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RENASCOR RESOURCES

ASX: RNU

ASX Release

13 December 2021

Completed Locked Cycle Program Confirms Efficiency of Renascor's HF-Free Purification Process

Highlights:

- Locked cycle purification trials undertaken by leading German independent battery mineral consultancy group Dorfner ANZAPLAN have validated Renascor's eco-friendly purification process and offered increased operational efficiencies for Renascor's planned Purified Spherical Graphite (**PSG**) manufacturing facility in South Australia.
- Renascor's purification process avoids the use of hydrofluoric acid (**HF**), which is generally used in Chinese PSG operations, and instead uses less environmentally harmful reagents to purify Renascor's Siviour natural flake graphite for use in lithium-ion battery anodes[1].
- The recently completed locked cycle program exceeded lithium-ion battery anode purity specifications, with results of up to 99.99% Carbon (**C**) (versus anode industry standard of 99.95% C).
- The locked cycle results were achieved with decreased reagent consumption in comparison to previous bench scale tests[2], offering the potential for improved efficiencies in the operation of Renascor's planned PSG manufacturing facility. The revised reagent regime is also expected to result in less chemical, energy and water consumption during the leaching and water treatment phases.
- Data generated from the locked cycle tests will now permit the commencement of engineering works for the planned PSG facility.

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Renascor Resources Limited (ASX: RNU) (**Renascor**) is pleased to announce the completion of a locked cycle purification program undertaken by leading German battery mineral consultancy group Dorfner Analysenzentrum und Anlagenplanungsgesellschaft mbH (**Dorfner ANZAPLAN**) that has validated Renascor's eco-friendly purification process for its planned Purified Spherical Graphite (**PSG**) manufacturing facility in South Australia.

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

> *"The completion of the locked cycle tests is an important step in advancing and de-risking our Siviour Battery Anode Material project, with these results further underscoring the potential for Renascor to be a global leader in the production of 100% Australian-sourced PSG for the lithium-ion battery market.*
>
> *These results confirm that, not only will we be able to produce battery-grade graphite at globally competitive costs, but we can achieve these results whilst also delivering positive ESG outcomes.*
>
> *We look forward to using data generated from these trials as we commence engineering works for our planned PSG manufacturing facility in South Australia."*

Discussion

To purify Siviour Graphite Concentrates to battery-grade, Renascor has developed an eco-friendly purification process with Dorfner ANZAPLAN that avoids the use of hydrofluoric acid (**HF**), which is generally used in Chinese PSG operations. Instead, Renascor will use less environmentally harmful reagents to purify Siviour graphite for use in lithium-ion battery anodes.

Earlier this year, Renascor completed bench-scale optimisation trials with battery mineral consultancy group Dorfner ANZAPLAN[3].

Dorfner ANZAPLAN is a leading consultancy and engineering company with particular experience in battery minerals. Dorfner ANZAPLAN's graphite expertise includes testing, developing, piloting and adapting mineral processing parameters to purify graphite concentrates to lithium-ion battery grade levels of +99.95% C.

The bench scale trials used sulfuric acid as one of the primary leaching reagents after the caustic bake, replacing hydrochloric acid, which was adopted as part of Renascor's Battery Anode Material Study[4]. The earlier bench-scale trials consistently met or exceeded lithium-ion battery anode purity specifications, with results of up to 99.99% Carbon (**C**) (versus anode industry standard of 99.95% C). Further, these results were achieved with a decreased consumption of sulfuric acid, as compared to previous trials using hydrochloric acid.

To enable detailed engineering works for its purification circuit, Renascor recently completed locked cycle purification tests adopting the flowsheet parameters used in the recent trials. The locked cycle tests differ from the previous bench scale tests by more closely approximating processing conditions by including recycle streams in a closed circuit and permitting a more accurate calculation of mass-water balance and other process design criteria necessary for completing engineering designs.

The locked cycle tests were undertaken by Dorfner ANZAPLAN, in collaboration with Renascor's external engineering advisors Wave International.

A total of six cycles were completed on spheronised samples of Siviour Graphite Concentrates using Renascor's HF-free flowsheet in which graphite is first roasted at low temperature with a caustic solution, followed by multi-stage leaching to achieve the required purity.

The results confirmed that optimised purification circuit using caustic and sulfuric acids can meet or exceed lithium-ion battery anode purity specifications, with results of up to 99.99% C, with no impurities detected above acceptable anode customer specifications.

