



5<sup>th</sup> May 2011

**ASX ANNOUNCEMENT**

**Exploration Target Upgrade at Sugarloaf Graphite Deposit**

**Highlights**

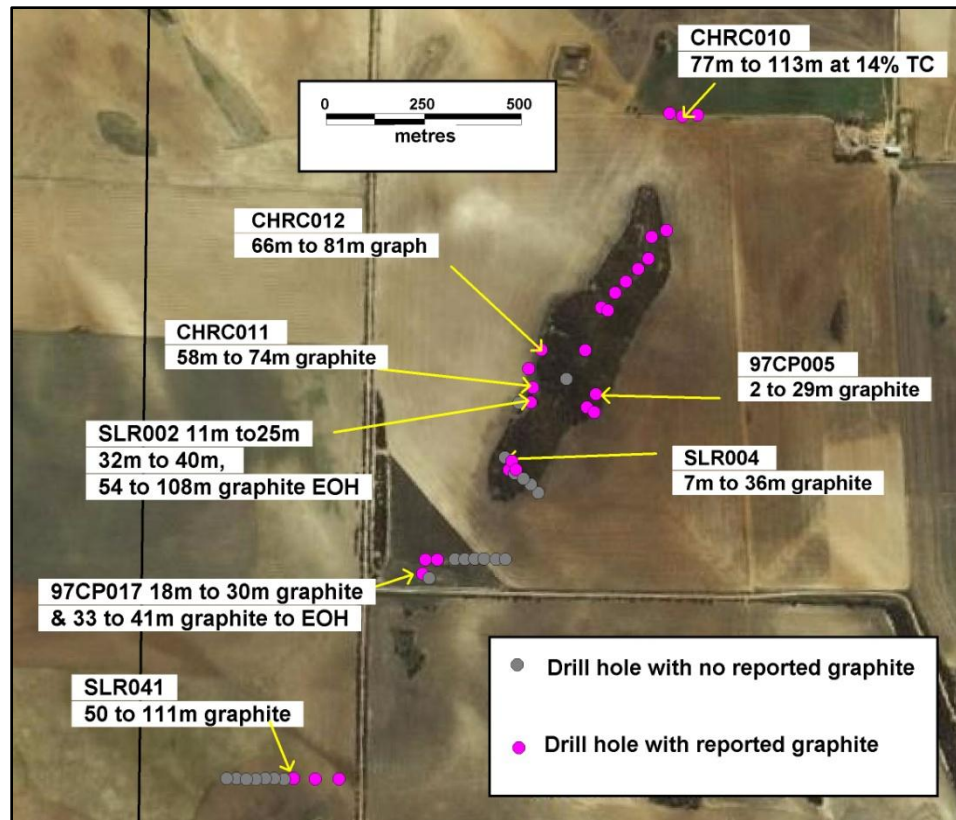
- Archer has previously reported wide intersections of highly graphitic schist at its 100% owned Sugarloaf Graphite deposit.
- Prior to the April 2011 drilling the combined historic drilling indicated an exploration tonnage target of 9 to 20Mt of highly graphitic schist. Drilling in April 2011 revealed the previous estimate was likely to be conservative in terms of potential tonnage. The exploration potential of highly graphitic schist is now estimated at between 24-37Mt\*. The deposit remains open along strike and at depth.
- Due to the paucity of assay results Archer was reluctant to ascribe a grade range for the graphitic schist. The April 2011 drilling when combined with the 4 holes assayed in 2009 is sufficient in terms of assayed intervals to enable an indicative estimate of grade for the exploration target of 10.9% Total Carbon (sample size n=319). The expected grade bounds for the graphite are estimated at between 10-12% Total Carbon. This grade is at least comparable with reported drill intercepts at the Uley graphite deposit located on the lower Eyre Peninsula.
- Drilling has confirmed the down dip continuity of the graphitic schist to at least 120m below surface and there are no signs of the graphitic unit thinning at depth.
- Drill intersections indicate a true width of the graphitic schist of 40m.

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The Sugarloaf graphite deposit is located on Carapsee Hill EL (3711) near Darke Peak on Eyre Peninsula, South Australia.

Prior to Archer Exploration Limited acquiring the tenement, drilling had recorded numerous intercepts of graphite. As graphite was not a focus the intervals were never assayed for carbon.

Archer reviewed the historical drill logs noting that graphitic intervals were recorded in 23 of the 41 historic holes drilled. Geological logs recorded intervals of graphite varying from 4 metres to 61 metres. The locations of the holes indicated the potential for significant graphite over a strike length of at least 2 kilometres. Figure 1 below shows the historic holes in plan view.



