



# SUNRISE RESOURCES PLC

**AIM Announcement**

**4 May 2017**

## **SUNRISE RESOURCES PLC ("the Company")**

### **POZZOLAN-PERLITE CONCEPT STUDY, TEST RESULTS & STRATEGIC REVIEW**

Sunrise Resources plc is pleased to provide details of further testwork results and the completion of a positive concept study for development of the CS Pozzolan-Perlite Project in Nevada. Sunrise would also like to update the market on the results of a Board review of the Company's strategy.

#### **HIGHLIGHTS:**

##### **Testwork**

- Successful independent certification testing of Main Zone pozzolan.

##### **Concept Study**

- Positive Concept Study completed by the Company for production of both pozzolan and perlite.
- Study assumes that long-life, quality deposits will be defined within the known large outcrop areas of pozzolan and perlite.
- Surface mining and simple production process envisaged.
- Preliminary modelling shows attractive financial returns based on low capital and operating cost estimates.
- Permitting study suggests an expeditious Environmental Assessment process rather than full Environmental Impact Statement process.

##### **Board Strategic Review**

- Board to focus current management and financial resources on development of CS Project into production and other natural pozzolan opportunities.
- Board will seek progressive valorisation of the Company's existing precious metal and other industrial minerals projects through joint venture, sale or other arrangements.

**Commenting today, Executive Chairman Patrick Cheetham said:** "I am very pleased to report a successful independent certification of CS pozzolan and the positive findings of the Concept Study just a few months after first staking claims for the project. The CS Project's natural pozzolan has strong "green" credentials for partial replacement of Portland cement which is responsible for 5% of global man-made CO<sub>2</sub> emissions.

We have identified a low capital cost development option with attractive returns on the production of both natural pozzolan and perlite. Whilst best practice does not allow the release of forward-looking financial projections before drilling has defined the deposit, we have confidence in the large surface areas of perlite and pozzolan mapped to date. The Board has discussed the findings of the Study and is excited to announce a strategic decision that development of the CS Project should be the Company's priority.

We will move quickly to initiate the necessary technical work, feasibility studies and start the permitting process. Various value adding marketing and technical milestones have been identified and we hope to move forward with bulk sampling and customer trials later this year.

Meanwhile management will seek to unlock the value intrinsic in its diverse precious, base metal and other industrial minerals portfolio through joint venture, sales or other arrangements."

### **Further information**

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### **Detailed Information**

#### **About Natural Pozzolan**

Pozzolan is a cementitious material that can partially replace ordinary Portland cement in cement and concrete mixes in amounts up to 35%. Natural pozzolans, therefore, have strong "green" credentials as the production of Portland cement is responsible for 5% of the global man-made carbon dioxide emissions with nearly one tonne of carbon dioxide (CO<sub>2</sub>) generated for each tonne of cement produced. Natural pozzolans can also improve the strength and chemical resistance of concrete. Natural pozzolans can also replace industrial by-product pozzolans in cement such as coal fly-ash. The availability and quality of fly ash is under threat as coal-fired power stations are phased out in favour of natural gas plants and fly ash quality becomes more variable due to increased emission control legislation.

#### **About Perlite**

Perlite is a glassy raw material which, when heated in a furnace, pops like popcorn and expands by up to 20 times in volume into a white or pale coloured, low density material. Expanded perlite is used in various industrial and household applications such as insulation, paint texturing, building materials, filter aids, insulating industrial cryogenic storage vessels and as a potting medium in gardening and horticulture to aid water retention and aeration of the soil. Some perlites can also be used as a natural pozzolan.

## **Background**

The Company's CS Pozzolan Deposit was first announced on 14 November 2016. The results of this initial testwork, announced on 22 December 2016, were very positive for the production of natural pozzolan and justified a concept study and testwork programme to evaluate the economic potential of the project.

Further announcements on testwork results were made on 2<sup>nd</sup> and 13<sup>th</sup> March 2017 and included the discovery that the Main Zone pozzolan had economic potential as a perlite and the discovery of a second zone of non-perlitic pozzolan in the Tuff Zone to the south.

## **Testwork Results**

The Company is now able to announce that a composite sample from the Main Zone pozzolan has been certified by independent testing laboratory CTL Thompson in Colorado as a raw natural pozzolan suitable for use in concrete in accordance with ASTM C618<sup>1</sup>.

The Company is also evaluating the variability of ASTM C618 cement strength requirements across the pozzolan deposit through pre-certification testing at Magmatics' lab in Idaho. Seven day curing strengths were reported on 2<sup>nd</sup> March and we can now report very good, compliant, strength results after 28 days of curing for all materials tested to date, including the discovery sample from the Tuff Zone.

Further pre-certification and certification testwork is in progress and this will be an ongoing process.

## **Concept Study**

The Concept Study for a potential development of the CS Deposit was initiated at the end of January 2017 and was scoped to consider the production of pozzolan from the CS Deposit and was later expanded to also include consideration of perlite production following discovery of the perlitic properties of the pozzolan in March 2017.

The Study has now been completed by the Company with substantial contributions from external consultants.

The Study includes an evaluation of the markets and market opportunities for the Company in both perlite and pozzolan and identifies a low capital and operating cost strategy for market entry as well as future opportunities to grow the business.

