ASX Release 26 October 2015

Archer September 2015 Quarterly Activities Report

ASX Code: AXE

Directors

Greg English
Executive Chairman

Gerard Anderson
Managing Director

Tom Phillips AM
Director (Non-Executive)

Alice McCleary
Director (Non-Executive)

Company Secretary

Damien Connor

Shares on Issue

84.7 million

Unlisted Securities on Issue

1.3 million Performance Rights

Key focus

Eyre Peninsula Graphite Project (includes Campoona, Sugarloaf and Waddikee)
Additional portfolio opportunities: magnesite, manganese, copper and gold

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SEPTEMBER 2015 QUARTER HIGHLIGHTS

GRAPHITE

- **Pegging and applying for the Mineral Claim over Campoona Shaft and miscellaneous purpose licences covering the Sugarloaf processing facility and the Pindari wellfield, process water pipeline and potable water pipeline are in progress.**
- **Final Campoona Mining Lease Proposal expected to be submitted early December 2015.**
- **Very high grade graphite (98.6% Cg) produced from the Lacroma graphite prospect. Lacroma target has a pronounced electromagnetic signature extending for over 12 kilometres and has drill intercepts of up to 60 metres grading 6.8% Cg.**

GRAPHITE TESTING AND MARKETING

- **Campoona Shaft graphite samples being assessed by European and Asian companies.**
- **Plant trials conducted under research collaboration with the University of Adelaide showed plant growth was significantly stimulated by the addition of Sugarloaf graphite into the soil. Sugarloaf graphite also greatly improved the moisture retention capacity of the soil.**

SPRING CREEK COPPER

- **Underground face sampling on the uppermost level of the historic Spring Creek Copper Mine confirmed significant copper mineralisation peripheral to the former production stopes.**
- **Sampling identified a ≈2% Cu halo consisting of copper carbonate (malachite and azurite) outside of the main stopes. Point sampling of pillars within one stope indicated grades over 8% Cu – mirroring the reported grades from the mine.**

FINANCIAL

- **Cash in bank on 30th September 2015 of $1.07 million. A Research & Development tax incentive rebate of $545,000 was received on 21st October.**
- **$416,000 was spent on exploration and project evaluation during the quarter.**

Summary of September 2015 Quarter Exploration Activities

1. GRAPHITE MINING LEASE PROPOSAL

The Draft Mining Lease Proposal (MLP) covering the establishment of the Campoona Shaft mine, the mineral processing facility at Sugarloaf and process and potable water supplies was submitted to regulators on 14th May 2015 for review.

During the period feedback was received from the various regulators and that feedback incorporated into the preparation of the Final MLP. The main outstanding action before the Final MLP can be lodged includes the completion of the pegging and application processes for the Mineral Claim and two miscellaneous purpose licences.

It is planned to have the Final MLP lodged in early December 2015.

2. GRAPHITE/GRAPHENE RESEARCH & DEVELOPMENT

LACROMA RESULTS

Results from the Lacroma graphite prospect provide the Company with a third graphite source that can deliver very high purity graphite. Archer now has three ore sources, Campoona Shaft, Central Campoona and Lacroma that can provide production flexibility by either extending the operational life of the planned Sugarloaf processing facility or providing the opportunity to greatly increase production from the currently planned 10,000tpa. Lacroma is located approximately 20 kilometres north-northwest of Sugarloaf, figure 1.

Lacroma metallurgical tests used the same flotation and leaching conditions as for Campoona Shaft and more recently at Central Campoona.

Lacroma metallurgical tests produced very high purity levels to 98.6% contained graphite (Cg). Importantly, and consistent with graphite from Campoona Shaft and Central Campoona, each of the three graphite bodies could be treated using the same process flow circuit without amendment.

