

### ASX Code: SCI

Issued Shares: 158.6M Unlisted Options: 21.2M Cash Balance: \$2.0M ABN: 68 130 933 309

### DIRECTORS

Bob Besley Chris Torrey Ian Plimer Greg Jones Ian Hume

### **TOP SHAREHOLDERS**

(At 10 October 2016)	
Sentient Group:	13.0%
Variscan Mines:	4.3%
HSBC Custody Nominees	2.9%
BNP Paribas Nominees	2.7%
RHB Securities Singapore	2.7%
Тор 20:	39.4%

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## HIGHLIGHTS

### Broken Hill

- Pegmatite sampling has outlined a number of zinc-lead-silver anomalies which are not explained by the proximal location of old mine workings. These have the potential to signal the presence of an undiscovered ore body.
- Pegmatite sampling shows a strong relationship between elevated lithium in quartz-muscovite rich pegmatites and low grade metamorphic rocks.
- The Company will receive a grant of \$114,800 from the New South Wales government for direct drilling costs at the Razorback West project 15 kilometres northeast of Broken Hill.
- The Company anticipates commencing Razorback drilling in October.

### Cobar

- Silver City entered into a joint venture arrangement with respect to the Wilga Downs project 80 kilometres to the north of the Cobar mining centre.
- Wilga Downs is conceptually a copper-gold target with similarities to existing copper mines in the district. Work is focused on coincident geophysical anomalies adjacent to a regionally important geological contact.

### OUTLOOK

### Drilling

- At Razorback West near Broken Hill three diamond drill holes (1000 metres) will be completed early in the Quarter. A number of coincident geochemical, geophysical and geological targets will be tested.
- At Wilga Downs a 400 metre diamond drill hole will be completed to test coincident geophysical targets.

### **Evaluation of Pegmatite Anomalies**

- Continued pegmatite sampling is scheduled in order to assess both base metal and lithium anomalies outlined in the initial program.
- Work will include portable XRF soil programs, geological mapping and more detailed rock chip sampling.

# September 2016

### **OPERATIONS**

Much of the Quarter was focussed on a new initiative to explore for lithium hosted in pegmatites at Broken Hill. While the district is well known for its base metal endowment, little or no work has been undertaken in the search for lithium despite well documented occurrences of lithium minerals in the Euriowie tin field. The Company is of the view that a discovery of lithium-bearing spodumene resources at Broken Hill could be developed quickly because infrastructure, a work force and mining services are all well established in the area.

Drilling at the Razorback West zinc project 15 kilometres north of Broken Hill was originally scheduled to commence in September. Heavy rain and flooding in western NSW has severely limited our access to drill sites. The Company now anticipates commencing drilling in mid to late October (Figure 1).

During the Quarter the Company entered into a farm-in and joint venture agreement with Thomson Resources with respect to the Wilga Downs copper-gold project located 80 kilometres north of Cobar. This is a new initiative for Silver City and focusses on favourable geology and a number of significant geophysical anomalies. These show similarities to those generated by other copper-gold deposits currently being mined in the district. Gravity and ground electromagnetic surveys have been undertaken during the Quarter.

### **Broken Hill**

#### **Pegmatite Sampling**

#### Work Program

Commencing in May this year the Company embarked on a program of exploration to assess the potential for lithium hosted in pegmatites within its tenements at Broken Hill. Pegmatites worldwide supply about 50% of the world's lithium. This rock type outcrops extensively throughout the Broken Hill district and lithium minerals have been recorded by the Geological Survey of NSW. The Company has systematically sampled pegmatites in much of its tenure in the May to August period.

Early results showed that lithium and its associated indicator elements are concentrated within EL 8454, which hosts the Waukeroo tin field and the Hores Gneiss stratabound tungsten deposits. Those early results also indicated that pegmatite samples had the potential to provide a vector to previously unknown Broken Hill type (BHT) lead-zinc-silver mineralisation. Silver City geologists considered that the pegmatites might also lead to the discovery of other styles of mineralisation. The sampling program was consequently modified with this in mind.

A total of 1072 pegmatite samples were collected. This includes 116 drill chip samples from a program of tungsten assessment by a previous explorer.

