



## **GRAPHITE ONE REPORTS RESULTS ON MULTIPLE PRODUCT LINES FOR ITS ALASKA GRAPHITE MATERIAL AND PROVIDES UPDATE ON ANNUAL MEETING OF SHAREHOLDERS**

***Independent Test Work Identifies a Range of Targeted End-Uses including:***

- ***Anode material for advanced Lithium-ion batteries***
- ***Micronized graphite for conductivity enhancement applications***
- ***High-purity graphite-based coatings***
- ***Industrial synthetic diamonds***
- ***Fire retardant/fire suppressant foams***

***Results are anticipated to Inform Pre-Feasibility Study, Expected for Completion in Fall 2020***

***2020 Annual Meeting of Shareholders Postponed***

**May 13, 2020 – Vancouver, British Columbia – Graphite One Inc. (GPH: TSX-V; GPHOF: OTCQB) (“Graphite One” or the “Company”)** announced today that preliminary test work performed by Graphite One’s independent industrial partner (“IPP”) at an independent industrial laboratory using graphitic material from the Company’s Graphite Creek project indicates potential additional products as a complement to the Company’s primary focus on EV Batteries/Energy Storage Systems, including high-purity coatings, industrial synthetic diamonds, and fire retardant/fire suppressant foams. Test work also indicates that the non-graphite “impurities” in the graphitic material contain critical minerals that, like graphite itself, are on the U.S. Government Critical Minerals List.

“This demonstration work is a welcome indication of the versatility of the graphite hosted in the Company’s deposit,” said Anthony Huston, President & CEO of Graphite One.

Data generated from these tests are anticipated to inform the Graphite One pre-feasibility study (“PFS”), which, despite being slowed by the global COVID-19 pandemic, is now expected to be released in Fall 2020. No additional field work is required to complete the PFS.

The U.S. Government placed natural graphite on its 2018 Critical Minerals List of materials critical to the national economy and national security of the United States. The United States currently has no domestic natural graphite production and is 100% reliant on imports. China produces 70% of the world’s natural graphite supply.<sup>1</sup> According to the authoritative US Geological Survey report, Critical Mineral Resources of the United States (2017): “Graphite is considered a critical and strategic mineral because of its essential applications in the aerospace

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<sup>1</sup> Page 72, U.S. Geological Survey, 2019, Mineral commodity summaries 2019: U.S. Geological Survey, 200 p., <https://www.usgs.gov/centers/nmic/mineral-commodity-summaries>



and energy sectors (such as refractory and foundry applications in the steel and metal industries and use in high-temperature lubricants, high-strength lightweight composite materials, batteries, modern nuclear reactors, fuel cells, electric motors, and evolving electronic applications that anticipate rapid growth in demand for graphite).”<sup>2</sup>

The work reported in this press release was performed using the 12,000 pounds of graphitic material shipped to the IPP announced in May 2019<sup>3</sup>. The IPP conducted primary processing of the graphitic material, generating graphite concentrate. The concentrate was then purified and processed into a broad range of value-added grades, which have been sent to potential customers either as conceptual samples or complete feasibility products.

Concurrently, Graphite One is working on the PFS for the Graphite Creek deposit, which will address all aspects of a future production-scale processing flow sheet that includes primary beneficiation of graphite material to concentrate and secondary processing of graphite concentrate to finished products. The PFS will report on developments with respect to the graphite samples and is expected to demonstrate the potential of the product portfolio to be derived from the Graphite Creek deposit.

Graphite Creek’s graphite mineralization was previously reported as being unique and distinct from other known graphite materials as it exhibits naturally, the morphological characteristics of already-processed material. To highlight these unique properties, the Company branded Graphite Creek graphite by the acronym “STAX” - “S”, as in Spheroidal; “T”, as in Thin; “A”, as in Aggregate; and, “X” as in Expanded – and has now registered the trademark, “STAX®”, in the United States and Canada. STAX® represents Graphite Creek natural crystalline flake graphite in a raw or semi-finished form for industrial purposes and for use in manufacturing.

The demonstration work on value-added graphite products using STAX® graphite is outlined below:

#### **Coated Spherical Graphite (CSPG) Test Work**

A representative sample of spherical carbon coated graphite (“CSPG”) has been produced and submitted to a leading automotive manufacturer under a Non-Disclosure Agreement (NDA). Initial results are promising, and testing is ongoing.

