other favourable conditions at Silver Mountain, significantly enhance the Project's prospectivity."

Eagle Mountain Mining Limited (ASX: EM2) (**Eagle Mountain**, or the **Company**) is pleased to provide an update on the Company's 100% owned Silver Mountain Project (**Silver Mountain**) in Arizona, USA.

Silver Mountain is located within the Laramide Arc (refer to Figure 1), a northwest-southeast trending geological feature that hosts world-class porphyry copper mines such as:

- Freeport-McMoRan's Bagdad, Miami, Morenci and Sierrita mines
- BHP's San Manuel-Kalamazoo mine
- BHP-Rio Tinto's Resolution mine
- Asarco's Mission, Ray and Silver Bell mines

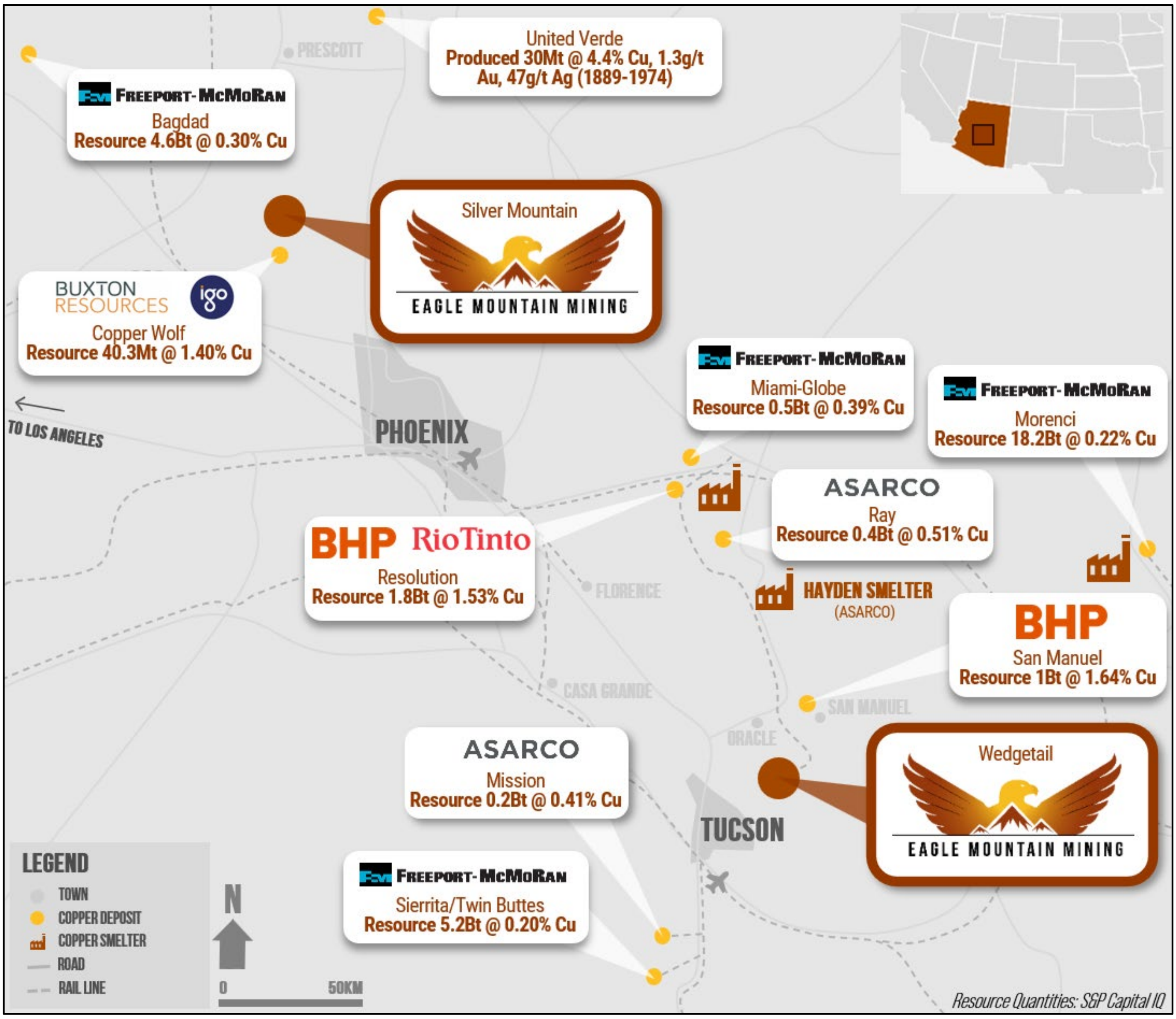

Figure 1 – Location of Silver Mountain and surrounding copper deposits in Arizona, USA that form along the NW-SE trending Laramide Arc.

