ACN: 123 993 233

ASX Announcement (ASX:**AXE**) 16 October 2018

First Quarter Activities Report

For the three months ending 30 September 2018

Significant Activities

- Negotiations on-track with the University of Sydney Commercial Development and Industry Partnerships ("CDIP") regarding terms for an exclusive licence that would allow Archer to develop and commercialise carbon-based quantum computing technology.
- Collaboration with The University of Adelaide ARC Graphene Hub has led to the development of printable graphene-based conductive inks derived from Archer's Campoona graphite.
- Collaboration with the University of New South Wales found Campoona graphite suitable for use in electric vehicle and consumer electronic markets with batteries created using three commonly used cathode variants.
- Execution of a legally binding Material Transfer Agreement ("MTA") with a leading German biotechnology company (the "Partner") for the development of an electrochemical biosensor made using printable graphene components.
- Cancellation of proposed initial public offering ("IPO") of non-graphite exploration projects and execution of various agreements for the sale of Leigh Creek Magnesia Project.

Commenting on the first quarter activities Greg English, Executive Chairman of Archer Exploration, said, "Negotiations of the final licence agreement for the IP rights related to the carbon-based quantum computing technology with CDIP continued during the Quarter. At this stage, we expect to execute the final form licence agreement and commence development work by the end of this year."

"During the quarter we made considerable progress in the development of a biosensor to be used in the detection of infection diseases. The University of Adelaide ARC Graphene Hub in collaboration with Archer, prepared graphene-based ink from Campoona graphite to print electrodes for biosensing device application, and the signing of the MTA with a leading German biotechnology company will allow a study to be performed using these biosensors in diagnostic products for infectious disease serology".

"The successful assembly and testing of commercially scalable full-cell configuration lithium-ion batteries using Archer's Campoona graphite was a great achievement and should assist the Company as it continues its search for offtake partners".

"The spin out of the non-graphite assets will not proceed in its current form, and we plan to consider alternatives to divest these projects, while commencing with the drilling of the Blue Hills Copper-Gold project next month" concluded Mr English.

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Quarterly Activities to 30 September 2018

Archer Exploration Limited (ASX: AXE) ("Archer" or the "Company") is pleased to report on its activities for the three-month period ending 30 September 2018 ("Quarter").

Advanced Materials

Archer's vision is to build a long term and viable mineral 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 extensive infrastructure provides an opportunity for it to quickly develop and integrate materials-centric end-to-end solutions with the potential for positive global impact.

Quantum Technology

Archer has been in exclusive negotiations with the University of Sydney Commercial Development and Industry Partnerships ("CDIP") for exclusive rights to develop and commercialise intellectual property ("IP") related to the development of a quantum electronic device ("QED") for storing and processing quantum bits ("qubits") – the fundamental components of a quantum computer.

During the Quarter, Archer and CDIP signed a Licence Term Sheet which sets out the commercial and other key terms that will form the basis of the binding Licence Agreement (ASX announcement 15/08/18). A draft Licence Agreement, based on the Licence Term Sheet, has been exchanged between Archer and CDIP. At this stage, Archer hopes to be able to execute the final binding Licence Agreement before the end of calendar year 2018.

Archer has commenced the search for a Manager, Quantum Technology, to be based in our Sydney office, to manage the development and implementation of the quantum IP. Archer expects to be able to appoint the Manager, Quantum technology before the end of calendar year 2018.

The IP would allow Archer to develop and commercialise a carbon-based qubit processor for use in quantum computers. Archer's CEO, Dr Mohammad Choucair was one of the co-inventors of the IP and the Company is confident of being able to successfully exploit the IP.

Human Health

Archer is engaged in a collaboration agreement with The University of Adelaide as part of the Australian Research Council Research Hub for Graphene Enabled Industry Transformation. The collaboration seeks to target high value, high growth markets servicing human health applications by developing and implementing graphene and carbon-based materials for use in complex biosensing devices.

During the Quarter, graphene inks were prepared using a combination of established, publicly available methods and proprietary methods that took advantage of the superior physical and chemical properties of Archer's Campoona graphite (ASX announcement 30/07/18). Two printing techniques were employed using an inkjet printer and a laser-scribed printer for the preparation of basic electrode patterns (Fig. 1).

