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# **Archer Exploration**

Annual General Meeting 26 October 2012

Gerard Anderson Managing Director



#### **Competent persons statement**

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 has sufficient experience which is relevant to the styles of mineralisation and types of deposit under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2004 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.

#### **Forward looking statements**

The information in this presentation is published to inform you about Archer Exploration Limited and its activities. Some statements in this presentation regarding estimates or future events are forward looking statements.

Although Archer Exploration Limited believes that its expectations reflected in these forwardlooking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results and outcomes will be consistent with these forward-looking statements.

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# **Presentation outline**

- Corporate overview
  - 2012 2013 highlights
  - Corporate strategy
- · Company projects
- Graphite
  - Campoona
  - Sugarloaf
- · Copper
  - World's End & Robertstown
  - North Cowell
  - Spring Creek
- · Gold
  - Napoleon's Hat
  - Watervale
  - Bartel
- Magnesite



Resource Drilling at the Campoona Shaft Graphite Deposit

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# **Corporate overview**



13 Exploration Licences and the rights to minerals other than uranium on Wild Horse Plain.

The tenement portfolio hosts a number of significant projects.

### **Mineral Exposure**

- · Graphite
- · Copper
- · Gold
- · Magnesite/magnesia
- Manganese ± REE
- · Coal CSG
- Phosphate
- Barite
- Iron ore



#### Archer's tenement position at 30 September 2012

# Corporate overview

#### **ASX Code:**

AXE

\$0.19

82,362,763

\$15.6 million

\$11.87 million

6,000,000

Shares on Issue Unlisted Options on Issue Share price at 19/10/2012 Market Capitalisation **Cash at 30/09/2012** 

# Who we are

Chairman

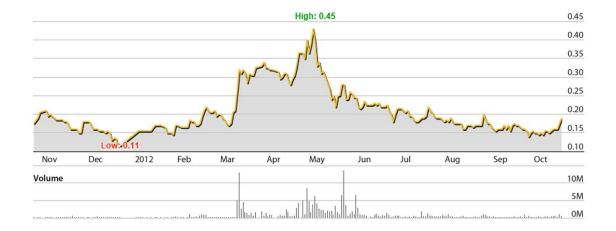
• Greg English

# Directors

- Gerard Anderson
- Tom Phillips
- Alice McCleary

# Senior Staff

- · Wade Bollenhagen
- Dr Dave Lock
- Claude Walter
- Anna Mayo



The limited number of shares on issue and commodity exposure offers shareholders leverage as exploration advances and deposits mature.

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# Highlights 2011–2012

# Campoona Graphite

- Resource drilling completed at Campoona Shaft on 50m x 20m spacing. Resource estimation expected December 2012.
- Airborne EM survey highlighted strike extensions to Campoona for future drill testing.
- Metallurgical diamond drill holes completed to supply samples for ore characterisation tests and process design.
- Baseline Flora and Fauna Studies contract awarded to Golder Associates Pty Ltd.

# Metallurgy

- RC hammer samples returned medium and fine flake concentrates grading 95% and 96%TGC respectively. High grade amorphous graphite grading 97%TGC.
- Sample preparation facility established at Lonsdale during September 2012.
- Test work on recently completed diamond drill core progressing to plan.
- Process design being defined.

# Regional

- EM highlighted new regional graphite targets.
- Sugarloaf metallurgical diamond drilling completed September 2012. Core samples at Lonsdale awaiting processing.

# Highlights 2011-2012

# Copper

- Robertstown and World's End (Mimic) assessed as significant copper targets.
- EM at North Cowell identified a significant non-graphite conductor requiring appraisal.

# Gold

- Anomalous epithermal-style gold defined at Bartel.
- EM surveys over Napoleon's Hat and Watervale completed September 2012.

# Magnesite

 HPGR crushing and tumbling to abrade fine talc delivered high quality magnesia grading >95% MgO and ≈2.5% SiO<sub>2</sub>.

# Ediacara Coal/CSG

 Historic drill samples positive for gas.
 Extensive pegging for PELA around the 885km<sup>2</sup> tenement by third parties.

# West Roxby Tenements

 Sold five West Roxby tenements to BHP Billiton Olympic Dam Corporation Pty Ltd on 22nd June for \$8 million.

# **Share Placement**

• Raised \$3 million through a placement to sophisticated investors.

# SPP

 Completed a capped SPP to raise a \$1.5 million.

With just under \$12 million in cash at 30 September 2012, Archer now has the financial capacity to accelerate exploration and development opportunities focusing on graphite, copper and gold.

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# **Corporate strategy**



# Very strong cash position

Corporate strategy

The sale of West Roxby has given the Company the cash needed to advance a number of very promising projects.

Value for shareholders will be created by the following strategies:

# Campoona Graphite

- Define optimum process flow sheet.
- Establish minimum aggregate JORC Resource\* of 5Mt at Campoona Shaft and Central Campoona.
- Pilot scale tests to produce samples for marketing.
- Establish markets for Campoona graphite.
- Drill test northern and southern extensions at Campoona and regional graphite targets to rank potential.

\*It is not possible to confirm at this time whether Mineral Resources or Ore Reserves will be defined in accordance with the JORC Code at the Campoona Graphite Deposit

# Copper

- Initial drilling at Robertstown, World's End and North Cowell. Submit exploration proposal to DEH for Spring Creek.
- Follow up drilling on the most prospective targets.