Geochronology Further Enhances Silver Mountain Prospectivity for a Buried Porphyry Deposit

Three drill core samples comprising latite intrusives from the 2019 Silver Mountain drilling program were submitted for geochronological (age-dating) analysis by the Arizona LaserChron Center in Tucson. Latites are an igneous rock type sometimes associated with copper porphyry ore deposits and were identified in Scarlett and Red Mule drilling in addition to surface mapping across Pacific Horizon. The dykes are aligned along the prospective northeast-southwest trend associated with mineralisation in the region (refer to Figure 2 and ASX announcement dated 31 July 2024).

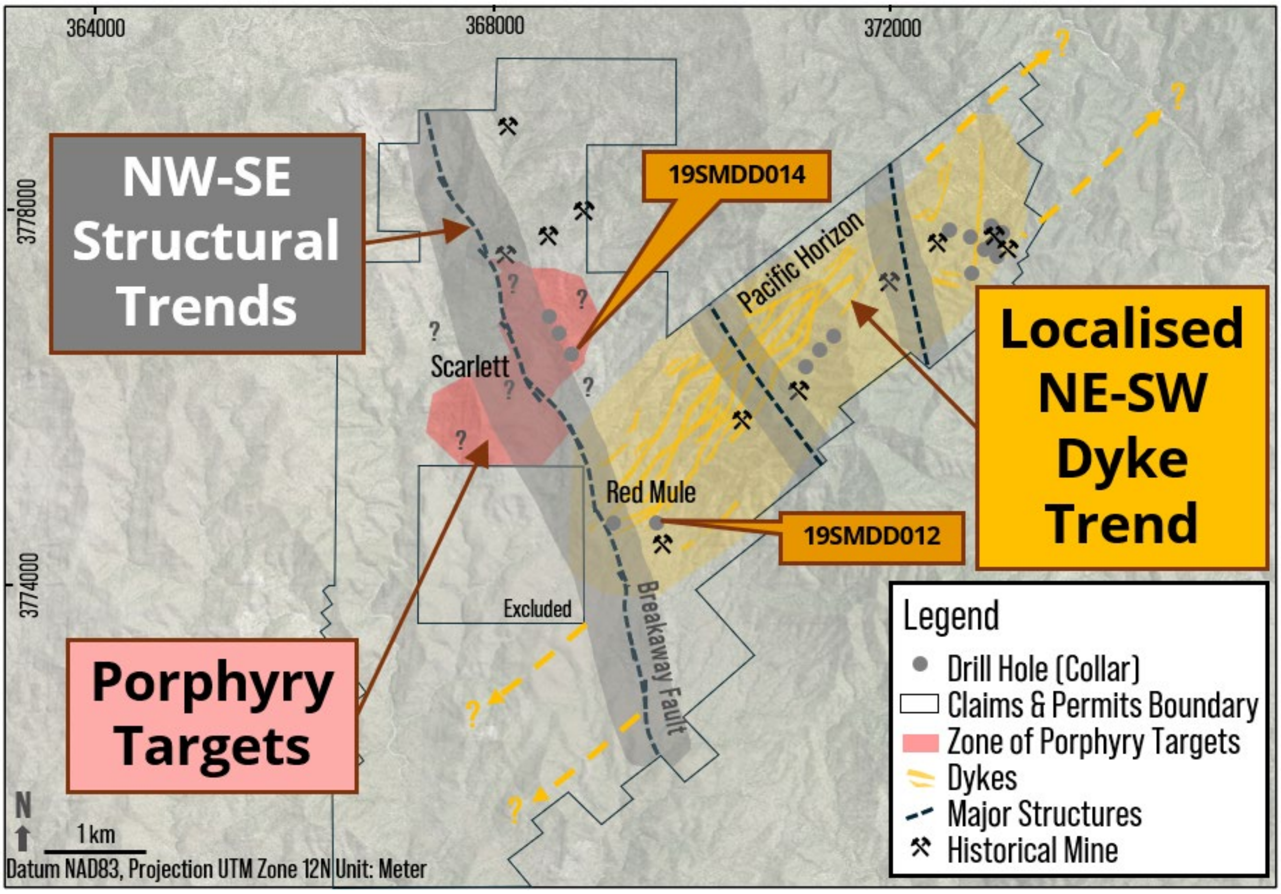

Figure 2 – Mapped Silver Mountain latite dykes and structural trends. Drill holes sampled for age-dating highlighted. The possible continuity of the NE-SW dyke trend at Silver Mountain is shown by the dashed yellow lines.

