

California Nanotechnologies Corp.
For the three and six months ended August 31, 2019

MANAGEMENT DISCUSSION AND ANALYSIS

This Management Discussion and Analysis (“MD&A”) should be read in conjunction with the Condensed Consolidated Interim Financial Statements and related notes of California Nanotechnologies Corp. (the “Company” or “Cal Nano”) for the three and six months ended August 31, 2019. The Company’s functional and presentation currency is U.S. dollars and all amounts in this MD&A are expressed in U.S. dollars. The Company reports its financial position, results of operations and cash flows in accordance with International Financial Reporting Standards (“IFRS”), as issued by the International Accounting Standards Board (“IASB”). This MD&A has been completed as of October 30, 2019.

A. Company Overview

Cal Nano’s mission is to pioneer and commercialize next-generation Nanophase and advanced materials and products to fulfill rising industry demand. Cal Nano’s technologies enhance material performance by improving engineering properties. Cal Nano’s primary technologies include Spark Plasma Sintering and cryogenic milling. The Company is now focusing on commercialization efforts. Target markets are the microchip fabrication, aerospace, sports and recreation, defense, automotive, medical, and the oil and gas industries.

As the Official North American Technical and Training Partner of Fuji-SPS, pioneer of Spark Plasma Sintering (“SPS”) technology, Cal Nano offers both SPS services and equipment support. SPS is the leading technology for sintering Nanophase, Functionally Graded, Diffusion Bonded, Thermoelectric, and other advanced materials. The Company is enhancing the technology and exploring more potential commercial opportunities via extensive collaborations and partnerships with select universities and tier one production suppliers. The Company recently purchased a Fuji Mark V SPS for full-scale production activities.

Since inception, Cal Nano has been actively building industry recognition through published papers and other scientific endeavors. A listing of trade show activities is included at the end of this document.

B. Markets

Cal Nano currently services customers in the micro-chip fabrication, aerospace, academic, automotive, and sporting industries. A related company, Omni-Lite Industries, has many long-standing relationships in these areas, providing further access to future commercial customers.

C. Results of Operations Six Months Ended August 31, 2019

Revenue: For the six months ended August 31, 2019, the Company reported revenue of \$420,758 compared to \$357,719 from the prior six months, an increase of 18%.

Sales by segment are summarized below:

<u>Division</u>	<u>Spark Plasma Sintering</u>	<u>Research and Development</u>	<u>Sport and Recreation</u>
2019	61%	32%	7%
2018	65%	14%	21%

Net Income: Net loss for the six months ended was \$5,119 compared to a loss of \$38,456 in the prior six months. Depreciation expense is significant as the Company operates the additional SPS equipment purchased for \$675,750 in October 2017.

Operating Expenses: Overall operating expenses of \$237,856 increased by 4% when compared to the prior six months.

Other income: Interest expense increased due to the equipment loan used to purchase the additional SPS equipment.

Earnings (loss) per share: Basic loss per share was \$nil. The weighted average number of shares was 31,430,296.

The diluted loss per share was \$nil. At August 31, 2019, the diluted weighted average number of shares was 31,430,296.

The basic gain (loss) per common share is calculated using net income (loss) divided by the weighted-average number of common shares outstanding. The diluted gain (loss) per common share is calculated using net income (loss) divided by the weighted-average number of diluted common shares outstanding.

2,310,000 (2018 – 2,275,000) options were excluded in calculating the weighted-average number of diluted common shares outstanding for the six months ended August 31, 2019 and 2018, because the Company was in a net loss position and therefore any exercise would be anti-dilutive.

SUMMARY OF FINANCIAL HIGHLIGHTS (U.S. \$)

All figures in US dollars unless noted.

	For the six months ended August 31, 2019	For the six months ended August 31, 2018	% Increase (decrease)
Revenue	\$ 420,758	\$ 357,719	18%
Cash flow from operations	53,311	43,953	21%
Net loss	(5,119)	(38,456)	87%

Selected Quarterly Information

The following table summarizes selected quarterly information from the last eight quarters.