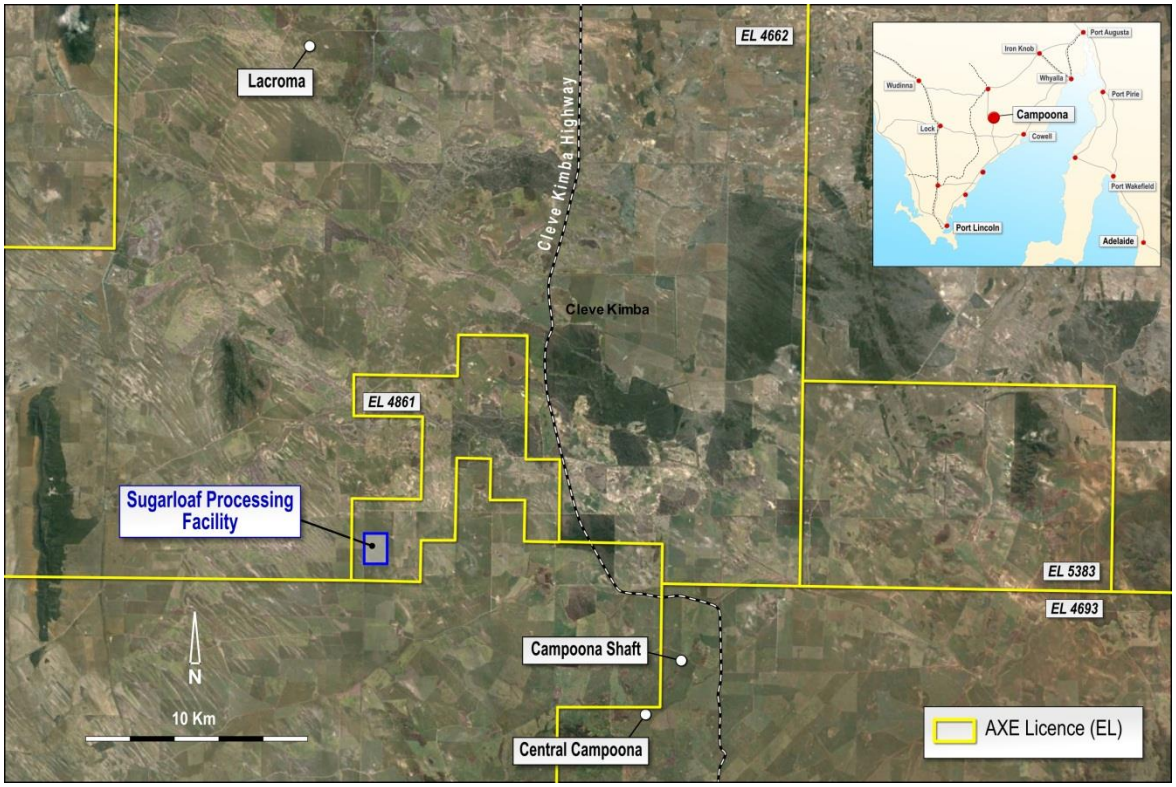


Figure 1: **Map showing close proximity of the Lacroma graphite prospect to Campoona Central, Campoona Shaft and the Sugarloaf Processing Facility.**

Geology

Lacroma corresponds to a prominent EM signature that has a potential strike of over 12 kilometres. The EM signature includes a very high intensity eastern anomaly that has an additional strike of over 4 kilometres. Initial drilling at Lacroma recorded very wide intercepts (60 m @ 6.8% Cg) opening up the possibility of significant exploration upside.

Lacroma graphite, like the graphite at Campoona Shaft and Central Campoona, is highly crystalline fine graphite.

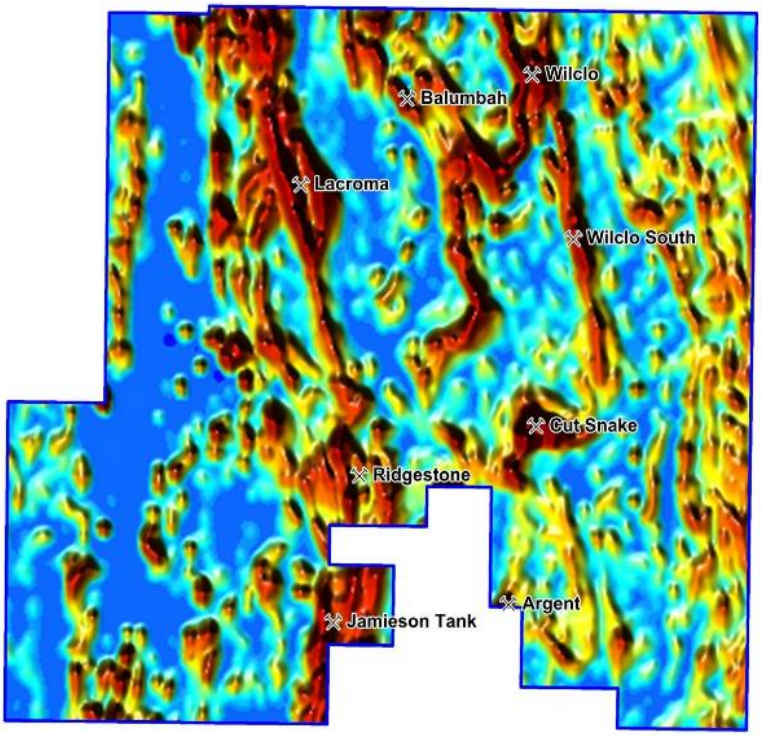


Figure 2. EL 4662 airborne EM signatures

SUGARLOAF "GRAPHITE" TESTS

Significant progress occurred in the quarter in research at the University of Adelaide to identify potential large scale uses for Sugarloaf "carbon".

Whilst Sugarloaf was originally regarded and historically mined as a graphite deposit, comprehensive testing has shown that Sugarloaf is not a typical crystalline graphite deposit but rather a form of carbon that has many attributes that make it potentially suitable as a soil conditioner/fertilizer.

Previous test work by Archer identified that Sugarloaf samples were high in carbon but that much of the carbon was non-graphite carbon. Sugarloaf "carbon" has a high resistivity in contrast to crystalline graphite that has a very low resistivity. XRD probing showed that the carbon peaks are identical to the peaks derived from crystalline graphite yet SEM imaging reveals the carbon to be present as matted porous carbon. The carbon does exhibit a degree of lubricity which can be attributed to the presence of some crystalline graphite.

