

**MICROMEM TECHNOLOGIES INC.  
MANAGEMENT'S DISCUSSION AND ANALYSIS  
FOR THE FISCAL YEAR ENDED OCTOBER 31, 2013  
PREPARED AS OF FEBRUARY 19, 2014**

**INTRODUCTION**

The following sets out the Management's Discussion and Analysis ("MD&A") of the financial position and result of operations for the fiscal year ending October 31, 2013 of Micromem Technologies Inc. (the "Company", "Micromem" or "we"). The MD&A should be read in conjunction with the Company's audited consolidated financial statements and accompanying notes for the fiscal years ending October 31, 2013 and 2012 which are prepared in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board. Additional information regarding the Company is available on the SEDAR website at [www.sedar.com](http://www.sedar.com).

The Company's shares are traded on the NASDAQ Over The Counter Bulletin Board ("OTCBB") under the symbol MMTIF and on the Canadian National Stock Exchange ("CNSX") under the symbol MRM. In November 2007, the Company incorporated Micromem Applied Sensor Technologies Inc. ("MAST") for the purpose of moving forward with the planned commercialization of its technology.

Certain information provided by the Company in this MD&A and in other documents publicly filed throughout the year that are not recitation of historical facts may constitute forward-looking statements. The words "may", "would", "could", "will", "likely", "estimate", "believe", "expect", "forecast" and similar expressions are intended to identify forward-looking statements.

Readers are cautioned that such statements are only predictions and the actual events or results may differ materially. In evaluating such forward-looking statements, readers should specifically consider the various factors that could cause actual events or results to differ materially from those indicated by such forward-looking statements.

**FORWARD LOOKING STATEMENTS**

This MD&A contains forward-looking statements and forward looking information within the meaning of applicable Canadian securities legislation ("forward looking statements"). Any statements that express or involve discussions with respect to predictions, expectations, beliefs, plans, projections, objectives, assumptions, potentials, future events or performance (often, but not always, using words or phrases such as "believes", "expects" or "does not expect", "is expected", "anticipates" or "does not anticipate", or "intends" or stating that certain actions, events or results "may", "could", "would", "might" or "will" be taken or achieved) are not statements of historical fact, but are "forward-looking statements". Such forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause the actual results,

performance or achievements of the Company, or developments in the Company's business or in its industry, to differ materially from the anticipated results, performance, achievements or developments expressed or implied by such forward-looking statements. Forward-looking statements include disclosure regarding possible events, conditions or results of operations that are based on assumptions about future conditions, courses of action and consequences. Forward-looking statements may also include, without limitation, any statement relating to future events, conditions or circumstances. The Company cautions you not to place undue reliance upon any such forward-looking statements, which speak only as of the date they are made. Forward-looking statements relate to, among other things, the successful commercialization of our technology, comments about potential future revenues, joint development agreements and expectations of signed contracts with customers, etc. A number of inherent risks, uncertainties and factors affect the operations, performance and results of the Company and its business, and could cause actual results to differ materially from current expectations of estimated or anticipated events or results. Some of these risks and uncertainties include the risk of not securing required capital in future, the risks of not successfully concluding agreements with potential partners on a timely basis, the risks associated with commercializing and bringing to market our technology. These risks are affected by certain factors that are beyond the Company's control: the existence of present and possible future government regulation, competition that exists in the Company's business, uncertainty of revenues, markets and profitability, as well as those other factors discussed in this MD&A report. This list is not exhaustive of the factors that may affect any of the Company's forward-looking statements and reference should also be made to the Company's Annual Information Form (prepared and filed in the form of a Form 20-F Annual Report pursuant to The Securities Exchange Act of 1934) for a description of risk factors.

Although the Company has attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking statements, there may be other factors that cause results not to be as anticipated, estimated or intended. There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking statements. The Company does not undertake to update any forward-looking statements that are incorporated by reference herein, except in accordance with applicable securities law.

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*(Unless other indicated dollar amounts reported are stated in U.S. dollars)*

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**1. OVERVIEW AND BACKGROUND**

**Introduction:**

Micromem is a company that develops customized, proprietary sensor-based solutions for large multinational corporations. Over the past three years it has presented its technology platform to numerous companies who are seeking solutions to various and complex challenges in the measurement of operating performance and real time diagnostics in their operating systems and assets.

The Company has responded to many Requests for Proposals from large multinationals. At October 31, 2013 it has secured contracts to produce sensor-based technology solutions for a number of these customers. These contractual arrangements are discussed further in the body of this document.

In essence, Micromem has typically initially developed proposed technology solutions at its own cost and where a company agrees to move forward with Micromem to develop a commercial application, Micromem will negotiate a cost sharing arrangement with that company where the company will absorb the continued development costs associated with the project. Development milestones are established with the company and Micromem will invoice against these milestones in accordance with the contracted terms. Micromem's recurring revenue stream is anticipated to be derived from product royalties, product licensing agreements and outright product sales.

While the applications for Micromem's technology solutions are industry agnostic and cross virtually every industry vertical, the Company has identified the following industry verticals as significant immediate term opportunities to pursue – the oil and gas sector, the automotive sector, the power generation and utilities sector and other specific industrial applications. These key market segments are discussed further in Section 2 – Company Profile at October 31, 2013.

