

California Nanotechnologies Corp.  
For the fiscal six months ended August 31, 2022

## 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 fiscal six months ended August 31, 2022. 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 26, 2022.

### 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 purchased a Fuji Mark V SPS for pilot-scale R&D production activities in 2017.

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 for the six months ended August 31, 2022

**Revenue:** For the fiscal six months ended August 31, 2022, the Company reported revenue of \$601,148 compared to \$374,525 from the prior fiscal year, an increase of 62%. The increase is due to the increase in spark plasma sintering programs for multiple customers across industries including work with our thermoelectrics customer and Ambri.

**Net Income:** Net Income for the fiscal six months ended August 31, 2022 was \$23,773 compared to a loss of \$32,133 in the prior fiscal year. Depreciation expense continues to be significant as the Company operates the additional SPS equipment purchased for \$675,750 in October 2017.

**Operating Expenses:** Overall operating expenses for the fiscal six months ended August 31, 2022 was \$333,613 compared to the prior fiscal year which totaled \$251,525, an increase of 32%. This is due to an increase in marketing expenses during the quarter of \$10,000, an increase in depreciation of approximately \$14,000 for the ROU asset, an increase in both lab and shop expenses of \$10,000 and \$13,000 respectively.

**Earnings (loss) per share:** Basic earnings per share was \$nil. The weighted average number of shares was 31,803,750.

The diluted earnings per share was \$nil. At August 31, 2022, the diluted weighted average number of shares was 32,718,055.

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.

At August 31, 2022, 533,958 stock options were included in the calculation of the weighted average number of diluted common shares outstanding. At August 31, 2021, 2,720,000 options were excluded in calculating the weighted-average number 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.

	<b>For the six months ended August 31, 2022</b>	<b>For the six months ended August 31, 2021</b>	<b>% Increase (decrease)</b>
Revenue	\$ 601,148	\$ 374,525	62%
Cash flow from operations	309,901	6,999	442%
Net income/(loss)	23,773	(32,133)	174%

### Selected Quarterly Information

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

ALL FIGURES IN US DOLLARS UNLESS NOTED

	August 31, 2022	May 31, 2022	February 28, 2022	November 30, 2021	August 31, 2021	May 31, 2021	February 28, 2021	November 30, 2020
Revenue	\$271,968	\$329,180	\$472,420	\$234,555	\$168,155	\$206,370	\$148,164	\$201,102
Cash flow (used for) from operations	112,872	197,029	70,289	5,278	12,072	(5,073)	17,009	(7,757)
Net income (loss)	(26,496)	50,270	327,462	(19,729)	(22,414)	(9,719)	(37,546)	(29,554)

### Liquidity and Capital Resources

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

	<b>August 31, 2022</b>	August 31, 2021
Net cash from operating activities	<b>\$ 309,901</b>	\$ 6,999
Net cash used for financing activities	<b>(154,139)</b>	5,626
Net cash used for investing activities	<b>(22,772)</b>	(7,721)
Net (decrease)/increase in cash	<b>132,990</b>	4,904
Cash at the beginning of the period	<b>51,332</b>	19,973
Cash at the end of the period	<b>184,322</b>	24,877

At August 31, 2022, the source of liquidity was cash from operating activities. The cash balance was \$184,322. For the six months ended August 31, 2022, the Company's working capital (current assets less current liabilities) was \$93,945 (deficiency in 2021 - \$1,558,139).

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

Cal Nano continues to focus on Spark Plasma Sintering and Cryogenic Milling as its main technologies and drivers for future development and growth. Cal Nano's pilot-scale SPS and cryomilling systems enable scale-up from small-scale R&D programs to low-volume production of powders and sintering products. Cal Nano's efforts are focused on the military applications along with the nuclear, aerospace, and energy industries. Cal Nano's goal is to commercialize these technologies.

In 2018, the Company became the exclusive marketing partner of SUGA Co. Ltd, a manufacturer of SPS equipment in Japan. This relationship places Cal Nano as exclusive Technical and Marketing Partner in North America. In 2022, Cal Nano became the official distributor of SUGA's equipment in North America which provides an added revenue stream for the company. 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 and is in the process of working on multiple large-scale R&D programs that have the possibility for future growth.

