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Campoona Shaft graphite meets lithium-ion battery performance standards

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Shares on Issue
84.3 million

Unlisted Securities on Issue
2.3 million Performance Rights

Key focus
Eyre Peninsula Graphite Project (includes Campoona, Sugarloaf and Waddikee)

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HIGHLIGHTS

- **CSIRO tests show Archer's ultra-pure graphite from Campoona on Eyre Peninsula, suitable for lithium-ion battery anodes**
- **Graphite-based anodes dominate global lithium-ion battery market and attracting premium graphite price**
- **Campoona natural graphite also behaves remarkably similar to commercial, more expensive synthetic graphite**
- **Campoona's particle size can be tailored to favour wider industrial application**
- **Campoona mining lease application to be lodged next week**

Graphite technology-focused Archer Exploration Limited ("Archer") advises that tests conducted by the CSIRO confirm the suitability of the Company's ultra-pure graphite from its Campoona project on South Australia's Eyre Peninsula, as suitable for lithium-ion battery application.

The CSIRO work found that Archer's natural graphite at Campoona met anode standards for use as in current generation lithium-ion batteries.

The use of natural graphite as an anode material for lithium-ion batteries currently dominates the global battery industry. Natural graphite also attracts a price premium in this market as it is preferred by battery manufacturers due to the high cost and larger environmental impact of synthetic graphite manufacture.

Archer Managing Director, Mr Gerard Anderson:

"*It is very pleasing that the CSIRO has now confirmed that our Campoona ultra-pure graphite is suited to battery applications. Battery grade graphite sells at a substantial premium to traditional graphite and this will further underpin the profitability of our planned graphite mining operations on Eyre Peninsula.*

The Company remains excited by the growth prospects for the lithium-ion battery market which will see demand for our product increase as electric vehicles, power levelling and other technologies become more common, especially over the next five years.

The controllable particle size of Archer's natural product is also expected to enable greater utilisation of our Campoona graphite".

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CSIRO test work

The CSIRO was selected by Archer, as the organisation works with leading research institutes around the world and is recognised internationally for the quality of its research. Mr Anderson said CSIRO had been working in the field of lithium-ion batteries for the past decade and during this time, had amassed significant resources and expertise in the characterisation and testing of various components of these batteries.

The Campoona portion tested by the CSIRO was obtained via sub-sampling of a leached concentrate obtained from milling and flotation of a composite parcel of graphite mineralisation from the deposit. The bulk composite sample represents the early years of mining.

Battery electrodes were subsequently prepared from Campoona natural graphite and other commercially available graphite powders, which were then used to construct coin cells in a half-cell configuration. The performance of each cell and the properties of the anodes in each cell were then tested. CSIRO test results showed that the performance of Campoona ultra grade graphite in terms of charge capacity was equivalent to that of commercial synthetic graphite.

Future market demand

Mr Anderson said installed lithium-ion battery capacity is expected to increase dramatically over the next decade.

"A key driver of this growth was signaled by the Tesla Company, which announced in May 2015, that it had entered into the energy market with the unveiling of a suite of low-cost solar batteries for homes, businesses and utilities. These 'suit case-sized' lithium-ion batteries have been designed to capture and store up to 10kWh of energy from wind or solar panel for subsequent use.

And in Australia this week, we have seen AGL Energy announcing it is getting into the battery storage device domestic market, offering a range of battery storage devices based on lithium-ion technology, for clean, compact and reliable storage in the home and for small businesses initially.

Archer believes that the use of lithium-ion batteries for storing electricity generated by roof-top photovoltaic systems, has the potential to fundamentally change the retail electricity market and to substantially increase the demand for high quality graphite.

Such a game changing outcome is unfolding now with Tesla planning to market their systems from as soon as August this year."

The capacity of batteries is expected to further improve at finer micronisation sizes. Archer will now commission the CSIRO to test the Campoona ultra-pure graphite at different particle size distributions to confirm this expectation.

Battery grade graphite sells at a significant premium to lower grade graphite. Archer plans to produce up to 10,000 tonnes of battery-grade graphite per year from Campoona Shaft, a project which has an estimated mine life of over 13 years. Production is then planned to focus on Central Campoona located just 1.8kms south of Campoona Shaft.

Archer will lodge the Mine Lease Proposal for Campoona next week.

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