HEXAGON
resources limited
High Purity Flake Graphite for New Technologies

ASX ANNOUNCEMENT

31 March 2016

HEXAGON COMMENCES PRE-FEASIBILTY STUDY FOR THE MCINTOSH FLAKE GRAPHITE PROJECT

- **Commencement of pre-feasibility study (PFS) at Hexagons McIntosh Project**
- **PFS to focus on the best return on investment (ROI) from the ultra high purity and exceptional quality of the McIntosh flake graphite**
- **Targeting production of spherical graphite for use in lithium-ion batteries**
- **Discussions with potential offtake partners ongoing with samples being provided for verification**
- **Further petrological studies and flotation test work highlight excellent flake size distribution at the McIntosh project**
- **Work has commenced on a 3-dimensional, geo-metallurgical model which will optimise both the grade and flake size distribution within the deposits, it will also form the basis of the grade control model for mining**
- **Flake graphite characterisation and graphene test work continuing at the University of Adelaide with results due shortly**

Hexagon Resources Limited (ASX: HXG) is pleased to announce the commencement of a pre-feasibility study on its 100% owned McIntosh Flake Graphite project located in the East Kimberley of Western Australia.

The commencement of the study, three months ahead of schedule, will involve input from a number of independent consultants including metallurgy, environmental, engineering and process control along with mining and logistics, to build upon the detailed conceptual study completed by CSA Global in April 2015. Stage 1 of the PFS will focus on engineering design and optimisation as well as build on the process metallurgy and design as previously completed by BatteryLimits.

"The commencement of the pre-feasibility study is yet another milestone achieved for Hexagon Resources. The diamond drilling and bulk scale metallurgical programs have delivered a large, high purity and exceptional quality resource at McIntosh. The Hexagon Board has promptly approved the commencement of the pre-feasibility study for the McIntosh project" **commented Tony Cormack, Hexagon's CEO / Head of Operations.**

McINTOSH FLAKE SIZE ANALYSIS

Detailed petrological flake size analysis of 14 polished sections completed by Townend Mineralogy Petrology in Perth has highlighted that 44.5% falls in the Large to Extra Large 'Jumbo' classification. Importantly the flake graphite at McIntosh occurs as discrete minerals, with very little to no deleterious inclusions, and it is for this reason that such high purity concentrates can be produced using only simple flotation (See Figure 1). The detailed breakdown of the flake size distribution is provided in Table 1.

Table 1: McIntosh Flake Size Distribution based on petrological studies

Classification	Microns (µm)	Mesh Size (#)	% in interval
Very fine	<75	-200	1.4
Fine	75-106	-140 to +200	10.5
Small	106-150	-100 to +140	27
Medium	150-180	-80 to +100	16.7
Large	180-300	-48 to +80	35.9
Extra Large 'Jumbo'	>300	+48	8.6