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The revised reagent regime is expected to offer environmental benefits, as the use of sulfuric acid, rather than hydrochloric acid, will result in less chemical, energy and water consumption during the leaching and water treatment phases.

Further trials utilising regenerated caustic reagents are on-going to test the potential to further decrease reagent consumption, offering the potential for improved efficiencies in the operation of the planned PSG facility.

Next steps

Data generated from the locked cycle purification tests will now permit the commencement of engineering works for the planned PSG facility, which are scheduled to commence next month.

This ASX announcement has been approved by Renascor's Board of Directors and authorised for release by Renascor's Managing Director David Christensen.

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[1] See Renascor ASX announcements dated 28 November 2018, 12 August 2019, 22 February 2021 and 28 May 2021.
[2] See Renascor ASX announcement dated 1 July 2021.
[3] See Renascor ASX announcement dated 1 July 2020.
[4] See Renascor ASX announcement dated 1 July 2020.

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About Renascor

Renascor is committed to powering the clean energy transition through the development, in Australia, of a vertically integrated graphite mine and manufacturing operation to produce sustainable and ethically-sourced battery anode material for the lithium-ion battery market.

Renascor's operation will combine:

- The Siviour Graphite Deposit in South Australia, the largest reported graphite Reserve outside of Africa[5], and
- A state-of-the-art processing facility in South Australia to manufacture purified spherical graphite through Renascor's eco-friendly purification process.

Renascor's aim is to become a leading supplier of 100% Australian-made and low-cost purified spherical graphite for lithium-ion battery anode makers worldwide.

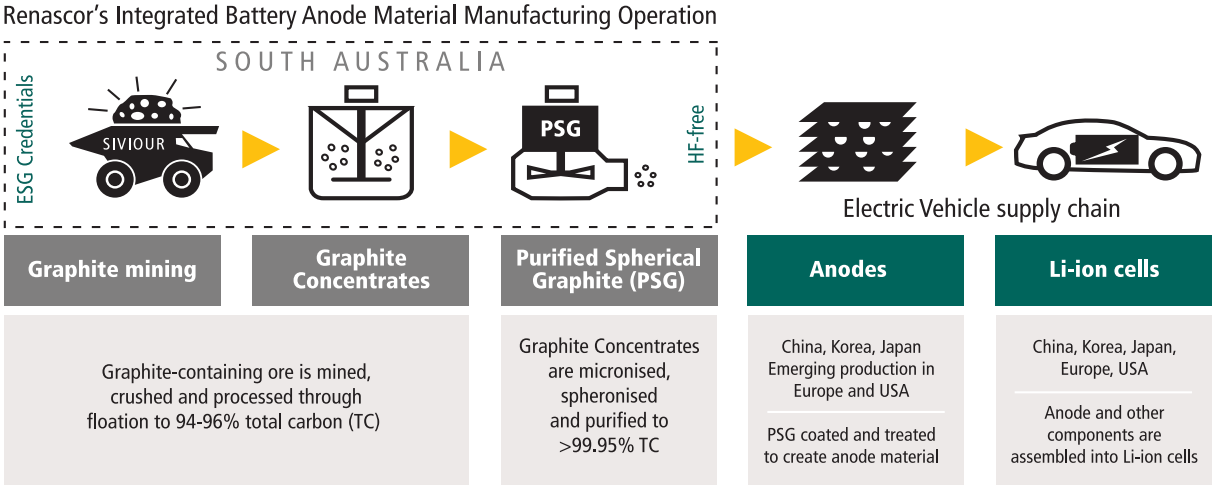

Figure 1: Renascor's vertically integrated Mine and Concentrator and Downstream PSG production facility within the Electric Vehicle supply chain

Competent Person Statement

The information in this document that relates to exploration activities and exploration results is based on information compiled and reviewed by Mr G.W. McConachy who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr McConachy is a director of the Company. Mr McConachy has sufficient experience relevant to the style of mineralisation and type of deposits being considered 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 McConachy consents to the inclusion in the report of the matters based on the reviewed information in the form and context in which it appears.

Renascor confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. Renascor confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

Sample material used for the test work discussed in this announcement was sourced from Renascor's Siviour Graphite Deposit that was processed into Graphite Concentrates as part of pilot flotation trial. See Renascor ASX announcement dated 31 August 2021, which outlines drill hole data and sample section criteria.

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Disclaimer

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.

[5] See Renascor ASX release dated 21 July 2020.