



Graphene Solutions

(Formerly Zenyatta Ventures Ltd.)

Management's Discussion and Analysis

For the year ended  
March 31, 2019

Dated: July 10, 2019

(Expressed in Canadian Dollars)

## **Introduction**

This Management Discussion and Analysis (“MD&A”) is dated July 10, 2019 and is in respect of the year ended March 31, 2019. The following discussion of the financial condition and results of operations of ZEN Graphene Solutions Ltd. (formerly Zenyatta Ventures Ltd., “ZEN” or the “Company” or the “Corporation”) constitutes management’s review of the factors that affected the Corporation’s financial and operating performance for the year ended March 31, 2019.

This discussion should be read in conjunction with the Corporation’s audited consolidated financial statements and corresponding notes to the consolidated financial statements for the year ended March 31, 2019. The Corporation’s audited consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (“IFRS”). Unless otherwise stated, all amounts discussed herein are denominated in Canadian dollars which is the Corporation’s functional and reporting currency.

Additional information relating to the Corporation can be found under the Corporation’s profile on SEDAR at [www.sedar.com](http://www.sedar.com).

## **Forward Looking Statements**

This MD&A of the Corporation contains certain forward-looking information and forward-looking statements, as defined in applicable securities laws (collectively referred to herein as “forward-looking statements”). These statements relate to future events or the Corporation’s future performance. All statements other than statements of historical fact are forward-looking statements. Often, but not always, forward-looking statements can be identified by the use of words such as “plans”, “expects”, “is expected”, “budget”, “scheduled”, “estimates”, “continues”, “forecasts”, “projects”, “predicts”, “intends”, “anticipates” or “believes”, or variations of, or the negatives of, such words and phrases or state that certain actions, events or results “may”, “could”, “would”, “should”, “might” or “will” be taken, occur or be achieved. Forward-looking statements involve known and unknown risks, uncertainties and other factors, which may cause actual results to differ materially from those anticipated, expressed or implied in such forward-looking statements.

Factors that could affect these statements include, without limitation, availability of financing and personnel, fluctuations in metal prices, future exploration and development programs, general business and economic conditions, social and political stability, security of title, timing and receipt of permits and licenses, the impact of changes in future legislation and regulations, changes in mining or environmental regulations, competition and currency fluctuations. The forward-looking statements in this MD&A speak only as of the date of this MD&A or as of the date specified in such statement.

Shareholders are cautioned not to place undue reliance on forward-looking information. The Corporation undertakes no obligation to update publicly or otherwise revise any forward-looking information whether as a result of new information, future events or other such factors which affect this information, except as required by law.

These factors and other risks and uncertainties are detailed in the Corporation’s reports and disclosure documents filed by the Corporation from time-to-time with Canadian securities regulatory authorities.

## **Company Overview**

ZEN is an emerging nano-materials company focused on developing its 100% owned Albany Graphite Deposit in Northern Ontario, Canada. The deposit is a large resource of igneous-hosted, fluid-derived micro-crystalline graphite mineralization contained in two adjacent breccia pipes. This unique form of graphite is proving to be ideally suited for making a high-quality graphene and graphene derivative nano-material products as well as a

high purity graphite product for traditional markets.

The Albany Graphite deposit was first discovered in 2011, during a drilling program testing electromagnetic conductors for the presence copper-nickel-PGE sulphide deposits. The unusual nature of the graphite in the Albany deposit and its potential economic significance motivated additional exploration drilling from 2012 to 2014, when an initial NI 43-101 compliant resource estimate was prepared by independent consultants Roscoe Postle Associates (“RPA”). Indicated Mineral Resources reported in RPA’s 2014 technical report totaled 25.1 million tonnes (“Mt”) at an average grade of 3.89% graphitic carbon. In addition, Inferred Mineral Resources were estimated to total 20.1 million tonnes at an average grade of 2.20% Cg.

The Corporation subsequently retained RPA to complete a Preliminary Economic Assessment (“PEA”) on the Albany Graphite Deposit based on a model of producing a high-purity graphite product for multiple market segments. The graphene nano-materials market was not considered as part of the June 2015 PEA model. The results indicated economic potential for an open pit mining operation producing 30,000 tonnes of high-purity graphite per annum for at least 22 years.

ZEN is presently in discussion with various end users of high-purity graphite and the graphene product that can be produced from this material. The Corporation is also working with a number of research institutions developing new applications for graphene. Potential markets for graphene include composites (e.g. concrete, rubber, plastic polymers and ceramics), sensors, water purification and filtration, coatings and solid-state lubricants, silicon-graphene anode material for next generation batteries along with aerospace and military applications to name a few. The markets for graphite include Li-ion batteries, fuel cells and powder metallurgy.

Applications for graphene and its derivatives are experiencing significant growth due to their unique chemical, electrical and thermal properties. It is 200 times stronger than Steel, bends and stretches up to 120% of its original size, has 10x the conductivity of copper, has 1000 times the capacity of copper, is impermeable to hydrogen and can improve the speed and efficiency of computer chips. Results from preliminary testwork indicate the addition of graphene has the potential to create a much stronger concrete with a faster curing time at a cost advantage. Also, the addition of graphene in concrete has the potential to reduce the amount of cement needed which in turn reduces CO<sub>2</sub> emissions.

The mining claims comprising the Albany Graphite Project are located approximately 30 km north of the Trans-Canada Highway, near the community of the Constance Lake First Nation and 86 km northwest of the Town of Hearst, Ontario. The Project currently consists of 2 non-contiguous blocks of unpatented mining claims known as 4F and 4E (originally consisted of 28 block claims) which are 100% owned by ZEN. On April 10, 2018, the ground staked legacy claims were converted to cell claims as part of the Ontario government’s Modernizing the Mining Act (MAM) process and the Project now consist of 71 boundary claims and 266 cell claims for a total of 541 units. The current claims require a total of \$195,600 worth of assessment work per year to keep them in good standing and ZEN has a total of approximately \$5.8M in available exploration reserves. The remaining 4E and associated claims will be allowed to lapse so that the Company can focus funds and efforts on the development of the Albany Graphite Deposit.

The Corporation was registered and incorporated in Ontario, Canada as 1774119 Ontario Limited on July 29, 2008. Pursuant to Articles of Amendment dated November 24, 2009, the Corporation changed its name to Zenyatta Ventures Ltd. On December 23, 2010, the Corporation became a reporting issuer in Ontario, Alberta and British Columbia. Following the receipt of approval at the 2018 Annual Meeting of Shareholders held on September 27, 2018 and subsequent approval from the TSX Venture Exchange, the Corporation implemented a name change effective January 16, 2019 to ZEN Graphene Solutions Ltd. The common shares of the Corporation commenced trading on the TSX Venture Exchange under the symbol ZEN and in the United States on the OTCQB under the symbol ZENYF and continue to trade on these exchanges under these symbols.

## **Future Outlook**

The graphene nano-materials market is an emerging high-value, technology business with excellent growth prospects as new product applications are developed and commercialized. The Corporation is presently assessing the various graphene conversion methods that can be utilized on its high-purity graphite material through its network of research partners. ZEN plans to source the appropriate equipment required for a graphene manufacturing (exfoliation) process and evaluate the associated costs for graphene production in a vertically integrated structure. The Corporation is also in discussions with various participants in the graphene market and end users of graphene products for potential off-take agreements, strategic partnerships or other business opportunities; however, there is no certainty that any of these discussions will lead to agreements.

