First Graphite Ltd

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ASX Symbol
FGR, FGROA, FGROB

March 2016 Quarterly Report

Solid progress in the strategy to be a major supplier of high-grade vein graphite and graphene in 2016

First Graphite (ASX: FGR) is pleased to report on what has been a successful March Quarter in which it has made substantial progress in its strategy to become a significant supplier of high-grade graphite and premium-priced graphene in 2016.

Highlights

- Very Large average graphene platelets size distribution averaging 30-40 micron with a top size of 100 micron.
- Yield from graphite to graphene optimised at > 80% within 24 hours, believed to be an order of magnitude better than that achieved by other companies on lesser grade ore.
- Very high quality graphene confirmed.
- Industrial Mining Licence granted for Pandeniya project. First new underground graphite mining licence granted in 25 years in Sri Lanka.
- Significant intersection of 1.72m of high grade vein graphite over 2.81m.
- Most important intercept from any FGR drilling program and it is likely the most significant reported graphite intersection in Sri Lankan modern history.
- Graphene product testing commenced with industrial parties.

Graphene testing

The Company was able to confirm sound progress in the optimisation of a unique graphene production process being undertaken at The University of Adelaide, to establish a scalable process for the recovery of graphene from vein-style graphite deposits.

Laboratory work comprised the operation of a number of 2.5 litre cells for periods of time ranging from one to 24 hours under a variety of conditions which tested power consumption, electrolyte concentrations, agitation methods and flow rates. The results were tabulated and analysed and optimum parameters were established. The original research and development program contemplated increasing the production cell incrementally to 10 litres however the researchers and FGR were sufficiently encouraged to progress directly to the 50 litre production cell with designs for the full scale 250 litre cells containing proportionately large quantities of lump graphite completed.

Conversion to graphene occurs at a rapid rate with approximately 50% recovery being achieved within four hours. Extension of the time frame to 20-24 hours increases the recovery to 75-80%, but with exfoliation occurring at a slower rate. Further work is underway to maximise total recovery by optimising recovery conditions and logistics for graphite loading. Unconverted graphite can be subsequently recycled and reprocessed to maximise total recovery, if this is deemed the most economic outcome.

Future Program and the Graphene Market

The Company will continue to scale up the production capacity. It will soon be in a position to provide large commercial samples of graphene to potential customers.

Elsewhere the Company has been involved in discussions with a number of parties who are testing the vein graphite and graphene for advanced industrial applications. Shareholders will be informed as to progress on this front as and when material progress is made.

Figure 1: Agglomerated graphene produced from cell overflow

Pandeniya

During the quarter FGR was pleased to be able to advise it had received the Industrial Mining Licence for Pandeniya from the Geological Survey and Mines Bureau (GSMB). It is the Company's understanding this will be the first new underground "A" class Industrial Mining Licence issued for 25 years and the first to include a full environmental review. It was a demonstration of the ability of the Company to take a target area from exploration through to mining.

Pandeniya Work Program

The Company has installed the shaft liner boxes at Pandeniya. After making safe the shaft the first phase of the mining operation will concentrate on the development of drives towards the mining and hoisting of high grade graphite.

Aluketiya

The Company advised it had achieved significant widths in drill intercepts on its Aluketiya mining licence in southern Sri Lanka. It was the most significant intercept from any FGR drilling program and it is likely the most significant reported graphite intersection in Sri Lankan modern history, with an intersection of 1.72m of high grade vein graphite over 2.81m.

The hole was testing unexplored zones down dip and along strike from shaft "H" and "J". The intersection occurred at a depth of approximately 84m vertical in a drill hole designed to test depth to 240m.

The real significance is the mining width which the quality of intercept will support. The wider the orebody the lower the unit cost of vein graphite mined. This width greatly exceeds any of the Company's modelling or expectations. Looking at this another way, in gold-speak this intercept is the equivalent of about 180 gram/tonne dirt".

Aluketiya Work Program

The headframe at Aluketiya Shaft H was completed and the sinking of the shaft liners continues. The pad area for Shaft J has been completed and shaft development will commence shortly.

Exploration Licences

As previously outlined, the Company's strategy has been to build a pipeline of exploration licences as it progresses its plan to develop up to 20 graphite production shifts over the next two to three years.

First Graphite has recently secured a further two exploration licences covering a total 12,900ha.

This brings the Company's total exploration land bank to 39,500ha, making it the largest holder of high-grade exploration licences in Sri Lanka.

General

FGR Managing Director Craig McGuckin said he was pleased with the quarter's progress for the Company as it marched towards production.

Mr McGuckin said First Graphite was making rapid progress towards its goal of becoming a substantial supplier of high-grade graphite and graphene in 2016.

"These three months have been very busy and exciting months for the Company," Mr McGuckin said.

"Graphene test work in Adelaide has generated exceptional results. With the excellent results received on previously conducted test work we will soon be in a position to provide large commercial samples of graphene to potential customers.

