

ASX Announcement (ASX:AXE)

26 April 2019

Third Quarter Activities Report

For the three months ending 31 March 2019

Significant Activities

- Commencement of Archer's ¹²CQ Project that aims to build a world-first qubit processor (chip) for wide-spread use in advanced consumer electronics and quantum computing.
 - Appointment of Dr Martin Fuechsle as Quantum Technology Manager to manage the high-value technology development of the ¹²CQ commercialisation plan.
 - Access agreements signed with the University of Sydney, Sydney Nanoscience Hub Prototype Foundry, allowing Archer to begin building chip prototypes.
 - Provisional patent filed protecting Archer's intellectual property associated to a novel graphene-based ink for use in printable biosensor technology.
 - Spherical graphite with high value technical specifications is produced from Archer's Campoona deposit using 95% and 99%+ feedstock materials.
 - Recently completed reverse circulation drilling program (drilling program) at Blue Hills Copper-Gold Project intersected intrusive-style copper-gold mineralisation.
 - Modelling of the results from the drilling program supports the presence of an intrusive style mineralising event that has the capacity to host copper-gold mineralisation at Blue Hills Copper-Gold Project.
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Commenting on the third quarter activities Greg English, Executive Chairman of Archer Exploration, said, "We successfully launched the ¹²CQ Project, with the aim of building a carbon-based quantum computing chip that integrates critical materials from our inventory that would form the future basis of room-temperature quantum technology in modern consumer electronic devices. During the Quarter we appointed Dr Martin Fuechsle as Archer's Quantum Technology Manager and began building chip prototypes at the Research & Prototype Foundry Core Research Facility at the University of Sydney Nanoscience Hub".

"The production of spherical graphite from Campoona graphite using small scale mechanical processes was a great achievement for Archer. We were able to convert a 95% graphite concentrate into a high-quality spherical graphite which may allow us to more efficiently purify the graphite after, rather than before, the production of the spherical graphite."

"The drilling program at Blue Hills were positive, showing that the rocks have undergone alteration and the drilling results support the concept that the exposed mineralisation is proximal in nature to an inferred intrusion or intrusions located at depth immediately east of Hood, Hawkeye and Katniss".

Quarterly Activities to 31 March 2019

Archer Exploration Limited (ASX: AXE) (“Archer” or the “Company”) is pleased to report on its activities for the three-month period ending 31 March 2019 (“Quarter”).

Archer’s vision is to build a long term and viable minerals and materials development business focussing on the key areas related to quantum technology, human health, and reliable energy. These three themes were targeted as they have associated industries with exponential growth opportunities. Archer’s in-house expertise, materials inventory, and access to world-class infrastructure provides an opportunity for it to develop and integrate material-centric end-to-end solutions with the potential for positive global impact.

Advanced Materials

Quantum Technology

Archer has commenced its maiden quantum technology project dubbed ¹²CQ (pronounced “one two cee cue”) to build a carbon-based quantum computing device (chip) which would unlock the global consumer electronics market to quantum computing technology. The chip forms the basis of IP exclusively licenced (Licenced IP) to Archer from the University of Sydney (University) (ASX Announcement 12 December 2018) of which Archer CEO Dr Mohammad Choucair is co-inventor and is based on years of globally recognised R&D.

Archer has begun building chip prototypes at the Research & Prototype Foundry Core Research Facility at the Sydney Nanoscience Hub having executed a Facilities Access Agreement with the University (ASX Announcement 3 April 2019), coinciding with the University’s appointment of Archer’s Quantum Technology Manager, Dr Martin Fuechsle, as Honorary Associate. Archer has an option to acquire the Licensed IP, following the occurrence of milestones linked to the technology development. Archer may sub-license its rights to the Licenced IP.

A key milestone realised in the development of the Licenced IP was the appointment Dr Martin Fuechsle in early Q3 (ASX Announcement 17 January 2019). Dr Fuechsle is internationally recognised for developing the smallest transistor, a “single-atom transistor”, and the fabrication of breakthrough quantum computing devices; pioneering achievements that strongly align to Archer’s quantum technology development. He joins Archer with over 10 years of experience in successfully designing, fabricating, and integrating quantum devices.

Human Health

Archer is developing and implementing graphene and carbon-based materials for use in complex biosensing devices to target high value, high growth markets servicing human health applications. Competitive advantages in the biotech industry are often protected by patents that provide a means to commercially exploit any underlying IP.

