# Anomalous Uranium and Thorium Identified at Silver Mountain

While Eagle Mountain continues with its Scoping Study at the Oracle Ridge Copper Project, the Company recently had the opportunity to reassess its early exploration at the 100% owned Silver Mountain Project in Arizona. Following up on a known uranium occurrence, a field team recently undertook further investigation through a mapping and sampling program. Altered pegmatites and other granitic rocks were mapped and sampled that showed spectrometer radioactivity. Consulting Geologist, Dr Linus Keating, concludes a recent report with:

> "*The Silver Dollar radiogenic pegmatite is an important, and unique, occurrence for Arizona and should be followed up thoroughly. A unique uranium-rare earth deposit could be present.*"

## Highlights

- Several uranium anomalies with elevated thorium hosted in radiogenic pegmatites at the Silver Mountain Project
- Extensive pegmatites mapped in the northwestern area of Silver Mountain, known as Scarlett
- The most prominent anomaly occurs in a granitic intrusion with a magmatic-style breccia
- Eight surface samples taken in prior field work resulted in assays of uranium greater than four times anomalous levels[1]
- Field mapping suggests that the source of radioactive mineralisation occurs in an unusual intrusive rock that appears to have intruded a granitic pluton adjacent to a regional-scale fault system
- The recently acquired rock samples are being prepared for assay and mineralogical studies

Commenting on the new field work and next steps, Eagle Mountain Mining's Managing Director, Charlie Bass, said:

*"Well before my private company's assets were vended into the newly formed Eagle Mountain Mining Limited, my consultant Dr Linus Keating mapped and sampled the Silver Dollar area of the Scarlett region at Silver Mountain. He came across some unusual coarse-grained pegmatite dykes that were elevated in uranium and thorium. At the time, we were focussed on copper, gold and silver mineralisation and did not pay much*

[1] Spencer, J.E., 2002, Naturally Occurring Radioactive Materials (NORM) in Arizona. Arizona Geological Survey Open File Report, OFR-02-13

*attention to this. As a result of the recent field work, we now recognise the potential significance of previous observations, particularly given uranium can be associated with monzonite and pegmatite, as mapped by Dr Keating in nearby areas.*

*The United States Department of Energy's website lists uranium as a Near Critical mineral with High Importance to energy now and well into the future ("www.energy.gov/cmm/what-are-the-critical-materials-and-critical -minerals"). As such, we will now revisit the uranium potential at the Scarlett Project.*

*With the recent pause in exploration, sampling and mapping at Oracle Ridge, our geology team has had a close look at the previous work conducted at the Scarlett Project and has developed a new model focussed on the unique radioactive pegmatites and granites."*

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, or the Project) in Arizona, USA (see Figures 1 and 2).

## Background

The Silver Mountain copper/gold project is located in Arizona to the northwest of Phoenix. The project area sits on the Laramide Arc, a northwest-southeast trending geological feature containing world-class porphyry copper mines such as Bagdad, Miami and Resolution. It also lies on the southern extension of a northeast-southwest prospective metallogenic belt that hosts United Verde and Iron King, two historical mines of volcanogenic massive sulphide affinity (Figure 1). The intersection of these two trends results in a favourable geologic setting with high complexity and potential for multiple mineralisation styles.

