

ASX Announcement (ASX:AXE)

30 October 2019

## 2019 AGM Chairman's Address

Good morning and welcome to the Archer Exploration Limited 2019 Annual General Meeting. One of the resolutions being considered here today is for the change of company name to Archer Materials Limited and if this resolution is passed, then this will be our last AGM under the name Archer Exploration Limited.

During 2018/19 we made significant progress in the building of an industry-leading Materials Technology company which comprises two business functions: Advanced Materials and the Mineral Exploration. The Company's 2019 Annual Report describes in detail the activities that were undertaken during the 2018/19 financial year however, I will now highlight some of the more significant achievements.

The Advanced Materials business is underpinned by three pillars: Quantum Technology, Human Health and Reliable Energy. Without a doubt, the most significant achievement of the Company was the execution late last year of the exclusive licence agreement with The University of Sydney for the development of the room temperature quantum computer chip. Shortly after the signing of the licence agreement Dr Martin Fuechsle joined the Archer team as Quantum Technology Manager to lead the technology development aspect of commercialisation of the quantum computer chip. Dr Fuechsle is well credentialed and well respected in the quantum computing industry and it is a credit to Dr Choucair and his team that we were able to attract someone as talented as Martin to join our team.

In April of this year, we formally launched the quantum project (known as the <sup>12</sup>CQ project) with the aim of building a carbon-based quantum computing device (chip) capable of room-temperature quantum information processing that would form the future basis of a practical quantum computer. <sup>12</sup>CQ aims to develop a room-temperature operation qubit processor chip that may overcome both the limitations of sub-zero operating temperatures and electronic device integration for qubits, which are two challenges that currently stand in the way of widespread ownership of quantum computing powered devices.

Only two months after the commencement of the <sup>12</sup>CQ Project we completed the first stage assembly of the <sup>12</sup>CQ qubit processor which was a phenomenal achievement. The chip componentry was assembled to form a prototype chip's first-stages of basic device architecture, the assembly pattern, intended to allow for the quantum computing functions of the <sup>12</sup>CQ carbon-based qubits once they are incorporated. The entire <sup>12</sup>CQ qubit processor chip is about the size of the width of a few human hairs and designed to accommodate Archer's nanosized qubit components, that are similar in size to the main features of classical computer chips.

The technical development at the heart of <sup>12</sup>CQ is a world-first. We intend to continue technology de-risking value-added development of the <sup>12</sup>CQ qubit processor chip by completing the next stages of component assembly towards a proof-of-concept prototype chip at the Research and Prototype Foundry at The University of Sydney.

We have also made considerable progress in the Human Health area of the Advanced Materials business in the development of our graphene-based biosensor technology. During the year, Archer provisionally patented a potential solution to printable biosensors capable of efficient point-of-use disease detection. Ink formulations comprised primarily of graphene, then human

antibodies, as the active constituents were successfully prepared and printed using proprietary methods.

Printing techniques were employed using a state-of-art inkjet printers for the preparation of the biosensor components at the ARC Graphene Hub. Collaboration with the ARC Graphene Hub will continue, with a focus on optimising ink formulations and their digitised processing methods, and reaching technological milestones towards the development of such a promising biosensor technology.

The Reliable Energy area of the Advanced Materials business has so far focussed on the integration of Campoona graphite in lithium ion (Li-ion) batteries. On South Australia's Eyre Peninsula, Archer has been granted a mining lease (Campoona Shaft) and two associated miscellaneous purposes licences for the mining of graphite ore and the processing of approximately 10,000 tonnes per annum (tpa) of ultra-high-quality graphite and up to 100 tpa of graphene at the Sugarloaf Graphite Processing Facility. Although the mining lease has been granted, Archer cannot commence activities on the site until a Program for Environment Protection and Rehabilitation (PEPR) has been approved by the South Australian Government.

During the year, 99%+ and 95% natural Campoona flake graphite was used to produce commercially scalable full-cell configuration Li-ion batteries at the University of New South Wales. Archer's Campoona graphite materials were used at the anode, with commercially equivalent cathode materials and chemistries used that are commonly found in consumer electronics and electric vehicles. Key battery performance parameters were in-line with industry state-of-art values, owing in-part to the exceptional structural and chemical properties of Archer's Campoona graphite.

