

**ASX ANNOUNCEMENT** 

31 January 2017

# QUARTERLY ACTIVITIES REPORT PERIOD ENDING 31 DECEMBER 2016

#### HIGHLIGHTS:

#### McIntosh Flake Graphite Project:

- Excellent reversible capacity of >370mAh/g across the entire flake size distribution from a bulk scale, representative McIntosh flake graphite blended concentrate (coin cell data, electrode: 91.9 wt% graphite, 2% conducting carbon, 6.1% binder)
- Reversible capacity results are within <u>experimental error of full theoretical</u> <u>capacity for graphite at 372mAH/g</u>
- These outstanding results have been achieved prior to any spheronisation or coating process being applied
- Pre-feasibility study progressing with the Company focusing efforts on environmental, hydrogeological, geotechnical assessments along with engineering and process design
- An aerial electro-magnetic survey was completed over the Marlin and Mahi Mahi prospects aimed at significantly expanding the overall potential of the McIntosh Project
- CSA Global completed an independent assessment of the Company's tenements in the Kimberley of Western Australia, with a specific focus on their gold and base metal potential

#### **Corporate:**

- Announcement of the Sale Agreement of the subsidiary company that holds its South Korean assets to Battery Mineral Resources Limited ("BMR")
- Subsequent to the end of the quarter; Hexagon closed the amended sale of the subsidiary company that holds its South Korean assets to BMR



# MCINTOSH FLAKE GRAPHITE PROJECT

## **STAGE 1 LITHIUM ION BATTERY RESULTS**

Test work was conducted on a 97.5% TC blended flake graphite concentrate containing all the flake sizes, produced from a 300kg representative sample from HQ diamond drill core from the McIntosh project by an independent company in the USA.

Test work demonstrate excellent reversible capacity >370mAh/g on a representative McIntosh flake graphite blended concentrate (coin cell data, electrode: 91.9 wt% graphite, 2% conducting carbon, 6.1% binder). These reversible capacity results are within experimental error of full theoretical capacity for graphite (372mAH/g) and were achieved prior to any spheronisation or coating process being applied

Crystallite size and BET surface are normal for flake graphite, and surface area after grinding to 635 mesh is ~  $6.2m^2/g$  being a good result for next stage processing of spheronisation and coating. The McIntosh representative, blended concentrate displays high reversible capacity and at this stage of testing does not exhibit any characteristics that would make it not suitable for LIB applications

### MCINTOSH PRE-FEASIBILITY STUDY

- Open pit mining optimisation results demonstrate the potential for multiple low strip ratio, open pit operations across a range of production scenarios
- Environmental surveys for the mining proposal are well advanced with baseline flora and fauna surveys completed
- Hexagon in advanced discussions with key potential end users in the US, Europe and Asia
- Drilling program completed to upgrade further resources in preparation for commencement of mining
- Superior metallurgy +99% TC ultra-high purity graphite concentrate can be achieved from conventional crush, grind and flotation without the use of chemicals
- Hexagon is well positioned to take advantage of the unprecedented demand from the lithium ion battery market, and the rapidly emerging graphene market, by producing premium quality graphite and graphene



#### **GOLD AND BASE METAL ASSESSMENT**

During the quarter Hexagon reported on the results of a high-level desktop assessment regarding gold, base metal and platinum group element prospectivity on its 100% owned tenements located in the East Kimberley region of Western Australia.

The desktop assessment will provide the Company a forward looking work program aimed at providing confidence to the Company to progress with the development of these assets. Whilst our focus remains graphite, we believe it very important that we find ways to maximize our shareholders value with respect to significant potential of our Halls Creek tenements and this is our first steps to do so.

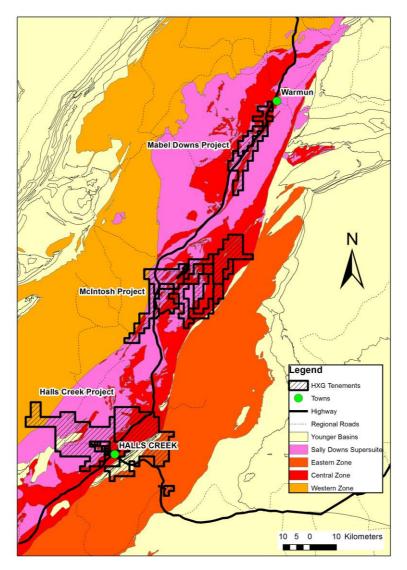


Figure 1: Hexagon's 100% Tenement Holdings in the East Kimberley, Western Australia