# Gold

 Initial drilling at Napoleon's Hat and Watervale and auger soil sampling at Bartel to better target follow up drilling.

# Magnesite

 The Leigh Creek magnesite deposits are World Class in terms of Resource size and grade. IM completed and begun search for a senior JV partner.

# A&M

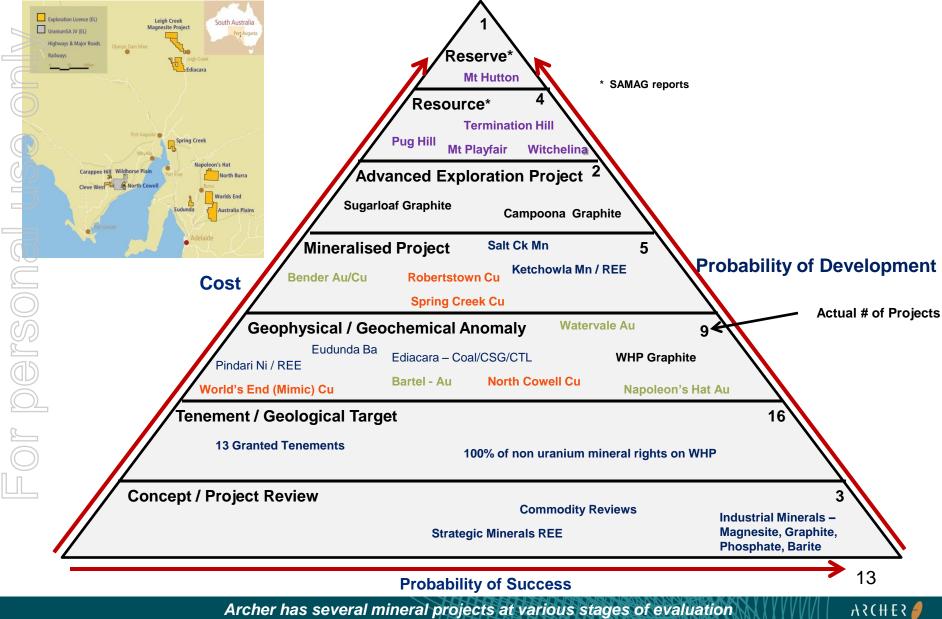
Use strong cash position to either buy a majority interest in or buy outright financially distressed or underappreciated assets.

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# **Company projects**



# Company projects



Archer has several mineral projects at various stages of evaluation

# Graphite

# **Graphite Properties**

Metallic properties:

- · Excellent conductor of heat and electricity
- Highest natural strength and stiffness of any material

#### Nonmetallic properties:

- High natural lubricity
- Maintains stability to temperatures of 3,600°C
- · One of the lightest reinforcing agents
- Highly resistant to chemical attack

# **Graphite Market**

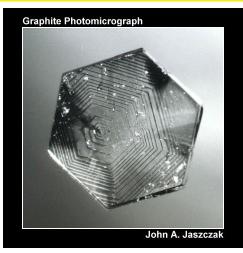
## **Amorphous Graphite**

Microcrystalline graphite  $\approx$ 70% of world production. Widely used in industrial applications for its high melting point, resistance to thermal shock and lubrication.

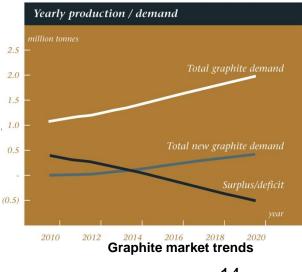
# Flake Graphite

Mostly occurs as flat platy crystals in metamorphic rocks. Carbon <sup>1.5</sup> grades are generally low mostly from 2-6%TGC and rarely >10%TGC <sup>1.0</sup> Flake is classified and marketed based on the size of the graphite <sup>0.5</sup> crystals (flake size) and by the carbon content (generally >94%TGC). <sup>1.5</sup> Three main flake sizes: <sup>(0.5)</sup>

- Fine flake (-200 mesh or 75 149 microns)
- Medium flake (+100 80 mesh or 149 177 microns)
- Large flake (+80 mesh or >177 microns)