ZEN will continue to focus on advancing the Albany graphite deposit towards initial production of a consistent, high-quality graphite and/or graphene nano-material product. The Corporation is planning to prepare an updated PEA/Pre-feasibility Study (“PFS”) which is more oriented toward the graphene nano-materials market. This will be preceded by the processing (flotation and purification) of the 110 tonne bulk sample that was collected during the Winter 2019 program and then subsequently utilized to generate more graphene product samples for market acceptance and valuation. Since the business opportunity related to the development of the Albany Graphite Deposit is closely linked to the development of innovative new process technology and product design, the Corporation is looking at re-structuring to reflect the increasing emphasis on technology development. The Company is currently searching for an industrial location that will house a pilot production centre, a research and development lab as well as office space. The graphene produced by the pilot production centre will be offered for sale as permitted by the Ministry of Northern Development and Mines.

The Corporation is committed to developing the Albany Graphite Project to high standards of environmental and social responsibility in consultation with its local community partners. The Project is located in the traditional territory of the Constance Lake First Nation (CLFN) and ZEN is committed to developing a partnership agreement with CLFN towards collaboration on business development following the Memorandum of Understanding signed on September 27, 2018. The Corporation is also committed to minimizing the environmental footprint of the project and its impacts on the local watershed and wildlife.

At March 31, 2019, the Corporation had working capital of \$819,872 sufficient to fund the Company’s general administration, environmental baseline study fieldwork and other activities until at least October 2019. Additional financing will be required to allow the Company to continue to fund its ongoing project development activities.

## **Overall Performance**

During the year ended March 31, 2019, the Corporation was mainly involved in graphene R&D activities, product market development and activities related to the winter bulk sampling program. No mineral exploration field activities were performed on any of the remaining properties during this period. Overall, during the year ended March 31, 2019, the Corporation had cash expenditures of \$3,820,475 consisting of deferred exploration costs, share issue costs and operating expenses.

As at March 31, 2019, the Corporation had \$24,054,172 in deferred exploration costs as a result of its airborne survey, additional staking and exploration costs, drilling program, which includes \$1,292,500 worth of cash, shares and warrants issued to Cliffs Natural Resources Exploration Canada Inc. (“Cliffs Canada”) in connection with the Amended Albany Agreement.

## **Results of Operations**

### Net loss

The Corporation recorded a loss of \$606,307 with basic and diluted loss per share of \$0.01 for the three-month period ended March 31, 2019 (2018 – loss of \$418,564 and \$0.01). The loss for the year ended March

31, 2019 was \$2,428,153 with basic and diluted loss per share of \$0.04 (2018 – loss of \$1,564,521 and \$0.02).

### Revenue

The Corporation is currently in the development stage and therefore did not have revenues from operations. Interest and other income for the three-month period ended March 31, 2019 was \$4,756 (2018 - \$54,071). Interest and other income for the year ended March 31, 2019 was \$40,302 (2018 - \$75,314). Grant income netted against the exploration and evaluation assets for the three-month period ended March 31, 2019 was \$nil (2018 - \$nil). Grant income netted against the exploration and evaluation assets for the year ended March 31, 2019 was \$nil (2018 - \$63,261).

### Expenses

Stock-based compensation costs were \$180,243 for the three-month period ended March 31, 2019 (2018 - \$169,138) and \$888,056 for the year ended March 31, 2019 (2018 - \$462,961). Stock-based compensation was based on the fair value of the options described in Note 6(c) of the audited consolidated financial statements as calculated using the Black-Scholes option pricing model. Stock-based compensation is recognized over the vesting period of the underlying options.

General and administrative expenses were \$202,193 for the three-month period ended March 31, 2019 (2018 - \$185,688) and \$669,232 for the year ended March 31, 2019 (2018 - \$840,622). The most significant components of general and administrative expenses are wages and benefits. The following table details the material components of the Corporation's general and administrative expenses for the years ended March 31, 2019 and 2018.

	<b>Year Ended March 31, 2019</b>	<b>Year Ended March 31, 2018</b>
Salaries and Benefits	\$ 318,304	\$ 510,748
Meals and Entertainment	20,252	23,849
Transfer Agent Fees	25,151	-
Accommodations	28,805	28,787
Investor Communications	98,797	51,992
Travel	50,376	44,163
Occupancy and Office Expenses	127,547	181,083
<b>Total</b>	<b>\$ 669,232</b>	<b>\$ 840,622</b>

Stock exchange and filing fees were \$22,380 for the three-month period ended March 31, 2019 (2018 - \$11,320) and \$23,530 for the year ended March 31, 2019 (2018 - \$11,320).

Professional fees were \$97,312 for the three-month period ended March 31, 2019 (2018 - \$84,440) and \$290,568 for the year ended March 31, 2019 (2018 - \$153,435). These fees consist primarily of the amounts charged for services provided by the Corporation's lawyers, auditors, and accountants.

Investor relations and promotion expenses were \$30,094 for the three-month period ended March 31, 2019 (2018 - \$3,700) and \$69,457 for the year ended March 31, 2019 (2018 - \$25,620). These expenses consist primarily of the costs of consultants, marketing trips and other costs such as attending industry conferences.

Consulting fees were \$40,702 for the three-month period ended March 31, 2019 (2018 - \$16,831) and \$349,816 for the year ended March 31, 2019 (2018 - \$139,808). The most significant component of the consulting costs incurred were for consultants working on metallurgical testwork, field program planning and graphene product development activities. Consulting costs directly related to graphene product market development for the year ended March 31, 2019 were \$156,578, of which \$58,372 were incurred during the three months ended March 31, 2019.

Contract services were \$36,500 for the three-month period ended March 31, 2019 (2018 - \$nil) and \$172,500 for the year ended March 31, 2019 (2018 - \$nil). These expenses relate to services provided in association with the corporate restructuring following the change in leadership as well as services provided by the CFO.

Amortization expense was \$1,639 for the three-month period ended March 31, 2019 (2018 - \$1,518) and \$5,296 for the year ended March 31, 2019 (2018 - \$6,069). Amortization is taken on the capitalized cost of the Corporation's computers and equipment.

#### Cash Flows

During the three-month period ended March 31, 2019, cash decreased overall by \$1,569,133 (2018 – decreased by \$363,131). Operating activities resulted in a decrease in cash of \$411,057 (2018 – decrease of \$207,227) due to continued spending on consulting and professional fees and general and administrative expenses. Investing activities resulted in a decrease in cash of \$1,104,852 (2018 – decrease of \$155,904) due to continued spending on graphene production scale up and application development. Financing activities resulted in a decrease in cash of \$53,224 (2018 – increase of \$nil) due to additional costs related to the issuance of units and flow-through common shares.

During the year ended March 31, 2019, cash increased overall by \$1,124,754 (2018 – decreased by \$287,230). Operating activities resulted in a decrease in cash of \$1,183,545 (2018 – decrease of \$999,855) due to continued spending on consulting and professional fees and general and administrative expenses. Investing activities resulted in a decrease in cash of \$1,737,094 (2018 – increase of \$256,726) due to continued spending on graphene production scale up and application development. Financing activities resulted in an increase in cash of \$4,045,393 (2018 – increase of \$455,899) due to net proceeds received from the issuance of units and flow-through common shares.

#### **Mineral Exploration and Development Costs**

Interest in mineral properties and related exploration/development costs capitalized were \$1,356,282 for the three-month period ended March 31, 2019 (2018 – \$67,130) and \$2,026,292 for the year ended March 31, 2019 (2018 - \$377,082). All of these costs relate to the Albany Project. Costs capitalized relate to contracted consulting services on graphene production scale up and application development, general exploration costs to prepare for future field work, and stock-based compensation. The following table details the material components of the Corporation's exploration and evaluation assets for the years ended March 31, 2019 and 2018.