The electrochemical characteristics of the printed electrodes were obtained and verified by technical analysis undertaken by The University of Adelaide. The results of the technical analysis confirmed that the graphite from the Campoona deposit could be used to produce graphene-based inks and printed electrodes with electronic characteristics in-line with or better than benchmarks set in related research fields, critical for value-add applications and high-quality graphene production using graphitic feedstocks in the targeted areas of human health.

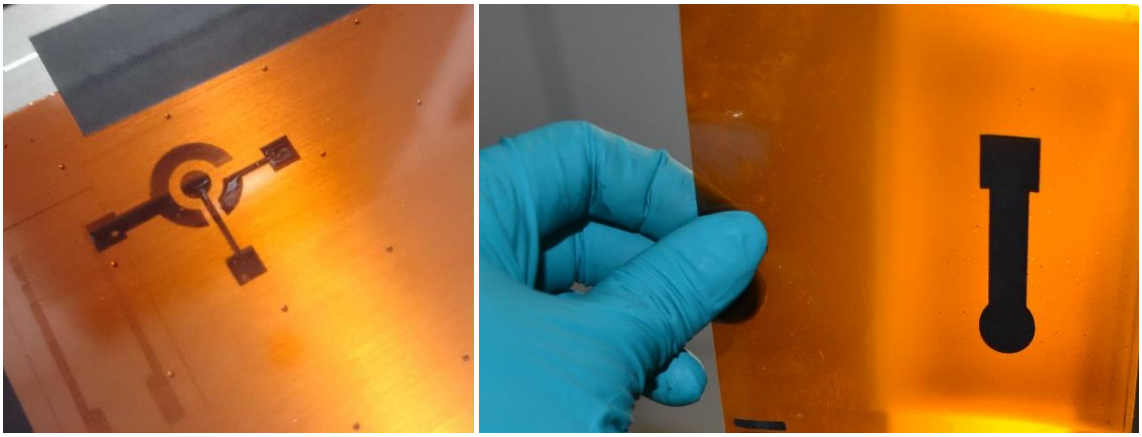

Fig. 1. Centimetre-sized printed graphene electronics (electrodes) on plastic (polyethylene terephthalate) using graphene inks derived from Archer's Campoona graphite.

In addition to the work done with The University of Adelaide regarding the biosensor development activities, Archer also entered into a legally binding Material Transfer Agreement ("MTA") with a leading German biotechnology company (the "Partner") (ASX announcement 27/09/18) which is directly linked to the outcomes of the work with the printed biosensors.

The MTA involves the transfer of materials between Archer and the Partner for use in the development of electrochemical biosensors for the semi-quantitative detection of disease state markers. The materials to be used ("Original Materials") include those held in the inventory of the Partner (e.g. infectious disease antigens, antibodies, disease state sera, coupling and assay reagents) and materials in the inventory of Archer's wholly owned subsidiary Carbon Allotropes (e.g. graphene, ink formulations, and printed graphene electrodes).

The MTA aims to contribute towards fabricating a proof-of-concept biosensor, comprising printable components capable of detecting disease state markers, such as antibodies or antigens. The Partner specialises in commercial biological detection technology and materials, and is concurrently developing and improving biosensing technology for emerging markets. The ownership of any IP developed during the performance of the Agreement using the Original Material, will be subject to negotiations between Archer and the Partner on a good faith basis.

The MTA is currently non-exclusive; however, Archer and the Partner intend to progress to an exclusive Collaboration Agreement in the near term. Due to the non-exclusive nature of the MTA, it should be noted, that to avoid circumvention, the company name of the Partner has not been stated.

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. In August, the Company announced that functional full-cell lithium ion batteries were successfully assembled and validated by UNSW for performance (ASX announcement 21/08/18). The batteries were prepared with Archer's Campoona graphite at the anode, and commercially equivalent cathode materials and chemistries used in consumer electronics and electric vehicles.

The cathode materials used to construct the full-cells were lithium-nickel manganese-cobalt ("NMC"), lithium-iron phosphate ("LFP"), and lithium-cobalt oxide ("LCO"), and the batteries were prepared as coin-cells i.e. in a small-sized compact battery construction resembling a coin (**Error! Reference source not found.**).

