

ASX Announcement

31 October 2016

# First Quarter Activities Report

For the three months ending 30 September 2016

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## Well-funded – major projects progressing

- Release of Campoona Graphite Scoping Study - \$126m NPV over initial 17-year mine life
- Binding JV agreement signed with private Australian resources group, Cobalt Bull Pty Ltd, for farm out of Archer's non-core cobalt, gold, copper and manganese tenements in SA's mid north
- Cobalt Bull to pay Archer \$200,000 cash and spend a minimum of \$2m on exploration over 3 years with Archer to retain 25% interest.
- Share Purchase Plan Option issue completed.
- Magnesite test work completed by CSIRO in preparation for magnesite bulk trials – initial results promising.

“Archer was very pleased with the results of the Eyre Peninsula Graphite Project Scoping Study completed in September” said Greg English, Executive Chairman. “The Scoping Study showed that the Eyre Peninsula Graphite Project is an exciting project which can generate strong returns for Archer shareholders” said Mr English.

“Based on the results from the Scoping Study, we plan to complete and lodge the Campoona Mining Lease Application and finalise all other project approvals at the same time with a view to Archer obtaining a granted mining lease in the middle of 2017” said Mr English. “Archer has the enviable combination of high grade graphite resources, estimated low operating and capital costs and is able to produce a high purity concentrate that should be commercially attractive for use in Lithium ion batteries and other high value applications” said Mr English.

“The execution of the Joint Venture Agreement with Cobalt Bull in August will allow Archer to continue to focus on our prime objective, the development of the Campoona Graphite Project and the Leigh Creek Magnesite Project. Archer has always believed in the potential of our other tenements, generally assembled across SA's well mineralised mid-north footprint and see this partnership as a way to unlock some of the inherent value held in these assets” said Mr English.

“The test work with CSIRO is the next step toward the commercialisation of the Leigh Creek Magnesite Project. The results from this work will be used in the larger bulk trial” said Mr English.

**Greg English, Executive Chairman**

## Quarterly Activities to 30 September 2016

Archer Exploration Limited (ASX: AXE) (**Archer** or **Company**) is pleased to report on its activities for the three-month period ending 30 September 2016 (**Quarter**).

### Eyre Peninsula Graphite & Carbon

Archer's Eyre Peninsula Graphite Project is located near the township of Cleve which is approximately 120km south east of Whyalla, South Australia. The Eyre Peninsula Graphite Project tenement area covers more than 2,700 km<sup>2</sup>.

The larger Eyre Peninsula Graphite Project has a global Mineral Resource of 8.55 million tonnes at 9.0% TGC (5% TGC lower cut-off) (**EPGP Mineral Resource**):

Area	Resource Category	Tonnes (Mt)	Graphite (% TGC)	Contained Graphite (tonnes)
Campoonna Project (Campoonna Shaft + Campoonna Central)	Measured	320,000	12.7	40,640
	Indicated	1,000,000	9.1	91,020
	Inferred	850,000	9.1	77,650
Wilclo South	Inferred	6,380,000	8.8	561,440
Total		8,550,000	9.0%	770,750

Table 1: Eyre Peninsula Graphite Project JORC Mineral Resource (5%TGC lower cut-off grade)

### Campoonna MLP

Archer continued to work diligently to finalise the Mining Lease Proposal (**MLP**) for the Campoonna Shaft mine and associated mineral processing facility at Sugarloaf. The MLP was completed during October. The process for the lodgement and subsequent grant of a mining lease in South Australia is very detailed and must be properly managed. Archer expects that the MLP will be available for public viewing and consultation sometime in November 2016.

### Scoping Study

During September Archer released the results of a Scoping Study for the Eyre Peninsula Graphite Project (**Project**). The Study only considered a mine life of 17 years which includes 3 years of ramp up and 14 years of steady state production. Whilst Wilclo South hosts Mineral Resources of 6.38 million tonnes, all of these resources are in the Inferred category so only 630,000 tonnes (approx. 10% of all tonnes) of the Wilclo South Mineral Resources were modelled in the Study.

The results of the Scoping Study indicate that the Project has robust economics and is a technically low risk graphite development when considered against a strong graphite and graphene market outlook (subject to the cautionary statements set out in the ASX announcement dated 19 September 2016).