The areas of interest arising from CSA Global's study include:

- Magmatic Sulphide (Ni / Cu / PGE) in the McIntosh and Mabel Downs projects (see Figures 2 & 3):
  - The McIntosh project area immediately along strike in either direction to the Copernicus Open Cut Mine.
  - The Mabel Downs project area immediately along trend of the Savannah Mine where there are a number of mafic-ultramafic intrusive bodies of the Sally Malay suite.
  - The remainder of these two project areas (McIntosh and Mabel Downs) remain highly prospective for conduit hosted magmatic hosted Nickel / Copper / PGE massive sulphide mineralization.

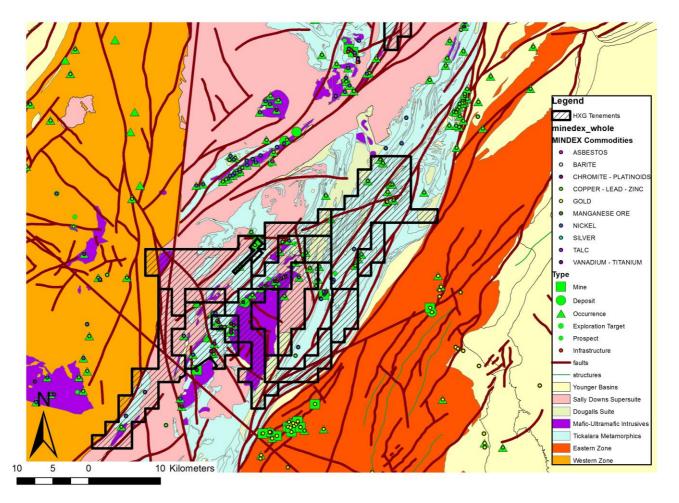


Figure 2: Hexagon's Tenement Holdings at the McIntosh Project



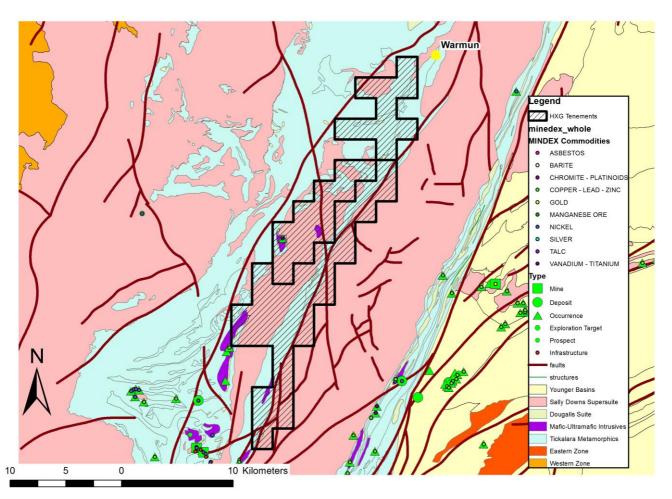


Figure 3: Hexagon's Tenement Holdings at the Mabel Downs Project

- Orogenic Gold in the Halls Creek Project Area (See Figure 4):
  - Extension to known mineralised structures within the project area.
  - An area approximately 20kms east of the Halls Creek township where major structural junctions in an area of apparent complex fold patterns.
  - South and southeast corner of the project area where several major fault structures occur.
  - Far east of the project area where a major fault juxtaposes the Biscay Formation.