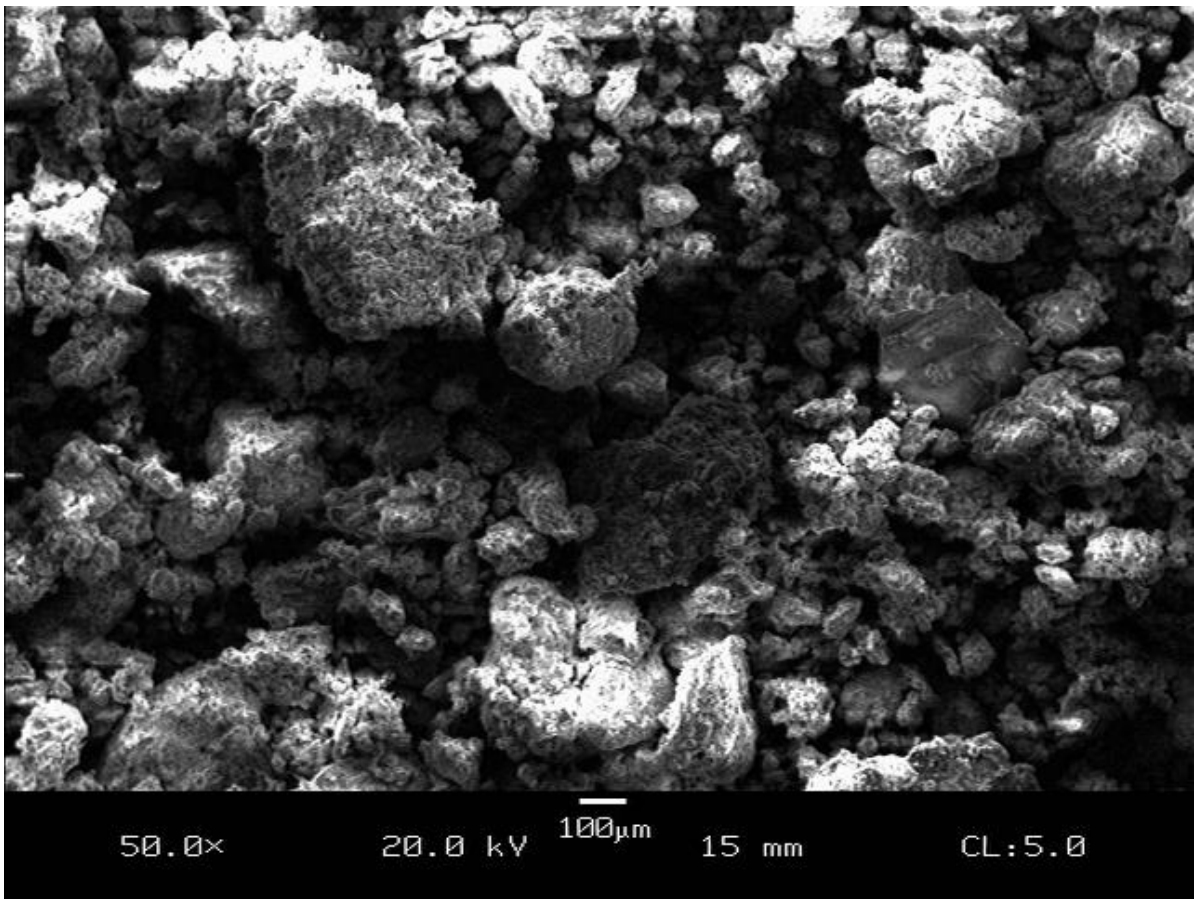


Plate 1. Sugarloaf carbon showing matted porous texture

The morphology of the Sugarloaf graphite, its heterogeneous distribution and distinct physical characteristics suggest that the initial source of carbon and the subsequent metamorphic conditions (lower confining pressures and temperatures) were insufficient to form highly crystalline graphite such as occurs at the Company's nearby Campoona Shaft and Wilclo South graphite deposits.

It was the revelation that Sugarloaf had unique and unusual properties and that the carbon could present tremendous business opportunities that prompted the current research in collaboration with the School of Chemical Engineering at the University of Adelaide under the tutelage of Professor Dusan Losic and Researcher Dr Diana Tran.

Elemental Determination

A sample of Sugarloaf carbon was collected from Sugarloaf Hill. The sample was supplied in its raw state for testing as a soil conditioner. The following experiments were performed:

1. Elemental analysis to determine elemental composition of C, H, N, S and O.
2. Ash test to determine oxide and inorganic elements composition.

3. ICP analysis to determine nutrients release performance.
4. Standard column leaching to examine the release of nutrients and performance of the raw Sugarloaf carbon.
5. Soil studies to determine nutrient release.
6. Plant studies (wheat) to determine nutrient up-take.

The studies completed by Dr Tran indicated little to no organic carbon present in the sample.

ICP analysis reported 11 out of 13 elements required as nutrients for plant growth present in Sugarloaf carbon. For macro and micro nutrients, these are nitrogen (N), potassium (K), phosphorus (P), magnesium (Mg), sulfur (S), iron (Fe), copper (Cu), zinc (Zn), manganese (Mn), boron (B), and calcium (Ca), respectively.

Table 1. Percentage of major and minor elements in the raw Sugarloaf carbon (-3.35 mm) measured from ashing test and ICP analysis.

Element	%
C	15
Si	55
Major trace	%
Ca	2.43
K	1.42
Mg	2.05
P	0.11
S	1.11
Na	0.46
Minor trace	%
Al	3.93
As	0.03
B	0.06
Cd	0.01
Co	0.01
Cr	0.02
Cu	0.10
Fe	17.10
Mn	0.04
Mo	0.02
Ni	0.02
Pb	0.01
Sb	0.01
Se	0.01
Zn	0.04

Sugarloaf carbon is a unique material because of its broad composition of carbon, silica, and soluble macro and micro nutrients and contains 11 out of 13 elements required as nutrients for plant growth.

Nutrient release performance of Sugarloaf graphite

Standard column leaching experiments carried out with calcium chloride ($CaCl_2$) solution at pH 6 for approx. 2 days showed that 5 nutrients were released and could be available as nutrients for plant growth. The release percentage of the specific elements is shown in Table 2.

Table 2. Nutrient release during column leaching

Total

Major trace	%
P	0.11
K	1.42
Mg	2.05
S	1.11
Na	0.46
Minor trace	**%**
B	0.06
Cu	0.10
Fe	17.10
Mn	0.04
Mo	0.02
Zn	0.04

After leaching

Major trace	%
P	bdl
K	0.03
Mg	0.07
S	0.29
Na	0.43
Minor trace	**%**
B	bdl
Cu	bdl
Fe	bdl
Mn	0.001
Mo	bdl
Zn	0.01

bdl - below detection limits

Sugarloaf carbon as a soil conditioner

A sample of soil consisting of sandy clay was collected from the Sugarloaf Property. The soil was spiked with different amounts of Sugarloaf carbon (5, 10 and 20 g). The soil content (80 g) was fixed at a relative humidity of 20 % and incubated at a temperature of 25 °C. The soil was watered everyday with distilled (DI) water and the release of nutrients in the soil was measured at certain time intervals (7, 14, 21 and 28 days) for a period of 1 month.

Sugarloaf carbon to improve moisture retention capability of soils

To examine the loss of water in the different spiked soil with Sugarloaf carbon the soil conditioning experiments were repeated but left un-watered for 3 days. Table 3 shows that by adding Sugarloaf carbon to the soil, the water loss due to evaporation decreases.

Table 3. Percentage of water loss for the different spiked soil with SLG

Mass of SLG in soil (g)	Water loss (%)
5 g	86 ± 1.1
10 g	112 ± 0.6
20 g	49 ± 0.8

Sugarloaf carbon is able to improve soil wettability.

