



## ASX ANNOUNCEMENT

11 May 2016

### **Lithium in Broken Hill Pegmatites**

- **Silver City Minerals has commenced assessment of lithium in pegmatites at Broken Hill.**
- **Extensive zones of pegmatite are known in Silver City tenements**
- **Pegmatites outcropping over 100 square kilometres, comprising almost 8% of tenure.**
- **Large pegmatite bodies up to 9 kilometres long and 2 kilometres wide.**
- **No systematic exploration for lithium ever undertaken at Broken Hill.**
- **Lithium minerals identified in the District.**
- **Anomalous indicator minerals.**

**Silver City Minerals Limited (ASX: SCI) (“Silver City” or “the Company”)** will assess the potential for lithium at Broken Hill where it has an extensive tenement position of approximately 1200 square kilometres. The tenure; which includes granted exploration licences and new licence applications, contains large tracts of the Willyama Supergroup rocks; host to the supergiant, high grade, zinc-lead-silver deposit at Broken Hill. Pegmatite outcrops exposed within the SCI tenements are extensive; cumulatively comprising 100 square kilometres.

Lithium minerals have been recognised in the Euriowie and Kantappa tin fields. These include amblygonite ((Li,Na)AlPO<sub>4</sub>(F,OH)), petalite (LiAlSi<sub>4</sub>O<sub>10</sub>), spodumene (LiAl(Si<sub>2</sub>O<sub>6</sub>) and lepidolite (KLi<sub>2</sub>AlSi<sub>4</sub>O<sub>10</sub>F(OH)). Associated and indicative minerals also noted in various reports include lithium enriched muscovite, caesium beryl, beryl, topaz, fluorite, tourmaline, cassiterite (tin oxide) and tantalite-columbite (tantalum-niobium minerals).

## Background

For some time the board of Silver City Minerals Limited has taken an interest in the developments in the lithium industry with regard to advances in technology, the rising demand and pricing of lithium carbonate and the potential sources for the metal. There is strong interest in pegmatite as a source rock for lithium. Currently over a third of the world's lithium is produced from pegmatite; notably from the Greenbushes mine in Western Australia.

SCI has been exploring for base metal and silver deposits at Broken Hill since incorporation in 2008. It has a number of drill-ready zinc exploration projects.

Apart from some pegmatitic base metal ores at Broken Hill and gem quality beryl and feldspar occurrences, the pegmatite rocks have largely been regarded as a nuisance to exploration geologists. The pegmatites of interest are younger (1600 to 1580 million years old) than the ore-hosting sequences at Broken Hill and have intruded, disrupted and diluted base metal ore zones and are generally regarded in mining operations as waste. Lithium minerals described above have been documented in various NSW Geological Survey Bulletins since 1982 and have generally been considered a geological oddity and not evaluated as a potential source for lithium.

In recent presentations by the Geological Survey of NSW two types of pegmatite have been identified. They describe a lower sill complex which results from crustal melting of mineral-rich Willyama sediments and is emplaced in high grade metamorphic rocks. The second type is volumetrically less significant but has consistently moved from its original source, became more highly evolved, enriched in rare elements and intruded lower grade metamorphic rocks. It is this second, more prospective type which hosts lithium, tin, tantalum, niobium and boron minerals.

The occurrences of lithium minerals in association with tin and tantalum mineralisation are a feature of lithium deposits. The Euriowie and Waukeroo tin fields are considered to be fault-offset equivalents separated by a block of younger sediments (Figure 1). Euriowie is known to host amblygonite and recent sampling by Platypus Minerals (ASX 19 February 2016) indicated values up to 4.45%  $\text{Li}_2\text{O}$ . The Waukeroo tin field located in the SCI ELA 5280 is likely to contain similar minerals. To date pegmatite in the district has not been systematically sampled for lithium nor have studies been conducted to identify lithium-bearing minerals.

## What happens next?

SCI holds title to eleven granted exploration licences and has three licence applications in place. In almost all the current licences SCI has access agreements with local farmers. Initial work will comprise geochemical sampling surveys in conjunction with geological mapping and mineralogical surveys. This work will be designed to focus in on areas anomalous in lithium and more specifically to identify the presence of lithium minerals for drill testing.

