

ASX Release

February 21, 2018

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ASX CODE

RNU

Developing Australia's Largest Graphite Deposit



Metallurgical tests confirm suitability of Siviour graphite for expandable and other high-value markets

- Recent metallurgical tests confirm suitability of Siviour concentrates for expandable graphite and a range of high-value and traditional markets, with all results meeting or surpassing industry standards
- Results include high expansion volumes, supporting production of high-value expandable graphite
- Positive purification and crystallinity results offer further support for use of Siviour concentrates in production of lithium-ion battery anodes
- Additional advanced characterization tests (including specific surface area, thermogravimetric and impurity analyses) confirm potential suitability of Siviour concentrates for refractory, crucibles, friction products and other traditional markets
- Results to be incorporated into Siviour Pre-Feasibility Study (expected later this quarter)
- Upcoming marketing activities to include planned trip to North Asia with Renascor's Asian marketing advisor Mastermines

Renascor Resources (ASX: RNU) is pleased to announce that further independent laboratory test work and analysis has confirmed that graphite from Renascor's Siviour Graphite Project in South Australia is suitable for expandable graphite and other high-value graphite markets, as well as important traditional industrial markets, including refractory, crucibles, friction products, carbon brushes and sealants.

Commenting on the most recent test results, Renascor Managing Director David Christensen stated:

"Renascor's metallurgical test program continues to confirm that Siviour ore can produce high-quality graphite concentrates suitable for sale into a wide range of key graphite markets."

"We are particularly pleased that Siviour graphite has proven to expand under heating to form high-value expandable graphite. Together with spherical graphite, expandable graphite offers another high-value market into which Siviour graphite products may be sold."

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Description of recent metallurgical test results

Renascor's on-going metallurgical program includes tests assessing the suitability of Siviour graphite concentrates for use in the expandable graphite market and other key graphite sectors.

The results reported today are from a wider test program undertaken by a European graphite specialist¹ with expertise in laboratory testing and analysis of natural graphite products. They follow previously announced spherical graphite tests released on 25 January 2018 and 15 February 2018.

Expandable graphite test results

Expandable graphite is created by heating graphite to a temperature that causes exfoliation (expansion) of individual flakes of graphite.

Expandable graphite is increasingly sought-after for several applications including flame retardant building materials and textiles, with graphite concentrates that expand at high rates selling at a significant premium to typical graphite concentrates.

To assess the suitability of Siviour concentrates for this high-value market, coarser flake concentrates, which typically have the highest expansion rates, were taken from representative samples of Siviour concentrate. Two sub-samples were tested: (i) a coarse flake +50 mesh (300µm) sample, and (ii) a +80 mesh (180µm) sample.

Both samples were tested for expansion using sulfuric acid based intercalation agents and by heating to 1,000 °C.

The results of this work are shown below in Table 1.

Parameter	Siviour samples		Industry standard
	+50 mesh (>300µm)	+80 mesh (>180µm)	
Expansion coefficient (ml/g)	320	275	230

Table 1. Expansion coefficient for Siviour graphite concentrates

Both samples of Siviour graphite concentrates expanded at rates in excess of the typical industry standard for high-quality expandable graphite created from Chinese flake graphite concentrates.

¹ For confidentiality purposes, the identity of the European graphite specialist is not disclosed.

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Characterisation analysis

In addition to expandable graphite tests, Siviour concentrates were characterised for significant attributes considered relevant for qualification by graphite market end-users. Key results from these tests are described below:

- Specific surface analysis (SSA).** SSA measures surface area of graphite concentrates using an industry standard BET (Brunauer-Emmett-Teller) analysis. A low BET value indicates low levels of porosity, which is generally considered a desirable trait in order to reduce the graphite's absorptivity. The Siviour concentrates sample (+100 mesh) returned an SSA of 2.0m²/g, which is considered typical for good quality graphite for traditional industrial markets, including refractory, crucibles, friction products, carbon brushes and sealants.
- Thermogravimetric analysis (TGA).** TGA measures the oxidation behaviour of graphite. Due to its relatively high resistance to heat, a major market for graphite is refractories, foundries and other high temperature applications in which the graphite must be resistant to oxidation. To test Siviour concentrates for oxidation resistivity, Siviour concentrates were subject to a standard TGA test in which the weight loss of Siviour concentrates was measured as temperatures increased from 20°C to 1,000°C. Siviour graphite reached maximum weight loss at 940 °C, which is considered a high and favourable results for refractory and other traditional industrial applications.
- Impurity analysis.** A standard inductively coupled plasma optical emission spectrometry trace element analysis was conducted on Siviour concentrates. The main elemental impurities are aluminium, iron and silicon, which are typical for flake graphite and are all within industry standard levels. No significant impurities (that could likely disqualify Siviour concentrates from key graphite applications) were recorded.
- Crystallinity.** An X-ray diffraction analysis was undertaken to determine crystallinity. Several high-value graphite applications, including lithium ion batteries and synthetic diamonds, require a high crystallinity. Siviour concentrates measured as almost perfectly crystallized.
- Purification.** Purification tests revealed that Siviour concentrates could be easily upgraded to ultra-high purities using both acid and alkaline purification methods, suggesting suitability for high purity applications, including lithium ion battery anodes.

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Next steps

The graphite test work undertaken to date continues to support the marketability of Siviour graphite concentrates into multiple end-user markets.

These results will be incorporated into the Siviour Pre-Feasibility Study (expected later this quarter) and made available to potential offtake partners in connection with Renascor's marketing activities.

Upcoming marketing activities are expected to include a planned trip to North Asia with Renascor's Asian marketing advisor Mastermines following the completion of the Pre-Feasibility Study.

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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