Archer registered a provisional patent (with the Australian Patent Office (IP Australia) (ASX Announcement 19 February 2019), comprising IP relating to graphene ink compositions (inks), methods of synthesising the inks, and the use of the inks for biomolecular sensing. Details of the provisional patent are published in the Australian Official Journal of Patents under the title “Carborane-Graphene Inks”; the claims and specifications of the provisional patent remain confidential. Archer has until 15 February 2020 to consider maturing the application to a full patent that would give Archer exclusive rights to commercially exploit the IP.

Reliable Energy

Archer is engaged in a Collaboration Agreement and Research Service Agreement with the University of New South Wales ("UNSW") to focus on carbon-based energy storage technology. During Q3 the ongoing work with UNSW focused on addressing the trade-off between cost and battery performance using Archer's Campoona graphite at the anode of lithium-ion batteries and formulating, building, and testing full-cell batteries. It is expected technical development with UNSW will continue in Q4. This will involve value-add to Archer's proposed Campoona development of optimal morphologies (such as spherical graphite; see Mineral Exploration below) for lithium-ion batteries useful for commercially relevant battery types.

Mineral Exploration

Eyre Peninsula Graphite Project

Archer reported that spherical graphite was produced from Campoona graphite materials of uniform 40-micron flake size (99%+ and 95% TCC) using small-scale (kilogram quantity) mechanical milling processes (Fig. 1). The spherical graphite products were produced with a particle size centred around 15-microns with a narrow size distribution (i.e. $D_{90/10}$ ratio of less than 3). Non-optimised processes were also employed to produce spherical graphite material with uniform particle sizes ranging from 8-microns to 18-microns with broader size distributions. These structural properties of the spherical graphite produced meet a key established market requirement for use in anode materials componentry in lithium-ion battery applications (ASX announcement 12 March 2019).

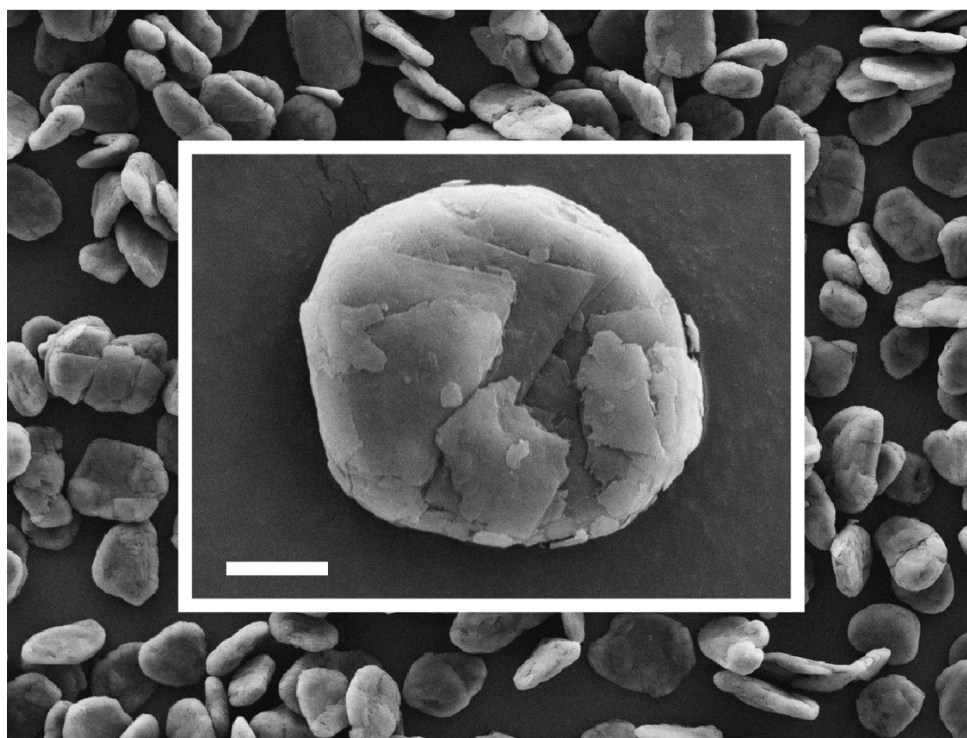


Fig. 1. Microscopy images of Archer's Campoona 95% TCC flake graphite that has undergone processing to form spherical graphite. The images show the normally planar natural graphite has been rounded (magnified in inset) and compacted in morphology to individual particles with a narrow size distribution centred around approximately 15 microns. Individual graphite sheets are visible in the particle shown in the inset, with the white scale bar representing 5 microns.

The processing was performed by a Japanese company (Partner) using proprietary technology developed by the Partner. The results were verified by Archer using world-class microscopy and analysis facilities at the University of Sydney. Archer and the Partner intend to progress the work in the near term by focusing on scaling quantities of graphite using processes available to the Partner, to accurately obtain and optimise measures of yield and efficiencies of scale for Archer's Campoona graphite feedstocks.