Simple financial modelling of a preliminary development plan suggests the potential for a very low capital and operating costs project with attractive financial returns.

The Concept Study sets out the road map for development of the project and includes an initial evaluation of the requirements and broad timelines for permitting the project with the various regulatory authorities. The study concludes that the project is likely to qualify for a lower level and more expeditious Environmental Assessment (EA) rather than a full blown Environmental Impact Statement (EIS), subject to agreement with the regulatory authorities.

The Company will be able to carry out drilling and bulk sampling to provide samples for customer testing under a simple Notice level permit provided the total area of disturbance does not exceed 5 acres.

The Concept Study was prepared primarily for internal management purposes and, in particular, to help inform a decision as to whether to commit the Company to the next stages of exploration and development for the CS Project.

An extract from the Concept Study will shortly be posted on the Company's website and a summary is provided below. The Concept Study contains information of a forward-looking nature and is not based on any code compliant Exploration Target, Mineral Resource or Ore Reserve. Consequently the summary below, and the extract to be added to the website, will exclude the forward-looking financial projections and information on production targets as well as certain information which is considered by the Board to be commercially sensitive.

### **Concept Study – Summary**

The CS Project offers the opportunity to develop production of two separate industrial commodities in the same project area.

Work to date has identified a potentially large deposit of perlite, an industrial mineral which expands on heating to a lightweight material with multiple industrial uses. Expansion tests indicate a high quality perlite. Testing of this same material shows it also has potential as a high quality natural pozzolan for use as a "green" replacement for cement. The project also contains a separate, large area of non-perlitic pozzolan where initial testing results are also favourable.

A quality natural pozzolan competes with Class F coal-fired power plant fly ash. Established natural pozzolan producers in the western US are enjoying rapidly increased sales volumes in cement and concrete markets as traditional supplies of fly ash shrink in line with the continuing closure of coal fired power plants across the USA. Since 2010, 248 power plants or just under 50% of all coal fired power stations in the US have announced a scheduled retirement plan. Many of these 248 plants are deciding to close their doors early, primarily because they cannot compete or remain competitive with gas-fired power production. The supply of fly ash to the western US is already precarious and predicted to become critical in the coming years opening up an already expanding market for natural pozzolan.

For now logistics will be an important factor in the development of a pozzolan-perlite project at the CS Deposit as the project is some distance (160 miles) from rail infrastructure but close to a sealed highway. The project will rely on truck transport with transport costs a large component of the estimated delivered price of CS natural pozzolan and perlite. Potential markets are within reach in Nevada and the populous state of California. Specific market opportunities have been identified for both pozzolan and perlite and the current perlite industry structure suggests that there is room for cooperation with perlite expanding companies looking to integrate with mining operations.

Low-cost market entry strategies have been identified for production of both perlite and pozzolan using a common production plant enabling flexible outputs to meet the market. It is envisaged that, initially at least, the plant will comprise simple crushing and screening sections with raw crushed pozzolan sold to cement producers for intergrinding with cement clinker and crushed raw perlite screened to specific size fractions for sale to perlite expanding companies.

An order-of-magnitude estimate of capital and operating costs for this start-up production plan and simple cash flow analysis suggests the potential for a profitable project based on the broad assumptions made. In future there is potential to grow with the markets and to make step changes in the value of the business through downstream processing.

A preliminary permitting study suggests that the project could be permitted with an Environmental Assessment (EA) rather than a lengthier Environmental Impact Statement (EIS). The time period from submission of a completed Plan of Operations to the receipt of all regulatory permits and consents is estimated at 9 months.

It is recommended that the Company proceed to engage with market participants, carry out drilling on the deposit and start critical path baseline permitting studies as soon as possible.

Notes:

1. *ASTM International is a globally recognised leader in the development and delivery of voluntary consensus standards. ASTM C618 is the standard for natural pozzolan.*
2. *Whilst the Company has established that its CS mining claims contain significant outcrop areas and exposed vertical thicknesses of pozzolan and perlite the Company has not yet carried out any drilling and no code-compliant Exploration Target or Mineral Resource or Ore Reserve has been defined.*
3. *The news release may contain certain statements and expressions of belief, expectation or opinion which are forward-looking statements, and which relate, inter alia, to the Company's proposed strategy, plans and objectives or to the expectations or intentions of the Company's directors. Such forward-looking statements involve known and unknown risks, uncertainties and other important factors beyond the control of the Company that could cause the actual performance or achievements of the Company to be materially different from such forward-looking statements. Accordingly, you should not rely unduly on any forward-looking statements and save as required by the AIM Rules for Companies or by law, the Company does not accept any obligation to disseminate any updates or revisions to such forward-looking statements.*
4. *This announcement contains inside information.*
5. *The information in this release has been compiled and reviewed by Mr. Patrick Cheetham (MIMMM, MAusIMM) who is a qualified person for the purposes of the AIM Note for Mining and Oil & Gas Companies. Mr. Cheetham is a Member of the Institute of Materials, Minerals & Mining and also a member of the Australasian Institute of Mining & Metallurgy.*

Shares in the Company trade on AIM. EPIC: "SRES". Website:  
[www.sunriseresourcesplc.com](http://www.sunriseresourcesplc.com)