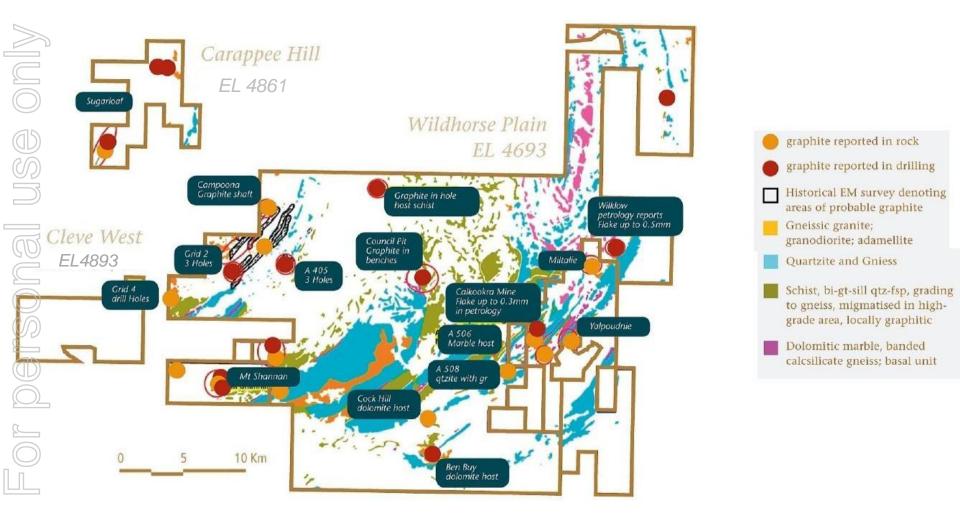


Growth spirals in graphite crystal



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# Archer Graphite

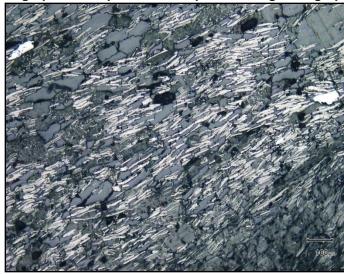


# Archer has a substantial land position in "graphite province" with several flake occurrences

- Airborne EM surveys conducted as part of base metal exploration in the mid-1980s indentified several highly conductive bodies in the Campoona area including the Campoona graphite trend.
- Other elongate EM conductors, which are parallel to Campoona were drilled by ESSO at High Bluff and were confirmed as graphitic in origin.
- A 1991 petrology report identified the graphite ranging in size 0.1mm to 0.3mm with an average flake size of 0.2mm or 200 microns.
- Two samples were collected in June 2011 and submitted for petrological examination by Pontifex and Associates in Adelaide. Results confirm the 1991 observations. Graphite content was reported as 25-30%. Size ranged mostly 10-50 microns (width) x 250 microns (length).



Photograph of Campoona Shaft spoil showing flake graphite



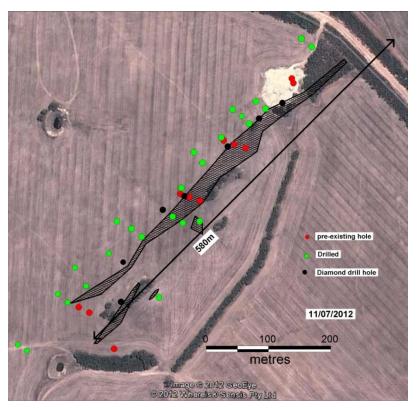
Photomicrograph - reflected light, graphite is the white mineral, scale is 100 microns (0.1mm) 16

# Campoona Shaft resource drilling

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- In February and April 2012, 27 RC drill holes for 2,387 metres were completed resulting in a nominal 50m x 20m drill coverage
- Metallurgical diamond drilling commenced 27<sup>th</sup> June 2012. Subsequent to year end 6 diamond drill holes were completed to provide samples across the length, breadth and depth of the deposit for metallurgical test work.
- JORC Resource\* planned for December.

\*It is not possible to confirm at this time whether Mineral Resources or Ore Reserves will be defined in accordance with the JORC Code at the Campoona Graphite Deposit

 Drilling has shown presence of deep weathering where the base of complete oxidation extends to depths of around 50-60 metres and strong oxidation occurs to at least 100 metres.



Plan view of Campoona Shaft 2012 Resource Drilling

# Campoona Shaft resource drilling results

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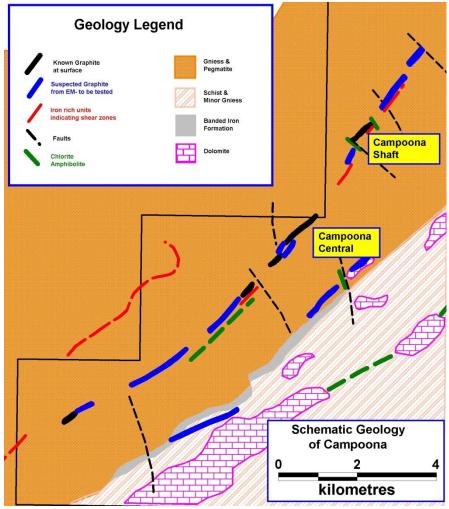
RC Hole #	From (m)	To (m)	Interval (m)	Carbon (%TGC)	
CSRC12_040	20	55	35	13.0	>
incl	20	44	24	15.3	
CSRC12_041	54	118	64	11.8	>
incl	60	87	27	18.5	
CSRC12_042	29	75	46	9.3	
incl	31	51	20	13.3	
CSRC12_043	0	34	34	7.4	
incl	16	33	17	12.1	
CSRC12_044	18	54	36	11.0	>
incl	35	51	16	16.6	
CSRC12_047	51	121	70	15.7	$\supset$
incl	52	107	55	17.6	
CSRC12_048	11	67	56	10.6	>
incl	18	46	28	17.1	
CSRC12_050	30	62	32	9.3	
and	70	81	11	8.3	
CSRC12_051	12	100	88	5.0	
incl	15	21	6	12.0	
CSRC12_053	32	79	47	6.7	
incl	61	75	14	10.6	
CSRC12_05	47	89	42	13.8	>
incl8	49	70	21	17.7	
CSRC12_059	47	110	63	11.2	>
incl	47	60	13	15.8	
CSRC12_061	0	29	29	9.7	
and	75	101	26	6.0	
CSRC12_062	0	18	18	4.1	
and	38	44	6	9.3	
CSRC12_063	80	90	10	9.3	