A large airborne spectrometry survey (HyMap  $^{TM}$ ) was undertaken in the Broken Hill district in March 2002. Recent work by other companies exploring for lithium suggest there may be potential to use this type of survey to locate the lithium minerals spodumene or amblygonite within pegmatite bodies. In addition government HyLogger spectral data is available for an historic drill hole within the Waukeroo tin field (Hole DD80YG1A). SCI engaged a consultant; Spectral Geoscience, to assess this data.

#### Results

#### Lithium

Elevated lithium occurs in pegmatites enriched in tin and tungsten within EL 8454 (Figure 2). Associated elements caesium, rubidium, niobium, gallium, thallium, phosphorous, beryllium and tantalum are also elevated. Anomalism is associated with narrow (0.5 to 1.5 metres wide) quartz-muscovite enriched pegmatites which are preferentially hosted in, and intrude lower grade metamorphic rocks. While these rocks have the geochemical signature of "LCT" (lithium-caesium-tantalum) pegmatites, known to host lithium resources worldwide, the lithium content is low. Resources of lithium quoted for pegmatites elsewhere in Australia have grades in the order of 1 to 1.5% Li<sub>2</sub>O which is equivalent to rocks hosting approximately 5000 to 7000 ppm (parts per million) lithium. The best result from the Silver City survey was 319ppm.

Analysis of spectral data from a drill hole in the Waukeroo tin field identified small quantities of the lithium phosphate mineral amblygonite. It was determined that amblygonite has a distinctive spectral signature that could potentially be detected by the HyMap<sup>TM</sup> survey. In this review none was detected within the SCI tenements.

In conclusion, Silver City has completed an initial program of assessment for lithium as outlined in ASX releases. To date it is yet to locate any targets of the size or grade likely to be required to outline a lithium mineral resource. Pegmatite sampling will continue in the search for both lithium and base metal sulphide deposits.

#### Zinc-Lead-Silver

As indicated above and in ASX releases, early batches of pegmatite samples showed that there was a spatial relationship between known Broken Hill type zinc-lead-silver mineralisation in old mine workings, and elevated lead, zinc and silver results from pegmatites. In the Riddock exploration licence (EL8020) the survey was modified to a closer line spacing to assess this response further.

The completed survey shows clusters of anomalous lead and silver with lesser zinc and manganese. Some of these are explained by their proximity to old mine workings and/or the Hores Gneiss. The Hores Gneiss is a critical stratigraphic unit in the Broken Hill district. It marks the position (and age) of the most important ore zones within the giant Broken Hill mineral deposit. It is considered to be a highly prospective, albeit complexly folded horizon (Figure 3).

Lead and silver are also elevated in pegmatites in close proximity to silver-rich veins known as Thackaringa type mineralisation. Pegmatites containing elevated copper, cobalt and uranium have yet to be explained.

It is apparent that using pegmatites as a sample medium on a regional scale may be an effective way of vectoring towards unexposed (undiscovered) mineralisation. The Company is particularly interested in the Riddock anomaly as it is appears to be large, associated with a zone of tightly folded Hores Gneiss and is located in an area where little or no mineralisation is previously known.

#### Why is this significant?

The lead-zinc-silver enriched pegmatites are largely hosted within very high to high grade metamorphic rocks where partial melting of the host rock sequence has taken place (Figure 3). They are coarsely crystalline granite-like rocks formed at high temperatures and pressures (high grade metamorphism) by melting of the host sedimentary and volcanic sequence. Some crystallise close to where melting took place and others move into zones of lower pressure and temperature along faults and fractures. They are consequently younger than the host rocks, but have a chemistry that reflects the sediment-volcanic sequence.

Much of Broken Hill zinc-lead-silver sulphide mineralisation is stratiform, in that it formed within and at approximately the same time as the sedimentary and volcanic sequences. Partial melting could incorporate this sulphide into pegmatites such that the chemistry of a pegmatite in close proximity to mineralisation might provide a vector to that sulphide mineralisation. For example pegmatites close to known ore zones at Broken Hill locally host green feldspar which is enriched in lead. An unexplained anomaly such as that which occurs at Riddock has the potential to signal the presence of an undiscovered orebody.

#### What Next?

SCI is currently reviewing all existing exploration data in areas of anomalism. Follow-up portable XRF soil programs, further rock sampling and geological mapping are envisaged. In addition, the Company also proposes to expand the pegmatite sampling program into areas of poor outcrop. One of the characteristics of pegmatites is its resistance to erosion, and the propensity for it to crop out where no other rocks occur. In this respect it is ideally suited to assess the mineral potential of low lying areas, otherwise unsuitable for other geochemical surveys.