ALL FIGURES IN US DOLLARS UNLESS NOTED

	August 31, 2019	May 31, 2019	February 28, 2019	November 30, 2018	August 31, 2018	May 31, 2018	February 28, 2018	November 30, 2017
Revenue	\$290,715	\$130,043	\$161,156	\$230,918	\$175,170	\$182,549	\$196,925	\$157,555
Cash flow (used for) from operations	56,058	(2,747)	(10,259)	59,721	24,364	19,589	53,859	27,941
Net income (loss)	65,483	(70,602)	(52,193)	31,482	(23,812)	(14,644)	49,466	(37,339)

Liquidity and Capital Resources

The following table summarizes the Company's cash flows by activity and cash on hand.

	August 31, 2019	August 31, 2018
Net cash from operating activities	\$ 53,311	\$ 43,953
Net cash used for financing activities	(59,963)	(40,633)
Net cash used for investing activities	-	(16,892)
Net decrease in cash	(6,652)	(13,572)
Cash at the beginning of the period	18,563	36,192
Cash at the end of the period	11,911	22,620

At August 31, 2019, the sources of liquidity were cash from operating activities. The cash balance was \$11,911. At six months, the Company's working capital deficiency (current assets less current liabilities) was \$1,466,597 (2018 - \$1,472,439).

The Company's functional and reporting currency is U.S. dollars; however, the calculation of income tax expense is based on income in the currency of the country of origin. As such, the Company is continually subject to foreign exchange fluctuations, particularly as the Canadian dollar moves against the U.S. dollar.

The Company manages its exposure to foreign currency fluctuations by maintaining foreign currency bank accounts to offset foreign currency payables and planned expenditures. The Company reports in its functional currency, the U.S. dollar.

The Company does not have any off-statement of financial position arrangements.

D. Future Developments

With the potential of over 80% of future production efforts focusing on SPS technology, the Company has purchased a large Fuji Mark V SPS system. Based on a research study completed late 2016, it was felt that SPS is quickly becoming an advanced manufacturing solution for a wide range of industries. Cal Nano's efforts are focused on the micro-chip fabrication, nuclear and aerospace industries.

Additional developments undertaken at Cal Nano have made milled "nano alloys" significantly more feasible for a large array of performance components and applications. Cal Nano plans to pursue commercialization of "nano alloys" via several production techniques including bulk consolidation, thermal spray and the cold heading of individual nano components. To help develop these products, several renowned industry experts have joined the Cal Nano team to assist in executing these opportunities.

In 2013, the Company became the exclusive marketing partner of Fuji-SPS, the leading manufacturer of SPS equipment. This relationship places Cal Nano as exclusive Technical and Marketing Partner in North America. To complement the existing equipment at Cal Nano, larger production scale equipment is being evaluated as customers for potential production products are being developed by Cal Nano, its partners, and collaborators. Cal Nano has recently completed a working proto-type for one of these Customers.

The Company has successfully installed several new SPS systems in the U.S., Mexico and Canada for which it received commission and services revenue.

In June 2014, the Company purchased a larger mill, increasing its cryogenic milling capacity by a factor of six, which is now operational. Since March 2015, the Company has received several larger development orders from a large, Seattle-based airframe manufacturer, which will require Cal Nano to utilize its new larger milling capacity. Under this program Cal Nano will subcontract major portions of the analytical work to its growing academic partners. The Company has received a patent which outlines equipment designs and concepts which make the cryogenic milling economically feasible on a large scale.

The successful launch and continued success of the world's highest performance commercial track shoe, Adidas' flagship, "adiZero Prime", has increased "nano alloy" product sales overall. Continuous efforts to reduce the cost of nano-engineered alloys could allow the current and developmental technologies to be applied to the much larger volume "replaceable spike" market, in which several large customers have expressed significant interest. In August 2018, the Company started work on a new design and the development of a replaceable track spike for Adidas.

E. Risk Factors

The Company is subject to a number of risks as outlined below.