Sugarloaf graphite as a nutrient soil conditioner for plants

For plant studies, the soil (120 g) was spiked with Sugarloaf carbon (7.5, 15 and 30 g) and placed into 7 cm (D) x 7 cm (H) pots. The soil was incubated for 1 week before 3 grains of wheat was planted into each pot (Figure 3). To speed up the germination, the pots were covered for 3 days with a wet towel to increase the humidity. The soil was watered everyday with distilled (DI) water and the plant growth was examined at certain time intervals (7, 14, 21 and 28 days) for a period of 1 month. To simulate day and night periods for the plants, an artificial light was used and set on a 12 h cycle period as shown in Figure 4.

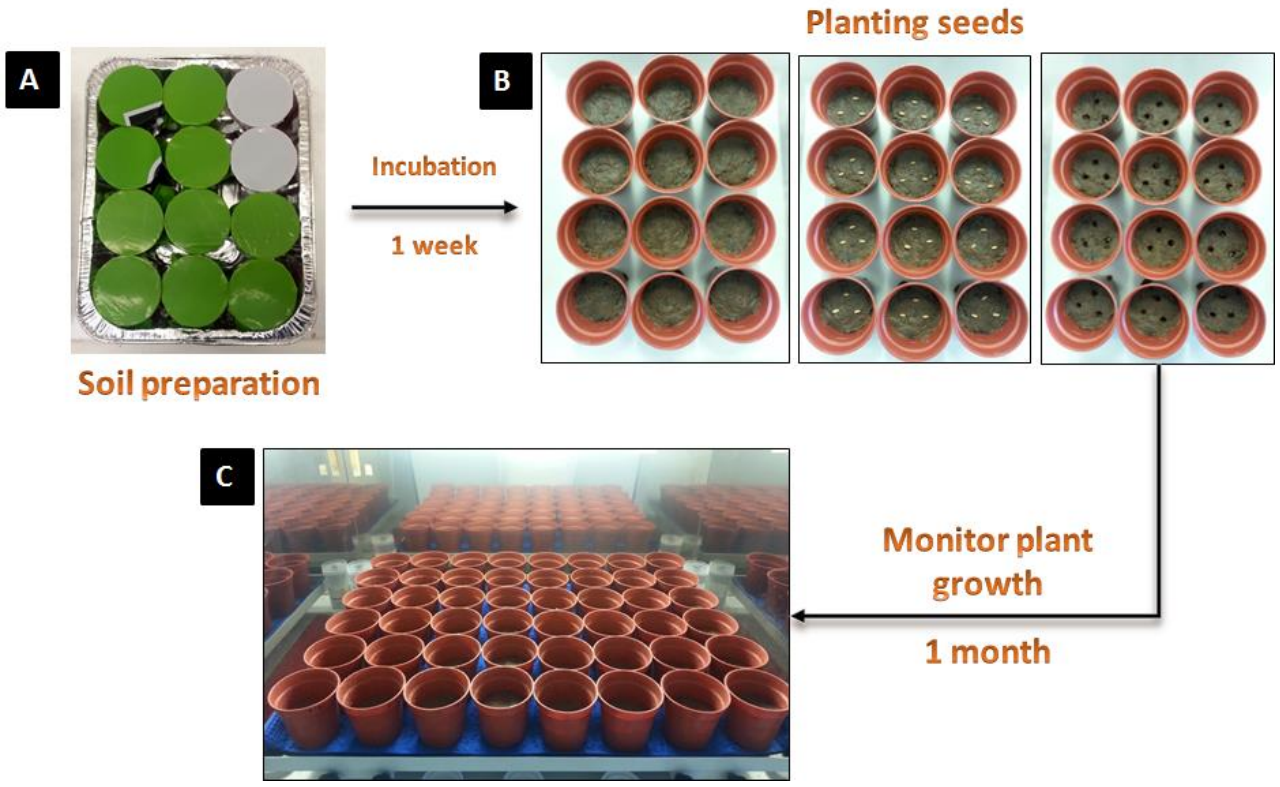


Figure 3. Experimental set up for plant studies: (a) soil preparation, (b) planting seeds, and (c) incubation of pots for monitoring plant growth (temperature 25 °C).