Sale of Sugarloaf Land

Archer has previously announced the sale of its Sugarloaf farmland for \$1.35 million (ASX announcement 28 November 2018). Settlement of the sale and purchase of the land is scheduled to occur on 1 July 2019 at which time Archer is expecting to receive the entire purchase price amount of \$1.35 million.

Blue Hills Copper-gold Project

In early February 2019, Archer completed a reverse circulation drill program (drilling program) at Blue Hills. The drilling was targeting large coincident copper-gold in soils anomalies at Hood, Hawkeye and Katniss prospects and an electromagnetic signature proximal to a modelled intrusion (ASX announcement 28 May 2018).

In addition to identifying copper, gold and molybdenum mineralisation, drill assay results also indicate the presence of pathfinder minerals such as bismuth, tellurium and arsenic (e.g. in the form of pyrite). 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 support the concept that the exposed mineralisation is proximal in nature to an inferred intrusion or intrusions located at depth immediately east of Hood, Hawkeye and Katniss (ASX announcements 7 February 2019, 22 February 2019 and 4 March 2019). The possible presence of these buried intrusions is important as the intrusions are most likely to be the main source of the mineralisation. In addition to the modelled intrusives, the review identified several conductors that run parallel to regional west-northwest and north-northeast structural trends. Confirmation of the interpreted intrusions would require further drilling.



Plate 1. HDRC19-01 depths 54 and 55m showing the bleaching at 55m (sodic alteration).

The reverse circulation drill holes drilled by Archer in 2017 and 2019 were targeting the areas of coincident high surface mineralisation and associated electromagnetic conductors. The holes that were drilled to relatively shallow depths at Hood appear to have gone over the top of the target. Based on the results described above, mineralisation encountered in HDRC19-01 and 02 may represent the edge of a stronger mineralised zone at depth and to the south.

Assay results from Hawkeye and Katniss indicate that there is possibly some fractionation across the district, over an area of approximately 8km², implying a different intrusive source to the mineralisation at Hood. This widespread fractionation is most likely the reason for Katniss and Hawkeye assay results showing higher gold values than at Hood.

The higher gold values at Katniss and Hawkeye could also be the result of these prospects being further from the intrusion that Hood or result from the mineralisation at Hawkeye and Katniss being derived from a separate intrusion. Several intrusions have been modelled in the area (Fig. 2) and will be the target of future exploration programs given the success of the current drill program.