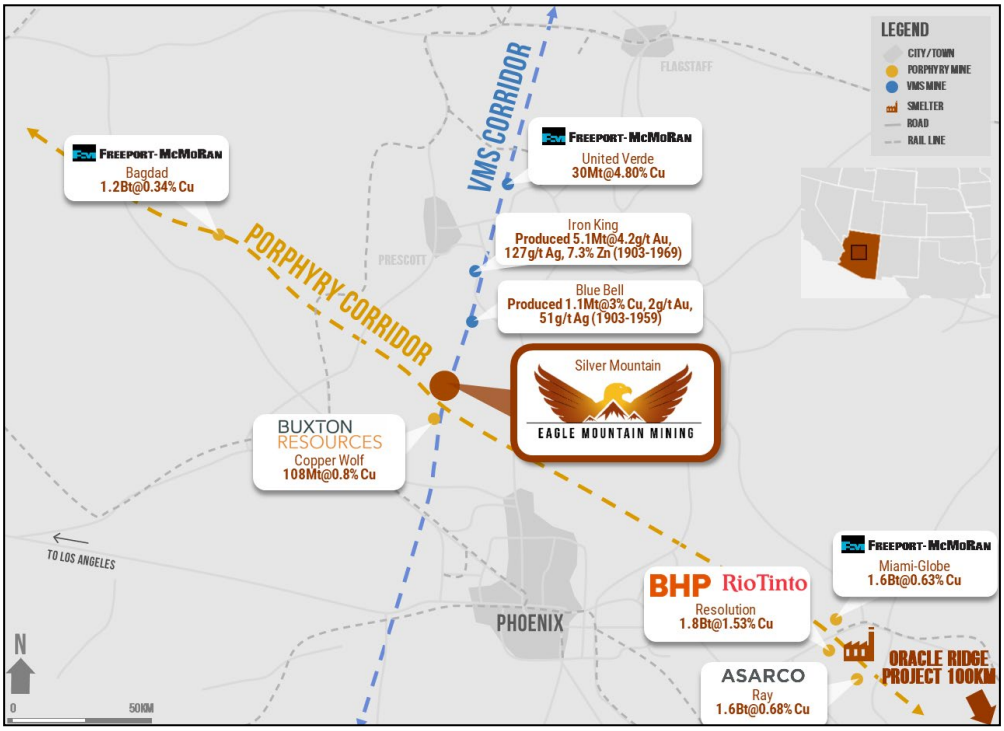


*Figure 1 – Location of Silver Mountain and surrounding deposits in Arizona USA, showing regional-scale porphyry and volcanogenic massive sulphide (VMS) corridors.*

Silver Mountain encompasses three main prospects known as "Pacific Horizon", "Scarlett" and "Red Mule", each having a unique mineralisation style.

With the Company now undertaking a Scoping Study at its Oracle Ridge Copper Project, our geology team have had the opportunity to follow up previously encountered uranium and thorium occurrences at Silver Mountain (refer Attachment 1). The recent field activities focused on the Scarlett/Silver Dollar and Red Mule areas (refer Figure 2).