<b>ALBANY PROPERTY</b>	<b>Year Ended March 31, 2019</b>	<b>Year Ended March 31, 2018</b>
Opening Balance	\$ 22,027,880	\$ 21,650,798
Drilling	1,042,009	-
Contractor Services	178,830	182,562
Equipment Rental	55,033	8,496
Supplies	5,392	31
Processing and Testing	7,700	61,650
Metallurgical Testing	53,595	168,243
Site Costs	542,283	14,400
Fuel	98,053	
Stock-Based Compensation	43,397	4,961
Cost Recovery (Grants)	-	(63,261)
<b>Closing Balance</b>	<b>\$ 24,054,172</b>	<b>\$ 22,027,880</b>

## **Albany Graphite Project**

### ***Land Tenure***

The Albany Graphite Deposit is located on one of the claim blocks (4F) collectively comprising the Albany Graphite Project (the “Claims”). The Corporation acquired its 100% interest in Block 4F under the terms of an option agreement with Cliffs Canada (the “Optionor”) entered into in the year ended March 31, 2010. The balance of the Claims were acquired by staking and are 100% owned by the Corporation.

An initial 80% interest in Block 4F was acquired by making certain payments totaling \$140,000 and issuing 1,000,000 units to the Optionor, (each unit being comprised of one common share and one warrant to purchase one additional common share at a price of \$1.50 any time before December 23, 2015) and incurring an aggregate of \$10 million in exploration expenditures.

On November 21, 2012, the Company reached an agreement with the Optionor to acquire the remaining 20% interest in Block 4F by issuing a total of 1,250,000 shares to the Optionor and granting a net smelter return royalty of 0.75% on Block 4F, which is now held by a third party.

The Claims are located in the traditional territory of the Constance Lake First Nation. In July 2011, ZEN and CLFN signed an exploration agreement for a mutually beneficial and co-operative relationship regarding exploration and pre-feasibility activities on the Albany Project. Under this agreement, ZEN committed to establishing a joint implementation committee and conveying preferential opportunities for employment and contracting as well as contributing to a social fund for the benefit of CLFN children, youth and elders. In 2018, the parties signed a new Memorandum of Understanding (“MOU”) under which a project partnership structure will be created in support of the development of the Albany Graphite Project (the “Project”). Under the new MOU, the parties can also consider alternative partnership structures including equity participation by CLFN in the Project. This new agreement provides for more flexibility to accommodate alternative business models as the Project progresses toward becoming a graphene nano-materials technology business. On June 22, 2019, Rick Allen was re-elected for a third consecutive term as CLFN Chief. ZEN looks forward to continue working with Chief Allen and CLFN to set up a mutually agreeable partnership structure.

The Claims comprising the Albany Graphite Project are presently held in good standing by the Corporation and there are sufficient assessment credits available to keep all of the 4F (Albany Graphite Project) claims in good standing for at least 30 years. There are no environmental liability issues related to any previous exploration work on the Claims. The Corporation has not received from any government authority, any communication or notice concerning any actual or alleged breach of any environmental laws, regulations, policies or permits.

### ***Project Exploration and Development History***

A two-phase exploration program on the Albany Project in 2011 and 2012 led to the discovery of a unique graphite deposit. Testing a large airborne EM conductor measuring 1400 m by 800 m in late 2011, the first drill hole on this target intersected an extensive graphite-rich breccia zone hosted within an alkalic intrusion. The deposit is not exposed on surface, being under glacial till overburden and a veneer of limestone. Subsequent mineralogical studies conducted by Dr. Andrew Conly of Lakehead University characterized the deposit as an unusual magmatic, fluid-related style of graphite mineralization. Follow-up work was recommended as a magmatic, fluid-related, breccia-hosted graphite deposit of this magnitude is very rare.

Subsequent drilling and geophysical surveys completed in 2012-13 delineated a large resource in two adjacent volcanic breccia pipes leading to an initial NI 43-101 compliant resource estimate announced in January 2014. Preliminary metallurgical testwork in 2013 demonstrated that a high-purity graphite product with >99.99% Carbon can be produced from the Albany graphite deposit mineralization. Initial mineralogical work confirmed the graphite material to be of high- quality, containing insignificant amounts of impurities.

Six large diameter (HQ size) holes were then drilled, three on each pipe in order to obtain two 5 tonne mini-bulk sample of graphite mineralization to proceed with a second phase of metallurgical process development at SGS Canada Inc. ('SGS') in Lakefield, Ontario, in an effort to optimize the initial flowsheet and provide material for further testing by ZEN and other interested parties who had requested samples for evaluation.

An independent Technical Report was completed in January 2014 by Roscoe Postle Associates Inc. ("RPA"), who are independent "qualified persons" as defined by National Instrument 43-101 ("NI 43-101"). RPA estimated Indicated Mineral Resources to total 25.1 million tonnes ("Mt") at an average grade of 3.89% graphitic carbon ("Cg"), containing 977,000 tonnes of Cg. In addition, Inferred Mineral Resources were estimated to total 20.1 million tonnes at an average grade of 2.20% Cg, containing 441,000 tonnes of Cg. These results are based on a cut-off grade of 0.6% Cg with an assumed market price of \$8,500 per tonne Cg. The results below, as given in the Technical Report, show that even if the assumed market price of Cg varies, any appropriate increase in the cut-off grade results in a relatively minor reduction of the resource estimate.

	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnes Graphitic Carbon</b>
<b>Classification, Cut-off Grade</b>	<b>(Mt)</b>	<b>(%Cg)</b>	<b>(t Cg)</b>
Indicated			
2.0	20.7	4.41	914,000
1.0	24.3	3.99	971,000
0.6	25.1	3.89	977,000
0.4	25.4	3.85	978,000
Inferred			
2.0	9.4	3.34	315,000
1.0	15.9	2.57	408,000
0.6	20.1	2.20	441,000
0.4	23.0	1.98	455,000

Further metallurgical process development work on the Albany graphite mineralization was carried out by SGS in 2014. The 2014 work made significant progress toward optimizing the initial bench scale caustic bake process designed in 2013 and an innovative, flow sheet was developed for the Albany graphite deposit. A high-grade flotation concentrate containing up to 92.5% graphitic carbon ('Cg') was produced which was fed into a purification process to achieve a targeted graphite product purity of >99.9 % Cg.

Peter Wood, P.Eng., P.Geo., and Alex Mezei, M.Sc., P.Eng., were the Qualified Persons under NI 43-101 who supervised the preparation of this scientific and technical information.

### ***2015 Preliminary Economic Assessment ("PEA")***

On June 1, 2015, the Corporation announced the results of a PEA on its Albany Graphite Project. The PEA was prepared by RPA with mill design input from SGS and can be found on the Corporation's website, [www.zengraphene.com](http://www.zengraphene.com). It was prepared on the assumption that the product would be a high-purity graphite material for markets specific to this material and did not consider the newly emerging graphene market.

Subsequent to completion of the 2015 PEA, most of the Albany Project work has been focused on metallurgical process development, market studies and research and development to determine the most attractive market opportunities for the Albany graphite products. Increasing interest in the Albany Graphite product as a feed material for producing graphene or graphene oxide, is motivating management to reconsider the project development model conceived for the 2015 PEA. While graphene is an emerging new nanotechnology material with limited market demand at present, initial indications from various groups involved in graphene research

and development indicate potential for creating a very high-value product from the Albany Graphite deposit with excellent long term growth potential and high profit margins. Consequently, the Company is now planning to prepare an updated PEA to reflect this new market opportunity.

The results of the 2015 PEA are summarized here for reference and historical context for the current project development model focusing on nano-material technology. Ultimately, the Albany Graphite Project could be developed to serve both the high-purity graphite and the emerging graphene nano-materials markets, in proportions depending on relative profitability and market demand growth projections of each product. The 2015 PEA contemplated a 3,000-tonne per day open-pit mine and on-site process plant to produce 30,000 tonnes of high-purity (>99.9% Cg) graphite annually at a total capital expenditure of US\$411.5 million. This yielded a 22 mine life based on less than 50% of the Indicated and Inferred Resources. Based on a graphite price assumption of US\$7,500/tonne and operating costs of \$2,046/tonne, the Discounted Cash Flow (“DCF”) model showed an attractive after tax Internal Rate of Return (“IRR”) of 24% and Net Present Value (“NPV”) at a 10% discount rate of US\$438 million.