Based on the geological, geotechnical and metallurgical information available to the Company, Archer believes that increased production from Wilclo South may support a future expansion of the Sugarloaf graphite processing facility.

Key observations of the Scoping Study include:

Description	Value
<b>Physicals</b>	
Annual steady state ore tonnes mined and processed	140,000 tpa, increasing to 210,000 tpa in Year 8
Mine life considered	17 years
Life of mine ore tonnes mined	2,780,000
Processing plant recovery	90%
Average life of mine feed grade	9.5% Total Graphitic Carbon (TGC)
Average annual steady state graphite concentrate production	11,592 tpa (Years 4 – 7) 18,648 tpa in (Years 8 -14) 16,632 (Years 15-17)
<b>Financials</b>	
Capital costs – pre-production	A\$36 million
Capital costs – expansion	A\$18 million (Years 6 and 7) + A\$7 million (Year 14)
Average life of mine operating costs (excl. royalties and sustaining capital)	A\$1,680/t of graphite
AUD:USD exchange rate	\$0.69
Graphite basket sales price	US\$2,500/t or A\$3,623/t
NPV before tax (10% discount rate)	A\$126 million
IRR before tax	62%
Payback before tax	1.8 years (@ steady state 140,000 tpa)

*Table 2: Summary of Scoping Study Results*

## Sugarloaf

Previous testing has shown Sugarloaf carbon when added to soils improves soil wettability and aids moisture retention. Archer was expecting to complete the wettability test work for the Sugarloaf carbon during the September quarter however, this work was not performed due to the unavailability of a key technician. This work will now most likely be completed next year.

During the Quarter (ASX announcement 09/08/16) Archer announced a significant increase in the Exploration Target at Sugarloaf Project to 60 – 90 million tonnes at a grade of 10 – 12 % TC. Investors should be aware that the potential quantities and grades presented in the Exploration Target quoted above and elsewhere in this document are conceptual in nature, there has been insufficient exploration to define an overall Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource.

