

7<sup>th</sup> December 2017  
ASX via Electronic Lodgement

**Plymouth Minerals  
Limited**

**ACN 147 413 956  
ASX.PLH**

*Developing the world class  
San Jose lithium-tin deposit  
in Europe.*

**Issued Capital:**

151,440,221 ordinary  
shares  
25,000,000 performance  
shares (  
22,525,000 share options

**Directors:**

**Non-Executive Chairman**

Kevin Tomlinson

**Managing Director**

Adrian Byass

**Non Executive Directors**

Humphrey Hale

Dr Eric Lilford

Christian Cordier

**Company Secretary and  
Chief Financial Officer**

Robert Orr

**Contact Details:**

Level 1, 329 Hay Street  
Subiaco, Perth, Western  
Australia, 6008, Australia

Tel +61 (0) 86461 6350

Fax +61 (0) 8210 1872

**Email**

[admin@plymouthminerals.com](mailto:admin@plymouthminerals.com)

**Web**

[www.plymouthminerals.com](http://www.plymouthminerals.com)

## FIRST BATCH FROM BULK SAMPLING PROGRAM TO MAJOR CHINESE LITHIUM PRODUCER

### Highlights

- **Advanced test work bulk sample being despatched**
- **Initial focus on beneficiation upgrade work and then processing to battery grade lithium products**
- **Plymouth to benefit from Shandong Ruifu's experience in design, construction and operation of lithium processing facilities**

Plymouth Minerals Limited (ASX: PLH) (Plymouth or the Company) is pleased to provide an update on process test work to be conducted as part of the Memorandum of Agreement (MoA) with major Chinese lithium carbonate producer Shandong Ruifu Lithium Company (Shandong Ruifu). The first batch of mineralised material for the Bulk Sampling Program has been selected from within the optimised open pit at the San Jose Lithium-Tin Project and is being dispatched from site to Shandong Ruifu's production facilities in China (Figure 1) with the remainder to follow shortly.



**FIGURE 1: SHANDONG RUIFU AND PLYMOUTH PERSONNEL AT A RECENTLY CONSTRUCTED LITHIUM CARBONATE PRODUCTION FACILITY OWNED AND OPERATED BY SHANDONG RUIFU**

As per the MoA between Plymouth and Shandong Ruifu (ASX release dated 5<sup>th</sup> October 2017) the bulk sample has been selected and will be processed to battery grade lithium products. Additional beneficiation upgrade work will initially be conducted in combination with the lithium carbonate production. Currently, as per the strongly positive Scoping Study released to the ASX 24<sup>th</sup> October 2017, mineralised material is mined and upgraded from 0.8% lithium oxide (Li<sub>2</sub>O) to 1.4% lithium oxide (Li<sub>2</sub>O) prior to being delivered for processing. Improvements in beneficiation grade flow directly to the economic outcomes of the project and are valuable gains.

Plymouth is seeking to benefit from Shandong Ruifu's experience in design, construction and operation of lithium processing facilities since 2009. Shandong Ruifu has designed, built and operated lithium mica and lithium spodumene production facilities.

Plymouth is targeting to complete a feasibility study by the end of 2018 and has entered into this partnership with Shandong Ruifu to ensure optimal outcomes for flowsheet and plant design. In addition, Shandong Ruifu's operational experience will provide assistance in capital cost and operating cost estimates as part of the feasibility study.

#### **About Shandong Ruifu**

Shandong Ruifu Lithium Company (Shandong Ruifu) is a Chinese lithium carbonate producer expanding into lithium hydroxide production. Shandong Ruifu entered the lithium space in 2009 producing lithium carbonate from lithium mica and also undertakes Li<sub>2</sub>CO<sub>3</sub> production from spodumene feedstock. Shandong Ruifu's current production is over 5,000tpa of lithium carbonate and the company is currently commissioning expansion to 20,000tpa lithium carbonate (Li<sub>2</sub>CO<sub>3</sub>). In addition, work is progressing on a 10,000tpa lithium hydroxide (LiOH) plant.

Shandong Ruifu is one of several Chinese companies with a history and expertise in lithium production sourced from both mica and spodumene feedstock. There are approximately ten plants operating or under construction in Yichun area, Jiangxi Province which treat lithium-bearing mica feedstock. Lithium from Micas has been exploited in the Yichun area for many years. The region has abundant lithium mica feedstock and this has led to the development of lithium mica processing technology and the construction of a number of processing plants producing lithium carbonate in the Yichun area, Jiangxi Province.

