

## Large Flake Graphite Distribution at Wilclo South



ASX Code: AXE

### Directors

Greg English

Chairman

Gerard Anderson

Managing Director

Tom Phillips AM

Director (Non-Executive)

Alice McCleary

Director (Non-Executive)

### Company Secretary

Damien Connor

### Shares on Issue

84.3 million

### Unlisted Options on Issue

23million 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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### EXTRA LARGE AND LARGE FLAKE AT WILCLO SOUTH

- Processing of oxide Wilclo South graphite ore has produced Extra Large, Large, Medium and Fine Flake graphite at grades of 91-93% Cg.
- Grades are expected to improve further with additional standard processing steps.
- Excellent flake recovery with laboratory tests inferring 42-55% of the graphite is recoverable as Flake product.
- Further drilling at the Wilclo South will commence in January, following the 2014 harvest. Francis and Cut-Snake graphite prospects are also currently under crop and drilling is planned for these locations at this time.
- Initial assessment of surface graphite at the Argent deposit has shown the presence of exceptionally coarse graphite. Significant specimens of graphite ranging in size from 1,000 – 6,000µm were liberated using knapping techniques.
- Drilling at Argent is planned to commence within a week to further explore the graphite resource. Drilling is planned for this time at Wilclo, Balumbah, Lacroma and Ridgestone.

Graphite size (µm)	Grade (% Cg)	Graphite distribution in flake product (%)
Extra large / Jumbo flake +425µm	92.2	5%
Extra large flake +300µm	91.6	10%
Large flake +180µm	91.8	29%
Fine & Medium flake +75µm	92.3	56%

**Table 1. Indicative Flake distribution from the oxide profile at Wilclo South**

Commenting on the findings, Managing Director, Gerard Anderson said, “We are delighted with the distribution of flake sizes that we have found with our initial work at Wilclo South located near Cleve on Eyre Peninsula, South Australia. Extra Large and Large flake product like that found at Wilclo South is marketable to wide range of end users and has transparent pricing.”

“We are equally excited by the potential of the other graphite prospects at Waddikee that indicate the presence of large flake graphite and especially at Argent where preliminary work shows larger flake sizes that we have ever encountered on our project area.” said Mr Anderson.

## Large Flake Graphite Distribution at Wilclo South



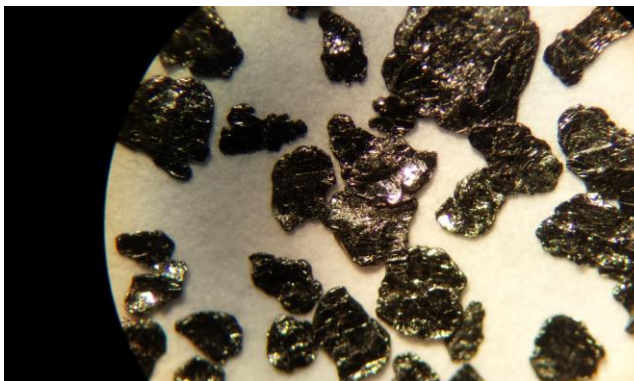
Archer Exploration Limited (“Archer”) advises that initial metallurgical test work results from Wilclo South oxide drill samples infer that 42-55% of the graphite is recoverable as flake product, in sizes ranging to Extra Large Flake  $>425\mu\text{m}$  at grades of approximately 92% graphitic carbon.

Archer Exploration expects that concentrate grades from Wilclo South will improve with further process steps such as light regrinding and recleaner stages of flotation and tabling. The tested concentrate was recovered through conventional mineral separation processes including grinding in a rod mill, froth flotation, and then sieved into sized fractions before batch beneficiation on a shaking table and Haultain super-panner.

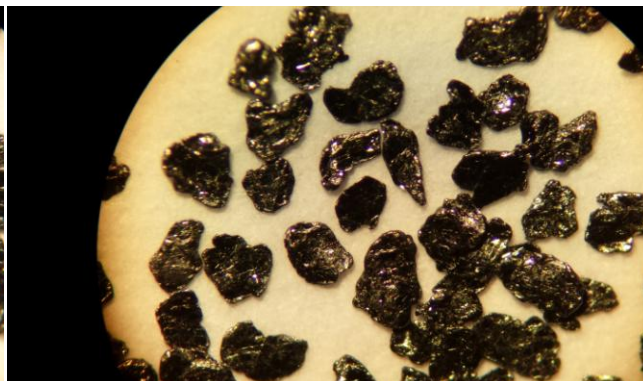
The shape of the recovered flake particles shows a high degree of graphite release from the predominantly quartz gangue, which infers potential for efficient recovery of graphite at relatively coarse grind sizes.