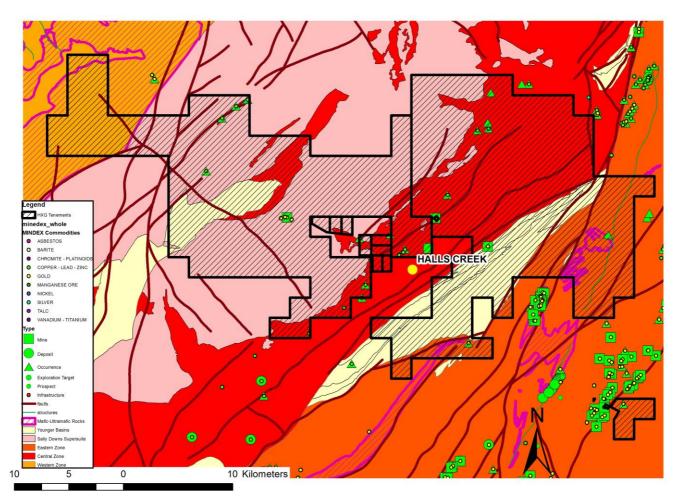


Figure 4: Hexagon's Tenement Holdings at the Halls Creek Project

#### • VHMS Base Metals (Zn-Pb-Cu) in the Halls Creek Project (See Figure 4):

- Northeast-trending belt of VHMS Zn-Pb-Cu showings to the immediate north of Halls Creek associated with local stratabound magnetic highs.
- Other local magnetic high trends within the undifferentiated Koongie Park Formation to the immediate northeast of Halls Creek.
- Cluster of base-metal occurrences in the Biscay Formation ca 20km to the east and northeast of Halls Creek, associated with structural junctions.
- Area of zinc-anomalous stream sediment chemistry 5-10kms south of Halls Creek, mapped as Olympio Formation and on the junction of fault structures.



#### JUMBO FLAKE RECORDED IN THIN SECTION AT MARLIN AND MAHI MAHI

Thin section analysis was completed on rock chip samples collected from surface at the Marlin and Mahi Mahi prospects has identified graphite flakes with long dimensions frequently exceeding 500µm occurring singly and in bunches, with good orientation. Rock chip samples taken from the Marlin and Mahi Mahi prospects indicate flake graphite concentrations around 5 to 10%, being consistent with the other JORC resources already defined at McIntosh

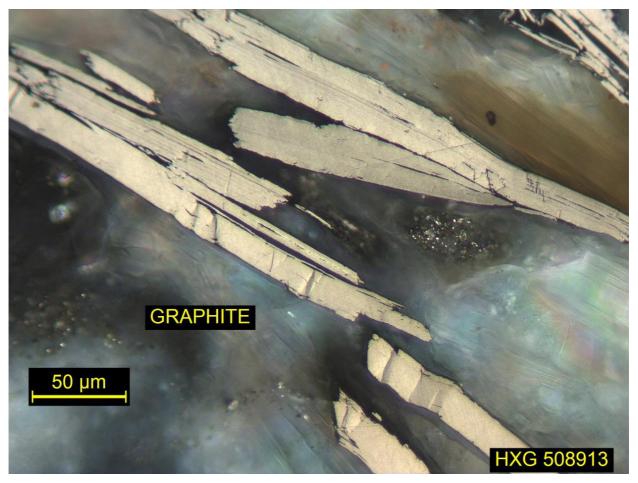


Figure 5: Jumbo flake graphite in thin section from surface rock chip sample HXG 508913 (396578mE; 8059820mN) at the Marlin prospect



Figure 5 shows a thin section photomicrograph taken from a surface sample at the Marlin prospect, the graphite demonstrates good flake size which is important for easy liberation during processing and is also highly crystalline, allowing for ultra-high purity concentrates to be produced. The flake graphite is extremely well formed and contains no, to very little interstitial deleterious material, and it is for all these reasons that ultra-high purity flake graphite concentrates of +99%TC can be achieved, using a simple process, with no acids.

Ultra-high purity flake graphite from McIntosh is ideal feedstock for spherical graphite for use in the anodes of lithium-ion batteries. McIntosh flake graphite concentrates can be successfully purified to battery grade using a thermal process, also without the use of any toxic acids, making the McIntosh product a highly attractive material for battery producers.