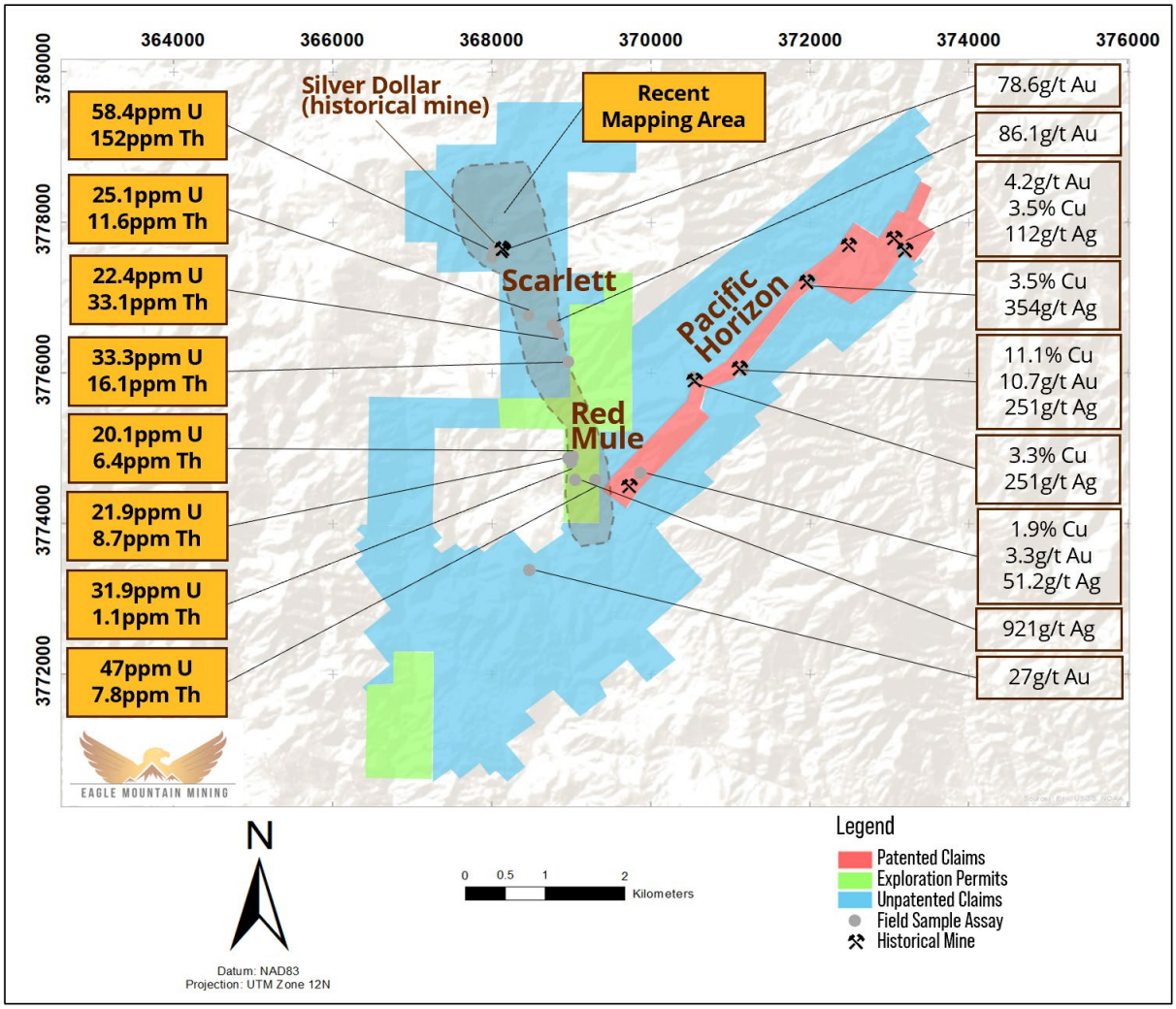


*Figure 2 – Landholdings, prospects, recent field work area and selected assays from Silver Mountain (refer to Attachment 1 and ASX announcements dated 23 January 2018, 30 April 2018 and 28 August 2018).*

## Uranium Occurrence

Recent field mapping confirmed the presence of extensive pegmatite dykes in the Scarlett area near the historical Silver Dollar mine (refer Photo 1). Eight samples (refer Figure 2) taken previously by the Company's consulting geologist, Dr Linus Keating, had assays in excess of four times anomalous levels with one sample showing elevated uranium and thorium of 58.4ppm and 152ppm respectively.

*Photo 1 – Outcropping pegmatite dyke (see dashed area) near the historical Silver Dollar mine at Silver Mountain.*

The promising pegmatites at Silver Dollar occur in scattered outcrops and display several different orientations, suggesting the presence of a dyke cluster. The dykes appear unfoliated as opposed to the Proterozoic granodiorites that host them. Their variable trends and lack of foliation suggests that they were emplaced post-Proterozoic granites and perhaps pre-Laramide processes.

The pegmatite dyke has a brecciated appearance (refer Photo 2) possibly due to emplacement in a high-volatile environment. Some cross-cutting quartz vein/limonite textures suggest that there may have been hydrothermal re-mobilisation resulting in possible minerals enriched with uranium and thorium. Pegmatite appears in the footwall of the nearby regional Breakaway Fault, but it is unclear how the fault may have affected emplacement. It is possible that a larger body of pegmatite may lay below in the footwall of this fault. Field mapping will be necessary to fully characterise the nature of the pegmatite occurrence. The team acquired additional samples for analysis (refer Photo 2) to help establish the nature and extent of uranium and thorium in the Scarlett area. A second radioactive pegmatite was intercepted during previous drilling two kilometres south in the main Scarlett zone; this second occurrence has some similarities to the Silver Dollar discovery.

Follow up work included reassessment of the existing Silver Mountain field sample datasets, with all samples >20ppm uranium compiled as these were considered highly anomalous (as shown in Figure 2 and Attachment 1)[2,3]

[2] This threshold was selected given the Arizona Geological Survey considers values above 4.5ppm uranium to be anomalous in this area, as documented in their report on Naturally Occurring Radioactive Materials (NORM) in Arizona.

[3] Spencer, J.E., 2002, Naturally Occurring Radioactive Materials (NORM) in Arizona. Arizona Geological Survey Open File Report, OFR-02-13

The reddish-brown bleb shown in the upper right of the Silver Dollar mine sample in Photo 2 is believed to be pyroxene, a possible of host of allanite, monzonite and thorite, all uranium and thorium bearing minerals.

*Photo 2 – Field sample of brecciated pegmatite dyke collected from the Silver Dollar mine showing widespread pink potassic alteration.*

## Next Steps

The Company plans to undertake the following work as recommended by Dr Linus Keating:

1. Conduct detailed mapping of pegmatites at Silver Dollar, including a systematic scintillometer survey along known outcrops;

2. Petrography to identify key uranium, thorium and rare earth minerals to aid in determining the key recoverable elements and potential mill grade; and

3. Design a drill program to find productive mineral intercepts, test the vertical extent of the mineralisation system and test downhole radioactivity.