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<sup>2</sup> Page J5, Robinson, G.R., Jr., Hammarstrom, J.M., and Olson, D.W., 2017, Graphite, chap. J of Schulz, K.J., DeYoung, J.H., Jr., Seal, R.R., II, and Bradley, D.C., eds., Critical mineral resources of the United States—Economic and environmental geology and prospects for future supply: U.S. Geological Survey Professional Paper 1802, p. J1–J24, <https://pubs.er.usgs.gov/publication/pp1802J>.

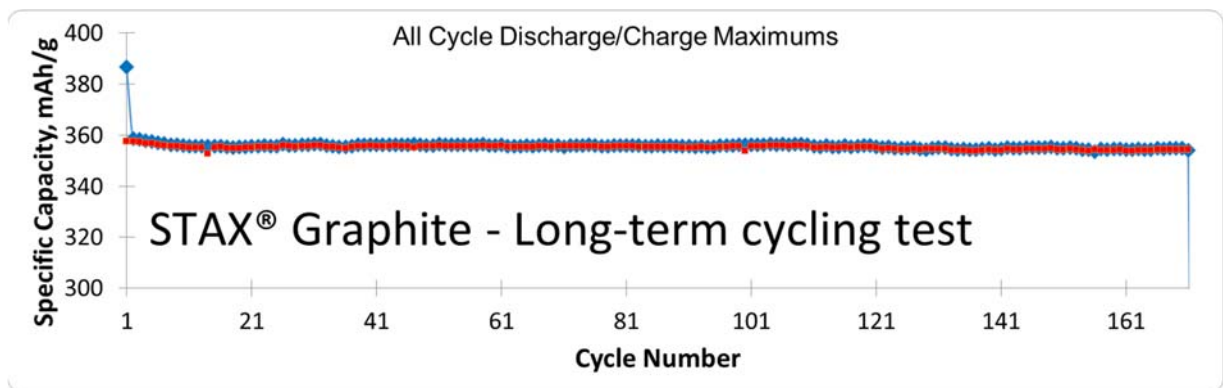
<sup>3</sup> Graphite One News Release May 15, 2019 “Graphite One Announces Initial Shipment of Material to U.S. Industrial Processing Partner”

The IPP's electrochemical laboratory has assembled half and full battery cells with both carbon-coated and uncoated samples of spheronized STAX<sup>®</sup> material. The cells were subjected to short- and long- term cycling. Testing performed on these samples determined that STAX<sup>®</sup> material has high packing densities: > 1.0 g/cm<sup>3</sup>.

The half cells showed more than 170 stable charge-discharge cycles (Figure 1). The reversible capacity on the first cycle was 357.7 mAh/g, and on the 170<sup>th</sup> cycle, 354.5 mAh/g.

These cycling results suggest a promising future for the use of STAX<sup>®</sup> graphite as anode active materials in rechargeable lithium-ion battery systems.

Figure 1: Long-Term Cycling Data Demonstrates Stability of STAX<sup>®</sup> Graphite



Graphite One has adopted an inverted purification flow sheet, where concentrate is purified at the beginning, the opposite of traditional graphite processing flow sheets. As a result, Graphite One plans to redirect all of the material which does not spheronize into other value-added applications. This ensures that nearly all of the concentrate material can be utilized and sold to available high-tech markets.

One of these value-added applications is a conductivity enhancement additive for use in battery cathodes. To this point, the IPP has successfully conducted milling, grinding, and sizing of purified material and converted it into non-spherical ultra-high purity graphite which may qualify for conductivity enhancement grades. The process has generated two relevant products with 99.99+ wt.%C purity level: expanded, delaminated graphite with mean particle size value of 23 microns and purified, milled, natural graphite with mean particle size of 10 microns. Both materials have been tested extensively in alkaline batteries and have also been supplied to a leading alkaline battery company. Initial feedback has been positive and testing is ongoing.

### **Fire Retardant/Fire Suppressive Graphite Foams**

Thermally purified STAX® graphite has been successfully intercalated and turned into an expandable flake product, which was subsequently formulated into fire retardant foam concentrates. This line of test work is being conducted as part of a joint project with the Naval Air Warfare Center Weapons Division of NAVAIR, in Ridgecrest, CA.

The IPP has successfully formulated fire retardant foams capable of extinguishing Class B fires using STAX® purified, expandable graphite. Class B fires are defined as burning oil, gasoline, diesel, and aviation fuel fires (the most difficult to extinguish). Graphite One and the IPP have conducted small scale demonstrations highlighting the increased efficacy of intercalated STAX® graphite in extinguishing oil fires (see Figure 2). Full scale oil fire testing per MIL-F-24385F U.S. Military Test Specifications is anticipated to take place in the third quarter of 2020.