Microscopic images of the respective flake concentrate from each of the size fractions are shown in Plates 1 to Plate 4. The clean surfaces of the particles show substantial release of the graphite particles from the gangue minerals such as quartz across all size fractions. The particles surfaces are generally free of occlusions or slime coatings.

The image of coarsest particles in the  $+425$  fraction, see Plate 1, reveals rounded edges which suggest that these particles display little fraying from the treatment processes. The smaller particles down to  $+75$  microns in Plates 2 - 4, show progressive increase in edge angularity suggesting that the grinding has fractured the particles, as would be expected from rod milling.

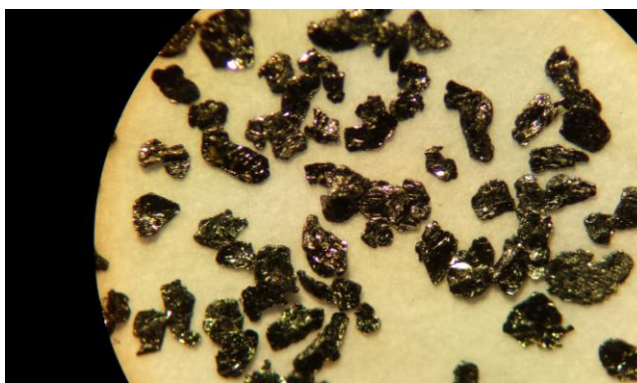


**Plate 1.  $+425\mu\text{m}$  fraction showing Extra Large - Jumbo flake**

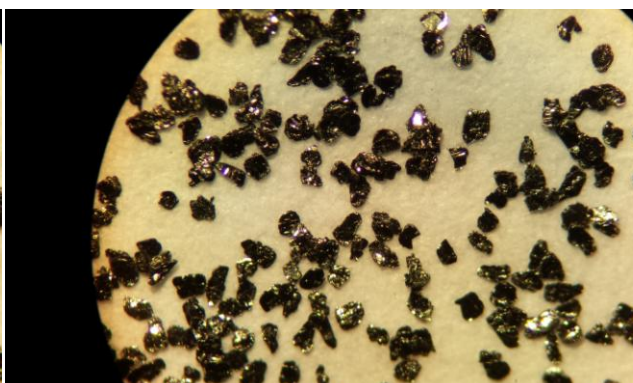


**Plate 2. Extra Large Flake  $+300\mu\text{m}$**

## Large Flake Graphite Distribution at Wilclo South



**Plate 3. Large Flake +180µm**



**Plate 4. Fine Flake +125µm**

In addition, at the Argent graphite prospect, which occurs in the very southern portion of EL4662, surface sampling has identified the presence of very coarse crystalline graphite in sizes up to 6,000µm, see Plate 6. This is the coarsest graphite yet identified on EL4662. This has significant potential given the centroid of the >3 kilometre intense EM anomaly lies just 8 kilometres east-north-east of the proposed Sugarloaf processing facility.



**Plate 5. Argent graphite prospect ultra-coarse graphite released by knapping a surface rock. Note: the square scale grid is 1 millimetre**

### Next Steps

Drilling at Argent is planned to commence within a week, as well as drilling Wilclo, Balumbah, Lacroma and Ridgestone. Drilling at the Wilclo South, Francis and Cut-Snake graphite prospects will commence nominally in January following the 2014 harvest.

Wilclo South was drilled to Resource status and a JORC 2012 Inferred Resource of 6.38 Mt grading 8.8% Cg was prepared and first disclosed under the JORC Code 2012 (Monax Mining Limited, ASX Announcement 26th August 2013). It has not been updated since on the basis that the information has not materially changed since it was last reported.