The aim is to outline targets for near-term drill assessment.

#### Razorback West Drilling (100% Silver City Minerals)

#### **Drill Targets**

The Razorback West corridor is considered to be the northern extension of the Broken Hill "line-of-lode", offset by a fault known as the Stephens Creek Shear. The corridor extends for twelve kilometres, is approximately three kilometres wide and is mostly buried beneath a veneer of alluvium and soil in a valley with little more than 10-15% outcropping rock.

The Company has outlined coincident lead-zinc-manganese geochemical, gravity and induced polarisation (IP) anomalies in the southern part of the corridor (Figure 4). This target zone is over five kilometres long and one kilometre wide. SCI initiated the first ever drilling in 2012 and has completed 18 holes. Drill holes have returned anomalous lead, zinc and manganese and have confirmed the presence of the favourable host-rock sequence for Broken Hill type zinc-lead-silver mineralisation.

In order to focus on more significant accumulations of sulphide of the Broken Hill type, the Company undertook both moving loop and fixed loop electromagnetic (EM) surveys. A number of subtle EM conductors were identified.

In plan, the conductors show a close spatial relationship with the peak zinc anomaly outlined in shallow RAB holes (Figure 4). Further, when reviewed in cross-sections with respect to Silver City shallow reverse circulation (RC) drill holes, the main conductor shows a similar relationship to steeply dipping zones of elevated lead, zinc and manganese. The fact that the conductors are remarkably coincident with elevated zinc, lead and manganese suggests some causal link.

The rock package which hosts elevated geochemistry is 35 to 50 metres wide and lies directly above the interpreted EM anomaly as shown in Figure 5.

The EM anomalies lie untested at depth beneath the existing Silver City drill holes. They could be responding to a significant accumulation of zinc-rich (sphalerite-rich) mineralisation in a deeper target zone depicted conceptually in Figure 6.

SCI has been awarded a grant of \$114,800 for this project by the New South Wales Government under the Cooperative Drilling Initiative (Round 2). This will assist with the direct drilling costs of a three-hole diamond drilling program.

### Cobar (Silver City Minerals can earn 80%)

During the Quarter the Company signed a farm-in and joint venture agreement with Thomson Resources Ltd (ASX:TMZ) with respect to the Wilga Downs project located approximately 80 kilometres north of Cobar, New South Wales (Figure 7).

The exploration focus is on a series of geophysical anomalies adjacent to a favourable geological boundary.

The project is characterised by an elongate, east to northeast oriented magnetic anomaly 1.5 kilometres long and 400 metres wide. Limited outcrop suggests this lies sub-parallel to a regionally significant geological contact between old rocks of the Girilambone Group (Ordovician age) and younger rocks of the Cobar Supergroup (Devonian to Silurian age).

Many of the mines and mineral occurrence in the district are located at or near this regionally extensive contact. In many locations the contact is a major fault and the Rookery Fault is an important example (Figure 7).

An induced polarisation geophysical survey conducted in 1971 shows a strong chargeability anomaly largely coincident with the magnetic anomaly (Figure 8). Two holes were drilled in the western end of these anomalies by AMAX (1971) and CRA Exploration (1978). Both intersected broad zones of elevated lead, zinc and copper mineralisation (details in ASX Release 19 August 2016).

Drill logs document the presence of sulphide minerals sphalerite, chalcopyrite, galena, pyrite and pyrrhotite. In particular CRA Exploration noted a relationship between a metamorphosed basaltic (mafic volcanic) rock and mineralisation. This is a characteristic of the nearby Tritton copper deposit.

In 2014, Thomson Resources flew Versatile Time-Domain Electromagnetics (VTEM) over a large portion of the EL. This survey detected a number of conductors all of which might represent sulphide accumulations at depth. One in particular lies within the western part of the magnetic and IP anomalies. Preliminary modelling of this conductor suggested that it is flat lying and too deep to have been tested by historic drill holes. Thomson Resources followed this up with one north-south oriented line of ground EM which confirmed a strong conductor at depth (TMZ ASX Releases 17 September 2014 and 22 July 2015).