Experimental Field

Cal Nano is engaged in the research and development of new materials with the goal of commercializing viable products. The nanotechnology industry and specifically the production of nanocrystalline materials require extensive experimental effort and can require significant investment. Customers August be hesitant to implement any new materials developed without extensive and time-consuming testing.

No Assurance of Commercial Production

Cal Nano has historically been a research and development firm. The Company is now entering the commercial production phase of its growth, with the procurement of the large Fuji Mark V system. There is no assurance that it will achieve commercial levels of production or sales for any product.

Relationships with Customers

The success of Cal Nano is directly related to the strength of its relationships with and the economic success of its larger customers. Should Cal Nano's relationships with these customers become strained or the profitability of these customers become negatively affected, the Company's profitability may be impacted.

Competition

Cal Nano is engaged in the technology industry. There is a high degree of competition in these industries which could impact Cal Nano's ability to find and keep customers.

Potential Fluctuations in Financial Results

If Cal Nano's future anticipated revenues are not realized on a timely basis, Cal Nano's financial results could be materially adversely affected.

Financial results in the future may be influenced by these or other factors.

Management of Growth

Any expansion of Cal Nano's business may place a significant strain on its financial, operational and managerial resources. There can be no assurance that Cal Nano will be able to manage its operations and financial assets successfully in order to manage any growth it undertakes. Any inability of Cal Nano to manage growth successfully could have a material adverse effect on Cal Nano's business, financial condition and results of operations.

Government Regulations

Cal Nano may be subject to various laws, regulations, regulatory actions and court decisions that may have negative effects on Cal Nano. Changes in the regulatory environment imposed upon Cal Nano could adversely affect the ability of Cal Nano to attain its corporate objectives.

Reliance on Key Personnel and Consultants

There can be no assurance that any of Cal Nano's directors, officers or employees will remain with Cal Nano or that, in the future, directors, officers or employees will not organize competitive businesses or accept employment with companies competitive with Cal Nano.

Additional Financing Requirements and Access to Capital

Cal Nano may require additional financing to implement its business plan. The ability of the Company to arrange such financing in the future will depend in part upon the prevailing capital market conditions as well as the business performance of Cal Nano. There can be no assurance that Cal Nano will be successful in its efforts to arrange additional financing, if needed, on terms satisfactory to Cal Nano. If additional financing is raised by the issuance of shares from the treasury of Cal Nano, control of Cal Nano may change and shareholders may suffer additional dilution. There can be no assurance that Cal Nano will generate cash flow from operations necessary to support the continuing operations of Cal Nano.

F. Disclosure Controls and Procedures

Disclosure controls and procedures have been designed to ensure that information required to be disclosed by the Corporation is accumulated and communicated to our management as appropriate to allow timely decisions regarding disclosure. The Company's Chief Executive Officer and a Director have concluded, based on their evaluation at August 31, 2019, that the Company's disclosure controls and procedures are effective to provide reasonable assurance that material information related to Cal Nano, is made known to them by employees or third party consultants working for the Company. It should be noted that while the Company's Chief Executive Officer and a Director believe that the disclosure controls and procedures will provide a reasonable level of assurance and that they are effective, they do not expect that the disclosure controls and procedures will prevent all errors and fraud. A control system, no matter how well conceived or operated, can provide only reasonable, not absolute assurance that the objectives of the control system are met.

G. Outstanding Share Capital

At October 30, 2019:

- Common Shares issued and outstanding: 31,430,296
- Stock options:

<u>Description</u>	<u>Number</u>
Options outstanding at October 30, 2019	2,310,000
Options exercisable at October 30, 2019	1,144,991

H. Transactions with Related Parties

Advances from related party are from a related entity that owns 19.1% of the Company's shares. The advances bear interest at 2% per annum through December 31, 2018, 2.89% thereafter and are due upon demand. There are no set terms for repayment and the loan is secured by all the assets of the Company. Additional security for the loan has been provided by one of the founders and a current member of the board of directors of the Company. Interest was paid in the amount of \$nil (2018 - \$nil) on the advances with accrued interest in the amount of \$196,700 (2018 - \$163,453). This related entity guaranteed the Company's long-term primary credit facility and engaged with the Company for revenue of \$nil (2018 - \$11,739) and incurred expenses of \$12,912 (2018 - \$14,071). The transactions are considered to be in the normal course of operations.