For further inquiries please contact;

Adrian Byass  
CEO, Managing Director  
T: +61 (0) 410 305 685  
E: [abyass@plymouthminerals.com](mailto:abyass@plymouthminerals.com)

## **Competent Persons Statement**

The information in this report that relates to Exploration Targets is based on the information compiled by Mr Jeremy Peters, FAusIMM CP (Mining, Geology). Mr Peters has sufficient relevant professional experience with open pit and underground mining, exploration and development of mineral deposits similar 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 in the 2012 Edition of JORC Code. He has visited the project area and observed drilling, logging and sampling techniques used by Plymouth in collection of data used in the preparation of this report. Mr Peters is an employee of Snowden Mining industry Consultants and consents to be named in this release and the report as it is presented.

The information in this report that relates to the December 2017 updated Mineral Resources is based on the information compiled by Mr Patrick Adams, FAusIMM CP (Geology). Mr Adams has sufficient relevant professional experience with open pit and underground mining, exploration and development of mineral deposits similar 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 in the 2012 Edition of JORC Code. Mr Adams has not visited the project area and has relied on the documented (Peters, May 2017) drilling, logging and sampling techniques used by Plymouth in collection of data used in the preparation of this report. Mr Adams is a Principal Geologist and a Director of Cube Consulting Pty Ltd and consents to be named in this release and the report as it is presented.

The information in this report that relates to Exploration Results is based on the information compiled or reviewed by Mr Adrian Byass, B.Sc Hons (Geol), B.Econ, FSEG, MAIG and an employee of Plymouth Minerals Limited. Mr Byass has sufficient experience 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 in the 2012 Edition of the JORC Code. Mr Byass consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

## **Disclaimer**

Forward-looking statements are statements that are not historical facts. Words such as "expect(s)", "feel(s)", "believe(s)", "will", "may", "anticipate(s)" and similar expressions are intended to identify forward-looking statements. These statements include, but are not limited to statements regarding future production, resources or reserves and exploration results. All of such statements are subject to certain risks and uncertainties, many of which are difficult to predict and generally beyond the control of the Company, that could cause actual results to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. These risks and uncertainties include, but are not limited to: (i) those relating to the interpretation of drill results, the geology, grade and continuity of mineral deposits and conclusions of economic evaluations, (ii) risks relating to possible variations in reserves, grade, planned mining dilution and ore loss, or recovery rates and changes in project parameters as plans continue to be refined, (iii) the potential for delays in exploration or development activities or the completion of feasibility studies, (iv) risks related to commodity price and foreign exchange rate fluctuations, (v) risks related to failure to obtain adequate financing on a timely basis and on acceptable terms or delays in obtaining governmental approvals or in the completion of development or construction activities, and (vi) other risks and uncertainties related to the Company's prospects, properties and business strategy. Our audience is cautioned not to place undue reliance on these forward-looking statements that speak only as of the date hereof, and we do not undertake any obligation to revise and disseminate forward-looking statements to reflect events or circumstances after the date hereof, or to reflect the occurrence of or non-occurrence of any events.

## About Plymouth Minerals' Lithium Project

Plymouth has partnered with the large Spanish company Sacyr and its wholly owned subsidiary Valoriza Minería in an earn-in JV over a large, lithium-tin project (San Jose) in central Spain. Plymouth can earn up to 75% of San Jose by completing a Feasibility Study within 4 years (approximately A\$6 million in spend in staged increments of 50% and 75%).

San Jose is a highly advanced lithium project which is hosted in lithium-mica that hosts of JORC of lithium carbonate equivalent (LCE). A feasibility study completed in 1991 defined an open pit mining operation and a process flow sheet which produced lithium carbonate through acid-leach or sulphate calcine processing. This drilling, mining and processing study work highlights the advanced status and inherent advantages enjoyed by San Jose in relation to many other hardrock deposits. The resource estimate for San Jose is shown below in Table 1;

TABLE 1 SAN JOSE MINERAL RESOURCE, REPORTED ABOVE 0.1% LI CUT-OFF

Classification	Tonnes (Mt)	Li (%)	Li <sub>2</sub> O (%)	Sn (%)
Indicated	57.3	0.29	0.63	0.02
Inferred	54.7	0.27	0.59	0.02
<b>TOTAL</b>	<b>112.0</b>	<b>0.28</b>	<b>0.61</b>	<b>0.02</b>

*Estimated using Ordinary Kriging methodology. Note: Small discrepancies may occur due to rounding*

Snowden Mining estimated the total Mineral Resource for the San Jose lithium deposit using Ordinary Kriging interpolation methods and reported above a 0.1% Li cut-off grade. Full details of block modelling and estimation are contained in the ASX announcement dated 5 December 2017.