The results of this age-dating analysis demonstrate that the latites formed during the Laramide Orogeny, contemporaneous with surrounding world-class deposits of 75 to 55 million years ago (Ma), as shown in Table 1. This period corresponds to mountain building and igneous activity with associated mineralisation throughout the western United States and Mexico but particularly in Arizona. This is significant for the prospectivity of Silver Mountain as the latites, a rock type that can be associated with porphyry deposits, would have formed at the same time as other surrounding porphyry deposits.

Geochronology results confirmed a Laramide age for the latites sent for analysis with ages ranging from 71.6 ± 0.3 Ma to 69.8 ± 0.4 Ma (refer to Table 2, Photo 1 and Attachment 1).

Table 1 – Age-dates of intrusions associated with copper deposits in Arizona

Deposit	Age [Ma]
Crown King	73^
Bagdad	72*
Copper Wolf	70~
Ray	68*
Resolution	64*
Miami-Globe	61*
Morenci	55#

*Source: *Lamont et al, 2024; ^Runyon et al, 2017; ~Nickerson, 2012; #Enders, 2000*

Table 2 – Summary of recent age-dating results at Silver Mountain

Hole ID	Depth to Latite [m]	Age [Ma]
19SMDD012	44.6	69.8
19SMDD012	91.1	71.6
19SMDD014	274.8	71.6

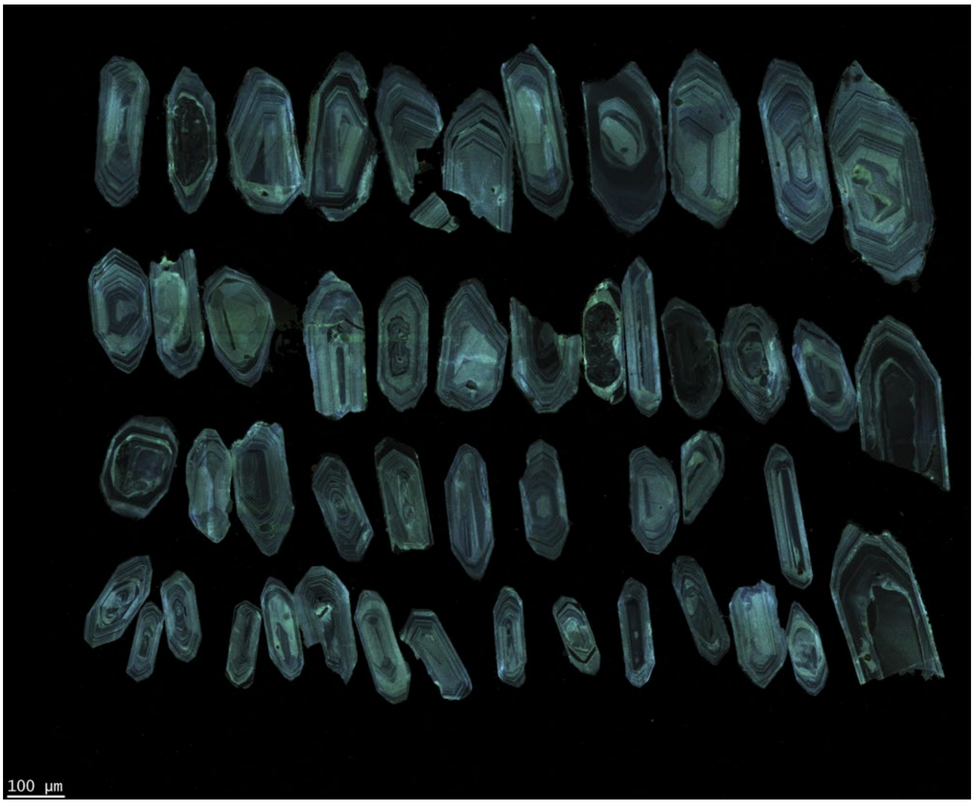

Photo 1 – 19SMDD0012 Sample 44_6 (91.1m to 91.4m) showing example zircon grains from latites prepared for geochronological analysis. (refer ASX announcement 4 June 2019)

The age-dating results shown in Table 2 support two distinct pulses of magma – one around 69.8 Ma and a second around 71.6 Ma. This is significant as copper porphyry deposits across the world often require multiple pulses of magma to enrich the local area to economically viable levels, such as three distinct pulses at the world-class Escondida deposit in Chile (Padilla-Garza, 2003).