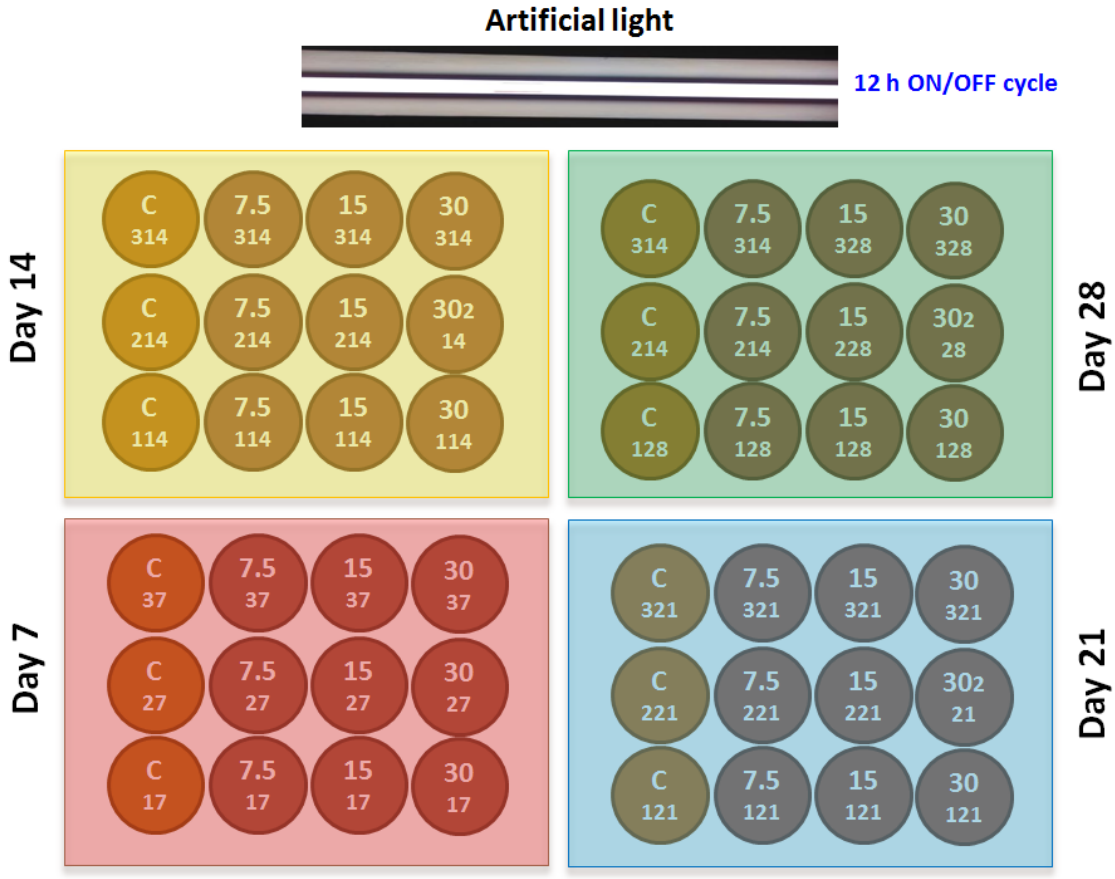


Figure 4. Experimental set up of the pots in the incubator with simulated artificial light to represent day and night cycles

Visual observation of preliminary results for Day 7 (Figure 5) show that soil spiked with Sugarloaf carbon significantly increases shoot and root length of the wheat and the thickness of the wheat stalks is appreciably thicker.

Monitoring of soil and plant studies is in progress and will include measuring soil pH before and after planting, measuring wheat shoot and root lengths and acid digestion of shoots and roots to determine nutrient up-take to the plants.

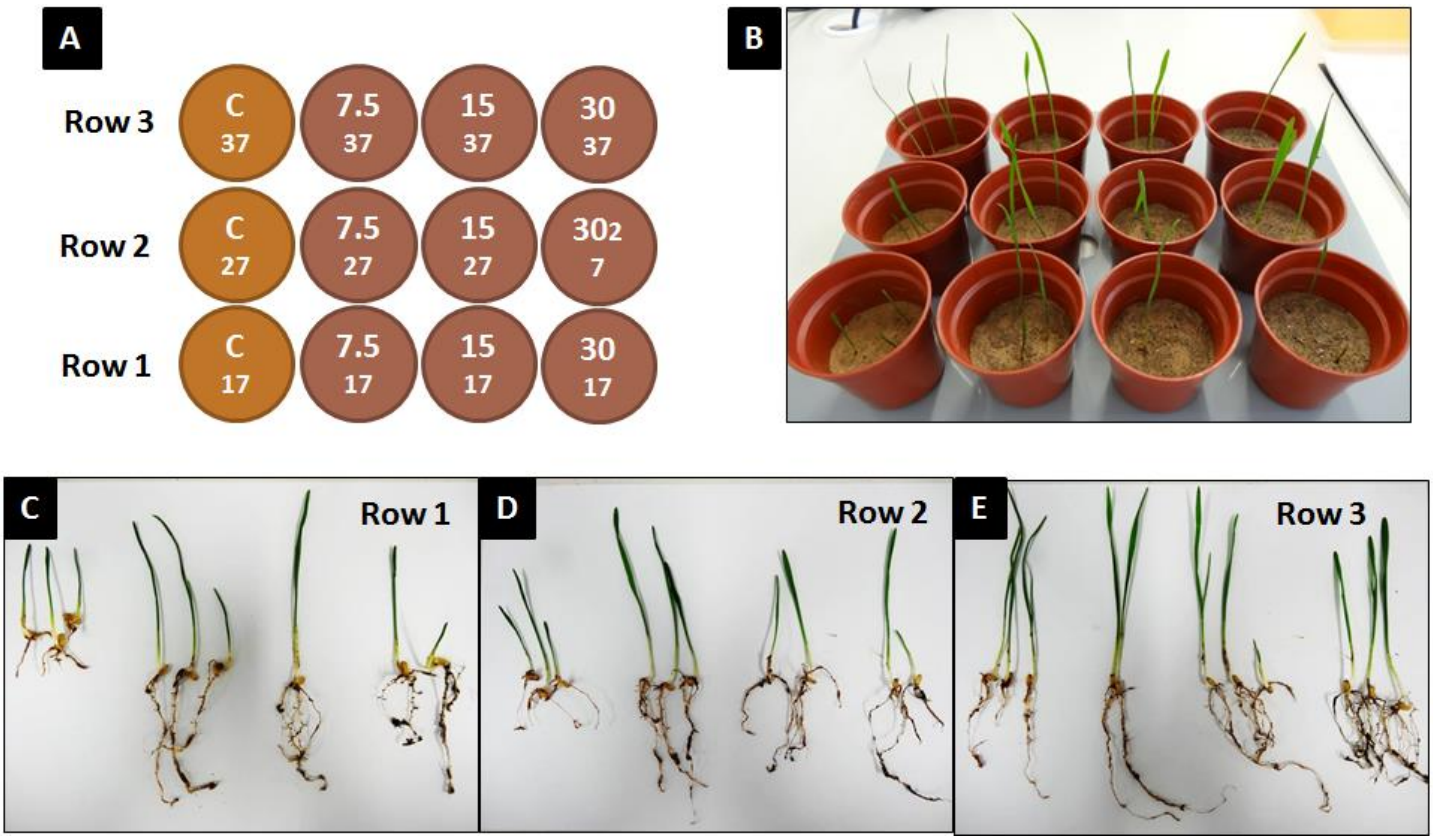


Figure 5. Wheat growth for Day 7: (a) Position of pots in incubator, (b-e) digital photographs of wheat growth in pots, and difference in shoot and root lengths of wheat. In images C, D and E the plant sequence is on the far left is the Control Sample which has no Sugarloaf carbon added, followed by the 5 gm addition, 10 gram addition and on the far right is the 20 gram addition.