*Figure 2: Before, During, and After Extinguishing Kerosene Fire Using STAX®-Based Firefighting Foam (Black Specks are Expanded Graphite Worms)*



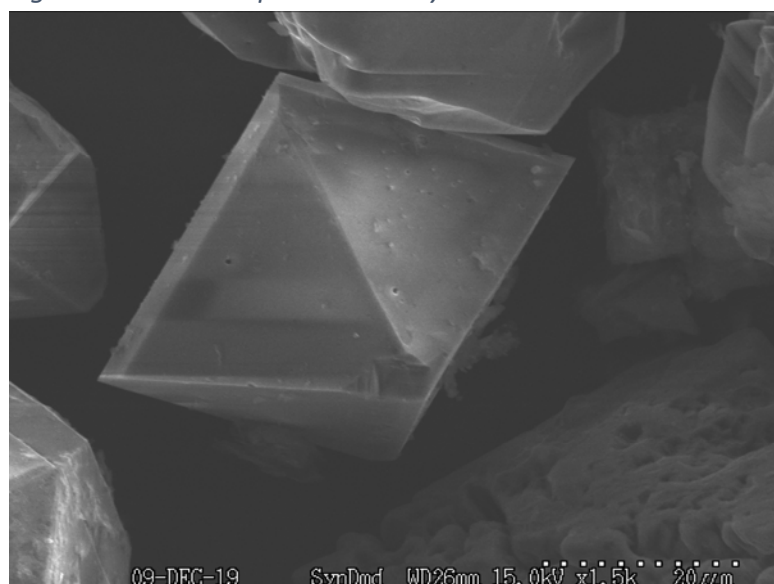
### **High-Purity Graphite Coatings**

The IPP has assessed STAX® material for use in graphite paints and coatings. Ultra-high purity STAX® material has been reduced in size to where the mean particle size is under 2.5 µm and formulated into dispersions. Dispersions were tested in new generation radio frequency and infrared suppressing paints, anti-corrosive coatings, and ultra-high precision metal working applications. The tests are focused on supplying the existing DOD supply chains. Extensive technical data from these tests have been introduced to the Defense Logistics Agency which is responsible for sourcing materials into DOD supply chains. Work on these value-added applications continues as Graphite One's targeted off-take partners in the specialty industries are receiving prototype demonstration samples and generating technical performance data.

### **Industrial Synthetic Diamonds as Semiconductor Materials**

Purified versions of STAX® material have also been subjected to high pressure - high temperature reactive synthesis and successfully converted into synthetic diamonds using industry-standard technologies. Initially, a 6.5 gigapascal press was used to generate synthetic diamond dust. This is an essential test to preliminarily validate the ability of STAX® material to be converted into synthetic diamonds. Not every graphite precursor can produce diamonds with this method as some lose integrity when under high pressure. However, STAX® purified natural graphite material successfully formed diamond dust under the lower temperature and pressure conditions. The product that came out from this process can be used "as is" for metal working applications, such as pigments for lapping compounds and ultra-hard coatings on drilling, cutting, and grinding equipment and tooling. Diamond dust synthesized from the thermally purified 80 x 100 mesh graphitic material of Graphite Creek origin mostly formed octahedron crystal morphologies. This is the preferred morphology due to being the closest structure to diamond crystals. A typical octahedron crystal formed from STAX® material is shown in Figure 3.

*Figure 3: STAX® Graphite-Based Synthetic Diamond Dust*



The second phase of this development work subjected STAX® material to higher temperatures and pressures under longer dwell times and resulted in successful synthesis of gemstone-quality diamonds of 3 carats and larger, one of which is shown in Figure 4.

*Figure 4: Gemstone Quality Diamond Made From STAX® Graphite*



The next step in testing of STAX® material is to dope large synthetic diamonds with appropriate elements to produce next-generation semiconductor materials that would replace silicon wafers in critical applications. For example, where the application temperatures exceed 125° C. Such applications range from rocketry to heat sinks to new generation electronics and harness-free critical mobile component assemblies, such as fast-moving aerial systems and specialty engines. The concept is being reviewed by the engineering community at the Redstone Arsenal, AL and Army Research Laboratory, PA while the IPP is working on delivering prototype samples of new semiconductor devices made from Graphite Creek materials.