In June 2014, the Company purchased a larger mill, increasing its cryogenic milling capacity by a factor of six, which is now operational. 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. Cal Nano has also received orders from multiple other industrial and national lab partners for cryomilling at this larger capacity. In 2018, the Company has received a patent which outlines equipment designs and concepts which make the cryogenic milling safely and economically feasible on a large scale. Cal Nano is currently working on important cryomilling programs and continues to evaluate scale-up opportunities.

## 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 may 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 in the commercial production phase of its growth, with the procurement of the large Fuji Mark

V system in 2017. 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 November 30, 2021, 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 August 31, 2022:

- Common Shares issued and outstanding: 31,803,750
- Stock options:

<u>Description</u>	<u>Number</u>
Options outstanding at August 31, 2022	2,420,000
Options exercisable at August 31, 2022	1,558,333

## 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% through August 31, 2022, and 7.5% thereafter. 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. No interest was paid during the six months ended August 31, 2021 and August 31, 2022 on the advance amount of \$904,879. Accrued interest and interest expense for the six months ended August 31, 2022 was \$297,785 (August 31, 2021 – \$263,672), and \$19,937 (2021-\$21,835) respectively. A portion of the accrued interest in the amount of \$140,643 was included in Advances to Related Party totaling \$1,295,522. Also included is the principal paid by the related party in the amount of \$250,000 on March 16, 2020. As a result of the bank calling its line of credit, the \$250,000 payment was part of the guarantee agreement on the debt instrument. Interest expense of 4.25% on the \$250,000 debt for the six months ended August 31, 2022 was \$5,312 (2021-\$6,198). This related entity had guaranteed the Company's long-term primary credit facility and had no other transactions with the Company during the six months ended August 31, 2022 (2021-nil). On August 1, 2021 the company entered into a lease agreement with the related entity. The lease has been disclosed in note 9.

On May 24, 2022, the Company entered into a demand agreement with the related party for the debt stated above. The terms of the agreement include an interest rate increase to 7.5% per annum, monthly interest payments of \$7,501.95 beginning June 1, 2022, and monthly principal repayments of \$10,000.00 commencing March 30, 2023. Payments of both interest and principal will continue until the earlier of full debt repayment or March 30, 2025.

## 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.

## J. Financial instruments-continued

Financial instruments of the Company consist of cash, accounts receivable, accounts payable and accrued liabilities, interest payable, bank indebtedness and advances from related parties.

	August 31, 2022		August 31, 2021	
	Carrying Value	Fair Value	Carrying Value	Fair Value
<b>At FVTPL</b>				
Cash	\$ 184,322	\$ 184,322	\$ 24,877	\$ 24,877
<b>At amortized cost</b>				
Accounts receivable	151,699	151,699	58,835	58,835
Accounts payable and accrued liabilities	212,357	212,357	104,444	104,444
Interest payable	-	-	127,383	127,383
Bank indebtedness	-	-	181,836	181,836
Advances from related party	1,398,796	1,398,796	1,295,522	1,295,522

Fair value represents the price at which a financial instrument could be exchanged in an orderly market, in an arm's length transaction between knowledgeable and willing parties who are under no compulsion to act. The Company classifies the fair value of the financial instruments according to the following hierarchy based on the amount of observable inputs used to value the instrument.

Level 1 Quoted prices are available in active markets for identical assets or liabilities as of the reporting date. Active markets are those in which transactions occur in sufficient frequency and volume to provide pricing information on an ongoing basis.

Level 2 Pricing inputs are other than quoted prices in active markets included in level 1. Prices in level 2 are either directly or indirectly observable as of the reporting date. Level 2 valuations are based on inputs, including quoted forward prices for commodities, time value and volatility factors, which can be substantially observed or corroborated in the marketplace.

Level 3 Valuations in this level are those with inputs for the assets or liabilities that are not based on observable market data.

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 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 obligations associated with financial liabilities. 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, 2022, the Company had a working capital of \$93,945 (deficiency in 2021 – \$1,558,140).