Macro and micro nutrients present in the Sugarloaf graphite are in both soluble and slow soluble forms, which in terms of release performance may be advantageous providing fast immediate release and slow release of nutrients for a long period of time.

Sugarloaf carbon can be used as a natural nutrient soil conditioner and could be tailored for specific applications although further work is needed to quantify the optimum dosage rates and performance outcomes.

Implications of Research

Sugarloaf carbon with an Exploration Target of 40-70 million tonnes grading 10-12% Total Carbon is a very large mineral occurrence. Sugarloaf carbon has proven to be very effective as a soil conditioning agent and slow release fertilizer. Research undertaken by the University of Adelaide has shown the material increases soil wettability and releases a broad spectrum of macro- and micro-nutrients essential for plant growth.

Many of Australia's soils are ancient skeletal soils which have been heavily leached of the nutrients needed by plants to support vigorous plant growth. Productive farming ventures rely heavily on the

application of high-cost fertilizers in order to achieve commercial cropping operations. Much of the fertilizer applied by farmers can be lost due to adverse weather (especially in heavy rainstorm events) and fertilizer has to be applied each year as little to none is retained in the soil.

Whilst additional research is needed, Sugarloaf carbon looks likely to be able to provide a stable, natural and long-life product that will be retained in the soil to build up soil condition and improve water retention.

3. SPRING CREEK COPPER

The historic Spring Creek copper mine is located 30km south of the township of Wilmington, South Australia.

Copper mining ceased in 1918 when the mine de-watering pump failed and the mine flooded. The government of the day determined that the operator had 12 months to reactivate the mine or face forfeiture. Pumps failed again and the mine was relinquished.

The historic mining records at Spring Creek document what can be described as a classic supergene copper profile with the uppermost portion comprised solely of copper carbonates malachite ($CuCO_3 \bullet Cu(OH)_2$) and azurite ($2CuCO_3 \cdot Cu(OH)_2$) which pass vertically into copper oxides cuprite (Cu_2O) and native copper (Cu) before passing vertically into transition sulphide zone consisting of chalcocite (Cu_2S) and covellite (CuS).

Primary sulphides were never encountered meaning that the primary mineralisation which was the source of the copper that was mined is likely to occur at depth below the flooded workings. Archer expects that because of this "unmined" high grade copper mineralisation is likely to be found below the stopes.

The mine comprises a series of drives coming off an adit cut into a hill face. Only the upper level was accessed for sampling. From these different drives a number of stopes are observed that were historically;

- acessed by winzes to lower levels
- mined down to the main drive from the surface

Plate 2. Looking from the end of Drive 1 into the main drive intersection

The main copper lodes at the historic Spring Creek Copper Mine are contained within an intense east-west striking quartz-rich hematite breccia within a ferruginous siltstone. Lower grade copper occurs as blebs and joint/fracture coatings within a "halo" around the mined stopes.

The style of mineralisation is NOT strictly limited to the stratigraphy as mineralised lenses are cross cutting and plunge within the breccia itself.

Sampling

The sampling program was undertaken to assess the presence and grade of copper mineralisation peripheral to the historic high grade (8-10% Cu) mining stopes within the Spring Creek mine. Samples were collected by face sampling access drives and by taking point sampling of remnant pillars.

Three separate drives were sampled (highlighted in figure 6) and assayed for copper. The results demonstrate that the multiple high grade copper bodies (8-10%Cu) have a halo of mineralisation averaging 1-3% Cu. Point sampling of remnant pillars within one stope accessible on the one level sampled indicate grades up to 8% Cu which mirrors historic mined grades.

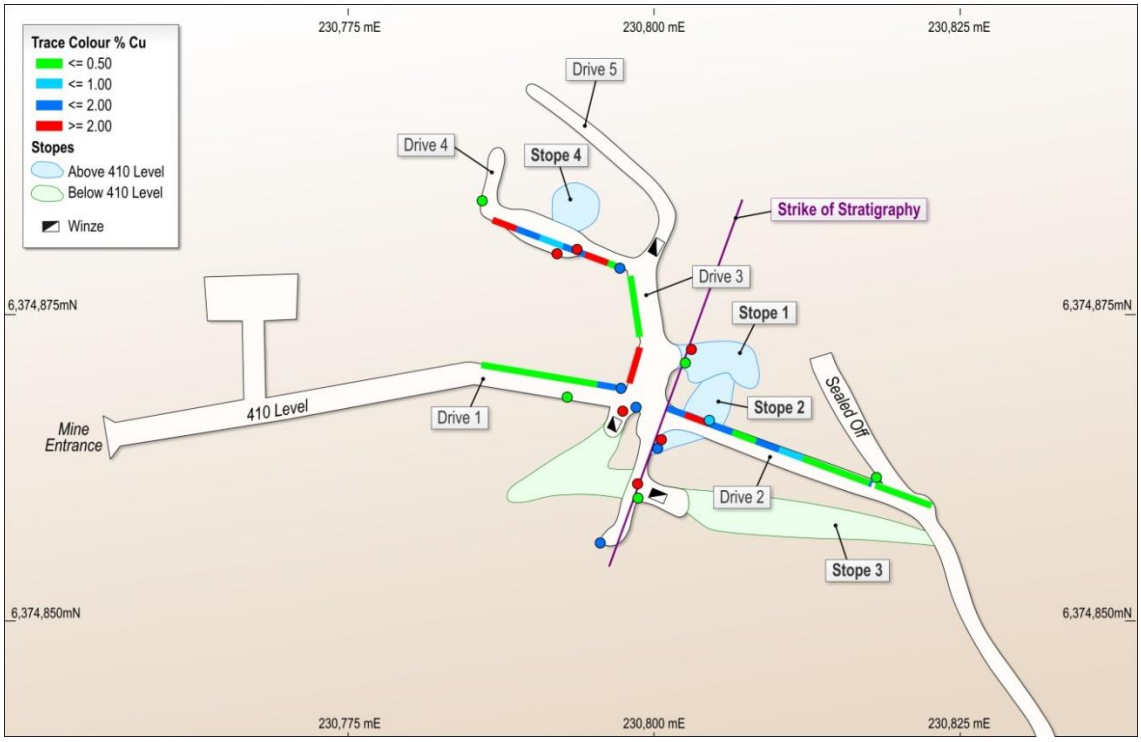


Figure 6. Plan view of underground workings, face and point sampling copper assays.