	Diamond Hole #	From (m)	To (m)	Interval (m)	Carbon (%TGC)	
)	CSDD12_001	16	47	31	14.4	>
)	CSDD12_002	11	88	77	17.2	>
•	CSDD12_003 incl and	24 24 90	106.4 89 106.4	82.4 65 16.4	15.9 14.7 21.3	>
•	CSDD12_004	17	115	98	13.3	>
)	CSDD12_005 incl and	28 32 59	74 51 73	46 19 14	12.6 16.1 14.8	>

Campoona Shaft has consistent high grade graphite

# Airborne EM has highlighted probable strike extensions to Campoona Shaft and Central Campoona

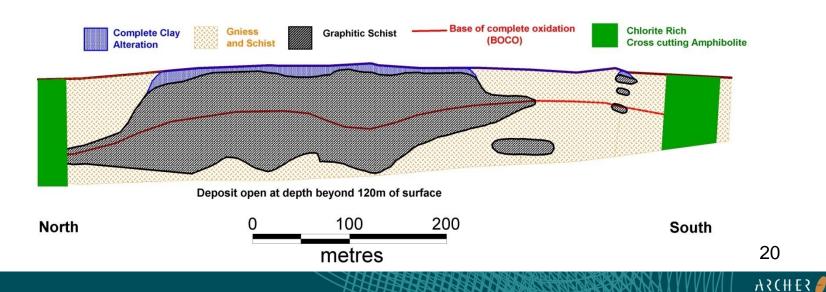
- EM provides an effective tool to identify the presence of conductive bodies.
- EM has identified several possible graphite bodies along strike from the known graphite occurrences at Campoona Shaft and Central Campoona.
- Late stage cross faulting has "segmented" the graphite to form discrete bodies.
- Campoona Shaft and Central Campoona account for just 2km of strike of highly graphitic schist. (see black bars)
- A further 8km of likely graphite is yet to be drill tested. (see blue bars)
- EM suggests the possibility of a parallel (fold repeated?) signature to the southeast which requires drill testing.



# Campoona Shaft geology

- Graphite deposit forms a discrete NE striking, steep NW dipping, 20-50m thick main graphite lode with two narrower and discontinuous footwall lodes. Intrusive amphibolites terminate the deposit to both the northeast and southwest.
- High grade graphite outcrops or is covered with a thin veneer of soil.
- Below the soil is a clay-rich highly graphitic zone ≈5m thick consisting of kaolin + graphite + quartz ± tourmaline ± muscovite ± garnet. The clay-rich zone occurs near the crest of the outcropping graphite.
- Below the clay-rich horizon the graphitic schist occurs as highly weathered, porous quartz + graphite + kaolin + garnet + tourmaline ± iron oxides (goethite & hematite). Any remaining feldspar has been converted to kaolin. Discrete thin clay-rich zones occur more as cavity fill than defined horizons.
- Below 60m depth the graphitic schist becomes more competent. Strong weathering persists to at least 100m depth. Feldspars have been converted to illite ± kaolin. Sulphides in the form of pyrite occur irregularly in trace quantities.

#### Long Section Schematic Geology through Campoona Shaft



# Campoona geology



- Hangingwall contact with soft highly weathered gneiss passing directly into completely oxidised graphitic schist.
- Note absence of graphitic clay layer.
- Graphite interval 11-13m assayed ≈12%TGC.

# CSDD12\_002



- Highly weathered, porous
   quartz + graphite + kaolin +
   garnet + tourmaline ± iron
   oxides (goethite & hematite)
   representing the graphite
   deposit above the base of
   complete oxidation (BOCO).
- Interval from 54-58m assayed 19.5%TGC



- Strongly weathered graphitic schist below BOCO.
- Feldspars altered to illite ± kaolin.
- Graphitic schist is more competent but still strongly oxidised.
- Interval 80-83m assayed 18.9%TGC

Complete oxidation is a defining characteristic of the Campoona graphite deposits as it greatly enhances the liberation of graphite from gangue minerals

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# Lonsdale Sample Facility

- Established during September 2012.
- Facility provides a metallurgical workshop and a bulk sample storage area set up for weighing, washing, wet-screening, drying, crushing, splitting and blending of specially prepared bulk samples to be sent to commercial laboratories for flotation tests.
- Further in-house testing capability is being developed to allow for the bench scale testing of differing extractive processes.
- Ore microscopy established to provide visual assessments of performance of intermediate processing steps.



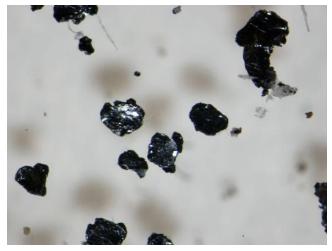
# Interim DDH Metallurgy Results Samples to BOCO

- Base of complete oxidation (BOCO) at 50-60m depth.
- Rock is largely decomposed resulting in naturally liberated graphite and flake graphite.
- Approximately 40% of available graphite produced by simple washing of clays.
- Campoona liberation contrasts with hard rock deposits that require intensive crushing and grinding to liberate graphite with attendant loss of flake sizing and integrity.
- Metallurgical trials for extraction and concentration indicate grades can meet market requirements.
- Testing will continue and is very likely to lead to further improvements.
- Optimum process flow sheet nearing completion.

# Samples below BOCO

- Strong oxidation persists to  $\approx$ 100m.
- Tests outstanding.