**Recent History:**

**2008:** The Company's current profile began to develop with the incorporation of MAST. MAST contracted to work with BAE Systems in Nashua New Hampshire to use Micromem's patented MRAM design and develop a memory cell for a gallium arsenide foundry in a radiation hardened environment for military applications. In the course of that work, we determined that the Hall sensor had performance characteristics that could, on its own, be of value to the Company.

**2009:** We contracted with Frost and Sullivan to assess current market opportunities in the Hall sensor market. Their report suggested current market potential of approximately \$2 billion.

We began to market the Company's sensor capabilities, initially through traditional public relations firms. Ultimately, the Company assumed full responsibility for promoting its technology through its own market research and solicitation, by participating in technical conferences and by developing its website content. We decided to develop, at our own cost, proof of concepts for products that we identified as having significant potential market value. We collaborated with companies in development efforts for a magnetic gold sensor, an oil condition sensor, an oil and gas aerial exploration platform, sensors designed for computer hardware systems, medical detection sensors and acoustic sensor applications. These were time consuming, difficult and expensive undertakings. Certain provisional patents were created on this work.

**2010:** In 2010 we were contacted by Lux Research, an independent research and advisory firm that operates internationally, and provides strategic advice and intelligence on emerging technologies. Lux was seeking a company to create small magnetic sensors for their client in down hole use in producing oil fields. MAST was engaged by Lux's client (a major international oil company) to develop and deliver a sensor platform for detecting nanometer sized magnetic particles in a flowing oil stream at concentrations of less than one part per billion.

A second development project was secured with UK based GSI Westwind, a leading designer/manufacturer of air bearing spindles for customers who produce high speed air bearing motors.

**2011:** Through its continued development efforts, MAST had concluded that a significant market opportunity existed for it to leverage MEMS/nanofabrication methodologies and create unique combinations of sensors to provide solutions for complex unmet technology needs. MAST began its interaction with NineSigma Inc. at that time.

NineSigma is a Cleveland-based international company that has pioneered, over the past decade, an Open Innovation model, connecting innovation seeking companies to the best solutions, capabilities and partners around the world. MAST's relationship with NineSigma has developed significantly since 2011 and has provided us with enhanced access to global Fortune 1000 companies. Through NineSigma, MAST has responded to multiple RFPs and has built up a robust sales proposal pipeline.

Micromem decided to suspend all further research and development efforts in the (MRAM) memory space, which it had begun to deemphasize commencing in 2008. This market was crowded with large competitors who had significantly greater resources to deploy. The memory market is mature and is very costly to pursue. Micromem's patents in this area were developed between 2000 and 2006 and have not been advanced since then.

**2012:** MAST pursued a number of projects that it had initially developed in 2010 – 11. The prototype milestones established in the GSI Westwind project were met and the Company submitted initial billings to recover a portion of the costs it had incurred. Testing began on pilot production samples.

MAST continued to advance the development work for the international energy company that it began in 2010 through the Lux Research introduction. A beta version of the

product was developed for client testing. The Company submitted an initial billing to recover a portion of the costs incurred to date on this project.

MAST was successful in initiating new projects in 2012. It began development work on an oil pan plug sensor in conjunction with a major international automotive company and advanced this project to testing in the customer's test facilities. Additionally, MAST demonstrated its breast cancer detection prototype technology in Europe for a group that was developing a franchised business model for such testing. Finally, MAST entered into negotiations with several international energy companies for use of its sensor technology for diagnostic control and monitoring systems.

In Appendix 2 to this MD&A document we have reconciled the Statements of Consolidated Loss and Deficit to an Adjusted EBITDA presentation by year between 2008 and 2012. This illustrates that the Company spent a total of \$16.567 million of cash in the pursuit of its business development and operations over that five year period.

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**2. COMPANY PROFILE AT OCTOBER 31, 2013**

In 2013, the Company has focused on moving its existing development projects forward, converting projects in its pipeline into development contracts and to establishing its product portfolio in its current major market verticals.

**Product Development Cycle:**

The product development cycle for each development project that the Company undertakes can be broken down into distinct phases:

**Phase 1:** Initial assessment – completion of initial project plan, cost and volume estimates, product specifications and tolerances, establishing working principles.

**Phase 2:** Preliminary design work, specification of manufacturing processes, evaluation of manufacturing options.

**Phase 3:** Sensor electronics manufacturing test methods, completion of initial prototypes for beta testing by client.

**Phase 4:** Pilot production stage where product is certified, test protocols are established and quality processes are optimized.

**Phase 5:** Commercial production.

**Product Portfolio:**

The core portfolio that the Company continues to develop includes the following products:

1. *Nano particle concentration sensor platforms:* The initial application is to detect break through water in producing oil wells. This platform is at Phase 3 of development and is expected to move to Phase 4 in 2014, with commercial production expected by fiscal year end in 2014.

The Company has been working on this product with a major international oil company since 2010. It has billed and collected \$175,000 of project costs incurred to date under these working arrangements. An additional \$125,000 has been billed subsequent to October 31, 2013.