The 2015 PEA concluded that the Albany graphite project has excellent potential to be a low-cost source of high-purity graphite. Work performed by SGS, on behalf of ZEN, successfully completed and tested an innovative and relatively benign purification process for the production of consistent and highly crystalline graphite exceeding 99.9% purity from the Albany deposit. Feedback from the clean-tech sector suggests that environmental considerations are critical when sourcing raw materials for today’s high-tech applications like energy storage. Supply chain transparency is easier to track and is now demanded by consumers of such specialty materials in the clean-tech sector. The 2015 PEA is based on mineral resources that are not mineral reserves and have not demonstrated economic viability and therefore, there is no certainty that the results of this PEA will be realized.

The high-purity graphite pricing model for the 2015 PEA was derived from an extensive detailed study of targeted market segments and industry trends. The estimated annual production of 30,000 tonnes of high-quality graphite product from the Albany deposit would have represented approximately 7% of the 2017 market demand estimate. In 2015, ZEN anticipated having a targeted market application segmentation for high-purity graphite including 25-30% in LIBs, 20-25% for Fuel Cell products, 25-30% for high-purity graphite in PM and 15-30% from other applications in the list above.

The outlook for the global graphite market is very promising with demand growing rapidly from new applications, including graphene nano-materials. Graphite is now considered one of the more strategic elements by many leading industrial nations, particularly for its growing importance in high technology manufacturing and in the emerging clean-tech sector such as components of energy storage devices for electric vehicles, computers, smartphones etc.

Jason Cox, P.Eng. Executive VP – Mine Engineering - Principal Mining Engineer of RPA, Alex Mezei, M.Sc., P.Eng., Director, Engineering Technical Services at SGS Lakefield, independent consultants to ZEN, Peter Wood, P.Eng., P.Geo., VP Exploration and Dr. Bharat Chahar, P.E., VP Market Development for ZEN were the Qualified Persons under National Instrument 43-101 for the 2015 PEA.

In February 2019, the company commenced a bulk sample drill program with the goal of collecting up to 990 tonnes of graphite-mineralized material from five holes in the East Pipe and one hole in the West Pipe. Two 24-inch diameter percussive reverse circulation drill holes were completed on the East Pipe and yielded over 110 tonnes of Albany Graphite mineralization, sufficient material to produce several tonnes of purified graphite to be used as pre-cursor graphene material for graphene applications testing. The recovered material, which is currently stored in Hearst, will be prepared for shipping and will then be processed into high-purity graphite for subsequent graphene production.

Additionally, at the end of April 2019, ZEN, ERM Canada Ltd. (ERM) and CLFN kicked off the environmental baseline study fieldwork with a surface water sampling and flow measurement program.

## **Graphene Product Development Work**

In January 2018, ZEN announced a new strategic focus on the extraordinary nano-material called graphene, which is easily converted from the Company's highly crystalline Albany graphite deposit. Graphene is emerging as the most promising new material in modern times for enhancing applications in various industries due to its unique combination of mechanical, electrical and thermal properties. Graphene, a single sheet of carbon discovered in 2004 at the University of Manchester, can perform all of these functions.

During 2017, independent labs in Japan, UK, Israel, USA and Canada demonstrated that ZEN's rare form of graphite easily converts (exfoliates) to graphene using a variety of simple mechanical methods. It has become apparent that the effort from these various collaborative programs has created significant additional value for our specific material. It is also important to note that the graphene produced by ZEN's partners is a consistent and high-quality nanomaterial, including the most desirable, mono-layer to tri-layer forms. The Company's graphene also has excellent dispersion properties and therefore is highly suitable for enhancing present day composite materials like rubber and concrete, as confirmed by the University of Sussex and Ben-Gurion University/University of Toronto, respectively. The composite materials market represents a very large volume end use for graphene and graphene-oxide. A significant business opportunity has now evolved related to this graphene product which currently sells at prices of US\$1000s/kg. Interestingly, the prior business model in the Albany Graphite Deposit PEA from 2015 included producing and selling high-purity graphite at US\$7.50/kg.

Many corporate and academic R & D facilities around the world are currently competing to find the most effective, cost efficient and scalable process to produce high-quality graphene. These companies still require a consistent source (or precursor) material for conversion to graphene which is then applied to their various products for enhancement. ZEN has a significant competitive advantage with the ownership of a large and high-quality supply of source material, Albany graphite, in Canada. The Company is presently assessing the various simple graphene conversion methods being utilized on its high-purity graphite material by its network of collaborative partners with the goal of defining a scalable, low cost, low energy and environmentally friendly exfoliation process. In the near future, ZEN plans to source the appropriate equipment required for a graphene manufacturing (exfoliation) process and also evaluate the associated costs for graphene production in a vertically integrated structure.

In September 2018, preliminary research findings from University of Toronto point to significant improvements in the compressive and flexural strength of cement when graphene products derived from Albany Graphite are combined with the cement. Including graphene in quantities of as little as 0.02% increased the compressive strength of cured cement paste by up to 39%, according to research conducted by Professor Daman Panesar and her team at University of Toronto's Department of Civil & Mineral Engineering. ZEN intends to build on these encouraging results with the ultimate goal of developing a graphene-enhanced concrete product.

More recently, ZEN has completed an NSERC Engage project with Prof. Kumacheva and her research team at the University of Toronto who have confirmed the relative ease with which graphene quantum dots (GQDs) can be produced from Albany graphite. Prof. Kumacheva and her team propose to develop a nanocolloidal graphene-derived material which has a tunable pore size and can purify water of toxic heavy metal ions. These hydrogels have the potential of being scalable, robust and recyclable and provide a highly effective water purification and remediation solution.

Independently to this, Prof. Chen and his team at the University of Guelph, has also successfully used Albany Graphite to produce GQDs in a consistent fashion. Their process employs a simple method that has the potential to be scaled to industrial sized applications allows the conversion of Albany Graphite into highly fluorescent GQDs.

Additionally, ZEN has completed an NSERC Engage project with Prof. Pope and his team at the University of Waterloo. The project goal was to produce solid-state battery anodes by wrapping silicon particles with a protective layer of graphene and interfacing this graphene-wrapped powder with emerging, high-conductivity, solid-state electrolytes.

ZEN has also announced that it will be commencing a new research collaboration with the University of British Columbia, Okanagan Campus (UBC-O) and the Deutsches Zentrum für Luft- und Raumfahrt (“DLR”, the German Aerospace Center) to investigate the potential use of Albany Graphite for graphene and graphene oxide in new composite materials. More recently, the research at UBC-O was extended to look into the potential use of Albany Graphite tailings material as a partial cement replacement, with encouraging initial results reported in the Corporation’s news release dated February 21, 2019. If successful this would reduce tailings disposal costs and create a potential by-product revenue stream while creating a product that will significantly reduce CO<sub>2</sub> emissions during concrete production.

Separately, ZEN will also be working with UBC on a graphene oxide fuel additive. Research has found that graphene oxide can improve fuel economy by 7.5%, and potentially reduce emissions by 8% while increasing power by 10%. Dr. Sina Kheirkhah, a combustion engineer, will be the lead researcher for the fuel additive project.

Advanced testing on potential new processes for commercial graphene production is also underway. ZEN is also currently working with three universities on different processes that could potentially lead to a more efficient process for ZEN’s commercialized graphene production, at a lower cost than those previously anticipated. These processes are also producing high yield results with low energy requirements and minimal environmental impacts.