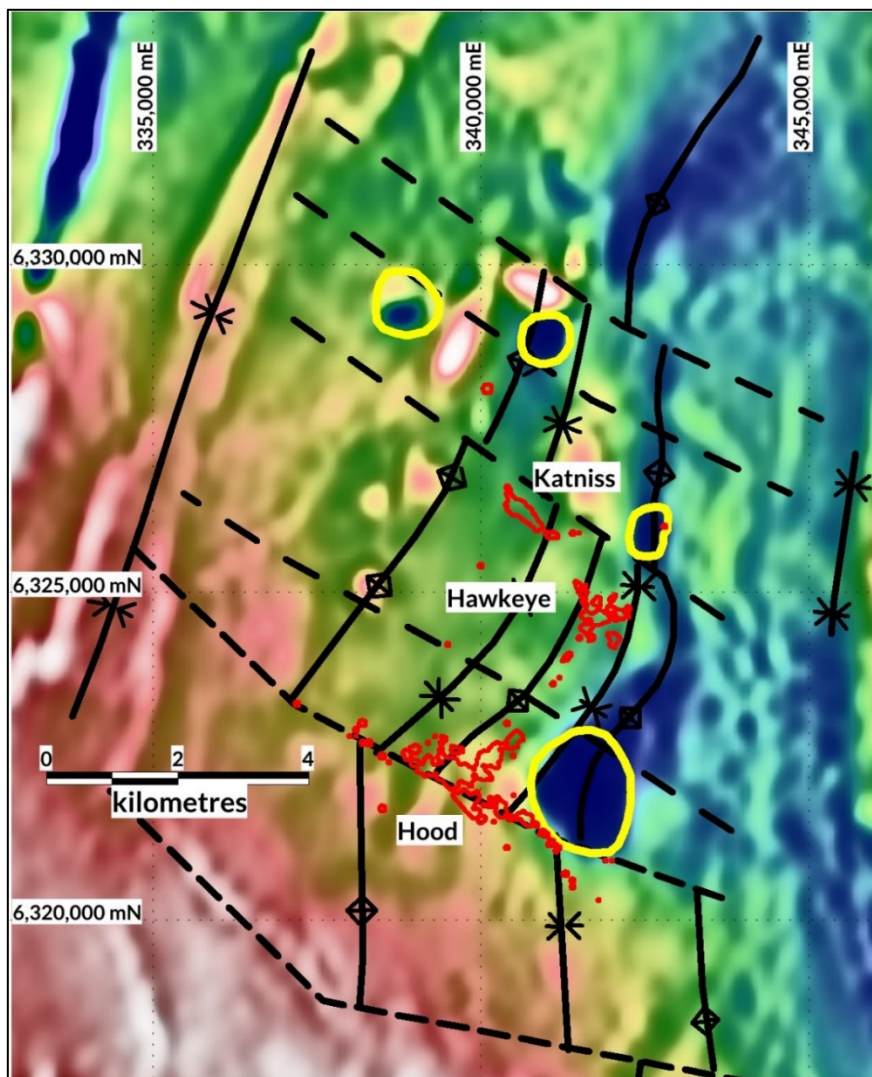


Fig. 2. Magnetic image showing the location of modelled intrusions with soil anomalies.

Other Projects

No work was undertaken during the Quarter at Archer's other project areas not mentioned in this report.

Corporate**Cash balance**

The Company's cash balance at the end of the Quarter was \$1,034,000. On 1 July 2019 Archer will receive \$1.35 million cash from the sale of the Sugarloaf farmland.

Issued Capital

Time	Shares	Options	Performance Rights
Start of Quarter	191,316,078	5,000,000 (Rix Options) ⁽¹⁾ 8,267,729 (SPP Options) ⁽²⁾	1,200,000
New issues during Quarter	702,491 ⁽³⁾	Nil	Nil
Exercised/cancelled during the Quarter	Nil	5,000,000 (Rix Options) ⁽¹⁾ 8,267,729 (SPP Options) ⁽²⁾	150,000
End of Quarter	192,018,569	Nil	1,050,000
On issue at date of this Report	As above	As above	As above

Notes

- (1) Unlisted options issued to Paul Rix, a director, exercise price of \$0.15, expiry date of 31 January 2019 and subject to satisfaction of certain vesting conditions.
- (2) Unlisted options, exercise price \$0.075 and expiry date of 28 February 2019.
- (3) Shares issued on conversion of SPP Options.

List of Archer Tenements

Tenement	Location	Commodity
South Australia		
EL 5434	North Cowell	Graphite
EL 5791	Cockabidnie	Graphite
EL 5804	Wildhorse Plains	Graphite
EL 5815	Waddikee	Graphite
EL 5870	Carpie Puntha	Graphite
EL 5920	Caraptee Hill	Graphite
EL 6019 ⁽¹⁾	Witchelina	Magnesite
EL 5730 ⁽¹⁾	Termination Hill	Magnesite
EL 5433	Burra North	Base Metals
EL 5769	Napoleons Hat	Copper / Gold
EL 5794	Blue Hills	Copper / Gold
EL 5935	Whyte Yarcowie	Cobalt / Copper
EL 6000	Pine Creek	Copper / Gold
EL 6029	Altimeter	Copper / Gold
EL 6160	Franklyn	Copper / Gold
EL 6287	Peterborough	Copper / Gold
ML 6470	Campoona Shaft	Graphite mining
MPL 150	Sugarloaf	Graphite and graphene processing
MPL 151	Pindari	Process water for Sugarloaf
New South Wales		
EL 8592	Morris's Blow	Cobalt / Copper
EL 8593	Broken Hill	Cobalt / Copper
EL 8594	Broken Hill	Cobalt / Copper
EL 8595	Broken Hill	Cobalt / Copper
EL 8596	Kanbarra	Cobalt / Copper
EL 8597	Kanbarra	Cobalt / Copper
EL 8598	Kanbarra	Cobalt / Copper
EL 8779	Campbells Ck	Cobalt / Copper
Western Australia		
E23/1926	Mt Keith	Nickel

Notes

- (1) Magnesite Project tenements. These tenements have been sold with Completion scheduled to occur at the end of calendar year 2019.
- (2) This tenement was granted during the Quarter.

Competent Person Statement

The exploration results reported herein, insofar as they relate to mineralisation, are based on information compiled by Mr. Wade Bollenhagen, Exploration Manager who is an employee of Archer Exploration Limited.

Mr. Bollenhagen is a Member of the Australasian Institute of Mining and Metallurgy who has more than twenty years' experience in the field of activity being reported. Mr Bollenhagen has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" relating to the reporting of Exploration Results. Mr. Bollenhagen consents to the inclusion in the report of matters based on his information in the form and context in which it appears.

For further information, please contact:

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For more information about Archer's activities, please visit our:

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