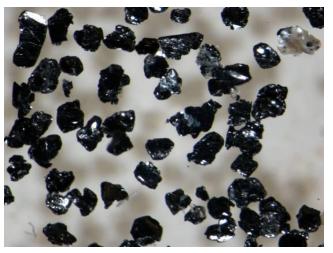
# Campoona Shaft metallurgy



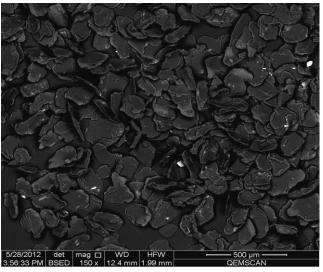
CSRC12\_003 +212µm fraction showing large flake



CSRC12\_003 +106µm fraction showing fine flake



CSRC12\_003 +150µm fraction showing medium flake



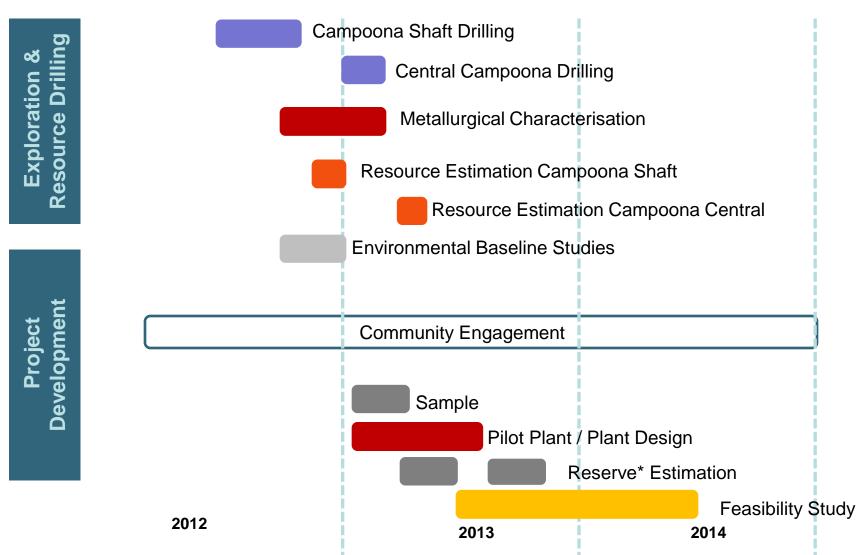
**QEMSCAN** image of Campoona flake graphite

Central Campoona has identical characteristics to Campoona Shaft

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# Campoona current work plan



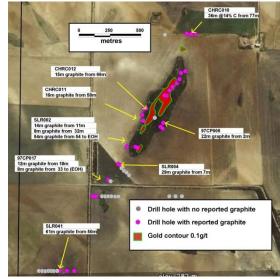


\*Reserve estimation is scheduled however this will be dependant on the results of the resource estimation and metallurgical characterisation that are both yet to be completed.

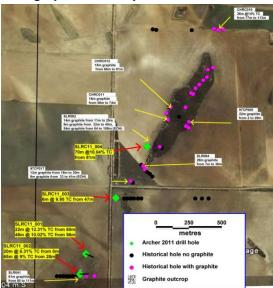
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# Sugarloaf graphite

- Sugarloaf area first explored for gold, base metals and uranium in the mid 80's.
- Goldstream then Helix identified a gold and copper soil anomaly. The two companies drilled 41 drill holes across Sugarloaf. Best intercept was 3m @ 1g/t Au in a quartz vein.
- 23 of the 41 drill holes recorded wide intervals of graphite however no assaying for carbon was undertaken. Historic samples were not retained.
- In 2008 Archer drilled 5 RC holes to further test the gold and copper potential. The northernmost drill line including CHRC010 was assayed for carbon.
- In 2011 Archer drilled 4 holes twinning historic holes to assess the accuracy of reported graphite intervals (refer yellow highlights opposite). This work was the start of Archer's foray into graphite.
- Multiple graphitic horizons intersected.



Holes drilled to test gold-copper soil anomalism recorded significant graphite intercepts over a >2km strike



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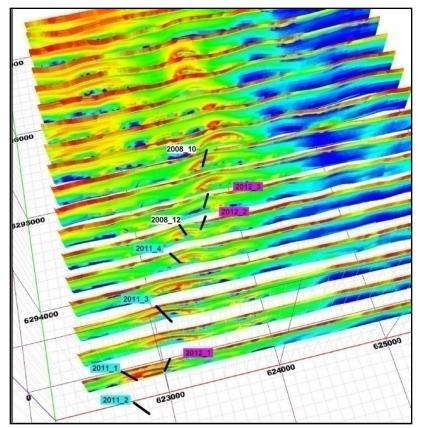
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# Sugarloaf summary

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- Sugarloaf EM: 4km long and ≈40m in true thickness.
- Exploration Target of 40 70Mt grading 10-12% total carbon\*.

\*The potential quantities and grades presented 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

- Petrology: graphite varies from 30 150 micron (averages100 micron).
- Records show up to 15% flake from historic shafts.
- Preliminary metallurgical test work from a sample from hole SLRC11\_004 produced graphite concentrate grading 82%C.
- 2 diamond drill holes completed in September 2012 to supply samples for metallurgical test work:
  - SLDD12\_001 29.5m @ 11.0%TGC from 19m.
  - SLDD12\_002 9.5m @ 15.4%TGC from 24.5m including 6m @ 20.4%TGC from 28m.



Stacked EM sections over Sugarloaf showing folded graphite limbs

# **Graphite Checklist**

The most essential characteristics of any graphite project are grade, product type and quality and metallurgical recovery.