Lithium (Li) mineralisation is commonly expressed as either lithium oxide (Li<sub>2</sub>O) or lithium carbonate (Li<sub>2</sub>CO<sub>3</sub>) or Lithium Carbonate Equivalent (LCE). Lithium Conversion: 1.0% Li = 2.153% Li<sub>2</sub>O, 1.0%Li = 5.32% Li<sub>2</sub>CO<sub>3</sub>

The Resource was announced to the ASX on 5<sup>th</sup> December 2017. Plymouth is not aware of any new information or data that materially affects the information included in this ASX release, and Plymouth confirms that, to the best of its knowledge, all material assumptions and technical parameters underpinning the resource estimates in this release continue to apply and have not materially changed.

### San Jose Lithium-Tin Project (100 basis, no by-product credits included)

NPV (8) @ US\$10,000/t LC	US\$401m	IRR 28%
NPV (8) @ US\$12,000/t LC	US\$634m	IRR 37%
Capex	US\$273m inc 10% contingency	
Grade – Lithium Carbonate LOM	1.7%	
Potential annual production (tonnes lithium carbonate)	15,000tpa LC +99.5%	
Average C1 cost year 1-10 (US\$/tonne) without credit*	\$4,763/t	
Average gross operating cashflow p.a. years 1-10	US\$ 74.8m	

### Scoping Study – Cautionary Statement

Refer to ASX announcement 18th October 2017. The Scoping Study referred to in this announcement is a preliminary technical and economic investigation of the potential viability of the San Jose Lithium-Tin Project. It is based on low accuracy technical and economic assessments, (+/- 35% accuracy) and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage; or to provide certainty that the conclusions of the Study will be realised. Plymouth confirms that all the material assumptions underpinning the production target, or the forecast financial information derived from the production target, in the initial ASX announcement continue to apply and have not materially changed. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Measured or Indicated Mineral Resources or that the Production Target or preliminary economic assessment will be realised.

## About Plymouth Minerals' Potash Projects

Plymouth owns 100% of the Banio and Mamana Potash Projects, which are drill proven, high-grade, shallow potash deposits. Both Banio and Mamana enjoy good access to infrastructure being located on the coast of Gabon or on major transport river ways (barge) with direct access to export ports. Banio has a multi-billion tonne Exploration Target of carnallite and sylvinite based on historical seismic and drilling data. Plymouth is drill testing this Exploration Target.

Brazil is a major consumer of potash and South America is the largest consumer of sea-borne potash (MOP) in the world. The West African coast and potash deposits there enjoy a significant shipping advantage over other major potash producing regions.

Exploration Targets for potash mineralisation at its 100% owned Banio Project in Gabon (Table 2 ).

**Table 2: Exploration Target, Banio Project (Alpha and Ndindi Prospects)**

Prospect	Potash Mineralogy	Depth to Potash (m)	Tonnage Range (Mt)	Grade Range (K <sub>2</sub> O%)	Grade Range (KCl%)
<b>Alpha</b>	Sylvinite	290	262-415	18 - 22	28.5 - 34.8
<b>Ndindi Northern</b>	Carnallite	360	2,600-5,200	12 - 14	19.0 - 22.2
<b>Ndindi Southern</b>	Carnallite	500	3,100-4,800	12 - 14	19.0 - 22.2
<b>Combined</b>			6,000-10,400	12.3-14.4	19.4-22.7

\*Disclaimer: The potential quantity and grade of the Banio Exploration Target is conceptual in nature. There has been insufficient exploration completed to date to estimate a Mineral Resource in accordance with the JORC 2012 Edition Guidelines. It is uncertain if further exploration will result in the delineation of a Mineral Resource. The Exploration Target was announced to the ASX on 24 November 2016. Plymouth is not aware of any new information or data that materially affects the information included in this ASX release, and Plymouth confirms that, to the best of its knowledge, all material assumptions and technical parameters underpinning the exploration target in this release continue to apply and have not materially changed.

Grade expressed as either units (%) K<sub>2</sub>O or KCl. Ratio K<sub>2</sub>O x 1.58 = KCl