### **Graphene Business Development Work**

ZEN’s graphene product development is being carried out under the direction of Dr. Francis Dube, CEO. The Company has retained two consultants to assist with this work; Mr. Philippe Chataigneau as Head of Sales, Dr. Colin van der Kuur as University Research Catalyst. Their work is supported by a third consultant, our Outreach Program Coordinator, Ms. Monique Manaigre, who is coordinating collaborative research initiatives within government institutions such as the National Research Council, NRCAN, Clean Growth Hub, FedNor, FedDev and others. Ms. Manaigre is preparing applications for support under several new federal government research funding programs oriented towards materials science innovation. A number of such applications are in progress.

Over the past two quarters, the Business Development team has been presenting ZEN to potential customers as a company focused on delivering a vertically integrated graphene product solution to industrial consumers.

ZEN’s potential to deliver a high-quality graphene product coupled with the potential to deliver industrial quantities for decades has generated considerable interest from many industrial companies. This interest was further enhanced by the potential to chemically functionalize ZEN’s graphene to suit any specific requirement and/or industrial equipment or process.

The team focused its efforts on building graphene applications within our five main industry sector verticals which are: Civil Engineering, Transportation, Defence/Aerospace, Biomedical and Water Treatment. The essential business development process is generally as follows: identify strong profitable graphene applications, then target specific end users and identify key decision makers within a given organization. Once discussions commence and non-disclosure agreements are signed, work can begin on bringing graphene products through lab, pilot and full scale testing. The work to bring each of these graphene products forward may or may not include multiple points of contact with various levels of government, potentially more than one end user and potentially more than one research team from a given university. Ongoing discussions took place for opportunities within each of those verticals for which some of the highlights have been disclosed above or in recent news releases.

During the quarter ended March 31, 2019, the Business Development team focused on moving forward opportunities in the Company’s five major verticals. Additionally, the team put in a great deal of work during this period on completing the application for a 1 million dollar grant that was awarded to ZEN in early May 2019.

Subsequent to the year end, the ZEN team also participated in OCE’s Discovery on May 13 and 14, 2019. Garnering over 3,000 attendees and almost 500 exhibitors. Discovery 2019 was a showcase of leading-edge technologies, best practices and research from sectors such as health, manufacturing, digital media and cleantech.

All combined, these events garnered hundreds of pre-qualified points of contact ranging from government, university and businesses covering all five major verticals. These opportunities are in various stages of being explored and converted into specific graphene products/solutions that the business development team is focused on bringing through the sales cycle and hopefully into production.

### **Metallurgical Process Development Work**

On July 16, 2018, the Corporation announced significant improvements to the metallurgical process developed for the Albany graphite mineralization including improved recovery from 75.4% in the PEA to approximately 90% with a simpler, lower energy process that has a lower reagent consumption and also permits more efficient recycling of the leach solutions.

The testwork program investigated a process based on high-pressure caustic leaching of graphite concentrate followed by acid leaching (ZEN Pressure Leach or ZPL). It was concluded that a purity of 97.5% Cg, representing 85% impurity removal, could be consistently achieved. Process conditions chosen for the tests were kept within industry proven limits of temperature and caustic concentration. A second stage acidic fluoride leach (ZHL) process was also investigated to upgrade the ZPL product to >99% purity. ZHL purification using a solution containing a mixture of NH<sub>4</sub>F and HCl yielded a minimum graphite purity of 99.8% Cg. The process operates at 50°C, will require relatively simple equipment and has a low reagent and energy consumption. During the quarter ended March 31, 2019, ZEN provided an update on the Company's locked cycle purification tests on the new process which successfully simulated an industrial process which was utilized to purify Albany Graphite concentrate. This successful test was a significant step forward towards industrial graphene production. A final product purity of approximately 99.8% Cg appears to be the practical upper limit of this hydrometallurgical processing. This final product will be used as a precursor material for the Company's developing graphene applications such as graphene enhanced concrete and other composites. This work was carried at SGS under the direction of James Jordan, P.Eng., Project Manager.

The updated process flowsheet (flotation and purification) will also be further tested and verified for scale-up with the 110 tonne bulk sample. Once this material has been purified to approximately 99.8%, it will be exfoliated into graphene and graphene oxide products for continued larger scale end user evaluation. The graphene conversion process is also under investigation for improvements in process efficiency under three university research collaborations (discussed above under Business Development).

With the new information on the process flowsheet and on the graphene product demand and pricing, ZEN will decide to proceed with the preparation of an updated PEA to reflect the new graphene focused development model or to proceed directly to a PFS (Pre-Feasibility Study). Given the fact that graphene continues to be an emerging market opportunity with excellent growth potential, the updated PEA/PFS will reflect a staged development approach starting at a modest scale with low initial capital expenditures, then expanding production as markets grow. Accordingly, initial development by underground mining methods is being contemplated as a more appropriate mine development model for this approach. This has the additional benefit of a greatly reduced environmental footprint compared to the original open pit model developed for the 2015 PEA.

### ***Administration and Investor Relations***

On August 14, 2018, ZEN announced the appointment of Director Dr. Francis Dubé and Mr. Donald Bubar as Co-CEOs on an interim basis to lead the Company through the current transition period. Both will report directly to the Board of Directors and work closely with senior management responsible for operations led by President and COO, Peter Wood, P.Eng., P.Geo.

The Company also held its successful Annual General and Special Meeting on September 27, 2018 in Toronto, Ontario. The current Board of Directors: Dr. Francis Dube, Brian Bosse, Eric Wallman, Donald Bubar, Frank Klees and Greg Fenton were all re-elected as Directors of the Company. Donald Bubar has resigned from the Board.

On June 22, 2018, in a private placement financing, a total of 1,311,693 units were issued at \$0.55 per unit for gross proceeds of \$721,431. Each unit consisted of one common share and one-half of one common share purchase warrant with each whole warrant exercisable at \$0.80 for a period of two years. The securities issued pursuant to the offering are subject to a four-month and one day statutory hold period. Share issue costs associated with this private placement totaled \$22,871.

On November 16, 2018, ZEN closed the first tranche of a non-brokered private placement financing of \$583,000 subject to regulatory approval. The offering consisted of the sale of Units priced at \$0.45 per Unit. Each Unit is comprised of one common share and one-half of one non-transferable common share purchase warrant (a "Warrant"). Each whole Warrant will entitle the holder to acquire one common share at a price of \$0.60 for a period of 24 months from the date of issuance. All Warrants issued in connection with the private placement will be subject to an acceleration clause. If the Corporation's share price trades at or above \$1.00 per share for a period of ten (10) consecutive trading days during the exercise period, the Corporation may accelerate the expiry date of the Warrants to 30 calendar days from the date on which express written notice is given by the Company to the Warrant holder.

On December 21, 2018, the Corporation announced that it had completed a private placement consisting of the issuance of 7,500,000 flow-through common shares at a price of \$0.40 per flow-through common share, for aggregate gross proceeds of \$3,000,000. Share issue costs associated with this private placement totaled \$276,729 consisting of \$174,050 in cash payments, \$53,224 in legal costs and \$49,455 in value assigned to the finder's warrants. The proceeds will be used to fund bulk sampling, environmental assessment and community engagement work on the Company's Albany Graphite Project.

The Corporation announced that, effective January 16, 2019, it had obtained TSX Venture Exchange approval and had changed its name from "Zenyatta Ventures Ltd." to "ZEN Graphene Solutions Ltd." The name change reflects the Company's decision to focus its development plans for the Albany Graphite Project on the graphene nano-material product opportunity. Graphene is emerging as the most promising new material in modern times for enhancing the mechanical, electrical and thermal properties of materials used in a broad range of industrial applications. New innovations are being announced by researchers around the world on a regular basis with market demand for graphene growing rapidly. In 2017, there were a total of 13,371 patent filings about graphene worldwide, an upsurge of 30.7% over the previous year. According to a November 2018 report published by *Research and Markets*, the global graphene market size stood at roughly US\$85 million in 2017, before growing to nearly US\$200million in 2018. It is currently forecasted to reach US\$1 billion in size by 2023 as new applications are developed and implemented.