"Work also progressed rapidly on the Aluketiya project during the quarter and the significant drill intercept has provided a new dimension to this project.

"*The granting of the Pandeniya Industrial Mining Licence demonstrated the ability of the Company to take a target area from exploration through to mining, something not previously achieved by other recent players in the Sri Lankan graphite space."*

The June Quarter Program

FGR is now immersed in an active June Quarter, which includes:

- Further drilling at the Aluketiya mining license which may provide further production potential.
- Complete construction of the second headframe for the Aluketiya project area Shaft J.
- Proceed to development of drives towards the mining and hoisting of high grade graphite at Pandeniya.
- Continue to scale up the production capacity following successful test work at the University of Adelaide.
- Ongoing land access agreements to provide the future exploration path in the FGR priority areas
- Expansion of collaboration with prospective graphite and graphene off take parties.

About First Graphite Ltd (ASX: FGR)

First Graphite is aiming to develop an underground mining operation to extract high-grade, crystalline vein graphite, which is unique to Sri Lanka. The Company holds exclusive rights to exploration licenses covering approximately 39,500 hectares in area, with historical workings located within nearly all license grids.

About Graphene

Graphene, the well-publicised and now famous two-dimensional carbon allotrope, is as versatile a material as any discovered on Earth. Its amazing properties as the lightest and strongest material, compared with its ability to conduct heat and electricity better than anything else, mean it can be integrated into a huge number of applications. Initially this will mean graphene is used to help improve the performance and efficiency of current materials and substances, but in the future it will also be developed in conjunction with other two-dimensional (2D) crystals to create some even more amazing compounds to suit an even wider range of applications.

One area of research which is being very highly studied is energy storage. Currently, scientists are working on enhancing the capabilities of lithium ion batteries (by incorporating graphene as an anode) to offer much higher storage capacities with much better longevity and charge rate. Also, graphene is being studied and developed to be used in the manufacture of supercapacitors which are able to be charged very quickly, yet also be able to store a large amount of electricity.

Nature of vein graphite

Sri Lankan graphite deposition model is best described from the 'bottom up': tension fractures formed in the metamorphic sediments, caused by the folding of the sediments, creating 'conduits' for the hydrothermal deposition of high quality vein graphite. Historically, mining of these veins has found the veins generally increase in thickness and grade quality with increasing depth. Graphite veins generally dip steeply at –70° to near vertical, enabling 'narrow vein' extraction mining techniques similar to those used on narrow vein, high-grade gold deposits. The method commonly used is an overhead retreat stoping technique where the high-grade vein graphite is mined and hauled to surface without contamination. The graphite selvages, in contact with the surrounding waste, is hauled to surface and stockpiled for upgrading. The balance of the waste is used to fill the floor of the stope.

Due to the nature of the vein graphite, it is anticipated vein widths of ~25cm, using narrow vein mining techniques can be economically extracted from underground operations.

For further information:

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Information in this report relating to Metallurgical interpretation, analysis, mineral distribution and recommendations has been compiled by Mr Denis Geldard, MAusIMM in consultation with Dr Slobodanka Vukcevic, Senior Metallurgist at Nagrom the Mineral Processors. Dr Slobodanka Vukcevic has sufficient experience and expertise relevant to this type of test work through her job experience and expertise and qualifies as a competent person in the field of metallurgy. Mr Geldard consents to the inclusion in the report of the matters based on the information reported in the form and context in which it appears.

Information in this report relating to Exploration Results is based on information compiled by Mr Denis Geldard, MAusIMM working in consultation with consulting Geologist Mr Chris Banasik, MAusIMM and MRL's Senior Sri Lankan Geologist who has 35 years of vein graphite experience in Sri Lanka. Their experience is relevant to the type of deposit under consideration. Mr Geldard is signing as competent person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Geldard consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