#### **Indications of U.S. Government-Listed Critical Minerals and Metals**

Lastly, when STAX® material is thermally purified using the high temperature process chosen by Graphite One, the purified graphite flows down the furnace and the impurities sublime into the flu where they are trapped in the gypsum formed in a dual-alkali scrubber. Graphite One's analysis of the chemical composition of trapped impurities indicates that out of 17 rare earth metals, 16 were present.



Anthony Huston further commented: “We are excited about the potential for value-added applications which identify flake graphite from Graphite Creek as a unique resource. All of the above examples of potential upsides coupled with Graphite One’s smart design choices and selection of an environmentally responsible processing flow sheet further support the value of the Graphite Creek deposit and the upcoming PFS that will be unveiled within the next few months.”

#### **Qualified Person**

The technical content of this news release has been reviewed and approved by Dr. Shane Beattie, the Company’s Chief Technology Officer and a qualified person as defined by National Instrument 43-101.

#### **2020 Annual Meeting of Shareholders**

As a consequence of the need for physical distancing due to the COVID-19 pandemic, the Board of Directors of the Company hereby gives NOTICE that the 2020 Annual Meeting of Shareholders, normally held prior to June 30 of each year, has been postponed to an as-yet undetermined date which will be advised in due course. The Company will continue to monitor developments relating to the COVID-19 pandemic and will communicate the record date and notice of Meeting in accordance with legal requirements. Any inconveniences caused are sincerely regretted.



## **About Graphite One Inc.**

GRAPHITE ONE INC. (GPH: TSX-V; GPHOF: OTCQB) continues to develop its Graphite One Project (the "Project"), whereby the Company could potentially become an American producer of high grade Coated Spherical Graphite ("CSG") and other value added products that is integrated with a domestic graphite resource. The Project is proposed as a vertically integrated enterprise to mine, process and manufacture high grade graphite primarily for the electric vehicle lithium-ion battery market. As set forth in the Company's Preliminary Economic Assessment, potential graphite mineralization mined from the Company's Graphite Creek Property, is expected to be processed into concentrate at a graphite processing plant. The proposed processing plant would be located on the Graphite Creek Property situated on the Seward Peninsula about 60 kilometers north of Nome, Alaska. CSG and other value-added graphite products, would likely be manufactured from the concentrate at the Company's proposed graphite product manufacturing facility, the location of which is the subject of further study and analysis. The Company intends to make a production decision on the Project once a feasibility study is completed.

## **ON BEHALF OF THE BOARD OF DIRECTORS**

### **"Anthony Huston" (signed)**

For more information on Graphite One Inc. please visit the Company's website, [www.GraphiteOneInc.com](http://www.GraphiteOneInc.com) or contact:

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*Forward-looking information in this release includes, but is not limited to, statements regarding the stage and progress of development of the Graphite Creek Project including the ability to produce spherical graphite and other graphite related products, timing and anticipated completion of a pre-feasibility study, results and conclusions of anticipated PFS, impact on the progress due to the COVID-19 pandemic, current results of test-work, ultimate further and final results of additional development and test-work, estimated capital and sustaining costs and the availability of equipment, labour and resources required, the*





*anticipated applications of graphite in high-tech, clean tech, energy storage and national security applications and all other anticipated applications, international demand and ability to transport and enter into such markets, timing of holding an annual meeting of shareholders, anticipated timing of further fire testing, are all forward-looking statements. Although the Company believes the expectations expressed in such forward-looking statements are based on reasonable assumptions, such statements are not guarantees of future performance and actual results or developments may differ materially from those in the forward-looking statements. Factors that could cause actual results to differ materially from those in forward-looking statements include: (i) volatile stock price, (ii) the results of the product development test work may not be indicative of the advancement of the project as anticipated, or at all, (iii) market prices, (iv) exploitation and exploration successes, (v) continuity of mineralization, (vi) uncertainties related to the ability to obtain necessary permits, licenses and title and delays due to third party opposition, (vii) changes in government policies regarding mining and natural resource exploration and exploitation, (viii) competition faced in securing experienced personnel, access to adequate infrastructure to support mining, processing, development and exploration activities and continued availability of capital and financing, (ix) general economic, market or business conditions, and (x) impact on the progress due to the COVID-19 pandemic. Readers are cautioned not to place undue reliance on this forward-looking information, which is given as of the date it is expressed in this press release, and the Company undertakes no obligation to update publicly or revise any forward-looking information, except as required by applicable securities laws. For more information on the Company, investors should review the Company's continuous disclosure filings that are available at [www.sedar.com](http://www.sedar.com).*