Fig. 2. a. Coin-cell battery assembly used for the full-cell configurations incorporating Archer Campoona graphite and the commercially relevant cathode chemistries. **b.** Coin-cell batteries assembled with full-cell configurations incorporating Archer Campoona graphite anodes and the commercially relevant cathode chemistries NMC, LFP, and LCO. The clips holding the coin-cells measure the charge and discharge properties of the battery to validate performance.

Archer's 99% acid-leached graphite from Campoona was used with no further optimisation. The NMC and LCO cathode chemistries were prepared at UNSW, while the LFP cathode materials used were commercially sourced. All synthesis, fabrication, characterisation and testing were carried out at UNSW (Fig. 2. b) Key battery performance parameters, including specific capacity and cycle stability, were in-line with industry state-of-art values, owing in part to the exceptional structural and chemical properties of Archer's Campoona graphite.

Graphene development

On 23 July 2018, the Company announced that The University of Adelaide had successfully prepared graphene materials from Archer's Campoona graphite, which included graphene powder and graphene oxide, using established, publicly available chemical and mechanical exfoliation processes. Furthermore, FlexeGRAPH also successfully prepared a water-based graphene material dispersion using proprietary methodology involving surfactant assisted exfoliation.

The graphene materials, properties, and quality were verified by technical analysis undertaken by Archer at the world-class Australian Centre for Microscopy & Microanalysis at The

University of Sydney and The University of New South Wales Mark Wainwright Analytical Centre.

The results of the technical analysis confirmed that the graphite from the Campoona deposit could be used to produce multiple graphene-based products from a number of different methods, which is critical for value-add applications and high-quality graphene production using graphitic feedstocks in the targeted areas of reliable energy, human health, and quantum technology.

The technical analysis included the use of a JEOL 3000F Transmission Electron Microscope ("TEM") to perform Select Area Electron Diffraction down to nanoscales of representative regions of the samples, verifying the presence of individual atomically thin layers of graphene, and the structural integrity and high quality of the materials produced (Fig. 3.)

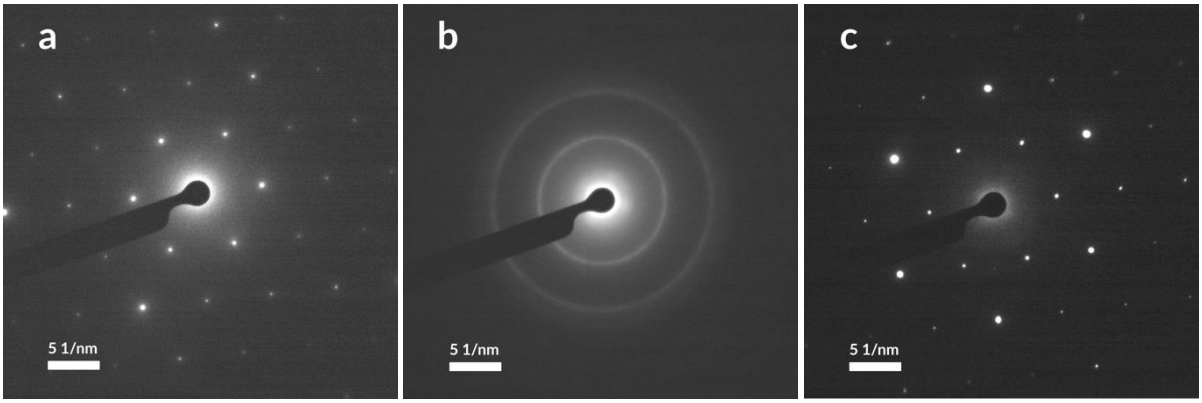

Fig. 3. Select area electron diffraction of **(a)** graphene and **(b)** graphene oxide produced with The University of Adelaide, and **(c)** graphene produced with FlexeGRAPH. The images (a) and (c) show the typical 'hexagonal spot' patterns that appear from the diffraction of the TEM beam when it strikes perpendicular to a graphene material lattice. By using tilt, and rotating the detection through a suitable angle, single layers were confirmed by the absence of diffraction spots that correspond to inter-layer graphitic correlations. The pattern obtained for graphene oxide in (b) is expectedly diffuse and corresponds to the presence of oxidised layers of graphenic material.