JORC TABLE 1 Report for Exploration Locations

Section 1 Sampling Techniques and Data

Criteria	*Explanation*
Sampling techniques	• Diamond core is collected and stored in core trays of 4m per tray. Vein graphite is readily identified visually (black in colour) and intersections recorded accordingly. Intersections will then be cut under the supervision of MRL's Senior Sri Lankan Geologist and prepared for transport to Nagrom (Australia) for analysis.
Drilling techniques	• All future drilling will be undertaken utilising HQ Triple Tube (HQTT) drilling.
Drill sample recovery	• Diamond core recovery is recorded between core runs by the geological crew in the Core Logging Record. The unconsolidated surface material will be drilled using rotary wash method until competent material is intersected
Logging	• All holes are logged on site by MRL Graphite (Pvt) Ltd (MRL) geological personnel under the supervision of MRL's Senior Sri Lankan Geologist, using MRL's Core Logging Procedure Manual. • Logging will record geological and geotechnical observations, and is undertaken on a continual basis throughout the entire drill hole.
Sub-sampling techniques and sample preparation	• Half-core intersections of Vein Graphite will be submitted for analysis to Nagrom laboratories in Perth Western Australia. The remaining half-core is stored in the core boxes. Core & bulk samples may be provided to potential off-take parties.
Quality of assay data and laboratory tests	• All Vein Graphite core intersections will be analysed by Nagrom the Mineral Processors in Perth Western Australia and or Wuhan University of Technology (WUT). Nagrom and WUT will follow industry practice QA/QC procedures to ensure high quality sample assurance. • Certified Sample Standards will be inserted routinely into sample analysis.
Verification of sampling and assaying	• All diamond core will be logged and photographed by MRL geologists under the supervision of MRL's Senior Sri Lankan Geologist. Independent consulting geologist will visit the MRL operation sites on a regular basis to oversee QA.
Location of data points	• Initial drill locations are positioned using hand-held Garmin GPS systems. MRL completes full topographical surveys of each drill location. All drill collars will be geo-referenced to the Sri Lankan Transverse Mercator Projection. All final drill locations are set out by surveyor.
Data spacing and distribution	• Drill holes have been orientated in a position to intersect the expected vein mineralisation (based on historical shafts / adits and geophysical information) at the optimal angle for evaluation, whilst minimising surface land disturbance.

Orientation of data in relation to geological structure	• Diamond Core Drill holes are designed to intersect potential graphite vein mineralisation perpendicular to strike, wherever possible, whilst taking into account expected deviation in dip and azimuth.
Sample security	• Core Samples are collected and stored in core trays under the supervision of MRL geological crews and then transported at the end of each day, and secured in a locked container at the MRL site facility for further detailed logging. Security is managed by MRL's Senior Sri Lankan Geologist and the MRL country General Manager.
Audits or reviews	• A review was undertaken by the consulting Geologist of all procedures, including retrieving of core samples from the core tube, through to logging and storage of core samples, during drilling activities. Consulting Geologist will undertake further reviews into the future.

Section 2 Reporting of Exploration Results

Criteria	*Explanation*
Mineral tenement and land tenure status	The Warakapola / Bopitiya / Pandeniya project exploration license areas EL228 are 100% owned by MRL Graphite (Pvt) Ltd. The exploration Licenses when granted have a two year term which can be renewed prior to the 2 year anniversary.

License No.	MRL Interest	Status	General Location
EL/225	100%	Granted	Central
EL/226	100%	Granted	Central
EL/227	100%	Granted	South Central
EL/228	100%	Granted	Central
EL/231	100%	Granted	South West
EL/243	100%	Granted	Central
EL/244	100%	Granted	South West
EL/262	100%	Granted	Central

IML/C/HO/8416	100%	Granted	Western
IML/A/HO/9405	100%	Granted	Central

- First Graphite Ltd has informed the Consulting Geologist all granted licenses are in good standing and comply with the reporting requirements of the exploration licence.

Exploration done by other parties	• Initial Exploration and Review of the Warakapola / Bopitiya / Pandeniya / Dedigama project was carried out by Geological Survey and Mines Bureau (GSMB) Technical Services (Pvt) Ltd with reports provided to MRL. MRL has established a regional office in the EL228 area to support the company geologists and underground exploration crews. • Historical mining has taken place with several shafts and adits evident. • MRL continues exploration in all license areas

Geology	• Warakapola / Bopitiya / Pandeniya / Aluketiya / Dedigama • Geologically, the area covered by the selected grid units belong to the Wanni Complex of Sri Lanka. The Wanni Complex is mainly characterised by thick sequences of orthogneisses, comprising amphibolite, migmatitic, granitic and granodioritic gneisses. These rocks represent a series of antiformal and synformal structures. A characteristic feature of the exploration area is the alignment of identified abandoned graphite mines / pits within a NNW-SSE trending corridor,.(GSMB 2013)
Drill hole Information	Planned Diamond Core Drill Holes • MRL is undertaking exploration drilling presently at its Aluketiya location and will report on commercial intersections when they occur. • All Diamond Core Drill holes are planned to be accurately surveyed for dip and azimuth using a GlobalTech Pathfinder multi-shot, electronic, down-hole survey tool.
Data aggregation methods	• Intersections of diamond core containing vein graphite will be visually selected for analytical testing with accurate lengths recorded to ensure 100% of mineralisation is analysed and reported.
Relationship between mineralisation widths and intercept lengths	• Planned Drill hole orientation is based on observations from historical shafts / adits and geophysics, and planned to intersect any vein graphite mineralisation as close to perpendicular as practical.
Diagrams	• NA
Balanced reporting	• First Graphite Ltd will endeavour to produce balanced reports accurately detailing the results from any exploration activities.
Other substantive exploration data	• No other substantive exploration data is available at this time.
Further work	• MRL continues to complete further site investigations on all licenses. Following the completion of progressive site investigations and evaluation the next phase of exploration for each location will be undertaken and reported. • Land access agreements continue at Pujapitiya, Dedigama and Hikkaduwa • Further drilling is planned at Aluketiya, Dedigama & Pujapitiya and other license areas as land access is obtained.