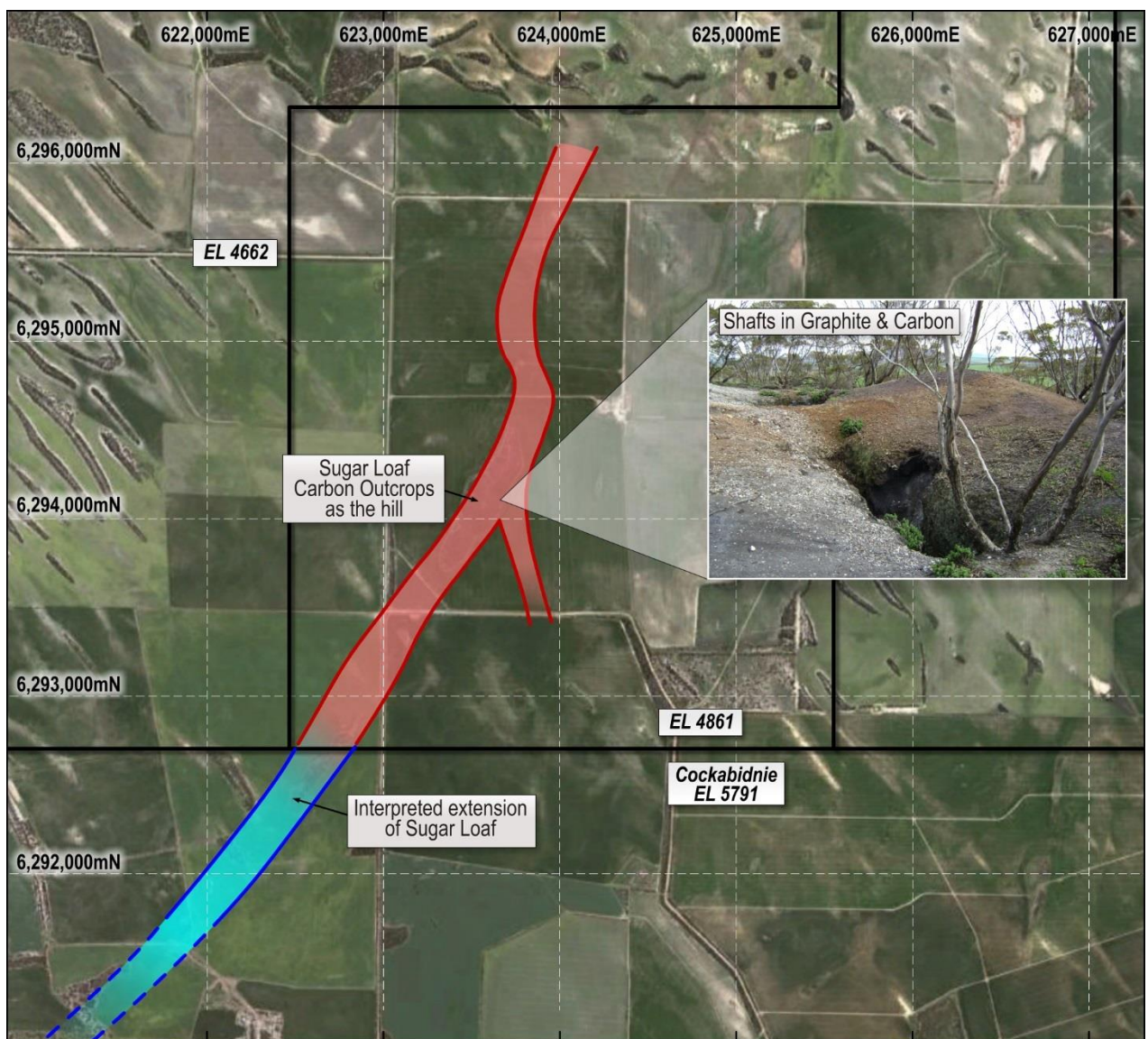


Figure 1: Sugarloaf Exploration Target (red) and interpreted extension (blue)



Previous drilling by Archer at Sugarloaf supported an Exploration Target of 40 – 70 million tonnes at a grade of 10 -12% TC. This Exploration Target was based on drilling and other exploration test work completed by Archer. Based on Archer's knowledge of Sugarloaf, the Company formed the view that Sugarloaf extended to the south (Figure 1) and the Company subsequently applied for the southern tenement (Cockabidnie) via a competitive tender process conducted by the SA Government. The Cockabidnie tenement (EL 5791) was granted to Archer on 25 May 2016.

An analysis of historic drill results from previous explorers over the area of EL 5791 has allowed Archer to model a simplified 3D Shell (wireframe) extension of Sugarloaf, which contains carbon/ graphite rich intersections noted in the drill hole logs from the previous drilling.

The southern extension of the Sugarloaf carbon intercepts provides for a significant increase in the Sugarloaf Exploration Target (+ 20million tonnes) to 60 – 90 million tonnes at a grade of 10 – 12% TC.



*Figure 2: Top of Sugarloaf Hill, near to historic shafts*

## Graphene and graphite marketing

The Company continues to engage with different universities regarding graphene research and in particular, the use of Archer graphite in graphene manufacture. Archer will continue to work with universities and industry participants to identify commercial applications for Archer graphite and graphene production.

## Leigh Creek Magnesite Project

Leigh Creek Magnesite Pty Ltd (LCM) is a wholly owned subsidiary of Archer and is the holder of the tenements which contain the Leigh Creek Magnesite Project (excluding Myrtle Springs which is held by Calix Ltd and not LCM) (**Magnesite Project**).

This resource is the world's largest magnesite deposit of its type and is located approximately 20km north west of the Leigh Creek township in South Australia.