The Corporation also announced that it had retained the services of Ms. Mara Strazdins, a consultant with Storyboard Communications Corp. ("Storyboard"), a Toronto-based investor relations and capital markets advisory firm serving Canadian small to mid-cap companies across North American markets. Under the terms of the agreement, ZEN will pay a monthly retainer of CAD \$5,000 for an initial term of six months for ongoing strategic communications and capital markets advisory services. At the time of entering into this agreement, Storyboard, or any of its executives, had no ownership interest, directly or indirectly, in ZEN or its securities. ZEN had not granted Storyboard any right to acquire any such interests.

The Corporation announced that on April 2, 2019, Dr. Francis Dubé assumed the role of Chief Executive Officer along with the resignation of Mr. Donald Bubar as Co-Chief Executive Officer and as a member of the Board of Directors. However, Mr. Bubar continues to support the Company as a member of ZEN's Advisory Board.

## **Subsequent Events**

During the month of April 2019, ZEN also announced the signing of an MOU with the University of Manchester to explore opportunities of collaboration in the areas of development and commercialization of graphene and other 2D materials and accelerate the adoption of these materials into commercially viable markets.

Preliminary battery development results from the University of British Columbia, Okanagan Campus, performed by Dr. Lukas Bichler and his team were also reported on April 11, 2019. Initial results showed that the addition of 5% ZEN reduced Graphene Oxide (rGO) into Carbon Black derived from recycled tires from Kal Tire resulted in a 324% increase in the anode discharge capacity in comparison to the current industry standard anode material,

SUPER P Carbon powder, which is used in numerous battery applications as a conductive additive.

On April 29, 2019, ZEN, ERM Canada Ltd. (ERM) and CLFN kicked off the environmental baseline field program with an initial site visit. The purpose of this site visit was to monitor river flows, collect surface water samples, set up wildlife cameras and observe the landscape and vegetation in the Project area. ZEN, ERM and CLFN will work together on future site visits and five additional trips are scheduled to be completed in 2019 with the goal of maximizing opportunities for CLFN involvement.

On May 8, 2019, ZEN was awarded a \$1,000,000 grant that will help to accelerate ZEN's graphene-enhanced concrete research and development project. The grant will potentially help the Company achieve its goal to provide innovative cement-based composite products to the Ontario market by possibly early 2020. The grantor will reimburse 50% up to a maximum of \$1,000,000 spent by ZEN on eligible expenses directly related to graphite purification, graphene production research, concrete additive research and large-scale graphene-enhanced concrete testing.

At the end of May 2019, ZEN announced that it has signed an initial agreement to in-license certain intellectual properties from a Canadian University that when combined with ZEN's Albany Graphite, produces low cost, environmentally friendly graphene. The production process rapidly exfoliates Albany Graphite into few layer graphene (FLG, 2-5 layers) with an estimated conversion efficiency of over 90%. Previous work has demonstrated that the unique Albany Graphite was converted to graphene far more efficiently when compared to flake or metamorphic graphite. This process is currently undergoing stringent testing and optimization.

On June 10, 2019, ZEN announced the signing of a memorandum of understanding ("MOU") with the University of British Columbia (UBC), Okanagan Campus, School of Engineering, where ZEN will contribute a minimum of \$300,000 over three years in support of graphene research and application development. Under the MOU, UBC and ZEN will collaborate on graphene-focused research projects relevant to applications of interest to potential end-user partners.

The main initial objectives defined in the MOU are:

- (a) To formalize a collaborative research program utilizing expertise and capabilities from both ZEN and UBC and, where applicable, utilizing additional support and resources from government agencies such as the Natural Sciences and Engineering Research Council (NSERC), Mitacs and the National Research Council Industrial Research Assistance Program (NRC-IRAP); and,
- (b) To structure an initial three-year research program with a committed minimum contribution by ZEN of \$100,000 per year in support of UBC-based research projects.

ZEN has already supplied samples of its graphene and graphene oxide to UBC where it has undergone preliminary testing in the following applications:

1. In multiple battery technologies;
2. As an additive in cement-based composites;
3. As an additive to aluminum and aluminum alloys; and,
4. As a diesel and jet fuel additive.

## Selected Financial Information

The following table sets forth selected financial information with respect to the Corporation as at and for the years ended March 31, 2019 and 2018. The selected financial information has been derived from the audited consolidated financial statements of the Corporation for the financial years indicated. The following should be read in conjunction with the said financial statements and related notes thereto.

	Year ended March 31, 2019 (Audited)	Year ended March 31, 2018 (Audited)
Total Revenue	\$ 40,302	\$ 75,314
Net Loss	\$(2,428,153)	\$(1,564,521)
# Shares Outstanding	74,333,569	63,597,361
Net Loss per Share (Basic)	\$(0.04)	\$(0.02)
Net Loss per Share (Diluted)	\$(0.04)	\$(0.02)
Total Assets	\$ 25,541,869	\$ 22,224,303
Total Financial Liabilities	\$ 646,642	\$ 152,035
Total Equity	\$ 24,895,227	\$ 22,072,268

## Summary of Quarterly Results

The following table sets out selected quarterly information for the eight most recently completed quarters, for which financial statements are prepared.

	Mar. 31, 2019	Dec. 31, 2018	Sep. 30, 2018	Jun. 30, 2018	Mar. 31, 2018	Dec. 31, 2017	Sep. 30, 2017	Jun. 30, 2017
Revenue	\$4,756	\$24,617	\$7,598	\$3,331	\$54,071	\$7,290	\$11,745	\$2,208
Loss	\$606,307	\$558,820	\$1,008,054	\$254,972	\$418,564	\$314,149	\$290,705	\$541,103
Loss per Share (Basic)	\$0.01	\$0.01	\$0.02	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01
Loss per Share (Diluted)	\$0.01	\$0.01	\$0.02	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01

## Liquidity and Capital Resources

As at March 31, 2019, the Corporation had working capital of \$819,872 (2018: \$20,116) and cash of \$1,221,492 (2018: \$96,738). The Corporation funded operations during the year ended March 31, 2019 through the net proceeds of units and flow-through shares issued as well as the use of existing cash.

The Corporation will need to raise additional funding to finance future exploration programs and development activity. The availability of equity capital, and the price at which additional equity could be issued, is dependent upon the success of the Corporation's activities, and upon the state of the capital markets generally. Additional financing may not be available on terms favourable to the Corporation or at all. If the Corporation does not receive future financing, it may not be possible for the Corporation to advance the exploration and development of the Claims.

## Off-Balance Sheet Arrangements

There are currently no off-balance sheet arrangements which could have an effect on current or future results or operations, or the financial condition of the Corporation.

## **Transactions with Related Parties**

The total transactions with companies controlled by members of key management personnel during the years ended March 31, 2019 and 2018 were as follows:

- a) Exploration and evaluation assets - \$172,396 (2018: \$150,212)
- b) General and administrative - \$26,451 (2018: \$23,316)

Included in accounts payable and accrued liabilities are amounts owing to related parties of \$54,269 (2018 - \$10,246). The amounts owing are unsecured, non-interest bearing and are repayable under normal terms and conditions.

The remuneration of directors and other members of key management personnel during the years ended March 31, 2019 and 2018 were as follows:

- a) Short-term benefits - \$315,613 (2018: \$359,114)
- b) Share-based payments - \$724,615 (2018: \$391,329)

As part of the private placement disclosed in note 6(a) of the audited consolidated financial statements, Officers and Directors of the Company purchased 766,118 units for gross proceeds of \$358,865.