2. *Enhanced secondary oil recovery platform using MAST nano particles:* The initial application is to accurately measure well pressure in oil fields and the degradation of these fields. This platform is at Phase 3 of development. The Company projects receiving payments against achieving milestones and the opportunity for commercial revenues before year end in 2014. The Company initiated the work on



Product 2 in 2012. In mid-2013 it executed a \$25.4 million development contract with an international oil company for this product tied to successive milestones which the Company must meet in order to finalize the full contract. In its initial stages, it has invoiced \$87,290 of project costs incurred.

3. *Power transformer oil degradation sensor:* Designed to measure partial electrical discharges and advise on preventive actions in real time. This platform is at Phase 1 stage. The Company expects that it will advance to Phase 4 during 2014.

The Company entered into an initial development contract with Northeast Utilities in December 2013 for \$5.4 million for this product, tied to successive milestones which the Company must meet in order to finalize the full contract.

4. *Integrated Analytical Lab on a Chip in Automotive Oil Pan Plug:* This platform is at a crossing point between Phase 3 and Phase 4. The Company expects to advance to commercial production in 2015 pending finalization of contractual terms with a major automotive company with whom it has been negotiating during 2013.
5. *Cement integrity sensor platform:* The application is to have embedded sensor technology to permit direct assessment of the condition of cement casings in offshore oil and gas drilling. This platform is at Phase 1 stage. Over the next 18 months the Company expects to advance it to Phase 4.
6. *Fracking sensor platform:* Nanotechnology sensors capable of measuring in three dimensions the coordinates of hydraulic fractures created in the fracking process. This platform is at Phase 1 stage. Over the next 18 months, the Company expects to advance it to Phase 4.

The Company began pursuing discussions on Products 5 and 6 in 2013 in conjunction with a major international oil company.

7. *Corrosion under insulation sensor:* Intended to measure pervasive corrosion of piping under insulation. This platform is at Phase 1 stage. The Company expects to advance it to Phase 4 during 2014.
8. *Sensors to analyze wear materials in lubricating fluids:* Initial application is directed at vehicle microelectromechanical systems. This platform is at Phase 1 stage. The Company expects to advance to Phase 4 during 2014.

The Company has estimated the potential cumulative size of the identified market opportunities for these initial products if these are all successfully launched with its corporate clients. Currently, the estimated revenue potential is approximately \$7.5 billion, as reported in the Company's website material.

In addition to the above listed suite of products, the Company has advanced two other product offerings:

- (a) The Company has developed a prototype production control board intended for GSI Westwind. This product was developed over a period of 24 months. In final testing during 2013, it met and exceeded all of the tolerance specifications stipulated by GSI. In October 2013 we were advised that GSI had decided to cease operations of their high speed DC motor development due to competitive

technology pressures. Accordingly, the Company did not proceed with commercial production orders from GSI. As a result, we have decided to assess the broader marketplace for this product and have engaged one of our independent directors to conduct a detailed market study and an appropriate marketing campaign to engage other potential customers for this technology.

- (b) The Company has committed development time and funding over the past three years to a sensor based breast cancer detection device. The work completed by the Company to date has put this product category at a Phase 2 level of development. In 2012 and in early 2013 the Company pursued discussions with a Croatian-based group of investors. It was intended that this group would fund ongoing development work in 2013 but those negotiations eventually stalled. Accordingly, this product is, at this juncture, not staged for further development work until the original investor group returns or other investors are identified.

### **Intellectual Property:**

The Company has been active in building its intellectual property portfolio during 2013 as it has furthered the above-noted development projects. We have engaged a Washington, DC based law firm to assist us in these efforts. The Company incurred \$44,825 of patent related costs in 2013.

### **Financing:**

During 2013 the Company successfully raised a total of approximately \$3.7 million of additional financing through private placements and from the exercise by warrant holders of common share purchase warrants issued in earlier private placement financings that the Company has arranged.

Subsequent to October 31, 2013 the Company has raised additional financing totaling \$1.75 million through the exercise of common share purchase warrants. Additionally the bridge loan of \$290,014 at October 31, 2013 was converted to common equity in January 2013.

In October 2013 the Company eliminated the previously reported derivative warrant liability that it has reported in its consolidated statement of financial position. This was achieved by converting all Canadian denominated common share purchase warrants to US dollars.

As a result of these developments the Company's working capital position has improved dramatically from the previous fiscal yearend:

<b><u>Fiscal Year Ending</u></b>	<b><u>Working Capital Reported</u></b>
October 31, 2012	\$ (1,793,217)
October 31, 2013	425,888
January 31, 2014	1,366,024

### **2013 Operating Results Summary:**

The Company reported a net cash loss of approximately \$2.3 million in 2013 compared to a net cash loss of approximately \$2.2 million in 2012 (refer to Appendix 2 Page 2 of

this document). It realized \$233,290 (2012 – Nil) of proceeds from development partners on projects under development and incurred \$655,093 (2012 - \$263,133) of expenditures relating to its various development projects.