*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 information compiled by Mr Brian Paull, 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 Paull is the Director of Exploration 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. Mr Paull holds shares and options in Eagle Mountain Mining Limited.

ABOUT EAGLE MOUNTAIN MINING

Eagle Mountain is a copper-gold explorer focused on the strategic exploration and development of the Oracle Ridge Copper Mine and the highly prospective greenfields Silver Mountain Project, 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:

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## Attachment 1

Summary table of all field samples >20ppm U at Silver Mountain

| Sample ID | Easting | Northing | Sample Type | U | Th | Cu | Ag | Au |
|---|---|---|---|---|---|---|---|---|
| | [m] | [m] | | [ppm] | [ppm] | [%] | [g/t] | [g/t] |
| 563691 | 367959 | 3777786 | Outcrop | 58.4 | 152 | 0.00 | 0.04 | 0.00 |
| 267283 | 369277 | 3774680 | Outcrop | 47 | 7.8 | 0.01 | 1.52 | 0.00 |
| 469919 | 368999 | 3776176 | Outcrop | 33.3 | 16.1 | 0.00 | 0.03 | 0.00 |
| 266595 | 369016 | 3774996 | Outcrop | 31.9 | 1.1 | 0.03 | 2.79 | 0.01 |
| 610945 | 368529 | 3776781 | Outcrop | 25.1 | 11.6 | 0.09 | 17.50 | 1.62 |
| 610973 | 368836 | 3776517 | Outcrop | 22.4 | 33.1 | 0.05 | 5.51 | 0.75 |
| 266609 | 368982 | 3774997 | Outcrop | 21.9 | 8.7 | 0.01 | 1.03 | 0.00 |
| 266593 | 369019 | 3775001 | Outcrop | 20.1 | 6.4 | 0.03 | 0.13 | 0.00 |

**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.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *Aspects of the determination of mineralisation that are Material to the Public Report.*<br>• *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.* | • Reconnaissance-style sampling at Silver Mountain during geological mapping to test mineralised material found on historical mining dumps, significant outcrops, unknown or altered lithologies. The key objectives were to verify the metal content of historically mined material, confirm historical sampling programs and test new areas/significant outcrops.<br>• Sample types have included dump material collected near historical mine developments, rock chip samples from outcrops and some channel samples. Rock chips are collected and placed in sample bags with a location captured by hand-held GPS. |

| 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).* | • N/A - no drilling results reported. |
| ***Drill sample recovery*** | • *Method of recording and assessing core and chip sample recoveries and results assessed.*<br>• *Measures taken to maximise sample recovery and ensure representative nature of the samples.*<br>• *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.* | • N/A - no drilling results reported. |
| ***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.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*<br>• *The total length and percentage of the relevant intersections logged.* | • Mapping and associated geological logging information captured where samples have been acquired. |
| ***Sub-sampling techniques and sample preparation*** | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or* | • ALS Minerals conducted all preparation work: surface samples were weighed, dried and crushed to better than 70% passing 2mm; sample was split with a riffle splitter and a split of up to 250g pulverised to better than 85% passing 75µm.<br>• Sample sizes are considered appropriate to the grain size of the material being sampled. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *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.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | |
| ***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.*<br>• *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.*<br>• *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.* | • ME-MS61 (48 element four acid ICP-MS), Hg-MS42 (trace Hg by ICP-MS) and Au-AA23 (Au 30g charge Fire Assay with Atomic Absorption finish). The technique is considered a near total digest of relevant minerals. Above detection samples are re-assayed with Au-GRA21, Ag-OG62, Cu-OG62, Pb-OG62 and Zn-OG62.<br>• Certified Reference Material (CRM), blanks and duplicates were inserted/collected at a ratio of 1:10, with a minimum of 1 CRM per assay batch. CRMs are inserted at intervals never exceeding 20 samples. Acceptable levels of accuracy and precision have been established. |
| ***Verification of sampling and assaying*** | • *The verification of significant intersections by either independent or alternative company personnel.* | • Significant intersections have been verified by the Company's Director of Exploration.<br>• No twinned holes reported.<br>• Logging and sampling data are collected using tablet computers to ensure data integrity. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | • *The use of twinned holes.*<br>• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustments to assay data.* | • No assay adjustment was performed. |
| ***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.*<br>• *Specification of the grid system used.*<br>• *Quality and adequacy of topographic control.* | • NAD83 Arizona State Plane Central (International feet). Data is presented in NAD83 UTM Zone 12N (meters).<br>• National Elevation Dataset. Horizontal resolution of approximately 10m and vertical resolution of 1m.<br>• Surface samples are located with a hand-held GPS with an estimated horizontal accuracy of ±5m. |
| ***Data spacing and distribution*** | • *Data spacing for reporting of Exploration Results.*<br>• *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.*<br>• *Whether sample compositing has been applied.* | • Data spacing is insufficient to establish the degree of geological and grade continuity appropriate for Mineral Resource estimation. |
| ***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.*<br>• *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.* | • The relationship between surface sampling orientation and orientation of key mineralised structures is yet to be determined. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Sample security*** | • *The measures taken to ensure sample security.* | • All field samples were collected by Company personnel or consultants and securely stored at the Company office prior to drop off at the assaying laboratories. |
| ***Audits or reviews*** | • *The results of any audits or reviews of sampling techniques and data.* | • No audits or reviews of sampling techniques have been completed. |