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

### 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.

<b>August 31, 2022</b>	<b>≤ 1 year</b>	<b>&gt; 1 year ≤ 3 years</b>	<b>&gt; 3 years ≤ 4 years</b>	<b>&gt; 5 years</b>	<b>Total</b>
<b>Accounts payable and accrued liabilities</b>	<b>\$ 212,357</b>				<b>212,357</b>
<b>Lease liability</b>	<b>19,827</b>	<b>45,409</b>	<b>25,947</b>	<b>167,619</b>	<b>258,802</b>
<b>Advances from related party</b>	<b>60,000</b>	<b>1,390,312</b>	<b>-</b>	<b>-</b>	<b>1,450,312</b>
<b>Total</b>	<b>\$ 292,184</b>	<b>\$1,435,721</b>	<b>\$ 25,947</b>	<b>\$ 167,619</b>	<b>\$ 1,921,471</b>

  

<b>August 31, 2021</b>	<b>≤ 1 year</b>	<b>&gt; 1 year ≤ 3 years</b>	<b>&gt; 3 years ≤ 4 years</b>	<b>&gt; 5 years</b>	<b>Total</b>
Accounts payable and accrued liabilities	\$ 104,444	\$ -	\$ -	\$ -	\$ 104,444
Bank indebtedness	118,918	62,918	-	-	181,836
PPP loan	62,600	-	-	-	62,600
Advances from related party	1,295,522	-	-	-	1,295,522
<b>Total</b>	<b>\$ 1,581,484</b>	<b>\$ 62,918</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$1,644,402</b>

The Company believes its exposure to foreign currency risk to be minimal. At November 30, 2021, 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.

	<b><u>U.S Dollar August 31,2022</u></b>	<b><u>U.S. Dollar August 31, 2021</u></b>
Accounts receivable	<b>\$ 3,516</b>	\$ 1,639
Accounts payable and accrued liabilities	<b>22,121</b>	19,784

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:

	<b>Impact on Net Income</b>
U.S. Dollar Exchange Rate – 10% increase	\$ <b>1,860</b>
U.S. Dollar Exchange Rate – 10% decrease	<b>(1,860)</b>

### 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, 2022, the Company was engaged in contracts for products with three (2021 – zero) customers in excess of 10% of revenue, which accounted for \$253,770 (2021 - \$0) or 38% (2021 – 0%) of the Company's total revenue. The maximum exposure to credit risk is the carrying value of accounts receivable and cash. Four (2021 - five) customer had an outstanding balance in excess of 10% of accounts receivable, which accounted for \$80,105 (2021 - \$50,395) or 71% (2021 - 86%) of the Company's total accounts receivable balance. The table below provides an analysis of the current and past due accounts receivables

	<b>Total</b>	<b>Current</b>	<b>≤ 30 days</b>	<b>&gt; 30 days ≤ 60 days</b>	<b>&gt;60 days ≤ 90 days</b>	<b>&gt; 90 days</b>
<b>August 31, 2022</b>	<b>\$ 151,699</b>	<b>\$ 106,844</b>	<b>\$ 8,550</b>	<b>\$ 7,300</b>	<b>\$ 15,450</b>	<b>\$ 13,555</b>
August 31, 2021	\$ 58,835	\$ 42,203	\$ 9,960	\$ 6,400	\$ 3	\$ 269

As at August 31, 2022, 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

As at August 31, 2022, 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. All amounts due in the over 90 days category at August 31, 2022 were collected within the subsequent period.

## 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 six months ended August 31, 2022.

## L. Conferences

### CONFERENCES ATTENDED IN 2022

- The Minerals, Metals & Materials (TMS) 2022, Anaheim, CA, exhibitor, March 1-3, 2022

### CONFERENCES ATTENDED IN 2021

- PowderMet 2021, Orlando, CA, exhibitor, June 20-23, 2021
- Advanced Materials Show, Edison, NJ, exhibitor, October 13-14, 2021
- Ceramics Expo, Cleveland, OH, exhibitor, November 30-December 1, 2021
- The Minerals, Metals & Materials (TMS) 2022, Anaheim, CA, exhibitor, February 27-March 3, 2022

## M. 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](http://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.*