**Development Costs:**

The Company reports \$928,077 (2012 - \$718,163) as deferred development costs in its consolidated balance sheet as of October 31, 2013. These are costs that it has incurred with respect to these development projects and contracts that it continues to pursue in the immediate term and for which it expects to generate future revenue streams. These costs relate primarily to the following active projects:

- a) The nanoparticle concentration sensor platform (Product 1)
- b) The enhanced secondary oil recovery platform (Product 2)
- c) The integrated analytical lab on a chip in the automotive oil pan plug platform (Product 3)
- d) The power transformer oil degradation sensor (Product 4)

The movement in deferred development costs is summarized as below:

	<b>2013</b>	<b>2012</b>
Opening	\$ 718,163	\$ 646,606
Additional project costs incurred	677,445	71,557
Recovery of deferred development costs	(233,290)	-
Writedown of project costs	(234,241)	-
Closing	<u>\$ 928,077</u>	<u>\$ 718,163</u>

The costs recovered in 2013 from customers consist of a \$100,000 recovery on Product 1, an \$87,290 recovery on Product 2 and other recoveries of \$46,290.

At October 31, 2013, the Company has written down the development costs previously incurred with respect to the GSI Westwind project which was terminated in October 2013 as it continues to explore alternative markets for this product. It has also written down the development costs incurred with respect to the breast cancer detection sensor platform product which it had been developing for initial use in Eastern Europe – that project has been postponed but remains as a viable opportunity for the Company to revisit in future. Finally, it wrote down development costs previously incurred with respect to the NEMT project which the Company no longer decided to pursue during the first quarter of 2013.

**Derivative Warrant Liability:**

In October 2013 the Company decided to convert all outstanding Canadian denominated warrants to US dollars and, in every case, the warrant holder accepted this conversion. The Company took this step because of the confusion that our shareholders expressed in interpreting the required treatment and reporting of our derivative warrant liability obligations (these are non-cash liabilities).

With this change and the go forward decision to only issue warrants in future which are denominated in US dollars, the derivative warrant liability is eliminated from our consolidated statement of financial position as at October 31, 2013.

The following illustrates the impact in 2013 of the valuation and quarterly revaluation of our derivative warrant liability on our financial statements (\$000):

	10/31/12 (12 mos) (audited)	1/31/13 (3 mos)	4/30/13 (3 mos)	7/31/13 (3 mos)	10/31/13 (3 mos)	10/31/13 (12 mos) (audited)
<b>Balance Sheet:</b>						
Opening balance	1179	1062	982	614	489	1062
Net change in period	1211	233	165	99	419	916
Period end valuation	(1328)	(313)	(533)	(224)	4317	3247
Elimination of liability	-	-	-	-	(5225)	(5225)
Closing balance	1062	982	614	489	-	-
<b>Income Statement:</b>						
(Gain) loss on revaluation in profit & loss:	(1328)	(313)	(533)	(224)	4317	3247

### **Share Capital:**

At October 31, 2013 the Company reports 158,491,425 common shares outstanding (2012: 136,430,555). Additionally, the Company has 11,475,000 stock options outstanding with a weighted average exercise price of \$0.24 per share (2012: 9,915,000 options outstanding with a weighted average exercise price of \$0.24 per share) and a total of 29,761,012 outstanding warrants to acquire common shares with a weighted average exercise price of \$0.28 per share (2012: 19,692,968 outstanding warrants with a weighted average exercise price of \$0.27 per share).

### **Management and Board of Directors:**

At our Annual Meeting of Shareholders held on Friday, November 16<sup>th</sup>, 2012, Salvatore Fuda, Andrew Brandt, Joseph Fuda, David Sharpless, Steven Van Fleet, Oliver Nepomuceno, Larry Blue and Alex Dey were re-elected to serve on our Board of Directors. Messrs. Salvatore Fuda, Joseph Fuda, Dan Amadori and Steven Van Fleet continue to serve as officers of the Company.

Our management team and directors, along with their 2013 remuneration is presented as below:

Individual	Position	2013 remuneration		
		Cash	Options	Total
Salvatore Fuda	Chairman, Director	146,599	21,163	167,762
Joseph Fuda	President, Director	317,902	-	317,902
Steven Van Fleet	President, MAST Inc., Director	231,280	21,163	252,443
David Sharpless	Director	-	21,163	21,163
Andrew Brandt	Director	-	21,163	21,163
Oliver Nepomuceno	Director	-	21,163	21,163
Larry Blue	Director	-	21,163	21,163
Alex Dey	Director	-	21,163	21,163
Dan Amadori	CFO	180,188	21,163	201,351

Craig Carlson was awarded 300,000 stock options in October 2013 in recognition of services performed for the Company in 2013. He was appointed to the Board of Directors in December 2013.

#### **Transactions With Related Parties:**

The Company reports the following related party transactions:

- (a) Chairman: The Chairman receives cash compensation on a month to month basis calculated at an annual rate of \$150,000 CDN.

In 2013 the Chairman was awarded a total of 140,000 stock options at an average price of \$0.29 CDN per share (2012 - 100,000 stock options at an average price of \$0.35 per share; 2011 - 1,000,000 stock options at an average price of \$0.20 per share).

The total compensation paid to the Chairman during the year ended October 31 was \$146,599 of cash compensation and \$21,163 of stock based compensation (2012 - \$149,565 of cash compensation and \$ 23,697 of stock based compensation; 2011 - \$152,326 of cash compensation and \$118,038 of stock based compensation).

In August 2011 the Chairman converted \$112,500 of compensation received to a unit private placement consisting of one common share and one common share purchase warrant. A total of 703,125 units were issued under this private placement.