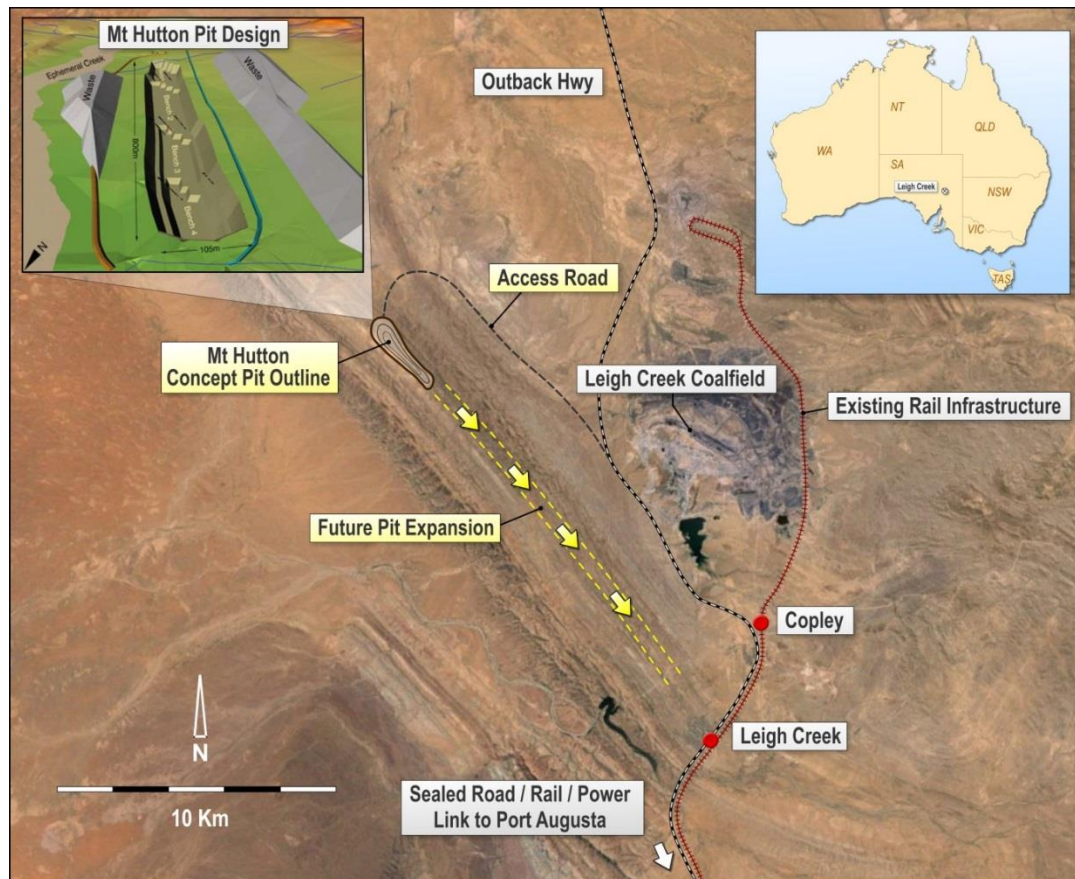


Figure 3: Leigh Creek Magnesite Project conceptual development layout

### Access to third party infrastructure

Archer has been in continuous negotiations with different third parties regarding access to infrastructure for the toll processing of magnesite. These negotiations continued during the Quarter.

During the Quarter Archer, commissioned CSIRO to undertake calcining test work on Archer's Leigh Creek Magnesite (refer to ASX announcement 04/10/16 in which Archer advised that the test work was completed). The aim of the test work is:

- To make dead burn magnesia at different temperatures (1450°, 1550° and 1650° Celsius)
- Send the dead burn magnesia to commercial kiln operator to develop test procedures for analysing DBM quality during the later bulk trial.



In addition to the dead burn test work being done by Archer, the kiln operator is conducting separate caustic calcined magnesite tests. The results of this test work will be used to design the ideal temperature profile, residence time and other parameters associated with the upcoming bulk trial.



Figure 4: Magnesite sample



Figure 5: Positioning of magnesite sample in furnace

The results of the test work will be announced to ASX when the information becomes available.

## Other Projects

### Cobalt Bull JVA

SA Exploration Pty Ltd (**SAPL**), a wholly owned subsidiary of Archer, executed a legally binding Farmin and Joint Venture Agreement (**JVA**) with Cobalt Bull Pty Ltd (**Cobalt Bull**) covering Archer's non-core exploration assets in South Australia's mid north region (ASX announcement 31/08/16).

Under the terms of the JVA, Cobalt Bull will pay SAPL \$200,000 cash and sole fund A\$2.0 million on exploration and other related exploration activities on EL 5433 (Burra North - cobalt & manganese), EL 5540 (Spring Creek - copper), EL 5749 (Napoleons Hat - gold), and EL 5794 (Bull Hills - gold & copper) (collectively the **Tenements**) to earn a 75% interest in the Tenements.

Cobalt Bull, a private Australian mining company whose management is also associated with the development of the Mount Morgan Gold-Copper Project in QLD and Peko Gold-Cobalt-Copper Project in NT, must spend the \$2.0m within 3 years to earn the 75% interest.