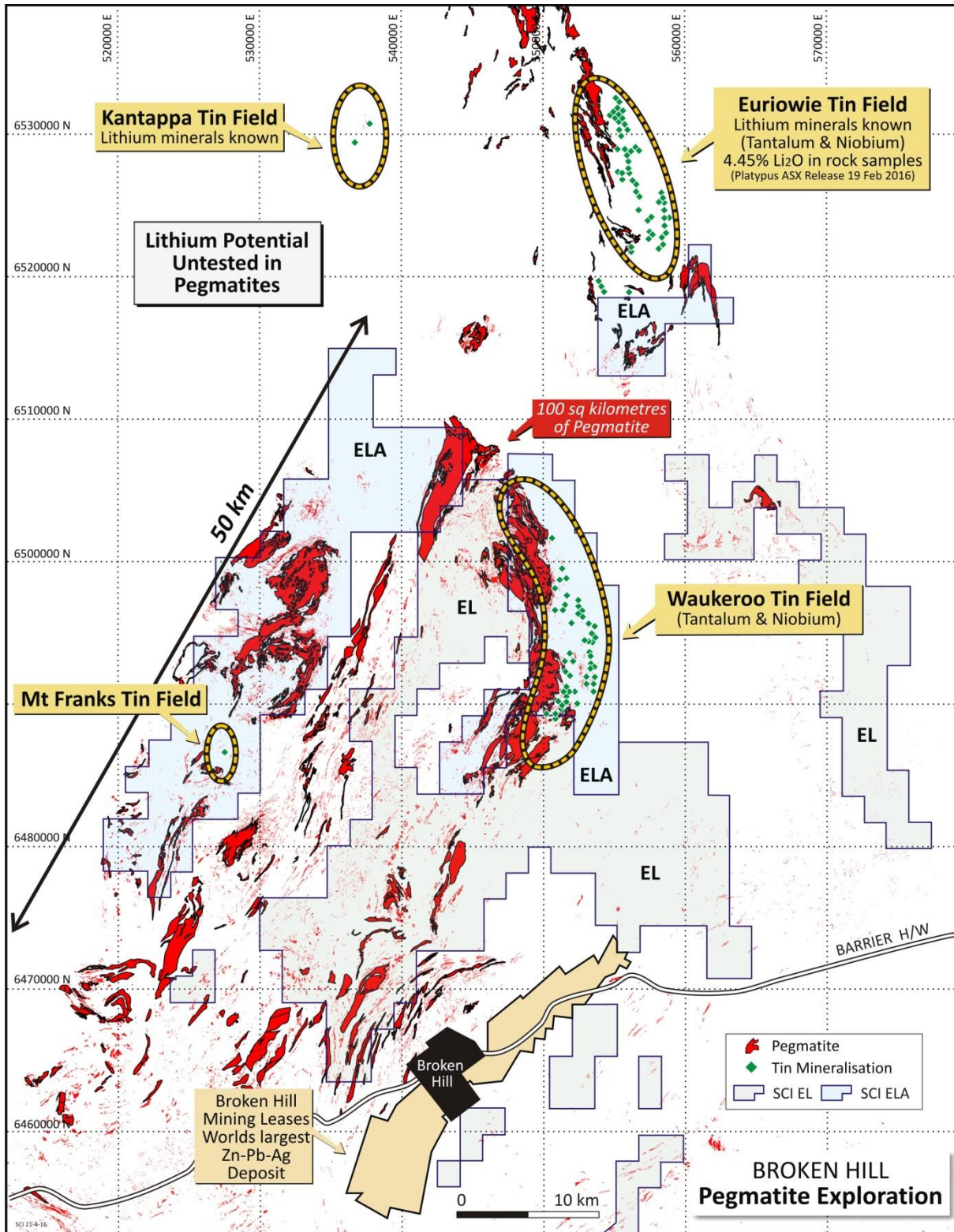


Figure 1. Broken Hill district showing the extent of pegmatite and Silver City tenements. There are 100 square kilometres of outcropping pegmatite within the SCI ground. Lithium minerals are known to occur in tin fields and these are starting points for exploration. The province has never been systematically assessed for lithium.

## About Lithium

### *Properties*

Lithium is a soft metal, the lightest in the periodic table with a density of 0.534 g/cm<sup>3</sup>. It has a silvery white appearance that reacts immediately with water and air. Lithium (Li) has an atomic weight of 6.938, is the third element in the periodic table.

Lithium also has the highest electrochemical potential of all metals. These properties provide very high energy and power densities for batteries.

Lithium is chemically active and does not occur as a pure element in nature, but is contained within stable minerals or salts. The concentration of lithium is generally low in nature and there are only a limited number of resources where lithium can be economically extracted.

Lithium and its chemical compounds exhibit a broad range of beneficial properties including:

- The highest electrochemical potential of all metals
- An extremely high coefficient of thermal expansion
- Fluxing and catalytic characteristics
- Acting as a viscosity modifier in glass melts
- Low density
- Low atomic mass

### *Uses*

Lithium is used extensively in the ceramics and glass making industry and is also used in steel and iron castings. The fastest growing use of lithium is in batteries. The advantages of the lithium battery are its higher energy density and lighter weight compared to nickel-cadmium and nickel-metal hydride batteries. A growing application for lithium batteries is as the power source for a wide range of electric vehicles and portable electronic devices.

### *Sources*

Lithium-bearing pegmatite, such as those at Greenbushes in Western Australia account for over a third of global production. There are three lithium minerals commercially mined today; spodumene, petalite and lepidolite. Spodumene is the most important given its high inherent lithium content (approximately 8%). Grades of greater than about 0.6% Li (1.5% Li<sub>2</sub>O) are generally required for commercial operations.

Lithium is found in commercial quantities in some continental brine deposits of volcanic origin, and in desert areas in playas and saline lakes where lithium has been concentrated by evaporation. These range in concentration from Clayton Valley, USA, at 0.02% Li to Salar de Atacama in Chile, with 0.14% Li. The process of extracting the lithium from brines involves pumping, evaporation and chemical extraction. Nearly one half of the world's lithium supply comes from brine production in Chile and Argentina.

Sedimentary rock deposits account for 8% of known global lithium resources and are found in clay deposits and lacustrine evaporites.

## 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 with a strong focus 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 of prospects moving toward the drill assessment stage. The Company continues to seek out quality projects for exploration and development.*

### **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 Persons**

*The information in this report that relates to Exploration Results is based on information compiled by Chris 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 which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a "Competent Person" as defined by the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Torrey consents to the inclusion in this Report of the matters based on this information in the form and context in which it appears.*

## **CONTACT DETAILS**

### **Management and Directors**

Bob Besley	Chairman
Chris Torrey	Managing Director
Greg Jones	Non-Executive Director
Ian Plimer	Non-Executive Director
Ian Hume	Non-Executive Director
Yanina Barila	Alternate Director
Ivo Polovineo	Company Secretary

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