**Figure 1. Sugarloaf Hill showing historic drill holes that reported significant graphitic intercepts.**

A four hole drill program was completed in April 2011 to confirm the widths of graphite recorded in the historic un-assayed drill holes and to collect a number of composite samples of both oxide and primary graphite for beneficiation test work and graphite characterisation. The April 2011 drilling confirmed the historic drilling giving greater confidence in the expected widths and grade of graphitic intervals.

Table 1 (below) reports the average Total Carbon grade for the graphitic intervals observed in the April 2011 drilling.

**Table 1. Significant intervals of Total Carbon (TC) % for 2011 drilling**

Hole ID	From (m)	To (m)	Interval (m)	Total Carbon %
SLRC11_001	60	82	22	12.31%
SLRC11_001	96	144	48	10.02%
SLRC11_002	0	20	20	6.31%
SLRC11_002	28	93	65	9.00%
SLRC11_003	47	53	6	9.90%
SLRC11_004	81	151	70	10.04%

Figure 2, below, shows the locations of the holes drilled in April 2011.

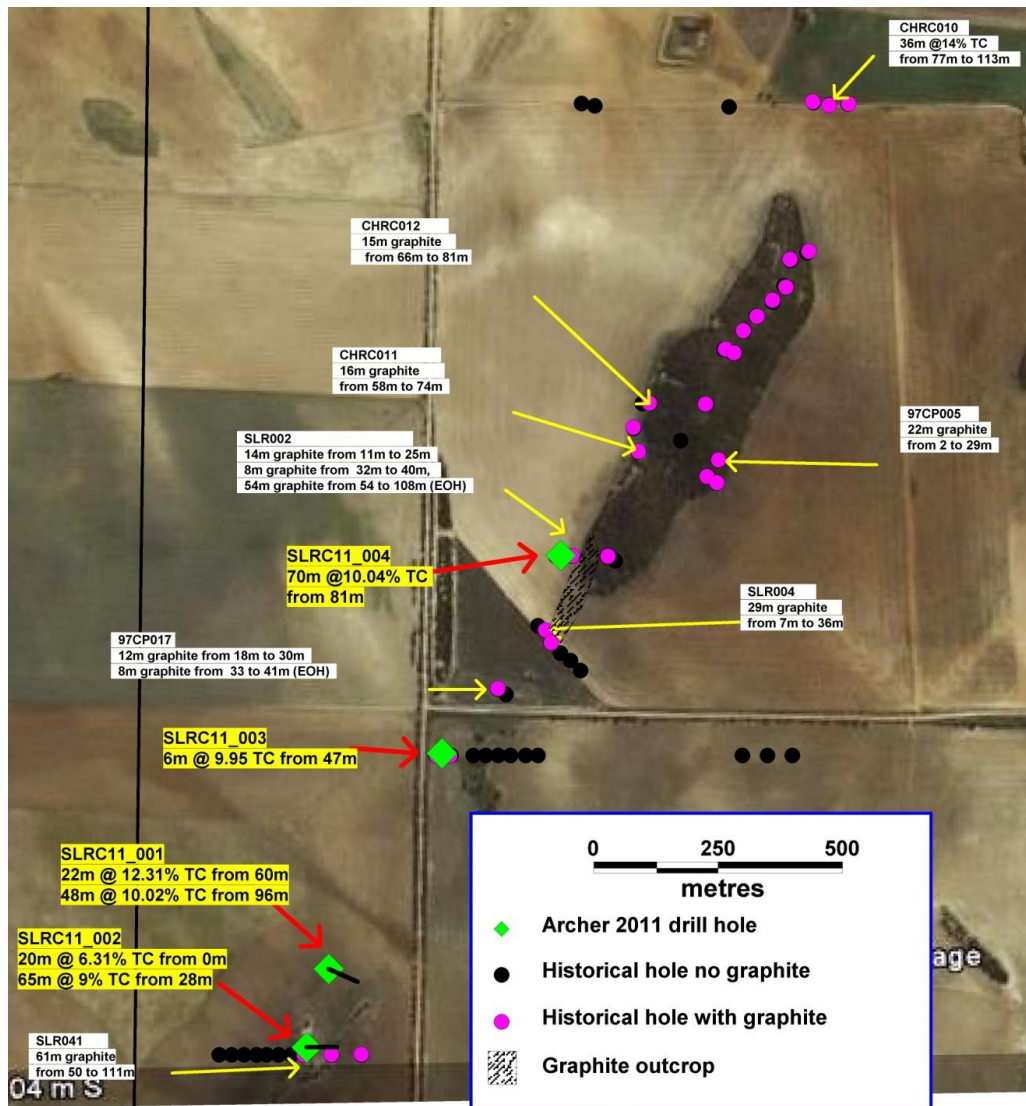
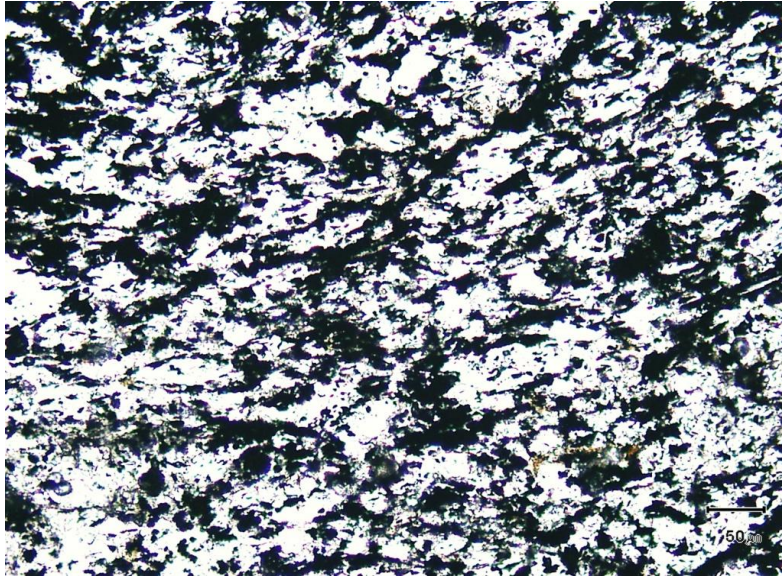