- (b) Management and consulting fees:

Included in professional fees, other fees and salaries as reported are management and consulting fees paid or payable to individuals (or companies controlled by such individuals) who served as officers and directors of the Company. The total compensation paid to such parties during the year ended October 31, 2013 was \$729,369 (of which \$202,820 was capitalized to deferred development costs) of cash compensation and \$148,141 of stock based compensation (2012 - \$625,831 of cash compensation and \$352,225 of stock based compensation; 2011 - \$494,806 (of

which \$90,000 was capitalized to intangible assets) of cash compensation and \$678,721 of stock based compensation.

In 2013 these parties were awarded a total of 980,000 options at an average price of \$0.29 CDN per share (2012 – 1,525,000 options at an average price of \$0.35 per share; 2011 – 5,750,000 options at an average price of \$0.20 per share)

In 2011 the Company assigned the promissory note receivable to an officer of the Company in conjunction with outstanding and unpaid fees due to that officer. During 2012, a total of \$30,000 received from the borrower was paid directly to that officer under the assignment agreement. The balance owing to the officer of the Company at October 31, 2012 was \$56,500, which was paid in fiscal 2013.

In February 2012 an officer subscribed for \$50,000 as a Unit private placement consisting of one common share (at a price of \$0.35 per share) and one common share purchase warrant (at a price of \$0.44 per share). A total of 142,858 Units were subscribed for.

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**3. CONVERSION TO IFRS REPORTING**

The Company was required to convert to International Financial Reporting Standards (IFRS) commencing with its fiscal year ending October 31, 2012. This conversion to IFRS reporting was completed at that time and the Company continues to report both on a quarterly basis (unaudited) and for its annual audited financial statements as at October 31, 2013. Our auditors have provided unqualified opinions on the yearend financial statements in 2012 and 2013.

IFRS reporting has principally impacted our financial reporting in several areas as described below:

- a. The concept of functional and reporting currencies was introduced. In the Company's case, both its functional and its reporting currency are the US dollar.
- b. We are required to measure certain of our assets and liabilities at fair value – these are described as “financial instruments designated at fair value through profit & loss” (FVTPL). These financial instruments are recorded at fair value and this fair value must be updated at each quarter end.
- c. Because we have raised financing through unit private placements (consisting of a common share and a common share purchase warrant), in Canadian funds, we have the underlying warrant exercisable in Canadian funds. Under IFRS reporting, the value of the warrant is reported under FVTPL as a derivative warrant liability (US denominated private placements are not afforded this treatment; in this latter case the entire private placement is recorded within the Shareholders' Equity section of the statement of financial position). This means that for Canadian denominated warrants, we record the value of the warrants as a liability in our consolidated balance sheet. Additionally, we are required to revalue these outstanding warrants liability at each quarter end.
- d. In the past we have on occasion raised financing through the issuance of convertible debt. Between 2010 and 2012 we secured nine different convertible bridge loans. We did not secure any further such loans in 2013 and at October 31, 2013 there remains outstanding one bridge loan in the amount of \$290,014 (which amount was converted subsequent to October 31, 2013 – refer to Section 8 – Subsequent Events).

The conversion feature on the bridge loan is measured as an embedded derivative under IFRS reporting where the conversion price is in \$CDN. This has required us to calculate and report the bridge loan in several components – the value of the debt component and the value of the embedded derivative (ie, the intrinsic value of the conversion feature itself). While these components are reported in our financial statements at October 31, 2013, the practice of raising financing through convertible bridge loans has been discontinued and this will no longer be a reporting matter to contend with in future.

- e. Under IFRS, as under Canadian GAAP, reporting we continue to measure certain financing transactions using the Black Scholes option pricing model which is the established norm for all reporting issuers. The Black Scholes model is an arithmetic algorithm which is based on a number of inputs, certain of which are judgemental. In any event, we apply the Black Scholes model to value both Canadian and US denominated warrants, embedded derivatives and the intrinsic value of stock options which are granted from time to time.

*In the Company's view it is essential to recognize the following realities with respect to our financial reporting under IFRS and in utilizing the Black Scholes model for measurement purposes:*

- The stock compensation cost associated with the periodic grant of stock options is a non-cash expense.
- The periodic quarterly revaluation of the derivative warrant liability which yields a gain or a loss at each quarter end in a non-cash item.

*The Company believes that in reviewing its financial statements, the reader must be cognizant of these non-cash items because they are significant and material dollar amounts.*

In **Appendix 2** we have provided an analysis of the Company's operations over time isolating the cash and non-cash income and expense charges recorded in keeping with our reporting requirements under IFRS.

After October 31, 2013 we will no longer report a derivative warrant liability on our balance sheet and will not, accordingly, have any related gain (loss) on revaluation reported in our statement of income.