I. Board of Directors

Some of the Company's directors are material shareholders.

J. Financial instruments

As part of its operations, the Company utilizes a number of financial instruments. It is management's opinion that the Company is not exposed to significant interest, currency or credit risks arising from these financial instruments except as otherwise disclosed. The Company manages these risks by operating in a manner that minimizes risk exposure to the extent practical.

Financial instruments of the Company consist of cash, accounts receivable, share purchase warrants, accounts payable and accrued liabilities, finance lease obligation, bank indebtedness and advances from related parties.

	August 31, 2019		February 28, 2018	
	Carrying Value	Fair Value	Carrying Value	Fair Value
At FVTPL				
Cash	\$ 11,911	\$ 11,911	\$ 18,563	\$ 18,563
At amortized cost				
Accounts receivable	106,767	106,767	61,187	61,187
Accounts payable and accrued liabilities	158,249	158,249	141,206	141,206
Interest payable	59,295	59,295	42,107	42,107
Bank indebtedness	650,838	650,838	710,401	710,401
Advances from related party	1,045,522	1,045,522	1,045,522	1,045,522

The table below sets out fair value measurements using fair value hierarchy at August 31, 2019.

	Total	Level 1	Level 2	Level 3
Assets				
Cash	\$ 11,911	\$ 11,911	\$ -	\$ -

There have been no transfers during the period between Levels 1, 2 and 3.

The carrying values of accounts receivable, accounts payable and accrued liabilities, interest payable and current portion of bank indebtedness approximate their fair value due to their short-term nature.

The fair value of the Company's long term portion of bank indebtedness and finance lease obligation approximate its fair values due to the interest rates applied to these instruments, which approximate market interest rates. The fair value of the Company's advances from related party approximate their fair values due to the amounts being due on demand.

The Company holds various forms of financial instruments. The nature of these instruments and the Company's operations expose the Company to various risks. The Company manages its exposure to these risks by operating in a manner that minimizes its exposure to the extent practical. The Company does not make use of off statement of financial position contracts to manage these risks.

Liquidity Risk

The Company defines liquidity risk as the financial risk that the Company will encounter difficulties meeting its financial obligations. The Company's objective for managing liquidity risk is to ensure that it will have sufficient liquidity to meet liabilities when due. This risk is mitigated by managing the cash flow by controlling receivables and payables to vendors and related parties. At August 31, 2019, the Company had a working capital deficiency of \$1,466,597 (2018 – \$1,472,439).

The following table provides an analysis of the financial liabilities based on the remaining terms of the liabilities as at:

August 31, 2019	≤ 1 year	> 1 year ≤ 3 years	> 3 year ≤ 4 years	> 5 years	Total
Accounts payable and accrued liabilities	\$ 158,249	\$ -	\$ -	\$ -	\$ 158,249
Finance lease obligation	331	-	-	-	331
Bank indebtedness	356,818	231,667	62,353	-	650,838
Total	\$ 515,398	\$ 231,667	\$ 62,353	\$ -	\$ 809,418

February 28, 2018	≤ 1 year	> 1 year ≤ 3 years	> 3 year ≤ 4 years	> 5 years	Total
Accounts payable and accrued liabilities	\$ 143,606	\$ -	\$ -	\$ -	\$ 143,606
Finance lease obligation	731	-	-	-	731
Bank indebtedness	362,547	225,555	122,299	-	710,401
Total	\$ 506,884	\$ 225,555	\$ 122,299	\$ -	\$ 854,738

Foreign currency risk

A portion of the Company's operations are located outside of the U.S. and, accordingly, the related financial assets and liabilities are subject to fluctuations in exchange rates.

The Company believes its exposure to foreign currency risk to be minimal. At August 31, 2019, the Company had the following balances denominated in CAD. The balances have been translated into U.S. dollars in accordance with the Company's foreign exchange accounting policy.