As part of the shares for debt transaction as disclosed in note 6(a), officers and directors of the Company were issued 126,566 shares as compensation for \$57,500 in debt.

In accordance with IAS 24, key management personnel are those persons having authority and responsibility for planning, directing and controlling the activities of the Corporation directly or indirectly, including any directors (executive and non-executive) of the Corporation.

The remuneration of directors and key executives is determined by the board of directors having regard to the performance of individuals and market trends.

## **Current and Future Changes in Accounting Policy**

### ***Statement of Compliance***

The audited consolidated financial statements, including comparatives for the year ended March 31, 2019, have been prepared using accounting policies in compliance with International Financial Reporting Standards (“IFRS”) as issued by the International Accounting Standards Board (“IASB”).

### ***Future Accounting Changes***

Certain pronouncements were issued by the IASB or the International Financial Reporting Interpretations Committee (“IFRIC”) that are mandatory for accounting periods beginning on or after April 1, 2019. Many are not applicable or do not have a significant impact to the Company and have been excluded. The following have not yet been adopted and are being evaluated to determine the impact on the Company.

IAS 1 – Presentation of Financial Statements (“IAS 1”) and IAS 8 – Accounting Policies, Changes in Accounting Estimates and Errors (“IAS 8”) were amended in October 2018 to refine the definition of materiality and clarify its characteristics. The revised definition focuses on the idea that information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those financial statements. The amendments are effective for annual reporting periods beginning on or after January 1, 2020. Earlier adoption is permitted.

IFRS 16 – Leases (“IFRS 16”) was issued in January 2016 and replaces IAS 17 – Leases as well as some lease related interpretations. With certain exceptions for leases under twelve months in length or for assets of low value, IFRS 16 states that upon lease commencement a lessee recognizes a right-of-use asset and a lease liability. The right-of-use asset is initially measured at the amount of the liability plus any initial direct costs. After lease commencement, the lessee shall measure the right-of-use asset at cost less accumulated depreciation and accumulated impairment. A lessee shall either apply IFRS 16 with full retrospective effect or alternatively not restate comparative information but recognize the cumulative effect of initially applying IFRS 16 as an adjustment to opening equity at the date of initial application. IFRS 16 requires that lessors classify each lease as an operating lease or a finance lease. A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership of an underlying asset. Otherwise it is an operating lease. IFRS 16 is effective for annual periods beginning on or after January 1, 2019.

### **Financial Instruments and Other Instruments**

The Corporation’s financial instruments consist of cash, amounts and other receivables, and accounts payable and accrued liabilities. Unless otherwise noted, the Corporation does not expect to be exposed to significant interest, currency or credit risks arising from these financial instruments. The Corporation estimates that the fair value of these financial instruments approximate carrying values.

Financial instruments as at March 31, 2019 included cash and amounts and other receivables, which are classified as loans and receivables and are measured at amortized cost. Accounts payable and accrued liabilities are classified as other financial liabilities, which are measured at amortized cost. As at March 31, 2019, the carrying and fair value amounts of the Corporation's financial instruments are approximately the same.

As at March 31, 2019, the Company does not have any financial instruments recorded at fair value and that require classification within the fair value hierarchy.

Fair value estimates are made at the balance sheet date based on relevant market information and information about the financial instrument. These estimates are subjective in nature and involve uncertainties in significant matters of judgment and therefore cannot be determined with precision. Changes in assumptions could significantly affect these estimates.

### **Disclosure of Outstanding Share Data**

The Corporation is authorized to issue an unlimited number of shares, of which 74,333,569 (2018: 63,597,361) shares were issued and outstanding as fully paid and non-assessable as at March 31, 2019. Also, 3,852,600 warrants (2018: 2,195,724) were outstanding as at March 31, 2019.

Refer to Note 6(c) of the audited consolidated financial statements for details regarding stock options issued and exercisable as at March 31, 2019.

As at July 10, 2019, the Corporation had 74,333,569 shares which were issued and outstanding as fully paid and non-assessable. The Corporation also had 2,870,033 warrants and 4,140,000 stock options outstanding as at July 10, 2019.

### **Risks and Uncertainties**

The Corporation's risk exposures and the impact on the Corporation's financial instruments are summarized below. As at March 31, 2019, there had been no changes in the risks, objectives, policies and procedures from the previous period.

#### *Credit risk*

As at March 31, 2019, the Corporation's credit risk was primarily attributable to cash and amounts and other receivables. The Corporation has no significant concentration of credit risk arising from operations. Financial instruments included in accounts and other receivables consisted of harmonized sales tax due from the Federal Government of Canada. The Corporation's cash is held with reputable financial institutions. Management believes that the credit risk with respect to financial instruments included in accounts and other receivables is remote.

#### *Liquidity risk*

The Corporation's approach to managing liquidity risk is to ensure that it will have sufficient liquidity to meet liabilities when due. As of March 31, 2019, the Corporation had a cash balance of \$1,221,492 to settle current liabilities of \$646,642. The Corporation's ability to continue operations and fund its exploration property expenditures is dependent on management's ability to secure additional financing. Management is continuing to pursue various financing initiatives in order to provide sufficient cash flow to finance operations as well as funding its exploration expenditures. All of the Corporation's financial liabilities have contractual maturities of less than 30 days and are subject to normal trade terms.

#### *Interest rate risk*

The Corporation has cash balances. The Corporation's current policy is to invest excess cash in investment-grade short-term deposit certificates issued by its banking institutions. The Corporation periodically monitors the investments it makes and is satisfied with the credit ratings of its banks. The Corporation closely monitors interest rates to determine the appropriate course of action to be taken by the Corporation.

#### *Price risk*

The Corporation is exposed to price risk with respect to commodity prices. The Corporation closely monitors commodity prices to determine the appropriate course of action to be taken by the Corporation.

#### *Exploration risk*

Mineral exploration and development involve a high degree of risk and few projects are ultimately developed into producing mines. There is no assurance that the Corporation's future exploration and development activities will result in the definition of a body of commercial ore. Whether an ore body will be commercially viable depends on a number of factors including the particular attributes of the deposit such as size, grade and proximity to infrastructure, as well as mineral prices and government regulations, including environmental regulations.

#### *Financial Capability and Additional Financing*

The Corporation's development programs will require additional funds. The only sources of future funds presently available to the Corporation are the sale of additional equity capital or the entering into of joint venture arrangements or other strategic alliances in which the funding sources could become entitled to an interest in the properties or the projects. The Corporation's capital resources are largely determined by the strength of the junior resource market and by the status of the Corporation's projects in relation to these markets, and its ability to compete for investor support of its projects.

There is no assurance that the Corporation will be successful in raising sufficient funds to meet its obligations or to complete all of the currently proposed exploration programs. If the Corporation does not raise the necessary capital to meet its obligations under current contractual obligations, the Corporation may have to forfeit its interest in properties or prospects earned or assumed under such contracts. In addition, if the Corporation does not raise the funds to complete the currently proposed exploration programs, the viability of the Corporation could be jeopardized.

### *Permits and Government Regulation*

Although the Corporation believes it has all of the necessary permits to carry out the proposed exploration programs, the operations of the Corporation may require licenses and permits from time to time from various governmental authorities to carry out exploration and development at its projects. Obtaining permits can be a complex, time-consuming process. There can be no assurance that the Corporation will be able to obtain the necessary licenses and permits on acceptable terms, in a timely manner or at all. The costs and delays associated with obtaining permits and complying with these permits and applicable laws and regulations could stop or materially delay or restrict the Corporation from continuing or proceeding with existing or future operations or projects. Any failure to comply with permits and applicable laws and regulations, even if inadvertent, could result in the interruption or closure of operations or material fines, penalties or other liabilities. In addition, the requirements applicable to sustain existing permits and licenses may change or become more stringent over time and there is no assurance that the Corporation will have the resources or expertise to meet its obligations under such licenses and permits.