- 1. Head Grade Projected head grade of 12-14%TGC places Campoona in the upper quartile grade range.
- 2. Product Type and Quality Campoona is mostly fine and medium flake with lesser large flake and very high grade amorphous graphite.
- 3. Metallurgical Recovery Deep weathering has resulted in a high degree of natural liberation.

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Liberation is critical to achieving high quality saleable graphite concentrates

#### ARCHER EXPLORATION LIMITED

# Archer graphite summary

Campoona	<ul> <li>High grade outcropping graphite at Campoona.</li> <li>Base of complete oxidation 50 – 60m depth and strong oxidation to ≈100m.</li> <li>Fine and medium flake &gt;94%TGC ; amorphous graphite &gt;92%TGC. Large flake present.</li> <li>EM has identified likely strike extensions to be drilled during 2013.</li> <li>JORC Resource* for Campoona Shaft due December 2012.</li> </ul>	~
Campoona Development	<ul> <li>Plan to define JORC Resources* of at least 5Mt at Campoona Shaft and Central Campoona.</li> <li>Current plan to develop flotation plant with an initial capacity of 200,000 – 250,000tpa.</li> <li>Produce 20,000 – 25,000tpa of graphite concentrate.</li> <li>Negotiate long-term off-take agreements.</li> <li>JV development a possibility with the right partner.</li> </ul>	~
Growth platform	<ul> <li>918km<sup>2</sup> land holding in graphite province.</li> <li>EM indicates several prospective graphite prospects.</li> <li>Underexplored . ≈1% of holding drilled to date.</li> <li>Historic exploration identified several flake bearing graphite prospects on tenements.</li> <li>Sugarloaf : 40-70Mt Exploration Target.</li> </ul>	~
High product demand	<ul> <li>Graphite critically important in traditional industries and high tech applications - electronics, green energy.</li> <li>"Strategic mineral status" by the United States and the European Union.</li> </ul>	~
Highly desirable commodity	<ul> <li>Graphite continues to build its market globally as new high tech applications develop.</li> <li>Recent price resilience. Medium to long-term market outlook supports strengthening of prices on rising demand.</li> <li>Graphite's unique characteristics reduce the threat from substitutes.</li> </ul>	~
Security of tenure	<ul> <li>100% ownership of all the graphite deposits and prospects.</li> <li>SA has longstanding stable mining law and strong advocacy for mineral development.</li> <li>Graphite deposits and prospects all occur on freehold land.</li> </ul>	~
*It is not possible	to confirm at this time whether Mineral Resources or Ore Reserves will be defined in accordance with the JORC Code at the Campoona Graphite Deposit	A3CHE3 🥖

\*It is not possible to confirm at this time whether Mineral Resources or Ore Reserves will be defined in accordance with the JORC Code at the Campoona Graphite Deposit

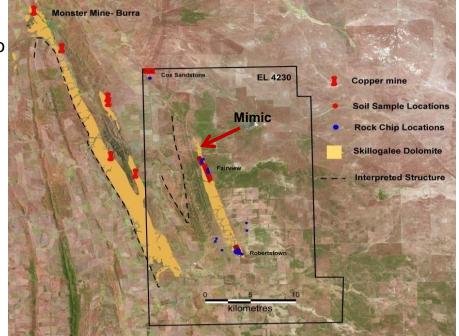
# #1 World's End

Mimic is a conceptual target but has compelling vectors - structurally identical to the nearby Monster Mine at Burra (86Kt recovered Cu) – antiform with oblique faulting; NMS9 marker bed in Kooringa Member and the presence of prominent iron blows. Several historic shafts.

# **#2 Robertstown**

- Robertstown rock chips to 1.75g/t Au and
   1.14% Cu. 400m x 60m copper soil
   anomaly defined by auger drilling.
- Cuprite (Cu<sub>2</sub>O) identified in highly ferruginous gossan.
- Significant historic silver deposit.

Mimic and Robertstown - EM to be flown October 2012. RC drilling is planned in the December 2012 – April 2013 period.

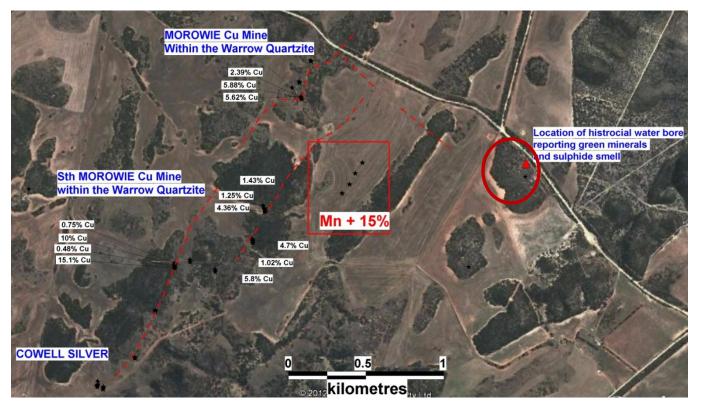


**Robertstown and Mimic copper targets** 

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# **#3 North Cowell**

- Rock chip sampling returned highly anomalous copper with assays to 15.1% Cu. Rock chips also reported >10% Pb.
- The copper anomalism occurs on a prominent ridge and extends for over 3km.
- The copper is present as azurite and malachite (carbonates).
- Airborne EM flown for graphite indentified a prominent non-graphite conductor near the historic Morowie copper workings.