Figure 2. Location of 2011 Sugarloaf Drill holes (SLRC11\_)



**Figure 3. Photomicrograph: Transmitted light (TL). Thin section (TS). Ordinary light (OL). Moderate magnification (x100). Typical mode of occurrence and flake size of schistose black-opaque graphite within (muscovite) quartz-rich metasiltstone.**

#### **Exploration Potential – Tonnage\***

When combined all drilling results confirm that the graphitic-rich body consists of two steeply dipping zones of graphitic schist that in aggregate average 40m in true width, extend to a vertical depth of at least 120m and show no sign of thinning at depth. Drilling results are limited to a strike length of 2km however the deposit remains open along strike and at depth. The host rock is a muscovite bearing quartz-rich metasiltstone. No density measurements have been conducted at this time but given the dominant quartz and muscovite composition it is reasonable to ascribe a density of 2.5gm/cc.

The lower bound exploration potential assuming a strike length of 2,000m, a width of 40m, a down-dip extent of 120m and a specific gravity of 2.5gm/cc is estimated at 24Mt.

The upper bound exploration target assumed a strike of 2,500m and a vertical extent to the deposit of 150m is estimated at 37Mt.

#### **Exploration Potential – Grade\***

Prior to the April 2011 drilling Archer was reluctant to allocate a grade range for the graphitic schist due to the paucity of assay results. The April 2011 drilling when combined with the 4 holes assayed in 2009 is now considered sufficient in terms of the number of assayed intervals to enable a conservative estimate of the Total Carbon grade for the graphitic schist. The arithmetic average of all drill intervals of graphitic schist (sample size n=319) is 10.9% Total Carbon. Intervals chosen for the analysis had to have visible graphite however no lower grade cut-off was used. In view of no lower cut-off grade being applied it is therefore reasonable to



assume that the likely grade will be between 10 – 12% Total Carbon.

The depth of oxidation in the area is approximately 80m vertically below surface corresponding with the current water table. Petrological observations when combined with field observations of this large oxidised portion of the deposit suggest that the run-of-mine total carbon grade may be able to be significantly upgraded by dry screening out coarse gangue material (largely quartz).

***\*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***

### **The next steps**

Selected samples have been sent for petrological examination to identify the graphite nature, flake size and host mineralogy. Composite samples are to be collected between 5<sup>th</sup> – 6<sup>th</sup> May 2011 and will be sent for screening tests.

Assaying of the 4 drill holes completed in April 2011 for elements other than Total Carbon, is in progress to determine the total chemistry of the intervals.

The quality of the graphite present will then be determined via composite samples that will be selected for beneficiation and metallurgical and mineralogical test work.

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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 sixteen 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.*