### ELECTROMAGNETIC SURVEY AT THE MARLIN & MAHI MAHI PROSPECTS

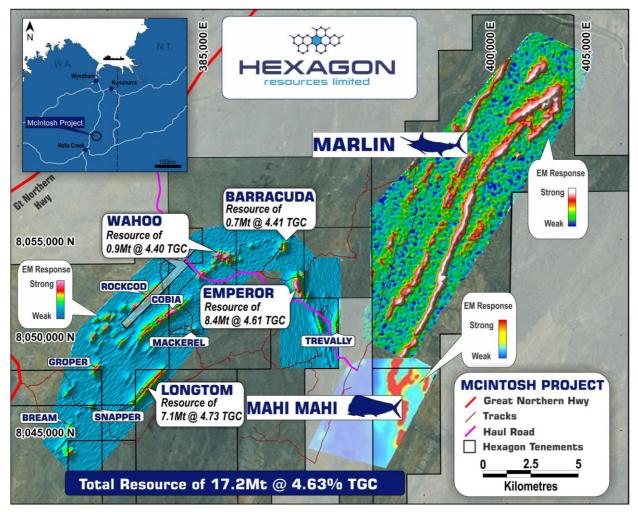


Figure 6: Location of the Marlin and Mahi Mahi prospects with old EM data highlighting the significant potential at the McIntosh Project in the East Kimberley, Western Australia.

Xcite<sup>™</sup> electromagnetic survey was completed over the Marlin and Mahi Mahi prospects aimed at doubling the exploration target estimate for the McIntosh project. Figure 6 shows the location of the Marlin and Mahi Mahi prospects in relation to the existing deposits at Emperor, Wahoo, Barracuda and Longtom. Results including an upgraded resource estimate for the McIntosh project is due in the coming weeks.





Figure 3: New Resolution Geophysics (Australia) Xcite™ system

# SALE OF SOUTH KOREAN GRAPHITE ASSETS TO BATTERY MINERAL RESOURCES

Subsequent to the end of the quarter, Hexagon settled the sale of its subsidiary company, Opirus Minerals Pty Ltd ("Opirus"), which holds its South Korean assets to Battery Material Resources Limited ("BMR").

Both parties have agreed to terms with Hexagon receiving AUD\$1,000,000 in cash and 2,000,000 shares in BMR in full settlement of all shares and loans owned by Hexagon in Opirus.

The funds received will support the Company's ability to accelerate the development of its focus project at McIntosh while preserving value for shareholders.



### HEXAGON TENEMENT HOLDINGS - AUSTRALIA

Project	Tenement	Туре	Number	Ownership Status at end of Quarter	Acquired/Disposed
McIntosh, WA	Melon Patch	E	E80/3864	100% Hexagon	
	McIntosh Hills	E	E80/3928	100% Hexagon	
	Melon North	E	E80/3906	100% Hexagon	
	Melon South	E	E80/3907	100% Hexagon	
	White Rock South	E	E80/4688	100% Hexagon	
	Panton West	E	E80/4734	100% Hexagon	
	Black Rock Creek	E	E80/4739	100% Hexagon	
	Тодо	E	E80/4732	100% Hexagon	
	Edle Creek	E	E80/4825	100% Hexagon	
	Alice Downs	E	E80/4842	100% Hexagon	
	White Rock	E	E80/4841	100% Hexagon	
	Carolyn Hills South	Р	P80/1821	100% Hexagon	
	Panton North	E	E80/4733	100% Hexagon	
	Mabel Hill	E	E80/4879	100% Hexagon	
	Wills Creek	E	E80/4931	100% Hexagon	
Mabel, WA	Mabel Downs	E	E80/4385	100% Hexagon	
	Spring Creek	E	E80/4797	100% Hexagon	
	Six Mile Bore	E	E80/4814	100% Hexagon	
Halls Creek, WA	Golden Crown South	E	E80/4794	100% Hexagon	
	Highway	E	E80/4793	100% Hexagon	
	Granite	E	E80/4795	100% Hexagon	
	Granite	Р	P80/1816	100% Hexagon	
	Granite	Р	P80/1817	100% Hexagon	
	Granite	Р	P80/1815	100% Hexagon	
	Granite	Р	P80/1818	100% Hexagon	
	Granite	Р	P80/1414	100% Hexagon	
	Granite	Р	P80/1799	100% Hexagon	
	Granite	Р	P80/1801	100% Hexagon	
	Granite	Р	P80/1800	100% Hexagon	

#### Further information:

#### **Tony Cormack**

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#### **Competent Persons Statement**

The information in this report relating to Mineral Resource Estimates, Exploration Target Estimates, Exploration Drilling, Assay Results and Geological Data is based on information previously compiled and / or reviewed by Mr. Tony Cormack, Member of the Australasian Institute of Mining and Metallurgy and a full-time employee of Hexagon Resources Limited. Mr. Cormack has sufficient experience which is relevant to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the 'Australasian Code of Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Cormack consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.