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# #4 Spring Creek

- SA Bulletin 25 (Half Year to 31 Dec 1916) records mining of copper carbonates (malachite and azurite) passing into cuprite, native copper and minor chalcocite in what appears to be a classic supergene profile. No sulphides recorded.
- Historic drive sampling up to 21 feet @ 2.5% 8.9% Cu.
- 1969 drilling hit 21m @ 1.8% Cu 60m below the mine workings.
- Access requires DEH approval.
- Copper within a breccia. Drilling indicates the breccia may extend to the Brighton Limestone opening the opportunity for skarn mineralisation.



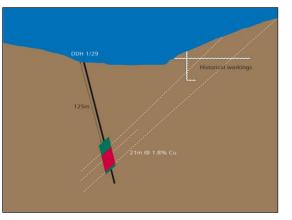
Historic smelter chimney



Malachite in outcrop 300m from mine adit



Historic adit showing copper carbonate lode



Spring Creek copper intercept

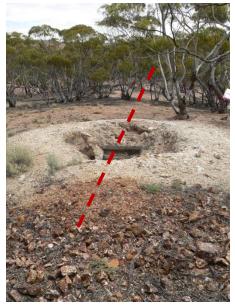
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# **#1 Napoleon's Hat**

- EL4668 covers the widespread historic Wonna gold workings (circa 1886; 1888; 1932 & 1967) in the Burra region.
- Gold is associated with sheeted quartz veins within competent sediments.
- Historic records of Burra district gold report a very high nugget effect with bonanza grades associated with sulphides.
- An EM survey was conducted in September 2012. Data processing is in progress. RC drilling planned in the December 2012 April 2013 period.



Significant gold anomalism associated with sheeted quartz veining

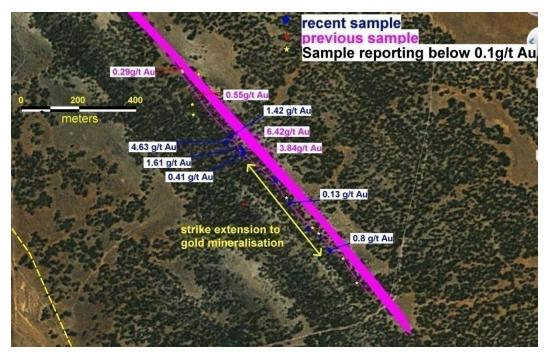


Historic line-of-lode workings at Wonna 32

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# **#2 Watervale**

- Rock chip sampling of quartz veins in the Watervale Sandstone returned gold values to 6.42g/t Au. High nugget.
- Gold anomalism extends for over 1 kilometre and is open along strike.
- An EM survey was conducted in September 2012. Data processing is in progress. RC drilling planned in the December 2012 – April 2013 period.

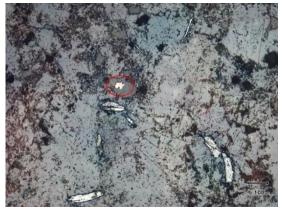


Gold bearing stratabound quartz veins within the Watervale Sandstone

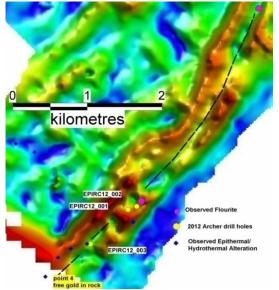
# Archer Gold – Three key targets

# **#3 Bartel**

- Widespread hydrothermal alteration consisting of argillic and potassic alteration and extensive quartz breccias. Over at least 1.5km x 1.2km.
- Petrology recorded free gold associated with antimony within a carbonate host rock that had undergone silica flooding and brecciation.
- EM flown as part of the greater graphite survey indicates possible northeast extension to the alteration supported by fluorite occurrences some 3.5km's NNE.
- A deeper conductive target occurs 100m vertically below the gold interval in EPIRC12\_001.
- The EM has also highlighted highly conductive orthogonal cross cutting structures that may represent possible ground preparation sites.
- EPIRC12\_001 recorded 29m @ 0.57ppm Au from 79m including 1m @ 2.15g/t Au.



Photomicrograph - Carbonate breccia largely replaced by quartz, carrying a grain of free gold associated with an equally fine soft grey metallic mineral- possibly antimony



Exploration drill holes, fluorite localities and rock chips over the recent EM data (140m depth) 34

# Archer Magnesite – Leigh Creek magnesite

- Magnesium carbonate (MgCO<sub>3</sub>) was deposited as a chemical precipitate in shallow, marginal marine lagoons and mudflats, and occurs predominantly as cryptocrystalline particles 1–5 µm in size. 86 separate magnesite interbeds within the Skillogalee Dolomite have been recorded at Leigh Creek.
- Magnesia (MgO) is produced by heating magnesite typically above 1000°C. The most used magnesia products are:
- Caustic Calcined Magnesia (CCM) is formed by heating magnesite to temperatures up to 1,000°C. It is reactive and that reactivity is important for construction materials, industrial applications, in fertilizers and as a soil conditioning agent in agriculture, for water purification and waste water treatment and in the paper and rubber industries.
- 2. Deadburn Magnesia (DBM) is produced by heating CCM to temperatures of 2,300°C to produce inert magnesia capable of withstanding temperatures up to 3,600°C. Deadburned magnesia is used in the production of refractory bricks.

