

# ASX Release

10 August 2023

## Licensing Agreement for Downstream Purification Process

### Optimised purification process delivers operating efficiencies in production of battery grade Purified Spherical Graphite

#### Highlights:

- Renascor has entered into a licensing agreement with leading German independent battery mineral consultancy group Dorfner ANZAPLAN to apply a hydrofluoric (**HF**) acid free purification process to produce battery grade Purified Spherical Graphite (**PSG**) at Renascor's planned downstream manufacturing facility in South Australia.
- The eco-friendly purification process was developed from optimisation trials designed to create operating efficiencies by reducing the number of leaching steps required to achieve lithium-ion battery grade PSG. This follows initial locked-cycle purification tests on Renascor's Siviour natural flake graphite completed in December 2021<sup>1</sup>.
- New locked cycle purification trials completed in 2022, using the improved purification process, have confirmed that the process continues to meet or exceed lithium-ion battery anode purity specifications, with results of up to 99.99% carbon (**C**) (versus anode industry standard of 99.95% C).
- The new purification process offers reduced operational risk, by reducing the number of leaching stages, while also enhancing environmental efficiency by reducing water consumption.
- Renascor's recently completed Battery Anode Material Study (**BAM Study**) has incorporated the new purification process into the engineering design for the proposed PSG facility, with the results of the BAM Study estimating a globally competitive PSG gross operating cost of US\$1,782 per tonne over the first 10 years and US\$1,846 per tonne over 40-year mine life<sup>2</sup>.

**Siviour**  
Battery Anode Material Project  
Powering Clean Energy



**HF-free**



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Renascor Resources Limited (ASX: RNU) (**Renascor**) is pleased to announce that it has entered into a licensing agreement with leading German battery mineral consultancy group Dorfner ANZAPLAN GmbH (**Dorfner ANZAPLAN**). The licensing agreement will permit Renascor to utilise an eco-friendly purification process for its planned Purified Spherical Graphite (**PSG**) manufacturing facility in South Australia.

Commenting on the licensing agreement, Renascor Managing Director David Christensen stated:

*“We have been working with Dorfner ANZAPLAN for several years to optimise our purification process to improve the efficiency of our planned battery grade Purified Spherical Graphite manufacturing facility in South Australia.*

*The optimisation trials conducted with Dorfner ANZAPLAN have resulted in the development of a process that we expect will result in both greater operational efficiency and positive ESG outcomes by reducing water consumption.*

*This improved purification process has been incorporated in the engineering and design for our recently completed Battery Anode Material Study, with the results delivering a globally competitive estimated operating cost for producing PSG.*

*We look forward to our continuing collaboration with Dorfner ANZAPLAN as we advance into construction and operation of an important new supply line for the lithium-ion battery industry.”*

#### Discussion

As part of Renascor’s plans to produce PSG for lithium-ion battery anodes from its Siviour Graphite Deposit in South Australia, Renascor has worked with Dorfner ANZAPLAN to develop an eco-friendly process to purify Siviour Graphite Concentrates to lithium-ion battery anode grade. Rather than using hydrofluoric acid (**HF**) to achieve battery grade (the method commonly adopted in Chinese PSG plants), Renascor has adopted a process that uses less environmentally harmful reagents to purify Siviour graphite.

In 2021, Renascor completed locked cycle purification tests with Dorfner ANZAPLAN 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<sup>3</sup>. The results confirmed that the purification circuit using caustic and non-HF 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<sup>4</sup>.

Subsequent optimisation trials undertaken with Dorfner ANZAPLAN in 2022 focused on further improving the purification process flowsheet. These further trials included modifying the previous purification circuit to reduce the number of leaching stages when compared to the circuit adopted in the 2021 trials<sup>5</sup>. Further locked cycle tests with this modified flowsheet have achieved lithium-ion battery grade PSG, with purity continuing to reach up to 99.99% C and impurities below anode customer specifications.

Renascor considers that this modified flowsheet offers the potential for reduced operational risk, by reducing the number of leaching stages, while also enhancing environmental efficiency by reducing water consumption.

Renascor has incorporated the new purification flowsheet into the engineering and design for the proposed PSG manufacturing facility in the recently announced optimised Battery Anode Material (**BAM**) study<sup>6</sup>, with the study estimating that Renascor’s planned state-of-the-art BAM project will deliver a globally competitive estimated PSG gross operating cost of US\$1,782 per tonne over the first 10 years and US\$1,846 per tonne over 40-year mine life<sup>7</sup>.

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### Licensing Agreement with Dorfner ANZAPLAN

To facilitate the use of the new purification process, Renascor has entered in a licensing agreement with Dorfner ANZAPLAN, who have applied to the German patent and Trademark Office for patent protection. Under the terms of the licensing agreement, Renascor will acquire a non-exclusive, perpetual licence to use the modified purification process in exchange for a nominal licence fee.

### Downstream Purification Process and Patent Opposition

As reported in April 2022<sup>8</sup>, Renascor lodged an opposition to a pending patent application relating to the purification of graphite. Renascor considers the pending patent application to be overly broad and relating to processing procedures that are not sufficiently novel or inventive to merit patent protection. The opposition to the pending patent application is on-going, with hearings likely to occur later this year.

The purification process that is subject to the licensing agreement with Dorfner ANZAPLAN utilises an alternative process to that described in the claims of the pending patent application. Accordingly, Renascor's plans in relation to the progression of the Siviour Project will not be impacted by the outcome of the pending patent opposition.

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

### For further information, please contact:

#### Company Contact

David Christensen  
Managing Director  
+61 8 8363 6989  
[info@renascor.com.au](mailto:info@renascor.com.au)

#### Media Enquiries Contact

James Moses  
Mandate Corporate  
+61 (0) 420 991 574  
[james@mandatecorporate.com.au](mailto:james@mandatecorporate.com.au)

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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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- <sup>1</sup> See Renascor ASX announcement dated 13 December 2021.  
<sup>2</sup> See Renascor ASX announcement dated 8 August 2023.  
<sup>3</sup> See Renascor ASX announcement dated 13 December 2021.  
<sup>4</sup> See Renascor ASX announcement dated 13 December 2021, p 2.  
<sup>5</sup> See Renascor ASX announcement dated 26 April 2023.  
<sup>6</sup> See Renascor ASX announcement dated 8 August 2023.  
<sup>7</sup> See Renascor ASX announcement dated 8 August 2023.  
<sup>8</sup> See Renascor ASX announcement dated 29 April 2022, pp. 4 – 5.

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