The age-dates of several copper porphyry deposits shown in Table 1 were taken on various types of igneous rock to accurately ascertain the likely age of magmatic activity, and this guided sample selection at Silver Mountain. Although Silver Mountain contains high-grade mineralised breccias and veins, age-dating of these features was avoided due to complications between what is dated, such as clasts, matrix, alteration, cement and sulphides which can all give notable different ages. Confidence in age-dating is maximised when the sample is of a fresh, single material type such as a latite rock that has no alteration, brecciation or veining present.

Overall, these age-date results are further support for a possible mineralised system at Silver Mountain, where existing near-surface high grade sampling and large-scale geophysical anomalies present a compelling set of exploration targets now strengthened by confirmation of localised prospective formation ages. The Company is reviewing age-dating results in combination with all other geological, geophysical and geochemical data.

This ASX announcement was authorised for release by the Board of Eagle Mountain Mining Limited.

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COMPETENT PERSON STATEMENT

The information in this document that relates to Exploration Activities is based on, and fairly represents, information and supporting documentation that was compiled by Rex McLachlin, who is a member of The Australasian Institute of Mining and Metallurgy (MAusIMM) and has sufficient experience relevant to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012). Mr McLachlin is a full time employee and the Senior Geologist at Eagle Mountain Mining Limited's wholly-owned subsidiary, Silver Mountain Mining Inc, and consents to the inclusion in this document of the information in the form and context in which it appears.

ABOUT EAGLE MOUNTAIN MINING

Eagle Mountain is a copper-gold explorer focused on the strategic exploration and development of the Wedgetail and Silver Mountain Projects, both located in Arizona, USA.

Arizona is at the heart of America's mining industry and home to some of the world's largest copper discoveries such as Bagdad, Miami and Resolution, one of the largest undeveloped copper deposits in the world.

Follow the Company's developments through our website and social media channels:

LinkedIn **Twitter** **EM2 Website**

Attachment 1

Summary table of drill holes used to source material for age-dating analysis at Silver Mountain

Hole ID	Easting [m]	Northing [m]	Elevation [m]	Dip [◦]	Azimuth [◦]	Depth [m]
19SMDD012	369663	369663	1277	-50	145	286.5
19SMDD014	368770	3776592	1064	-50	145	379.5

Complete age-dating results at Silver Mountain

Hole ID	Sample ID	From [m]	To [m]	Width [m]	Lithology	Age [Ma]	Uncertainty [± Ma]
19SMDD012	91_1	44.6	44.8	0.2	Latite	69.8	0.4
19SMDD012	44_6	91.1	91.4	0.3	Latite	71.6	0.3
19SMDD014	275	274.8	275	0.2	Latite	71.6	0.3

Attachment 2

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *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 downhole 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.*	• No new surface sampling or drilling results announced. • New results comprise geochronology (age-dating) of samples collected from previously reported drill holes. • Sample intervals and drill holes used for geochronological analysis are detailed in Table 2 and Attachment 1 within the body of the announcement.

Criteria	JORC Code explanation	Commentary
Drilling techniques	• *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 the core is oriented and if so, by what method, etc).*	• There was no new drill data presented in the report.
Drill sample recovery	• *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.*	• There was no new drill data presented in the report.
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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• There was no new drill data presented in the report.
Sub-sampling techniques and sample preparation	• *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*	• There was no new drill data presented in the report. • New results comprise geochronology (age-dating) of samples collected from previously reported drill holes. • Sample material for age-dating analysis comprised three individual latite dykes collected