	U.S. Dollar August 31, 2019	U.S. Dollar February 28, 2018
Cash	\$ 2,401	\$ 61
Accounts receivable	1,302	2,930
Accounts payable and accrued liabilities	40,709	36,994

The Company operates with a U.S. dollar functional currency which gives rise to currency exchange rate risk on the Company's Canadian dollar denominated monetary assets and liabilities, such as Canadian dollar bank accounts and accounts payable, as follows:

	Impact on Net Income
U.S. Dollar Exchange Rate – 10% increase	\$ 3,701
U.S. Dollar Exchange Rate – 10% decrease	(3,701)

Credit risk

The Company manages credit risk by dealing with financially sound customers, based on an evaluation of the customer's financial condition. For the six months ended August 31, 2019, the Company was engaged in contracts for products with two (2018 – three) customers in excess of 10% of revenue, which accounted for \$236,072 (2018 - \$199,570) or 56% (2018 – 56%) of the Company's total revenue. The maximum exposure to credit risk is the carrying value of accounts receivable and cash. Three (2018 – two) customers had outstanding balances in excess of 10% of accounts receivable, which accounted for \$89,495 (2018 - \$24,585) or 84% (2018 – 58%) of the Company's total accounts receivable balance. The table below provides an analysis of our current and past due but not impaired accounts receivables.

	Total	Current	≤ 30 days	> 30 days ≤ 60 days	>60 days ≤ 90 days	> 90 days
August 31, 2019	\$ 106,767	\$ 72,274	\$ 33,427	\$ 1,606	\$ -	\$ -
February 28, 2019	\$ 61,187	\$ 37,977	\$ 19,448	\$ 3,762	\$ -	\$ -

As at August 31, 2019, the average expected credit loss on the Company's accounts receivable was 0% and as a result the provision for expected credit losses is \$nil.

Interest rate risk

The Company's revolving line of credit is subject to floating rates. The floating rate debt is subject to interest rate cash flow risk, as the required cash flows to service the debt will fluctuate as a result of changes in market rates. As at August 31, 2019, the increase or decrease in (loss) income before taxes for each 1% change in interest rates on floating rate debt amounts to approximately \$6,508 (2018 - \$7,598). The related disclosures regarding these debt instruments are included in Note 10 of the condensed consolidated interim financial statements.

K. Capital Disclosures

The Company manages its capital to maintain its ability to continue as a going concern and to provide returns to shareholders and benefits to other stakeholders. The capital structure of the Company consists of cash and equity comprised of issued capital, contributed surplus and deficit.

The Company manages its capital structure and makes adjustments to it in light of economic conditions. The Company, upon approval from its Board of Directors, will balance its overall capital structure through new share issues or by undertaking other activities as deemed appropriate under the specific circumstances.

The Company is not subject to externally imposed capital requirements and the Company's overall strategy with respect to capital risk management remains unchanged from the fiscal year ended February 28, 2018.

L. Conferences

CONFERENCES ATTENDED IN 2019

- **Ceramics Expo 2019**, Cleveland, OH, Exhibitor, April 30-May 1, 2019
- **Space Technology Expo 2019**, Pasadena, CA, Exhibitor, May 20-22, 2019

CONFERENCES ATTENDED IN 2018

- **4th International Workshop on Spark Plasma Sintering**, Cagliari, Italy, co-sponsor, May 23-25, 2018
- **Materials Science & Technology (MS&T) 2018**, Columbus, OH, attendee, October 14-18, 2018

Intention of management's discussion and analysis

This MD&A is intended to provide an explanation of financial and operational performance compared with prior periods and the Company's prospects and plans. It provides additional information that is not contained in the Company's financial statements.

Additional information

Further information regarding California Nanotechnologies Corp. can be accessed under the Company's public filings found at www.sedar.com.

The information contained in this discussion may be considered to contain forward-looking statements. Such forward-looking statements address future events and conditions and are subject to risks and uncertainties that could cause actual results to differ materially from those contemplated. There is no representation by the Company that actual results will be the same in whole or in part as implied by the forward-looking statements provided.