The Tenements being farmed out by Archer exclude the Company's core graphite and magnesite tenements elsewhere in SA at Leigh Creek and on Eyre Peninsula.

The Burra North (Ketchowla) Project (EL 5433) is an advanced cobalt-manganese prospect, with grades up to 0.50% Co-occurring over several large outcropping mineralisation zones within a strike area zone of 18km x 7km. The cobalt is hosted in manganese ore, with in-situ grades of 15-20% Mn also being achieved.

The historic Spring Creek copper mine (EL 5540) is located 30km south of the township of Wilmington. Copper carbonates exist on the surface above the mine and within the backs and walls of the un-worked sections of the drives. Underground face sampling by Archer on the uppermost level of the historic Spring Creek Copper Mine confirmed the presence of significant copper mineralisation peripheral to the former production stopes.

Napoleons Hat (EL 5769) contains numerous historic gold mines and workings. Rock chip sampling programs within quartz veined sandstones of the tenement intersected anomalous gold mineralisation, with the most significant results being 8.88 g/t, 6.42 g/t, 3.84 g/t and 1.91 g/t gold at surface.

At Blue Hills (EL 5794), initial field reconnaissance by Archer sampled spoil piles surrounding the historical workings. The copper appears in workings that follow the basal contact of the Tapley Hill Formation.