Silver City subsequently conducted gravity and ground electromagnetic surveys. This work showed a gravity anomaly coincident with the magnetic anomaly and an electromagnetic conductor at depth (Figure 9). The Company had planned to drill this conductor in September but postponed the work due to heavy rains. This drilling is now scheduled to take place after drilling at Razorback West in October or November. The conceptual target at this project is a high grade copper-gold resource similar to the nearby Tritton or CSA mines.

### CORPORATE

Net operating expenditure for the Quarter was \$518k. This included \$384k on projects, \$150k on administration, offset by \$12k received in interest income and \$4k received from JV and consulting income. Cash on hand at the end of the Quarter was approximately \$2.0 million. The company continues to review and implement reductions in operating costs to maximise funds available for exploration and other opportunities.

### Announcements related to this report

ASX Releases 12 July 2011, 11 May 2016, 3 June 2016, 15 August 2016, 19 August 2016, 30 August 2016, 7 September 2016, 12 September 2016, 27 September 2016 and 6 October 2016. Quarterly Report March 2015.

### SILVER CITY MINERALS LIMITED

Christopher Torrey Managing Director

#### **ABOUT Silver City Minerals Limited**

Silver City Minerals Limited (SCI) is a base and precious metal explorer focused on the Broken Hill District of western New South Wales, Australia. It takes its name from the famous Silver City of Broken Hill, home of the world's largest accumulation of silver, lead and zinc; the Broken Hill Deposit. SCI was established in May 2008 and has been exploring the District where it controls Exploration Licences through 100% ownership and various joint venture agreements. It has a portfolio of highly prospective projects with drill-ready targets focused on high grade silver, gold and base-metals, and a pipeline.

#### **Caution Regarding Forward Looking Information**

This document contains forward looking statements concerning Silver City Minerals Limited. Forward-looking statements are not statements of historical fact and actual events and results may differ materially from those described in the forward looking statements as a result of a variety of risks, uncertainties and other factors. Forward-looking statements are inherently subject to business, economic, competitive, political and social uncertainties and contingencies. Many factors could cause the Company's actual results to differ materially from those expressed or implied in any forward-looking information provided by the Company, or on behalf of, the Company. Such factors include, among other things, risks relating to additional funding requirements, metal prices, exploration, development and operating risks, competition, production risks, regulatory restrictions, including environmental regulation and liability and potential title disputes. Forward looking statements in this document are based on Silver City's beliefs, opinions and estimates of Silver City Minerals as of the dates the forward looking statements are made, and no obligation is assumed to update forward looking statements if these beliefs, opinions and estimates should change or to reflect other future development.

#### **Competent Person**

The information in this report that relates to Exploration Results is based on information compiled by Christopher Torrey (BSc, MSc, RPGeo.) who is a member of the Australian Institute of Geoscientists. Mr. Torrey is the Managing Director, a shareholder and full-time employee of Silver City Minerals Limited. Mr. Torrey has sufficient experience relevant to the styles of mineralisation and type of deposits under consideration and to the activity 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". Mr. Torrey consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.



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Figure 1. Silver City Minerals, Broken Hill tenements and location of current projects.



Figure 2. Lithium geochemistry in pegmatites superimposed on the distribution of metamorphic grade in the Broken Hill district. Note the clear association between elevated lithium and low grade metamorphic rocks.



Figure 3. Lead geochemistry in pegmatites superimposed on the distribution of metamophic grade and the location of the Hores Gneiss in the Broken Hill district. Note the association between elevated lead and high to very high grade metamorphic rocks and/or the Hores Gneiss.



Figure 4. Shows the RAB zinc anomaly (colour image) and the positions of the moving and fixed loop electromagnetic conductors. SCI drill hole locations are shown, as are proposed Holes "A", "B" and "C" to be partly funded by the drilling grant.



Figure 5. Cross-section B-B' (Hole "B" in Figure 4). Proposed drill hole tests EM anomaly approximately 150 metres below surface.



Figure 6. Schematic cross-section showing new target zone to be tested in upcoming round of drilling.



Figure 7. Mines and mineral deposits in the Cobar District. Location of the Wilga Downs exploration licence.



Figure 8. Magnetic anomaly with IP chargeability contours. The peak of the IP contours is largely coincident with the peak of the magnetic anomaly; both trending generally east-west.



Figure 9. Image of moving loop EM with IP contours. Highest conductivities are coincident with highest IP chargeability approximately 200 metres east of old drill holes.