Magnesite / magnesia products are widely used across a number of high growth industries and widely used in high technology consumer goods. MgO Market grows at ≈330ktpa. Market - 63% refractories; 23% chemicals; 14% magnesium metal

A3C₩E3

sonal use only

# Leigh Creek 1999 JORC Resources

Area	Measured* (Mt)	Indicated* (Mt)	Inferred* (Mt)	MgO <sup>1</sup>	
Mt Hutton	18.3	42	53	42.9%	
Mt Playfair		11	23	42.5%	
Pug Hill		10	10	42.7%	
Termination Hill	4	5	20	42.8%	
Witchelina	23.7	94	99	40.0%	
Total	46	162	205		

\*Source: Reproduced from MDL Report "Economic Evaluation of the Pug Hill Magnesite Deposit, North Flinders Ranges, South Australia. 2001. Note full BFS completed and JORC resources for 5 deposits and JORC reserve for Mt Hutton calculated. The independent resource estimates were completed by Mr. Colin Arthur (BSc, MSc, FGS, MAusIMM, CGeol, CEng) Manager, Micromine Resource Centre, August 1999. The estimates were based on 69 fully cored DDHs and all other attendant studies required to support resource and reserve estimation. Leigh Creek coal operations

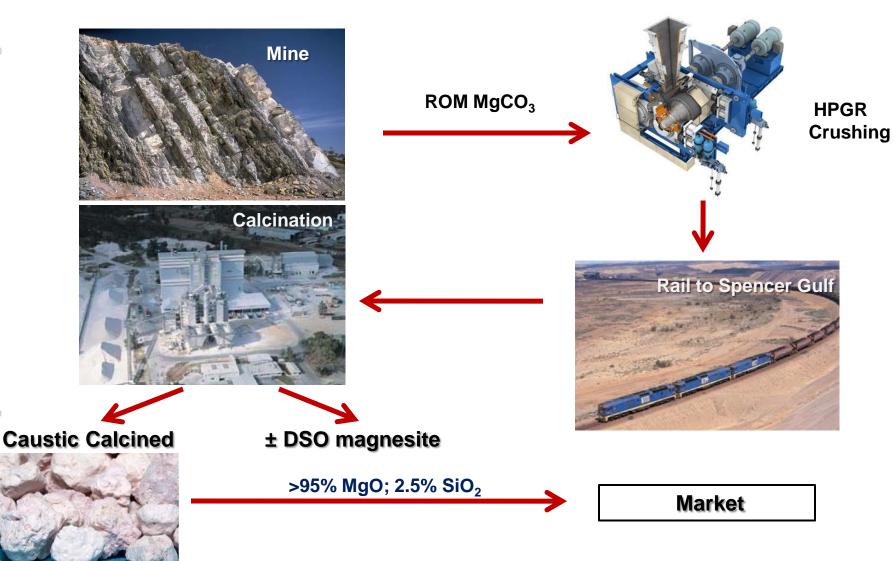
Google Earth image of Leigh Creek and Archer's Termination Hill magnesite deposits

<sup>1</sup> Pure magnesite is 47.8% MgO

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#### ARCHER EXPLORATION LIMITED

# Leigh Creek business model



# Archer magnesite summary

# **Key Attributes**

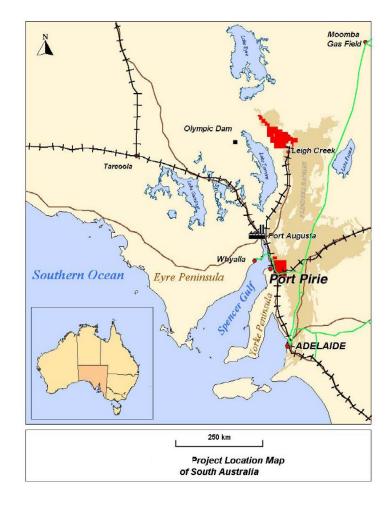
- High grade magnesite deposits.
- Enormous value proposition:

### It takes 3t of magnesite to make 1t of magnesia. Value of magnesia between \$400 - \$600/t.

- Huge JORC Resource could support very long-term operation.
- Fully serviced town of Leigh Creek nearby.
- Good supply chain logistics Mt Hutton within 20kms privately owned standard gauge rail line, rail connection to Port Pirie, Port Pirie gas lateral.

# **Options**

 Archer has 100% ownership of the magnesite deposits on Termination Hill and Witchelina ELs. The Company considers that the project would best be developed with the aid of a senior joint venture partner.



Information Memorandum completed

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#### ARCHER EXPLORATION LIMITED

# Work schedule to 30 June 2013

	Activity	Oct 12	Nov 12	Dec 12	Jan 13	Feb 13	Mar 13	Apr 13	May 13	Jun 13
	Baseline environmental studies									
raphite	Metallurgical characterisation									
ap Map	JORC Resource estimation		Campoona Shaft					Central Campoona		
Ma G	Central Campoona resource drilling									
Campoor	Campoona Shaft Bulk sampling									
Cap	Pilot scale testing									
<b>-</b>	Reserve estimation*									
(topper )	Airborne EM									
	Initial drilling of prospects									
<u> </u>	Follow up drilling on most prospective									
$\mathbf{O}$	Airborne EM									
Gold	Initial drilling of prospects									
J	Follow up drilling on most prospective									

\*Reserve estimation will depend on the results of the resource estimation and metallurgical characterisation that are yet to be completed.

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