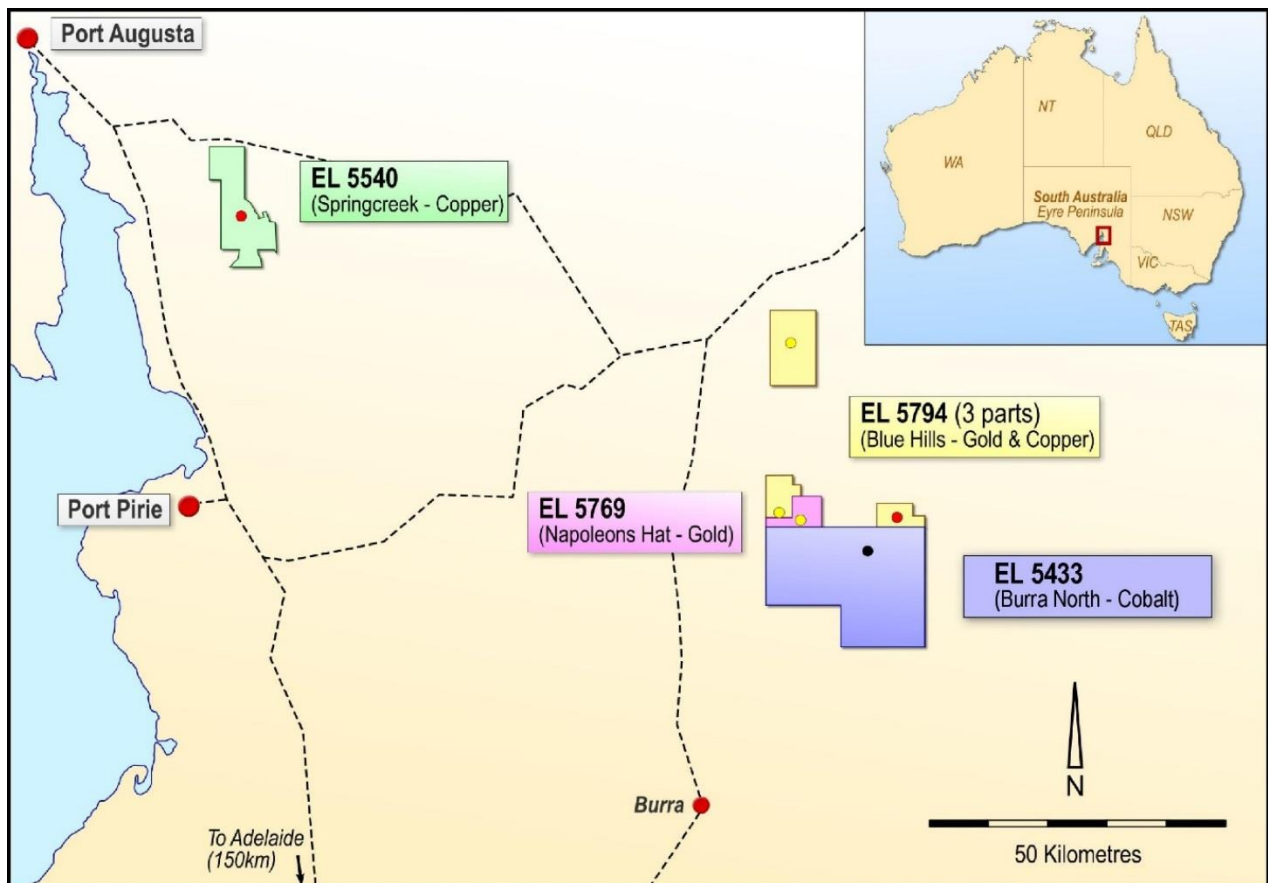


Figure 6: Map showing location of JVE Tenements (EL 5540, 5769, 5794 and 5433)

Key terms of the legally binding JVA are:

- Cobalt Bull can earn a 75% interest in the Tenements by paying SAEX \$200,000 in cash and spending a minimum of \$2.0m on exploration and related activities on the Tenements.
- Cobalt Bull's right to earn the 75% interest is conditional on the satisfaction or waiver of each of the following Conditions Precedent (**Conditions**):



- Cobalt Bull completing its due diligence enquiries by 16 September 2016; and
  - Consent of the SA Mineral Resources and Energy Minister under the SA Mining Act and Cobalt Bull completing an IPO or sale of its shares to an ASX listed company by 30 November 2016.
- On satisfaction or waiver of all of the Conditions Precedent (**CP Date**), Cobalt Bull must pay to SAEX the cash amount of \$200,000 and commence \$2.0m in exploration spending over 3 years to earn the 75% interest in the Tenements.
  - Cobalt Bull may withdraw from the JVA at any time within 12 – 18 months after the CP Date provided that the Tenements are in good standing at the time of withdrawal. If Cobalt Bull elects to withdraw, then it will not earn any interest in the Tenements.
  - SAEX (25%) and Cobalt Bull (75%) will form an exploration joint venture upon Cobalt Bull spending \$2.0m on exploration, or paying the amount of any shortfall to SAEX in cash or shares, during the 3 years after the CP Date.
  - Cobalt Bull will be manager of the joint venture and standard industry dilution and exploration joint venture terms and conditions will apply.

## Bartels Gold Project

During the Quarter Archer prepared an Information Memorandum that detailed the prospectivity of the Bartels Gold Project on the Eyre Peninsula. The information memorandum was distributed to two major gold companies for review.

At Bartels, highly anomalous gold values have been reported by Archer and other explorers.

The widespread alteration geochemistry indicates that Bartels is located within a low sulphidation hydrothermal (epithermal) alteration system. Low sulphidation epithermal alteration systems often record strong vertical mineral zonation and can host bonanza grade gold veins.

The area of known alteration covers 1.5km x 1.2km within a larger exploration target area of 16km x 10km.

Review and sampling of historic drill core by Archer showed evidence of hydrothermal activity and associated gold mineralisation, including:

- **16.5m @ 0.32 g/t Au**, 7.43 g/t Ag, 146ppm Mo from 32m (hole A405/2)
- **5.8m @ 0.48 g/t Au**, 2.93 g/t Ag from 31.4m (hole A405/3A)

In 2012, Archer drilled 3 holes near A405 to intersect the EW trending mineralisation resulting from the strong alteration of a dolomite host unit. Hole EPIRC12\_001 intersected significant gold intervals within a chlorite rich shear zone with associated elevated levels of TI, Sb, As & Th. Significant results include **29m @ 0.57g/t Au**, including **1m @ 2.15g/t Au**.

## Corporate

### Issue of SPP Options.

During the Quarter Archer completed the offer of free options (**SPP Options**) to shareholders who were allotted shares under the Company's recently completed share purchase plan (**SPP**) (ASX announcement 04/08/16). Eligible shareholders were entitled to apply for 1 SPP Option for every share allotted to them under the SPP.

The issue of the SPP Options was subject to shareholder approval which was given at a general meeting of Archer held on 5 August 2016 (**General Meeting**). As a result, a total of 22,035,974 options were issued (ASX announcement 12/08/16).

The SPP Options were issued for nil consideration, are unlisted and have an exercise price of \$0.12 and expiry date of 30 June 2017.