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For further information please contact:

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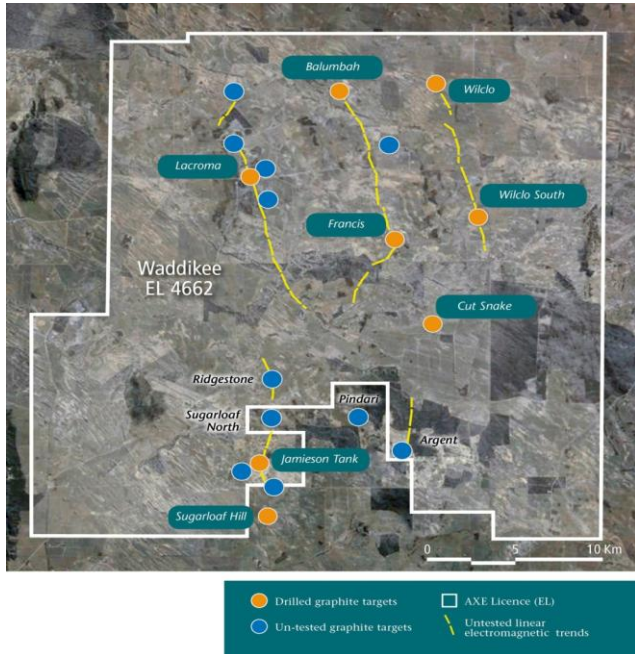
Mr Gerard Anderson  
Managing Director  
Archer Exploration Limited  
Tel: (08) 8272 3288

*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 eighteen years experience in the field of activity being reported. Mr. Bollenhagen consents to the inclusion in the report of matters based on his information in the form and context in which it appears*

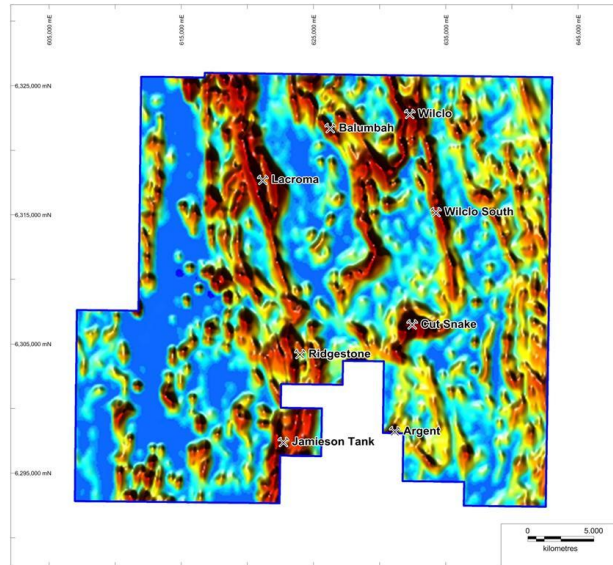




## APPENDIX:



**Figure 1. Graphite deposits and prospects on Waddikee EL4662**



**Figure 2. Airborne EM image showing major graphite prospects on EL4662**

### Wilclo South Metallurgical Testwork Process

A composite RC sample from hole WG045 in the oxide zone of the Wilclo South graphite deposit was blended and split into portions for metallurgical investigations.

Firstly two kilogram portions were ground in a rod mill with 'Pindari' ground water ( $\approx 22,500$ ppm TDS), and short series of rougher flotation tests were conducted to identify preliminary conditions to upgrade the graphite. Rougher concentrates were sieved into 5 size fractions before separation on a Haultain super-panner. The panned products were weighed and assayed, and the results were interpreted to guide larger batch tests.

Next forty kilograms of the same mineralized sample were floated in eight kilogram batches. The combined, rougher concentrate from flotation was sieved across four meshes; 300, 180, 125 and 75 microns to produce four size fractions for testing of downstream process steps. The minus 75 microns sieved product was not treated further in this test program.

Each of the over-size fractions from sieving were passed as a slurry across a wet shaking table, which separated the graphite concentrate from most of the released gangue mineral particles. These 'rougher' table products were then sub-sampled for 'cleaner' test on the Haultain super-panner, which were conducted with and without regrinding. The +300 fraction was also sieved into a coarse +425 fraction, which was separately panned without regrinding.

All the products from the test steps; sieving, tabling and panning, were weighed and assayed to estimate the deportment of graphite through these laboratory processes. The flake distribution and

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grades obtained from the panner products are provided in Table 1 for each over-size sieve fraction.

Overall graphite recovery into the flake products between 42-55% may be inferred from these open-circuit, batch laboratory results. Concentrate grade and recovery will be confirmed during closed-circuit tests on bulk representative samples, which will be collected from the deposit during the next planned drilling program.