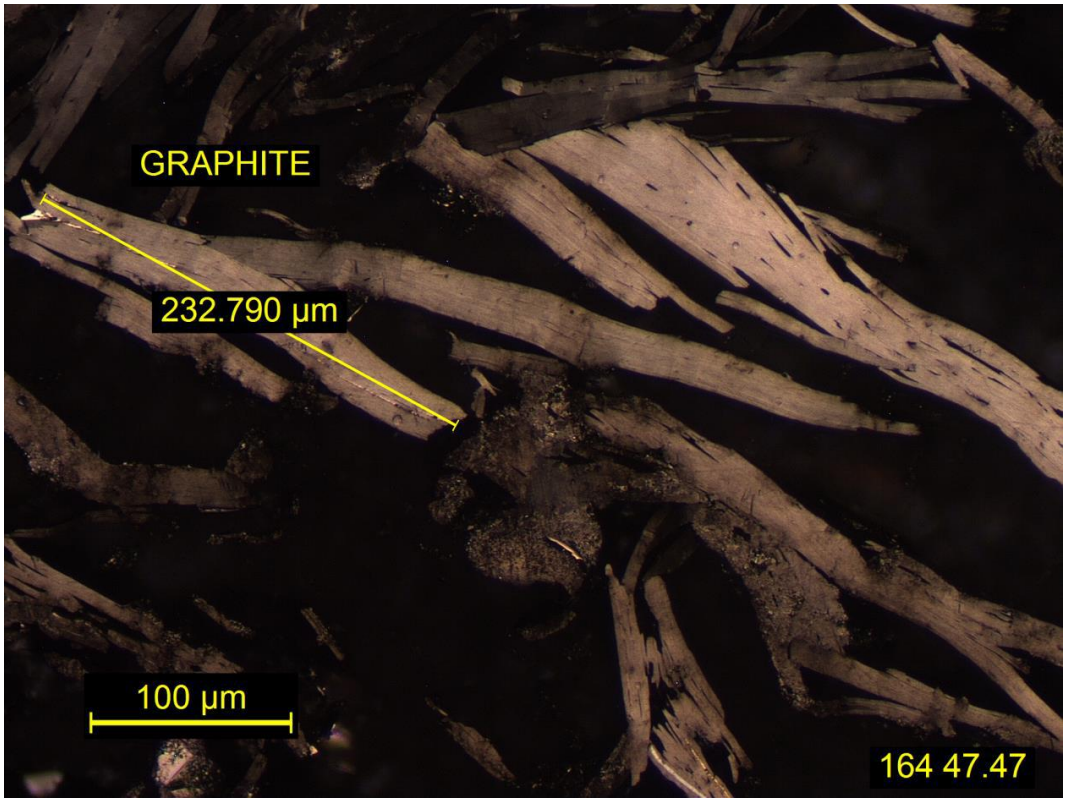

Figure 1: Photomicrograph of Emperor flake graphite in T6GDD164 at 47.47m

Bulk scale flotation test work completed ALS Global in Adelaide has highlighted that a coarse grind size of 600µm produces a flake size distribution with approximately 19% in the large to extra large 'jumbo' classification.

Table 1: McIntosh Flake Size Distribution based on bulk scale floatation studies

Classification	Microns (µm)	Mesh Size (#)	% in interval
Very fine	<75	-200	27.3
Fine	75-106	-140 to +200	23.0
Small	106-150	-100 to +140	21.4
Medium	150-180	-80 to +100	9.5
Large	180-300	-48 to +80	17.2
Extra Large 'Jumbo'	>300	+48	1.6

The bulk scale flotation test work has also highlighted that ultra high purity flake graphite concentrates can be produced across the entire flake size range at McIntosh. Preliminary analysis on the concentrate grade in each flake size category has shown that the medium to fine flake sizes can produce the highest purity concentrates.

This characteristic makes the McIntosh project superior to most other flake graphite deposits globally whereby concentrate grades drop as the flake size diminishes. It also provides McIntosh with a strategic comparative advantage and has the project well positioned to produce ultra high purity blended flake graphite concentrate suitable for the production of spherical graphite for use in lithium-ion batteries

SPHERICAL GRAPHITE

Spherical graphite is predominantly used in lithium ion batteries with the main demand driver currently being electrical vehicles (EV) and increasingly for home energy storage. Spherical graphite particles range from 3 to 50 microns with particle size for lithium ion batteries split into two main categories; the coarse size battery requires spherical graphite with particle size 25 to 50 microns and the fine sizing battery requiring spherical graphite with a particle size 3 to 25 micron.

A standard deviation system is used in the industry to classify particle distribution and it has been found that smaller spherical particle size creates a larger surface area with a higher density allowing for increased potential for storage capacity.

Based on a 1.25Mtpa throughput, and assuming a yield loss of approximately 50 – 60% due to the edges of the flake graphite breaking off during the spheroidisation process, McIntosh has the potential to produce approximately 25,000tpa of spherical graphite. Uncoated spherical graphite sells for approximately US$3,500 per tonne while coated spherical graphite currently sells for approximately US$7,000 to US$10,000 per tonne. The by-product from the spherical process also has the potential to be sold into the industrial market.

GRAPHITE CHARACTERISATION / GRAPHENE TEST WORK

Characterisation of the McIntosh flake graphite concentrate, along with Graphene test work, is continuing at the University of Adelaide. The university has generously offered Hexagon the opportunity to run two concentrate samples in parallel through the entire test work program, at no additional cost. Production and the dispatch of the second concentrate sample has caused a few weeks delay in the test work program. These additional results, along with the associated cost savings, offset the delay in receiving the results, and will be released to the market as soon as they are received from the university.

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