## 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.*<br>• *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 34º8' North, Longitude 112º23' West.<br>• The Project is 100% owned by Eagle Mountain Mining Limited through its Arizona subsidiaries Wedgetail Operations LLC (100%) and Wedgetail Holdings LLC (100%).<br>• Silver Mountain comprises 26 Patented Mining Claims, 351 Unpatented Mining Claims and 3 State Exploration Permits.<br>• 100% of the surface rights for the 26 Patented Mining Claims are owned by Wedgetail Operations LLC (private property).<br>• 100% of the mineral rights for the 26 Patented Mining Claims starting from 15.2m (50 feet) below surface are owned by Wedgetail Operations LLC. |
| ***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.<br>• Between 1906 and 1912 the Pacific Copper Mining Company sunk a 150m (500ft) shaft into the gossan at the Pacific Mine.<br>• Drilling was carried out in 1966, however it is unclear who completed the program (possibly Heinrichs GeoExploration)<br>• In 1968 Heinrichs GeoExploration conducted some dual frequency IP, resistivity and magnetic geophysical surveys. This was followed by further geophysical surveys in 1978 using Very Low Frequency (VLF) Electro Magnetics (EM).<br>• KOOZ contracted Applied Geophysics in 1978 to run EM surveys (VLF, MaxMin II and Crone Horizontal Shootback) over selected areas. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | • 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)<br>• 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:<br>• Proterozoic volcanogenic massive sulphides (VMS) in Precambrian greenstone (Pacific Horizon prospect)<br>• Quartz-carbonate breccia with associated copper-gold-silver mineralisation (Pacific Horizon prospect)<br>• Younger (Laramide arc) copper-gold porphyry and associated gold veins (Scarlett prospect)<br>• Pegmatite dykes elevated in uranium and thorium (Scarlett prospect)<br>• 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:*<br>  ○ *easting and northing of the drill hole collar*<br>  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>  ○ *dip and azimuth of the hole*<br>  ○ *down hole length and interception depth*<br>  ○ *hole length.*<br>• *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* | • No new drilling results outlined in this announcement.<br>• Eight field samples previously collected and assayed from Silver Mountain have now been reported, as summarised in Attachment 1. These samples had not been previously announced due to their relatively low copper, gold and silver values compared to other Silver Mountain field samples previously reported. After recent field work which identified the host rock as part of a potentially unique mineralisation system, all field samples >20ppm uranium have been reported (see subsequent section – Data aggregation methods). |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *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.*<br>• *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.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | • All field samples >20ppm uranium have been reported and are considered to be anomalous. This threshold was selected given the Arizona Geological Survey considers values above 4.5ppm uranium to be anomalous, as documented in their report on Naturally Occurring Radioactive Materials (NORM) in Arizona. Citation: Spencer, J.E., 2002, Naturally Occurring Radioactive Materials (NORM) in Arizona. Arizona Geological Survey Open File Report, OFR-02-13<br>• No metal equivalents reported. |
| ***Relationship between mineralisation widths and intercept lengths*** | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*<br>• *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').* | • N/A - no drilling results reported. |
| ***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.* | • See body of announcement. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Balanced reporting*** | • *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.* | • All Silver Mountain field samples obtained so far over 20ppm uranium have been reported. |
| ***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.* | • No other meaningful and material exploration data beyond this and previous ASX announcements by the Company. |
| ***Further work*** | • *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*<br>• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | • Further work will involve additional data review, field mapping, sampling, geology model updates. |