Urbix Resources

In early April, Archer signed a Memorandum of Understanding ("MOU") with US company Urbix Resources LLC for graphite purification test work using Urbix's proprietary technology. A sample of Campoona graphite was sent to Urbix for purification with the preliminary results showing that the Urbix technology had the potential to upgrade Campoona graphite to 98%+ total carbon content and represented an opportunity for Archer to toll process graphite in North America. While Archer remains open to working with Urbix to identify means to accelerate offtake opportunities, it is unlikely that Archer will undertake any further test work with Urbix in the near term.

Flexegraph Agreement

A Collaboration Agreement was signed with Flex-G Pty. Ltd. (FlexeGRAPH). The Collaboration Agreement focuses on advanced materials development, processing and evaluation and characterisation, with particular emphasis on the development of thermal management applications using materials from Archer's Campoona graphite and graphene operations.

Discussions with FlexeGRAPH are continuing after the successful in-situ processing of Campoona graphite to graphene employing FlexeGRAPH IP, with the companies in the process of agreeing the scope of work and parameters for the next stage of development. Archer hopes to undertake further work with FlexeGRAPH in Q2 and Q3.

Mineral Resources

Eyre Peninsula Graphite Project

The success of the early test work done by The University of Adelaide, The University of New South Wales and FlexeGRAPH, has led to Archer reassessing the graphene production strategy for the Campoona graphite project. As a result of this ongoing work, Archer requested and was granted a 12-month extension for the end date for the lodgement of the Campoona Mine Program for Environment Protection and Rehabilitation ("PEPR") with the SA Government. Under the terms of the extension granted by the SA Government, the PEPR is now due for lodgement before 4 December 2019. The Company will continue the preparation of the PEPR.

Strategic Review of Non-Graphite Assets

In early July 2018, the Company announced that it had:

- Entered into a binding agreement for the sale of the Leigh Creek Magnesia Project (ASX announcement 02/07/18); and
- Sold its non-Graphite Projects to Ballista Resources Ltd ("Ballista") and that Ballista was to undertake an IPO and list on ASX (ASX announcement 19/07/18).

Sale of Magnesia Project

On 2 July 2018, Archer executed legally binding agreements for the sale of the Leigh Creek Magnesia Project ("Magnesia Project") by Archer agreeing to sell all of the shares in Leigh Creek Magnesite Pty Ltd ("LCM") and CH Magnesite Pty Ltd ("CHM"). LCM and CHM are wholly owned subsidiaries of Archer which hold the mineral exploration licences that form the Magnesia Project.

Completion of the sale and purchase of the shares in LCM and CHM ("Completion") was conditional on the satisfaction or waiver of the following conditions precedent (each a Condition):

- buyer conducting due diligence by 31 August 2018 and the results of those enquiries being to the satisfaction of the buyer. This Condition was satisfied during the Quarter and as a result Archer received a cash payment of $200,00 from the buyer;
- Archer shareholder approval to the sale of the shares in LCM and CHM to the buyer or its nominee. The sale of the shares was approved by Archer shareholders and this Condition was satisfied; and
- the consent (if required) of counterparties under agreements affecting the Tenements. This Condition was also satisfied during the Quarter.

Completion was originally to take place on 30 June 2019 however, Archer and the buyer executed a variation to the share sale agreements such that Completion will now take place ten

business days after 31 December 2019, unless Archer and the buyer agree on an earlier date or the buyer elects to extend that date in accordance with the terms of the sale agreements.

IPO of non-graphite projects

Archer entered into binding share sale agreements with Ballista Resources Ltd for the sale of Archer subsidiary companies SA Exploration Pty Ltd ("SAEx") and Archer Energy & Resources Pty Ltd ("AER") (ASX announcement 19/07/18). SAEx and AER hold the tenements containing Archer's non-graphite projects (refer to List of Archer Tenements section).