In Section 1 above we reported that the Company had an adjusted EBITDA loss on operations as \$2.3 million for the year ended October 31, 2013 (\$2.2 million in 2012). These figures reconcile to the net loss reported in our financial statements – after removing non-cash charges reported – as below (\$000):

	2013	2012
Net loss and comprehensive loss as reported in audited financial statements	\$(5,934)	\$(1,775)
Adjust for:		
a. Non-cash charges relating to IFRS measurements		
- Revaluation of embedded derivatives	(41)	(177)
- Revaluation of derivative warrants	3,247	(1,327)
b. Non-cash charges relating to stock compensation measured using Black Scholes model	369	431
c. Other non-cash charges		
- Amortization and accretion	43	211
- Warrants issued on debt settlement and other	52	471
Adjusted EBITDA on operations	\$(2,264)	\$(2,166)

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**4. DISCUSSION OF OPERATING RESULTS – FISCAL YEAR ENDING OCTOBER 31, 2013**

*(a) Financial Position as at October 31, 2013:*

The following table sets out select audited financial information as at October 31, 2013 and 2012 prepared under IFRS reporting standards.

	Year ended October 31, 2013	Year ended October 31, 2012
Total expenses	2,359,386	2,542,571
Stock compensation expense	368,790	430,856
Loss from operations	2,728,176	2,973,427
(Gain) loss on revaluation of embedded derivatives	(40,750)	(176,899)
Warrants issued on debt settlement	-	306,061
(Gain) loss on revaluation of derivative warrant liability	3,246,502	(1,327,524)
Income taxes	-	-
Net comprehensive loss	5,933,928	1,775,065
Loss per share and diluted loss per share	(0.04)	(0.01)
Weighted average number of shares outstanding	146,814,466	123,375,510
Total assets	2,165,455	1,180,278
Cash	821,283	245,029
Working capital	425,888	(1,793,217)
Shareholders equity (deficiency)	1,536,319	(904,030)

At October 31, 2013 the Company has:

- a) 11,475,000 stock options outstanding which expire, if unexercised, between 2014 and 2018. The average exercise price of these options is \$0.24 per option.
- b) 29,761,012 common share purchase warrants which expire at different dates during calendar 2014 if unexercised. The average exercise price of these warrants is \$0.28.

Subsequent to October 31, 2013 through to the date of this MD&A report, the Company has realized \$1.75 million of proceeds from the exercise of common share purchase warrants by warrant holders. Additionally the bridge loan of \$290,014 at October 31, 2013 was converted to common equity in January 2014.

Refer also to **Tables 1 and 2** which are appended to this MD&A. Table 1 sets forth selected information from the consolidated statements of loss and comprehensive loss for

the fiscal years ending October 31, 2011-2013 and for the related quarterly information through October 31, 2013. Table 2 sets forth selected information from the consolidated statements of financial position for the fiscal years ending October 31, 2011-2013 and the related quarterly information through October 31, 2013.

***(b) Operating Results:***

The following table summarizes the Company's operating results for the years ended October 31, 2013 and 2012:

	Years ended October 31,	
	2013 (\$000)	2012 (\$000)
Interest and other income	-	-
Administration	378	695
Professional fees and salaries	1,573	1,508
Stock-based compensation	369	431
Research and development	161	230
Write-down (recovery) of patent costs	-	(42)
Travel and entertainment	211	151
Foreign exchange loss (gain)	12	8
Amortization of property and equipment	5	4
Amortization of intangible assets and patents	19	19
Recovery of promissory note receivable	-	(30)
Total expenses	2,728	2,973
(Gain) loss on revaluation of embedded derivatives	(41)	(177)
Warrants issued on debt settlement	-	306
(Gain) loss on revaluation of derivative warrant liability	3,247	(1,328)
Net comprehensive loss	5,934	1,775
Loss per share	(0.04)	(0.01)

*Unotron promissory note:* The promissory note from Unotron has been fully reserved. In the year ended October 31, 2013, the Company booked and reserved \$20,105 of interest charged on the outstanding balance due. In 2012, it received \$30,000 of payments on account from Unotron. At October 31, 2013, the outstanding balance which is fully reserved and which remains due from Unotron is \$121,958 consisting of \$45,000 of principal and \$76,958 of accrued interest since 2010. The Company issued a demand notice to collect the outstanding balance and has received judgment in its favor as of October 31, 2012. It continues to pursue collection of the fully reserved balance.

*Warrant liability:* The Company, under IFRS, has calculated and reports a loss on the revaluation of the derivative warrant liability of \$3,246,502 relating to the revaluation of the common share purchase warrants issued in Canadian dollars (2012: gain of \$1,327,524). Both the 2013 expense and the 2012 gain are non-cash items.

*Deferred development costs:* The Company capitalized \$677,445 of deferred development costs in the year ended October 31, 2013 relating to various different projects. It rebilled its strategic development partners \$233,290 of such costs and wrote down \$234,241 of costs previously capitalized. The Company reports a net investment of \$928,077 in deferred development costs at October 31, 2013 (October 31, 2012 - \$718,163).

Management has satisfied itself that the projects to which deferred development costs are reported meet the criteria for deferral and management expects that it will realize future revenues against each of these projects sufficient to recover the carrying values reported.

*Patents:* The Company capitalized \$44,825 of costs associated with patents in 2013 (2012 = \$26,650).