Criteria	JORC Code explanation	Commentary
	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.*	from existing drill core. • The three samples were selected based on their representative nature across the Scarlett and Red Mule prospects at Silver Mountain. To ensure accurate results, the samples were either unaltered or very weakly altered. • Geochronological analysis was performed by the Arizona LaserChron Center (ALC) in Tucson. • The analysis was completed using LA-ICPMS (laser ablation inductively coupled plasma mass spectrometry) on zircon grains from the latite dykes • Ages were determined from the relative decay of uranium to lead in zircon • ALC utilised industry QAQC when conducting age-dating analysis including the use of standards, all of which returned within acceptable threshold values. • 50 point measurements were collected for each sample. Data were cleaned by initially discarding measurements from inherited Proterozoic material (ages > 540 Ma, n = 2 to 4), then discarding measurements with discordance between $^{206}Pb/^{238}U$ and $^{207}Pb/^{235}U$ ages greater than 5% (n = 4 to 11). A weighted mean age and weighted uncertainty was then calculated for each sample using the remaining analyses.
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.* • *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.*	• There was no new drill data presented in the report.

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	• *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 adjustments to assay data.*	• There was no new drill data presented in the report.
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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• NAD83 UTM Zone 12N (meters). • National Elevation Dataset. Horizontal resolution of approximately 10m and vertical resolution of 1m.
Data spacing and distribution	• *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.*	• There was no new drill data presented in the report.
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.* • *If the relationship between the drilling orientation and the orientation of key*	• There was no new drill data presented in the report.

Criteria	JORC Code explanation	Commentary
	mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	
Sample security	• *The measures taken to ensure sample security.*	• Company personnel collected all samples from existing drill core and hand delivered to ALC for analysis.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits were completed for the geochronology analysis work, however Company geologists reviewed and reported the data from analysis internally.

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 security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Silver Mountain Project (Project) is located approximately 100 kilometres by air north-west of Phoenix, Arizona, U.S.A. The geographical coordinates are approximately Latitude 34°8' North, Longitude 112°23' West. • The Project is 100% owned by Eagle Mountain Mining Limited through its subsidiary company Silver Mountain Mining LLC. • Silver Mountain comprises 26 Patented Mining Claims, 353 Unpatented Mining Claims and 4 State Exploration Permits. • 100% of the surface rights for the 26 Patented Mining Claims are owned by Silver Mountain Mining LLC (private property).
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• It is believed that the first mining claims at the Pacific Horizon prospect were staked in 1898. • Between 1906 and 1912 the Pacific Copper Mining Company sunk a 150m (500ft) shaft into the gossan at the Pacific Mine. • Drilling was carried out in 1966, however it is unclear who completed the program (possibly Heinrichs GeoExploration). • In 1968 Heinrichs GeoExploration conducted some dual frequency IP, resistivity and magnetic geophysical surveys. This was followed by further geophysical surveys in 1978

Criteria	JORC Code explanation	Commentary
		using Very Low Frequency (VLF) Electro Magnetics (EM). • KOOZ contracted Applied Geophysics in 1978 to run EM surveys (VLF, MaxMin II and Crone Horizontal Shootback) over selected areas. • Detailed geological mapping was carried out by Kennecott in 1991 and 1992, focussing on the eastern and central areas of the Pacific Horizon prospect. Kennecott's mapping was based on previous work done by Winegar et al, (1978). • Ferguson & Johnson (2013, Arizona Geological Survey) completed a mapping program which covered the Pacific Horizon area.
Geology	• *Deposit type, geological setting and style of mineralisation.*	Several types of deposit styles have been identified for the various prospects at Silver Mountain: • Proterozoic volcanogenic massive sulphides (VMS) in Precambrian greenstone (Pacific Horizon prospect). • Quartz-carbonate breccia with associated copper-gold-silver mineralisation (Pacific Horizon prospect). • Younger (Laramide arc) copper-gold porphyry and associated gold veins (Scarlett prospect). • Pegmatite dykes elevated in uranium and thorium (Scarlett prospect). • Overprinting and remobilisation of fluids by Cenozoic trans-tension resulting in detachment style mineralisation (Red Mule prospect).
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.* • *If the exclusion of this information is justified on the basis that the information is*	• There was no new drill data presented in the report.

Criteria	JORC Code explanation	Commentary
	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.	
Data aggregation methods	• *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.*	• There was no new drill data presented in the report.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• There was no new drill data presented in the report.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being*	• Refer to images presented in the body of the announcement.

Criteria	JORC Code explanation	Commentary
	reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	
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.*	• The new data, comprising age-dating from existing drill core, is reported in Table 2 within the body of the announcement.
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.*	• All exploration results obtained so far have been reported.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• The Company is reviewing further activities at Silver Mountain, including age-dating results in combination with all other geological, geophysical and geochemical data.