Ballista was to complete an IPO and then list on ASX. Upon ASX listing of Ballista, the Company was to receive 48 million Ballista shares. As a result of a number of external factors including poor market conditions, Ballista is unable to complete the IPO and ASX listing in 2018. The agreements for the sale of shares in SAEx and AER were terminated (ASX announcement 9 October 2018) and Archer retains 100% ownership of all of the tenements held by SAEx and AER.

The Company remains confident in the potential of the non-graphite assets, with drilling at Blue Hills Copper-Gold project to commence next month while the Company identifies alternatives to add value to the Company through its non-graphite projects.

Blue Hills Copper-Gold

The Blue Hills Copper-Gold Prospect is a large district scale copper anomaly covering an area of 25km^2, located approximately 240km north of Adelaide, South Australia.

At Blue Hills, Archer has discovered three large scale gold and copper in soil anomalies (Hood, Hawkeye and Katniss). The large scale of these anomalies is shown in Fig. 4., which compares their size to the size of the Melbourne CBD. The Company intends to drill at least one of these targets in November 2018 with results expected in early December 2018.

Jamieson Tank Manganese

The Jamieson Tank Manganese Project is located within 2km of the site of the proposed Sugarloaf Graphite Processing Facility, near the township of Cleve, South Australia.

No exploration activity was undertaken at Jamieson Tank during the Quarter.

North Broken Hill Cobalt Project

The North Broken Hill Project is located approximately 20km north of Broken Hill, New South Wales. The North Broken Hill tenements collectively cover a large area of approximately 450km^2 and early exploration work has focussed on visiting previously identified cobalt outcrops and the discovery of new regional cobalt, copper and gold targets.

No exploration activity was undertaken at North Broken Hill during the Quarter.