Although the Campoona flake graphite performed well, spherical graphite is a high-value material used by battery companies in the manufacture of anodes for use in Li-ion batteries. In March this year, Archer announced the successful conversion of 95% and 99%+ natural flake graphite from Campoona into spherical graphite using proprietary technology developed by Archer's Japanese Partner. The conversion to a spherical graphite product was performed by small-scale, kilogram quantity, mechanical milling processes. Testing and integration of high-value add graphitic materials continues, to ensure that the Company can successfully add value to the Campoona graphite resource.

Mineral exploration activities during the year focussed on the drilling of the large Blue Hills Copper Gold anomaly, located near Burra, South Australia. The drilling at Blue Hills intersected some copper and gold mineralisation and also showed the presence of pathfinder minerals such as bismuth, tellurium and arsenic (e.g. in the form of pyrite) associated with the copper, gold and molybdenum mineralisation. Whilst relatively low in concentration, the presence of these pathfinder minerals with the gold mineralisation and the identification of minor intrusive material (e.g. albitite) supports Archer's intrusive style geological model. The drilling results at Blue Hills supports the concept that the exposed mineralisation is proximal in nature to an inferred intrusion or intrusions located at depth immediately east of three identified targets (i.e. Hood, Hawkeye and Katniss).

In the past few months, Archer has announced the discovery of nickel sulphide drill targets at our Mt Keith Nickel Project located near BHP Billiton's Mt Keith Nickel Mine. We have also identified a large kaolin prospect and the presence of halloysite at our Kelly Tank and Bunora kaolin prospects located near Kimba, South Australia. We have also announced a large

exploration target for both Kelly Tank and Bunora. Our kaolin and nickel projects will be the focus of any exploration activities in 2019/20.

The Company attempted the “spin out” of our non-graphite exploration projects in mid-2018 and as a result minimal exploration was undertaken on our Broken Hill and Eyre Peninsula tenements. The intention was for the non-graphite assets to be sold to a new company, Ballista Resources Ltd, which would list on the ASX. Archer would have received shares in Ballista and these shares were then to be distributed in specie to Archer shareholders. As a result of a number of external factors including poor market conditions, Ballista was unable to complete the IPO and ASX listing in 2018. The relevant agreements for the sale and purchase of the non-graphite assets were terminated and Archer retained 100% ownership of the non-graphite assets.

Since listing on the ASX in 2007, Archer has sought to sell assets as a way to fund the Company without diluting shareholder ownership. Consistent with this strategy, during the 2018/19 financial year we sold our Leigh Creek Magnesite resource for \$2.0 million and our Sugarloaf Farm Land for \$1.35 million. We have received the entire proceeds for the sale of the Sugarloaf Farm Land and \$250,000 from the sale of the Leigh Creek Magnesia Project with the remaining \$1.75 million due early January 2020. However, the purchasers of the Leigh Creek Magnesia Project may extend the settlement date three months at a time (up to mid-July 2020) by the paying of \$250,000 per extension (maximum of \$500,00). Therefore, there is a risk that settlement may not take place in January 2020. Archer may be entitled to a bonus payment if the purchaser lists on a stock exchange within six months of completion.

As mentioned at the start of this address, one of the resolutions being considered today is the approval to change the company name to Archer Materials Limited. Whilst only a small change in words (i.e. replacing “Exploration” with “Materials”) the change of company name (if approved) will better represent the value the Company is capable of capturing and returning to shareholders from various, highly focused materials technology related activities. We are fully committed to developing our Advanced Materials business and in particular, the development and commercialisation of the world’s first room temperature quantum computer chip. Although the company name may change (if approved) our ASX code “AXE” and website address [www.arcehrx.com.au](http://www.arcehrx.com.au) will remain the same.

On behalf of the Board, I want to thank all shareholders for their continued support and hope that many of you in attendance today will join us on a tour of the Sydney Nanoscience Hub facilities. Our <sup>12</sup>CQ Project has made great progress in the past year and we will continue to develop the room temperature quantum computer chip and look forward to reporting on updates and advances to shareholders.

### **About Archer**

Archer provides shareholders exposure to financial returns from innovative technologies and the materials that underpin them. The Company’s strategy is to build an industry-leading Materials Technology company, that delivers maximum value to shareholders through the commercialisation of assets at various stages of the materials lifecycle. Archer has strong intellectual property, broad-scope mineral tenements, world-class in-house expertise, a diverse advanced materials inventory, and access to over \$300 million of R&D infrastructure.

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For more information about Archer's activities,  
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