**Administrative related expenses compare as follows:  
(\$000)**

	2013	2012
General and administrative	54	67
Rent and occupancy cost	84	108
Bad debt expenses	20	22
Interest income	(20)	(20)
Interest expense	79	106
Accretion expense	19	188
Office insurance	61	65
Telephone	17	17
Investor relations, listing and filing fees	64	142
	378	695

- (a) The Company relocated its offices in June 2012 to lower cost premises. Current monthly rental costs approximate \$7,000 per month.
- (b) Bad debt expense in each of 2013 and 2012 relate to interest income booked on the Unotron promissory note receivable, which amount is fully reserved as recorded.
- (c) Interest expense relates to the interest paid on convertible bridge loans. In 2013 we carried two bridge loans versus five such loans in 2012 (which, by October 31, 2012 were either repaid or converted).
- (d) Accretion expense relates to the convertible bridge loans, all but two of which were repaid or converted by October 31, 2012. Accretion expense is a non-cash item.
- (e) In 2012 the Company incurred approximately \$73,000 in sponsorship related expenses with respect to the process which it initiated to secure a listing on the TSX Venture Exchange. The Company decided to abandon this listing application in 2013 and, accordingly, did not incur similar expenses in 2013. Currently, the Company is assessing other listing opportunities but has not yet initiated this process.

**Professional, other fees and salaries related expenses compare as (\$000)**

	2013	2012
Professional and consulting fees	1,129	1,101
Salaries and benefits	443	407
	<u>1,573</u>	<u>1,508</u>

Professional, other fees and salaries totaled \$1,572,515 in 2013 (2012: \$1,507,891). The Company reports the following costs in this cost category: audit related fees of \$149,478 (2012: \$118,475), legal expenses of \$154,340 (2012: \$48,951), management fees of \$637,011 paid to the Chairman, the CEO and the CFO (2012: \$514,262), staff salaries and benefits of \$443,078 (2012: \$407,450), other expenses of \$7,512 (2012: \$15,594) and consulting fees of \$181,096 (2012: \$403,159).

Consulting fees have several significant components: the Company paid fees of \$140,790 to 3<sup>rd</sup> party advisors who assisted the Company in investor relations in 2013 (2012: \$104,003); it paid the President of MAST a total of \$230,896 in 2013 of which approximately \$27,000 has been expensed in this category in 2013; the balance of the total expenditure has been capitalized in several projects and these costs are included in deferred development costs in the balance sheet (in 2012, \$183,000 of costs were expensed in this category); and assistance in IFRS reporting of \$23,238 in 2013 (\$35,565 in 2012).

**Travel related expenses compare as follows: (\$000)**

	2013	2012
Airfare	69	62
Hotel	40	28
Meals	68	41
Entertainment	3	
Transportation	31	20
	<u>212</u>	<u>151</u>

Travel and entertainment costs increased to \$210,853 in 2013 from \$150,924 in 2012. The Company incurred higher costs associated with its dealings with an increasing number of shareholders in 2013. MAST incurred higher travel costs in 2013 with respect to its dealings with potential and existing clients.

**Research and development (\$000)**

The components of research and development expenses are as follows:

	2013	2012
Project expenses incurred (recovered)	(73)	230
Write-down of deferred development costs on specific projects	234	-
	<u>161</u>	<u>230</u>

In 2013 the Company wrote down its investment in the GSI project and two other projects that are not currently being pursued.

**C) Unaudited Quarterly Financial Information - Summary**

Three months ended (unaudited)	Interest and other income \$	Expenses \$	Loss in period \$	Loss per share \$
January 31, 2012	-	436,403	(24,327)	-
April 30, 2012	-	1,012,078	(2,849,835)	(0.02)
July 31, 2012	-	582,815	(507,079)	-
October 31, 2012	-	942,132	1,606,176	0.01
January 31, 2013		728,564	(416,078)	-
April 30, 2013		591,372	(17,012)	-
July 31, 2013		485,137	(261,031)	-
October 31, 2013	-	923,103	(5,239,807)	(0.04)

The quarterly expenses for the three months ended October 31, 2013 were higher than the expenses reported in Q1, Q2 and Q3 in that the Company recorded certain fourth quarter write downs to deferred development costs and paid \$120,000 in salary adjustments to office staff that have been subject to a salary freeze for the past three years. The loss reported in Q4 2013 also includes a \$4.2 million non-cash expense relating to the elimination of the derivative warrant liability previously reported once the Company converted all outstanding Canadian denominated common share purchase warrants to \$US.

Refer also to Tables 1 and 2 for summarized quarterly information.

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**MICROMEM TECHNOLOGIES INC.**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS**  
**FOR THE FISCAL YEAR ENDING OCTOBER 31, 2013**  
**PREPARED AS OF FEBRUARY 19, 2014**

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**5. RISKS AND UNCERTAINTIES OVERVIEW**

There are a number of risks which may individually or in the aggregate affect the long-term commercial success of the Company, both known and unknown. An investment in the Company should be considered speculative due to the nature of the Company's activities and its current stage of development:

*Stage of Development of Technology:*

The Company has made considerable strides in advancing its technology and in developing a product portfolio as outlined in Section 2 of this MD&A report. Our various products are in different phases of development and there remains the risk that the Company must successfully complete development work on these products to have available commercially viable products which can be licensed or sold.

*Customers' Willingness to Purchase:*

We have entered into multiple joint development agreements whereby our prototype products are being subjected to rigorous testing by our partners. We expect to be successful in completing remaining development work on our product portfolio. If we are successful in doing so, our partners will then have to decide the extent to which they will adopt our technology for future use for their applications. The future revenue streams for the Company are dependent upon the rate of adoption by our customers and their willingness to do so.