All samples taken in the sampling programme were from the zones peripheral to the mined out stopes and all mineralisation consisted of the copper carbonates, malachite and azurite.

Sampling of Drive 1 (Face_001) commenced in hard silica rich rock and ended (Face_001a) in a pillar opposite Stope_1 that was mined above the drive. Sampling of Drive 2 (Face _002) commenced after passing Stope_1 and continued back into the mine (Easterly) and ceased at the junction of an abandoned and sealed Drive. Sampling of Drive 3 (Face_003) was completed in two parts (003 and 003a) and continued from Stope 1 (in a Northerly direction) then around to the NE towards Drive _4.

Point samples were taken over 2 separate visits as a part of understanding the host rock and the mineralisation.

Drive 4 was not sampled as it strikes in a direction similar to that of the stratigraphy (020); Drive 5 was inaccessible at the time due to an open winze.

The lower stopes were not sampled in this round. However, Mining Reports from the SA Govt (1916), describe grades ranging from 2.2 to 8.9% Cu remain in faces in these lower stopes.

Future Exploration

Subject to negotiating access to drill from SA Water, Archer plans to source a small underground diamond drill rig and drill a series of fan holes designed to intersect extensions to copper lodes below the mined out areas. Drilling from underground will determine the width and grade of the en echelon mineralisation within the cross cutting breccia , Figure 7.

Future drill holes will be orientated in directions to test for unmined pods primarily below the drive out to the North and South breccia contacts. The area of the breccia is some 100m by 70m (strike). A number of deeper drill holes will also seek to identify primary copper sulphides below the supergene envelope.

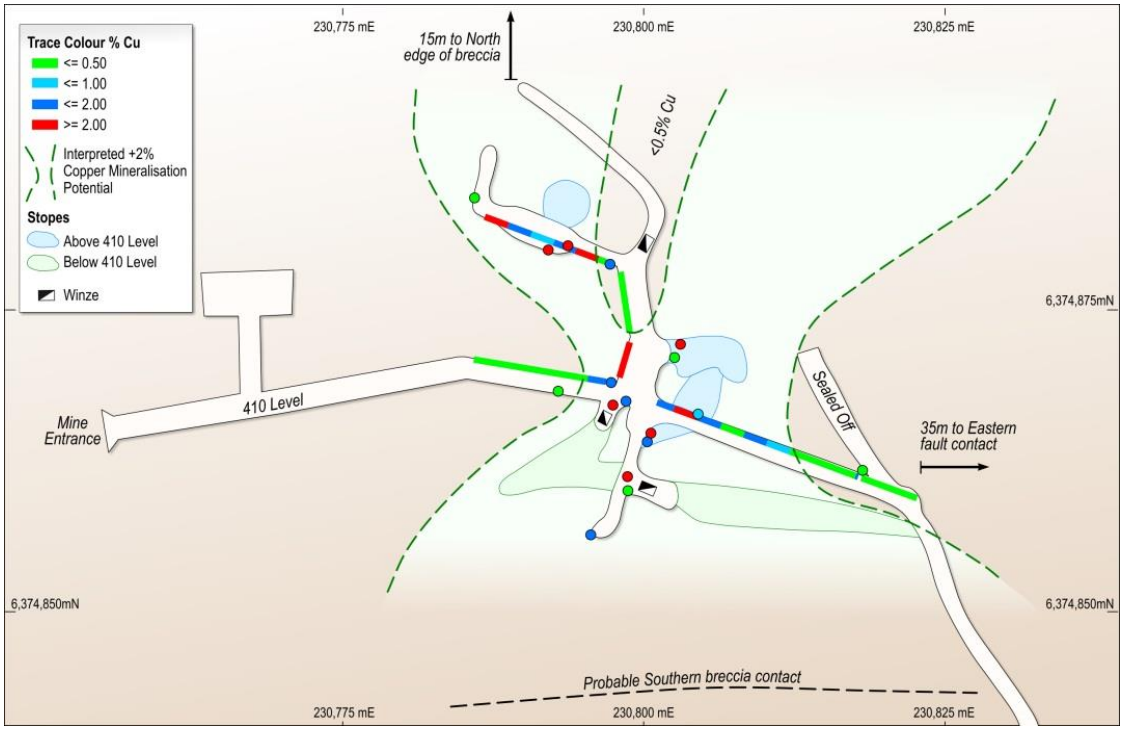


Figure 7. Mineralisation extent of underground workings

4. EXPLORATION

The Mt James barite ($BaSO_4$) prospect within EL 4869 (Ediacara) was visited during September. Reconnaissance work was completed to determine the extent of barite mineralisation and the tenor of the barite itself. Numerous veins and vein sets were identified and geologically mapped. Barite vein widths vary from 0.2m to +1m and strike over many 100's of metres.

Barite is used extensively in oil and gas drilling where its chemical properties and high specific gravity are used to reduce the risk of blow-outs. Drilling standards require a density of 4.2. Sampled veins report densities from 3.6 to 4.5, with little to no contaminants other than quartz.

5. FINANCIAL

- The Company's cash balance at the end of the quarter was $1.07 million. A Research & Development tax incentive rebate of $545,000 was received on 21st October.
- $416,000 was spent on exploration and project evaluation during the Quarter

6. ACTIVITIES FOR DECEMBER QUARTER 2015

Peg the Mineral Claim at Campoona Shaft and apply via alternate means for two Miscellaneous Purpose Licences covering the Sugarloaf processing facility and the combined Pindari process water borefield and pipeline and the Jamieson Tank potable water supply infrastructure.