Other Projects

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

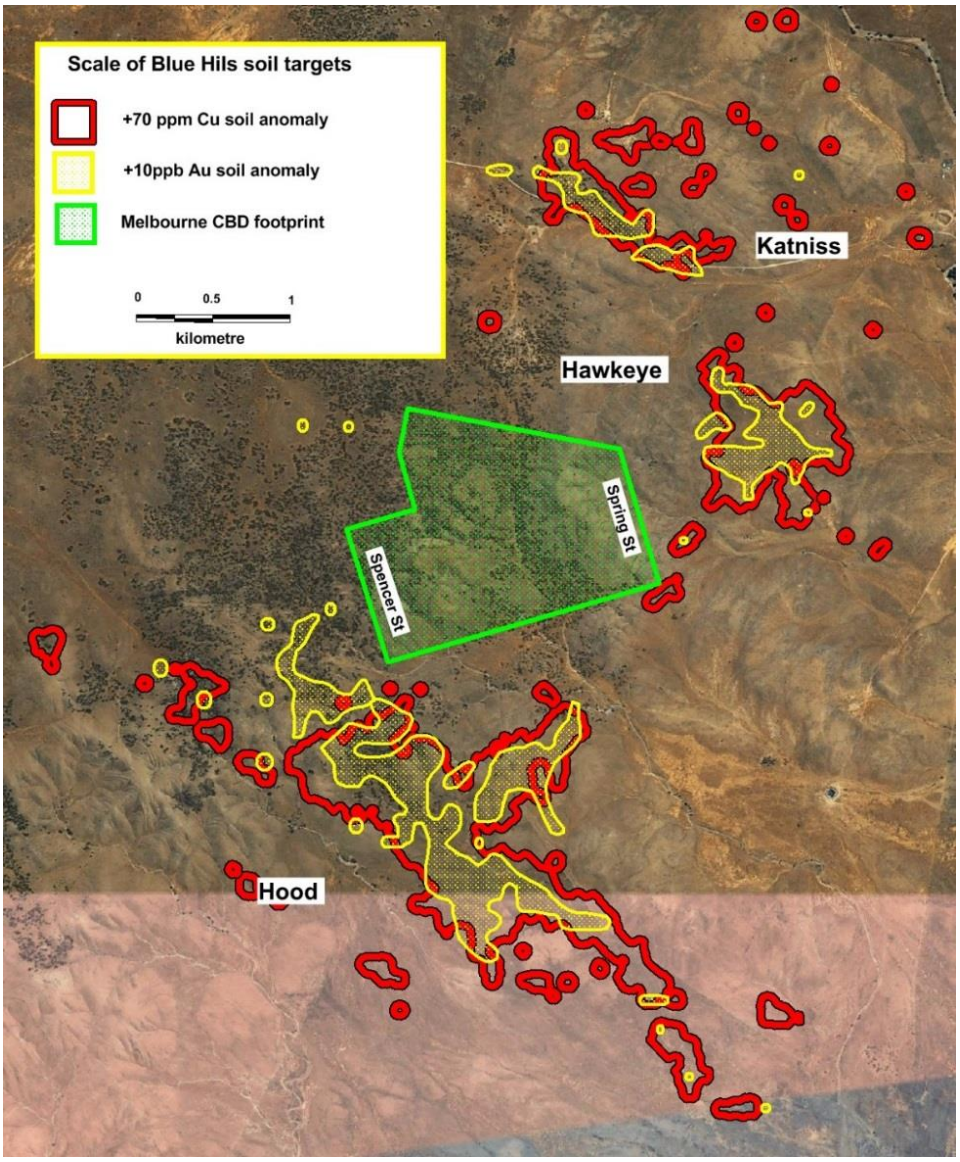

Fig. 4. Blue Hills gold and copper in soil anomaly. The area representing the Melbourne CBD is overlaid for size comparison, with the respective bounds of the CBD's Spencer Street and Spring Street shown.

Corporate

Cash balance

The Company's cash balance at the end of the Quarter was $2,103,000.

Junior Minerals Exploration Incentive

On 2 October 2018, the Company confirmed that following the lodgement of the Company's income tax return for the year ending 30 June 2018, that it will be issuing a total of $133,601 JMEI credits to those shareholders who received new Archer shares on the exercise of their SPP Options during the period 23 April 2018 and 30 June 2018 (Eligible Shareholders). JMEI - 2017/18 Entitlement Statements ("Statement") will be despatched by Computershare to Eligible Shareholders by 17 October 2018. The Statement is an advice only, and there is no payment.

General Meeting

A general meeting of Archer shareholders was held on 3 September 2018 to seek approval for the sale of the shares in LCM and CHM and the sale of the shares in AER and SAEx. All resolutions were passed by shareholders.

Issued Capital

Time	Shares on issue	Options on issue	Performance Rights on issue
Start of Quarter	186,925,829	5,000,000 (Rix Options) (1) 8,907,978 (SPP Options) (2)	4,500,000
New issues during Quarter	1,376,285(3)	Nil	450,000
Exercised/cancelled during the Quarter	Nil	(626,285) (2)	(750,000)
End of Quarter	188,302,114	5,000,000 (Rix Options) 8,281,693 (SPP Options)	4,200,000
On issue at 15/10/18	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) Includes 750,000 issued on conversion of Performance Rights and 626,285 issued on conversion of SPP Options.

List of Archer Tenements

Tenement	Location	Commodity
South Australia		
EL 5920[1]	Carappee Hill	Graphite
EL 5804 [1]	Wildhorse Plains	Graphite
EL 5815[1]	Waddikee	Graphite
EL 5383[1]	Mt Messenger	Graphite
EL 5791[1]	Cockabidnie	Graphite
EL 5434[1]	North Cowell	Graphite
EL 6019[2]	Witchelina	Magnesite
EL 5730[2]	Termination Hill	Magnesite
EL 5433[3]	Burra North	Base Metals
EL 5794[3]	Blue Hills	Copper / Gold
EL 5769[3]	Napoleons Hat	Copper / Gold
EL 5870[3]	Carpie Puntha	Graphite
EL 5935[3]	Whyte Yarcowie	Cobalt / Copper
EL 6000[3]	Pine Creek	Copper / Gold
EL 6029[3]	Altimeter	Copper / Gold
EL 6160	Franklyn	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[3]		
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[3]	Mt Keith	Nickel

Notes

(1) These tenements were transferred from Pirie Resources Pty Ltd (PRPL) to Archer Energy & Resources Pty Ltd (AER) during the Quarter.

(2) Magnesia Project tenements.

(3) Tenements held by SA Exploration Pty Ltd (SAEx).

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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Shareholders

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

Website
https://archerx.com.au/

Twitter
https://twitter.com/archerxau?lang=en