The mineral exploration activities of the Corporation are subject to various laws governing prospecting, development, production, taxes, labour standards, occupational health, mine safety, waste disposal, toxic substances and other matters. Mining and exploration activities are also subject to various laws and regulations relating to the protection of the environment, historical and archaeological sites and endangered and protected species of plants and animals. Although the exploration activities of the Corporation are currently carried out in material compliance with all applicable rules and regulations, no assurance can be given that new rules and regulations will not be enacted or that existing rules and regulations will not be applied in a manner which could limit or curtail exploration or development. New rules and regulations may be enacted or existing rules and regulations may be applied to the operations and activities of the Corporation and could have a substantial adverse impact on the Corporation.

### *Fluctuating Prices*

The profitability of the Corporation's operations will be dependent upon the market price of mineral commodities. Mineral prices fluctuate widely and are affected by numerous factors beyond the control of the Corporation. The level of interest rates, rate of inflation, world supply of mineral commodities, consumption patterns, sales of nickel and copper, forward sales by producers, production, industrial and consumer demand, speculative activities and stability of exchange rates can all cause significant fluctuations in prices. Such external economic factors are in turn influenced by changes in international investment patterns, monetary systems and political developments. The prices of mineral commodities have fluctuated widely in recent years. Current and future price declines could cause commercial production to be impracticable. The prices of commodities are affected by numerous factors beyond the Corporation's control.

### *Risks Associated with NI 43-101 Estimates and Technical Reports*

The figures for resources presented herein, including the anticipated tonnages and grades that may be achieved or the indicated level of recovery that may be realized, are estimates and no assurances can be given as to their accuracy. Such estimates are, in large part, based on interpretations of geological data obtained from drill holes and other sampling techniques. Actual mineralization or formations may be different from those predicted. It may also take many years from the initial phase of drilling before production is possible, and during that time the economic feasibility of exploiting a deposit may change.

Few properties that are explored are ultimately developed into producing mines. Major expenses may be required to establish ore reserves by drilling, to develop metallurgical processes, to extract the metals from the ore and to construct mining and processing facilities at a site. There is no guarantee that any property on which the Company intends to incur explorations expenditures or in which it has mining interests will ever reach the stage of commercial production.

### *Environmental Regulation*

The Corporation's activities are subject to environmental laws and regulations which may materially and adversely affect its future operations. These laws and regulations control the exploration and development of the Albany Project and their effects on the environment, including air and water quality, waste handling and disposal, the protection of different species of plant and animal life, and the preservation of lands. These laws and regulations will require the Corporation to acquire permits and other authorizations for certain activities. There can be no assurance that the Corporation will be able to acquire such necessary permits or authorizations on a timely basis, if at all.

Further, environmental legislation is evolving in a manner which will require stricter standards and enforcement, increased fines and penalties for non-compliance, more stringent environmental assessments of proposed projects and a heightened degree of responsibility for companies and their officers, directors and employees. There is no assurance that future changes in environmental regulation, if any, will not adversely affect the Corporation's operations.

The Corporation is not currently insured against most environmental risks. Without such insurance, and if the Corporation becomes subject to environmental liabilities, the payment of such liabilities would reduce or eliminate its available funds or could exceed the funds the Corporation has to pay such liabilities and result in bankruptcy.

### **Proposed Transactions**

As is typical of the mineral exploration and development industry, the Corporation is continually reviewing potential merger, acquisition, investment and joint venture transactions and opportunities that could enhance shareholder value. At present, there are no transactions being contemplated by management or the board that would affect the financial condition, results of operations and cash flows of any asset of the Corporation.

### **Employment Agreement**

The Company has renewed the consulting agreement with its Vice-President Exploration and Chief Geologist dated July 1, 2018 and the individual was also promoted to company Vice President. Subsequently, on September 14, 2018, the individual was promoted to the position of company President and Chief Operating Officer. The current salary level for the individual pursuant to the employment agreement will remain at \$180,000 annually.

The Corporation has entered into employment agreements with its new Co-CEOs, Francis Dube and Donald Bubar. The agreements are for a term of one year beginning on August 1, 2018, with each Co-CEO receiving an annual salary of \$90,000. On April 2, 2019, Dr. Francis Dubé assumed the role of Chief Executive Officer. The Corporation also announced the resignation of Mr. Donald Bubar as Co-Chief Executive Officer and as a member of the Board of Directors. Mr. Bubar will continue to support the Company as a member of ZEN's Advisory Board.

The Corporation has an employment agreement with its Chief Financial Officer dated January 15, 2019. The current salary level for the individual pursuant to the employment agreement is \$42,000 annually.

### **Exploration Agreement**

On July 13, 2011, the Corporation entered into an agreement with Constance Lake First Nation ("CLFN") governing the relationship between them concerning the Corporation's exploration on traditional lands of CLFN.

### **Cost of Implementation Committee**

On a yearly basis, commencing on the date that the implementation committee is formed and continuing

for the following twelve (12) months, the Corporation shall make a total contribution of \$22,000, and in years following the year in which this agreement is executed, an additional amount equivalent to the increase in the Ontario consumer price index for the preceding year, to pay: the reasonable expenses of the Corporation's implementation committee members; the reasonable costs of an archaeologist for any archaeological assessments.

### **Cost of Annual Gathering**

On an annual basis, \$1,200, and in years following the year in which this agreement is executed, an additional amount equivalent to the increase in the Ontario consumer price index for the preceding year, for CLFN and the Corporation to have a community "feast" and conduct an information session with CLFN members about the exploration, this agreement and any issues pertaining to this agreement's implementation.

Following the signing of a new MOU during the Quarter, the Corporation is now in discussion with CLFN toward establishing a new partnership agreement that would replace the 2011 agreement.

### **Other Commitments**

The Company has a service agreement in place with a third party service provider which has a minimum commitment due to termination clause of \$36,000.

As part of the flow-through share issuance described in note 6(a), the Company is committed to incurring and renouncing, under the "look back" rule, \$1,170,582 in qualifying exploration and evaluation expenditures during the fiscal year ending March 31, 2020.

### **Contingent Liabilities**

In September 2018, the Company received a statement of claim from a former employee. The Company is in the process of reviewing the claim and preparing its defence, but views the claim as unmeritorious.

### **Critical Accounting Estimates**

A detailed summary of all of the Corporation's significant accounting policies is included in Note 2 to the March 31, 2019 audited annual consolidated financial statements.

### **Internal Controls over Financial Reporting**

Management is responsible for the design of internal controls over financial reporting to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the financial statements in accordance with accounting principles generally accepted in Canada. Based on regular reviews of its internal control procedures during and at the end of the period covered by this MD&A, management believes its internal controls and procedures are effective in providing reasonable assurance that financial information is recorded, processed, summarized and reported in a timely manner.

### **Changes to Internal Control over Financial Reporting**

There have been no significant changes to the Corporation's internal controls over financial reporting that occurred during the year ended March 31, 2019 that have materially affected, or are reasonably likely to materially affect, the Corporation's internal control over financial reporting.

**Disclosure Controls**

Management is also responsible for the design and effectiveness of disclosure controls and procedures to provide reasonable assurance that material information related to the Corporation is made known to the Corporation's certifying officers. The Corporation's Chief Executive Officer and Chief Financial Officer have each evaluated the effectiveness of the Corporation's disclosure controls and procedures as of March 31, 2019 and have concluded that these controls and procedures are effective in providing reasonable assurance that material information relating to the Corporation is made known to them by others within the Corporation.