### Issue of options to Paul Rix

In addition to approval for the grant of the SPP Options, at the General Meeting approval was given for the issue of 5,000,000 to Paul Rix who is a non-executive director of Archer (**Rix Options**). The Rix Options were issued to Mr Rix as compensation for the termination of a consultancy agreement between Archer and Mr Rix which was in place prior to Paul becoming a director of Archer.

The Rix Options were issued for nil consideration, are unlisted and have an exercise price of \$0.15 and expiry date of 31 January 2019.

### Issued Capital

Time	Shares on issue	Options on issue	Performance Rights on issue
Start of Quarter	110,194,306	Nil	684,211
End of Quarter	110,194,306	22,035,974 (SPP Options) 5,000,000 (Rix Options)	Nil
31 October 2016	110,194,306	22,177,944 (SPP Options) <sup>(1)</sup> 5,000,000 (Rix Options)	2,700,000 <sup>(2)</sup>

#### Notes

- (1) An additional 141,970 SPP Options were issued on 28/10/16.
- (2) Performance Rights issued to Archer directors and management subsequent to shareholder approval granted at 2016 AGM.

### Cash balance

The Company's cash balance on 30 September 2016 was \$1.50 million.

## List of Archer tenements

Tenement	Tenement Name	Commodity
EL 4861	Carappee Hill	Graphite
EL 5804 <sup>(1)</sup>	Wildhorse Plains	Graphite
EL 5815	Waddikee	Graphite
EL 5383	Mt Messenger	Graphite
EL 4893	Cleve West	Graphite
EL 5791	Cockabidnie	Graphite
EL 5434	North Cowell	Graphite/Copper
EL 4729	Witchelina	Magnesite
EL 5730	Termination Hill	Magnesite
EL 5553	Collaby Hill	Magnesite
EL 5540 <sup>(2)</sup>	Spring Creek	Copper
EL 5433 <sup>(2)</sup>	Burra North	Manganese
EL 4869	Ediacara	Barite
EL 5794 <sup>(2)</sup>	Blue Hills	Gold & Copper
PELA 567	Ediacara	Coal / gas
MC 4393	Campoona	Graphite

### Notes

- (1) All tenements are 100% owned by Archer except for EL 5804 (Wildhorse Plains) for which Archer is the registered holder and has the right to explore for all minerals except for uranium.
- (2) Tenements are subject to the farmin joint venture agreement with Cobalt Bull whereby Cobalt Bull can earn a 75% interest in the tenements.

For further information, please contact:

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Mr Cary Helenius  
Market Eye  
Tel: (03) 9591 8906



## **Competent Person Statement**

### Exploration Results

The exploration results reported herein, insofar as they relate to mineralisation, are based on information compiled by Mr. Wade Bollenhagen, Exploration Manager 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.

### Campoona Shaft and Central Campoona

The information pertaining to the Campoona Shaft and Central Campoona Mineral Resource estimates were:

- detailed in an announcement entitled "Archer Exploration announces Australia's largest JORC 2012 Graphite Resources", lodged with ASX on 6 August 2014.
- prepared by Mr B Knell who is a Member of the AusIMM and peer reviewed by Dr C Gee who is also a Member of the AusIMM (CP). At the time of the report Mr Knell and Dr Gee were both time employees of Mining Plus Pty Ltd and both qualify as Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

### Wilclo South

The information pertaining to the Wilclo South Mineral Resource estimate was:

- extracted from an announcement entitled "Maiden Wilclo South Graphite Resource", lodged by Monax Mining Limited with ASX on 26 August 2013.
- prepared by Ms Sharon Sylvester who at the time of the report Ms Sylvester was a full time employee of AMC Consultants Pty Ltd and qualifies as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

### Scoping Study

Information in relation to the Eyre Peninsula Graphite Project Scoping Study, including production targets and financial information, included in this document is extracted from an ASX announcement entitled "Positive results from SA Graphite Project scoping study", lodged with ASX on 19 September 2016 and is available to view at [www.arccherexploration.com.au](http://www.arccherexploration.com.au).

## Confirmation by Archer

Archer confirms that all material assumptions underpinning the production target and financial information set out in the Scoping Study announcement continue to apply and have not materially changed.

The Company confirms it is not aware of any new information or data that materially affects the information included in the original market announcements referred to above and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.