Submit the Final Campoona Mining Lease Proposal.

The micronized sample of Campoona Shaft graphite from Netzsch in Germany will be sent to CSIRO to conduct further comparative tests using Campoona graphite concentrates in battery applications.

Marketing of Campoona graphite will continue during the quarter.

The imminent closure of Alinta's Leigh Creek coal operations presents opportunities for the Company's Leigh Creek magnesite deposits. Interest has been received from third parties and those opportunities will be progressed during the December quarter.

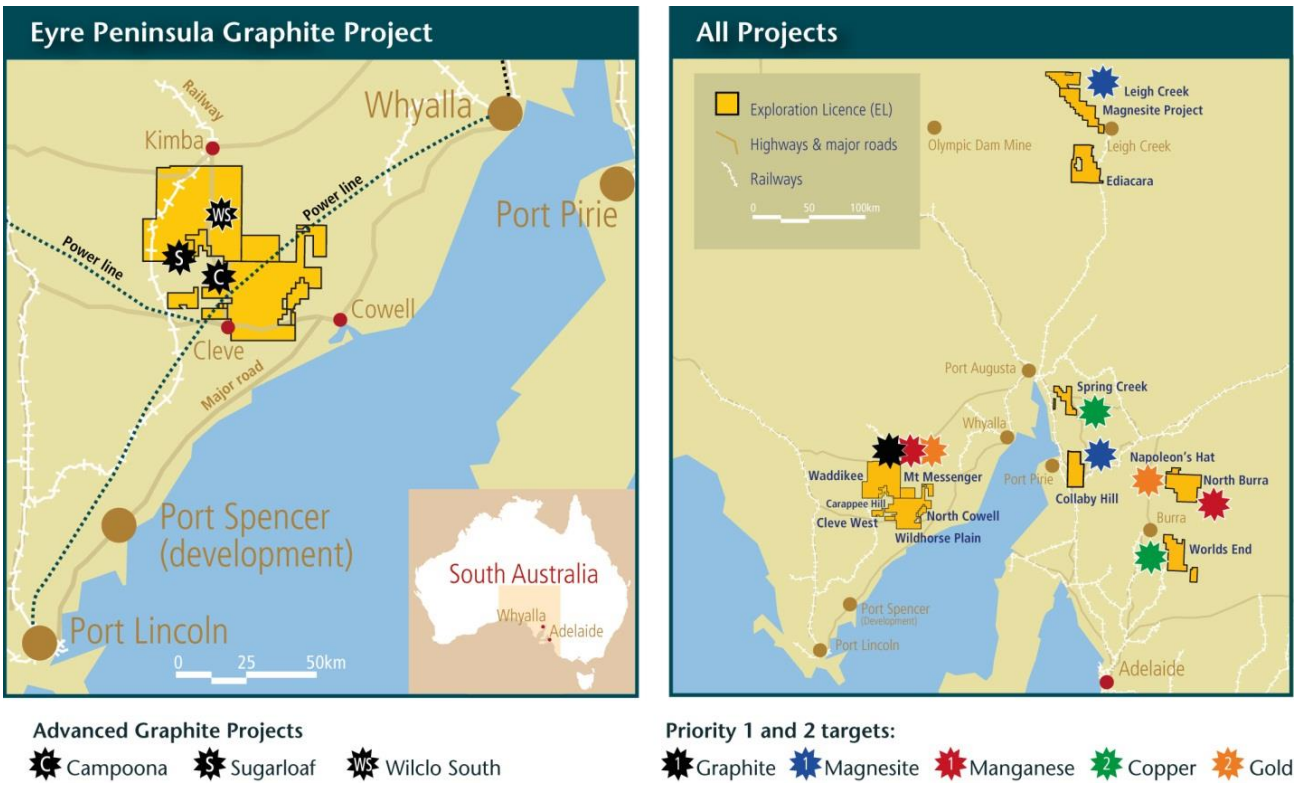
Archer will continue to work with SA Water to secure drilling access to the historic Spring Creek mine.

7. SUMMARY OF ACTIVITIES BY TENEMENT

The Company's interest in tenements is as follows:

Commodity	Tenement Name	Tenement	Work undertaken during the quarter
Graphite	Carappee Hill	EL4861	See report
Graphite	Wildhorse Plains	EL4693*	See report
Graphite	Waddikee	EL4662	See report
Graphite	Mt Shannan	EL4673	No work undertaken in the quarter
Graphite	Mt Messenger	EL5383	No work undertaken in the quarter
Graphite	Cleve West	EL4893	No work undertaken in the quarter
Graphite & Copper	North Cowell	EL4277	No work undertaken in the quarter
Magnesite	Witchelina	EL4729	No work undertaken in the quarter
Magnesite	Termination Hill	EL4567	No work undertaken in the quarter
Magnesite	Collaby Hill	EL 5553	No work undertaken in the quarter
Copper	Worlds End	EL4230	No work undertaken in the quarter
Copper	Spring Creek	EL5540	See report
Gold	Napolean's Hat	EL4668	No work undertaken in the quarter
Manganese	North Burra	EL4266	No work undertaken in the quarter
Barite	Ediacara	EL4869	See report
Coal / gas	Ediacara	PELA 567	No work undertaken in the quarter

Archer Exploration Limited is an Australian Stock Exchange listed company with 100% ownership of 16 tenements all in South Australia. Archer's flagship project is the Eyre Peninsula Project which is located within reach of established and major developing infrastructure.



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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.

The information in this report that relates to the Campoona Shaft and Central Campoona JORC 2012 Mineral Resource estimation has been 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). Mr Knell is a full time employee of Mining Plus Pty Ltd and Dr. Gee is a full time employee of Mining Plus Pty Ltd., both have more than five years' experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Knell has consented in writing to the inclusion in this announcement of the Mineral Resource estimation information in the form and context in which it appears. This information was prepared and first disclosed under the JORC Code 2012.

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