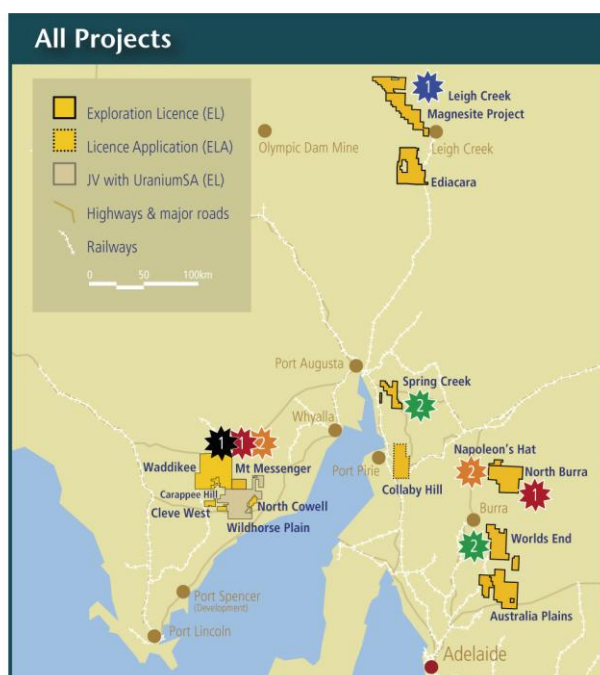
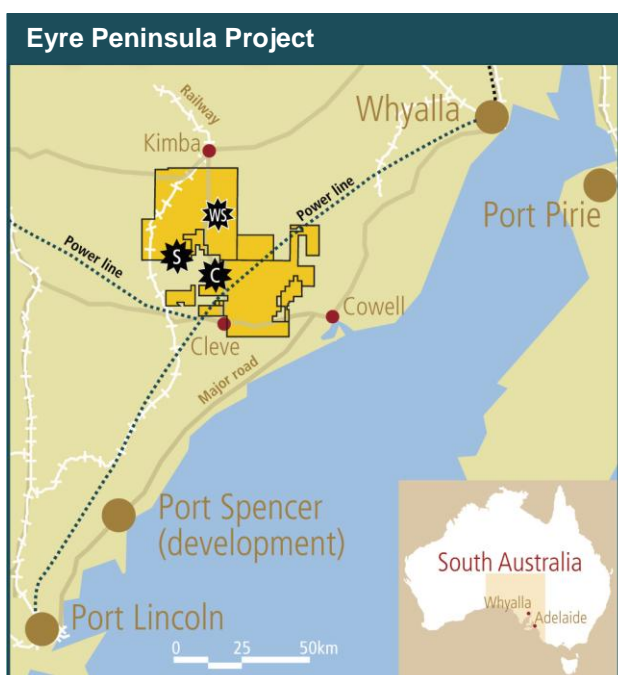
The concentrate grades have marketable range >90% graphitic carbon, which can be confirmed through a systematic program of testwork including performance of locked-cycle flowsheets.

It is considered that further systematic investigation will yield higher target grades >95% graphitic carbon in concentrates following 'polishing' process steps on each of the size fractions. Discrete particles occurrences of mineral composite were observed in many of the microscopic images, which suggests that concentrate grades can improve with selective stages of regrinding and recleaning. Such beneficiation steps can be progressively conducted in a treatment flowsheet which consists of well known, process operations and 'off-the-shelf machines'. This process knowledge, along with the high achieved grade of concentrates from this brief test program, provides an expectation that improvements in both grade and recovery of graphite will become available from results of further test work.



Archer Exploration Limited is an Australian Stock Exchange listed company with 100% ownership of 15 tenements and one Exploration Licence Application all in South Australia covering 6,053 km<sup>2</sup>. Archer also has the rights to all minerals other than uranium on EL4693 covering a further 816 km<sup>2</sup>.

Archer plans to submit a Mining Lease Proposal for the Campoona Shaft deposit and Sugarloaf processing facility to the South Australian Government for approval in the first quarter of calendar 2015.



**Advanced Graphite Projects**

- Campoona
- Sugarloaf
- Wilclo South

**Priority 1 and 2 targets:**

- Graphite
- Magnesite
- Manganese
- Copper
- Gold



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*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.*