

#### **ASX Release**

November 28, 2018

ASX:RNU

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## ASX CODE

RNU

## Developing Australia's Largest Graphite Deposit

AUSTRALIA



# Breakthrough in purification expected to drive lower OPEX for Siviour spherical graphite production

- Independent testing confirms ability to upgrade Siviour graphite concentrates to 99.96% TC through caustic roasting
- High purity +99.95% TC graphite can be used in production of high value, battery-grade spherical graphite for use in lithium ion battery anodes
- Renascor expects that the use of caustic roasting to upgrade Siviour graphite concentrates will result in material cost-savings over traditional hydrofluoric acid purification
- Caustic roasting is also a more environmentally acceptable process, as it avoids the use of hydrofluoric acid
- Renascor's Pre-Feasibility Study (PFS) assessing the viability of producing spherical graphite from Siviour will now be updated to incorporate a caustic roast purification circuit
- Renascor expects to release the spherical graphite PFS later this quarter

Renascor Resources (ASX: RNU) is pleased to announce that independent tests have confirmed the ability to upgrade Siviour graphite concentrates to +99.95% total graphitic carbon (TC) using a more environmentally-friendly and cost efficient caustic roasting purification process.

The use of a caustic roast is expected to have significant environmental benefits and cost savings over hydrofluoric acid purification, the process generally used in China to achieve battery-grade, +99.95% TC spherical graphite.

Commenting of the test results, Renascor Managing Director David Christensen stated:

"Our goal of producing low cost, high value spherical graphite from Siviour is intended to widen offtake partner options and improve the already robust potential margins Siviour offers.

The use of caustic roasting to achieve battery-grade is a major breakthrough toward this objective, as it is more environmentally friendly than traditional hydrofluoric acid purification, and it offers significant cost-savings that we expect to capture in the Siviour spherical graphite PFS."



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SOUTH AUSTRALIA



## Discussion

Renascor is currently completing a Pre-Feasibility Study (PFS) assessing the viability of producing spherical graphite from Renascor's Siviour Graphite Deposit for sale into the high value lithium ion battery anodes market.

As part of its spherical graphite PFS work programs, Renascor has undertaken tests assessing the suitability of Siviour graphite concentrates to be purified to +99.95% TC, the purity specification generally required for lithium ion battery anodes.

Previously, Renascor achieved +99.95% TC in tests using hydrofluoric acid purification, the method generally adopted in China (which currently supplies the vast majority of spherical graphite produced from natural flake concentrates). See Renascor ASX Announcements dated 25 January 2018 and 15 February 2018.

The test program reported on today used a caustic roasting process to purify samples of 95% TC Siviour graphite concentrates sourced from a bulk sample production program undertaken earlier this year by SGS Lakefield in Canada. See Renascor ASX Announcement dated 31 August 2018.

The caustic roast tests were undertaken by a European graphite specialist<sup>1</sup> with expertise in purification of natural flake graphite for use in lithium ion battery anodes.

The program adopted a standard caustic roast process in which Siviour graphite concentrates were combined with a caustic solution and then roasted at low temperature before being leached with hydrochloric acid.

The process successfully produced samples of battery grade purity graphite achieving purities of 99.95% TC and 99.96% TC.

It is important to note that the test program reported on today was a sighter test program designed to test the ability of Siviour graphite concentrates to be upgraded to +99.95% TC with a standard caustic roast method.

With this goal now achieved, subsequent caustic testing will focus on optimising a caustic roast circuit to achieve maximum purity at minimal cost. Work programs are expected in include testing to alter roasting and leaching time and reagent consumption.

<sup>1</sup> For confidentiality purposes, the identity of the European graphite specialist is not disclosed.



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# Significance

The results of this initial caustic roast test program are significant for Renascor's ongoing spherical graphite PFS because they confirm that Siviour graphite concentrates are amenable to caustic roast purification to achieve +99.95% TC, battery grade graphite.

Caustic roasting offers a more environmentally friendly process than the purification technique generally used in China, which uses hydrofluoric acid,

Renascor also expects that the use of caustic roasting rather than hydrofluoric acid will result in operational cost-savings, as reagents costs are expected to be lower and additional health and safety costs associated with hydrofluoric acid are avoided.

### Next steps

Renascor will now update the Siviour spherical graphite PFS to incorporate a caustic roast purification circuit, with the PFS expected to be completed later this quarter

## **Competent Person Statements**

The information in this document that relates to metallurgical test work results is based on information compiled and reviewed by Mr Simon Hall, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Hall is a consultant to the Company. Mr Hall has sufficient experience relevant to the mineralogy and type of deposit under consideration and the typical beneficiation thereof 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 (the JORC Code, 2012 Edition). Mr Hall consents to the inclusion in the report of the matters based on the reviewed information in the form and context in which it appears.

This report may contain forward-looking statements. Any forward-looking statements reflect management's current beliefs based on information currently available to management and are based on what management believes to be reasonable assumptions. It should be noted that a number of factors could cause actual results, or expectations to differ materially from the results expressed or implied in the forward-looking statements.

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