*Patent Portfolio:*

The Company has spent a considerable amount of time and effort and incurred significant costs with respect to the maintenance and development of our intellectual property portfolio. However, given the nature of IP development, the Company is subject to continuing risks that our patents could be successfully challenged and that our patent pending files may not ultimately be granted full patent status. While we continue to make specific efforts to broaden our IP claims, this is an ongoing process and requires continued effort and vigilance. The Company does not have extensive in-house resources so as to manage its IP portfolio in this environment and has traditionally relied heavily on its patent attorneys for these services.

*Financing:*

The Company has successfully raised funding over the past several years to continue to support its development initiatives and fund the Company's corporate structure and overheads. The financing environment for early stage technology companies remains challenging and there cannot be certainty that the Company will be able to continue to raise financing as it has in the past to continue to support its business initiatives.

To put this risk into proper perspective, however, the Company notes that it has raised an additional \$3.7 million in 2013 (Appendix 2) and a further \$1.75 million subsequent to October 31, 2013. It has a significant amount of funding available through outstanding common stock options and common share purchase warrants if exercised which is an immediate source of potential financing.

It is essential to also note that the development projects that the Company is now pursuing are based on having its customers pay for development work tied to performance milestones as the Company incurs these costs.

*Competitors:*

The Company is subject to competition from other entities that may have greater financial resources and more in-house technical expertise.

*Management Structure:*

The Company is highly dependent on the services of a small number of senior management team members. If one of these individuals were unavailable, the Company could encounter a difficult transition process.

*Foreign Currency Exposure:*

The Company expects to sell its products and license technologies in the United States, in Canada and abroad. The Company has not hedged its foreign currency exposure, which has not been significant to date. In future, foreign currency fluctuations could present a risk to the business.

## **6. CRITICAL ACCOUNTING POLICIES**

Our significant accounting policies are set forth in Note 4 to our consolidated financial statements. Refer to Appendix 1 of this MD&A document for Management's discussion of Critical Accounting Policies and Estimates.

## **7. COMPLIANCE RELATED REPORTING MATTERS**

### **(a) Financial Instruments:**

It is management's opinion that the Company is not exposed to significant interest rate and credit risks arising from financial instruments and that the fair value of financial instruments approximates the carrying value.

*Fair values:* The Company's financial instruments consisting of deposits and other receivables, promissory note receivable, accounts payable and accrued liabilities and bridge loans approximate their carrying values due to their short-term maturity. The Company's financial instruments measured at fair value on the statement of financial position date consist of cash, derivative warrant liability and the conversion feature of bridge loans.

*Credit risk:* Financial instruments, which subject the Company to potential credit risk, consist of deposits and other receivables. The Company does not require collateral or other security for deposits and other receivables. The Company estimates its provision for uncollectible amounts based on an analysis of the specific amount and the debtor's payment history and prospects.

*Foreign exchange:* The Company completes transactions denominated in Canadian and in United States dollars and, as such, is exposed to fluctuations in foreign exchange rates. The Company does not use derivative instruments to reduce its exposure to foreign currency risk.

*Interest rate risk:* Cash flow interest rate risk is the risk that the future cash flow of a financial instrument will fluctuate because of changes in market interest rates.

Financial assets and financial liabilities with variable interest rates expose the Company to cash flow interest rate risk. The Company's cash and promissory note receivable earn interest at market rates. The Company manages its interest rate risk by maximizing the interest income earned on excess funds while maintaining the liquidity necessary to conduct operations on a day-to-day basis. Fluctuations in market rates of interest may have an impact on the Company's results of operations.

The Company is exposed to interest price risk on its interest bearing bridge loans as the interest rate is fixed.

*Liquidity risk:* Liquidity risk is the risk that the Company will not be able to meet its obligations as they fall due.

The Company manages its liquidity risk by forecasting cash flows from operations and anticipated investing and financing activities. Senior management is actively involved in the review and approval of planned expenditures.

All financial liabilities are due within 1 year from the balance sheet at October 31, 2013.

**(b) Commitments and Contingencies:**

*Operating Leases:*

The Company entered into a new five year lease in June, 2012 at a base monthly cost of approximately \$3,800 CDN.

*Legal Matters:*

There are currently no outstanding legal matters to which the Company is a party. We have agreed to indemnify our directors and officers and certain of our employees in accordance with our by-laws. We maintain insurance policies that may provide coverage against certain claims.



*Contingencies:*

The Company has agreed to indemnify its directors and officers and certain of its employees in accordance with the Company's by-laws. The Company maintains insurance policies that may provide coverage against certain claims.

*License Agreement:*

The Company executed a license agreement with the University of Toronto in 2005 relating to research work completed on its (MRAM) memory technology. The license agreement stipulated royalty payments capped at \$1 million in the event that the Company was successful in generating commercial revenues from the sale of the licensing of its memory technology to third parties. To date the Company has not generated any commercial revenues from the exploitation of its memory technology. It decided in 2011 to suspend any further pursuit or development of its memory technology.

Currently, the Company is attempting to sell off the related patent portfolio; to date the Company has been unsuccessful in doing so. If the Company does realize proceeds on the sale of these related patents, it may have an obligation payable to the University of Toronto under the terms of its 2005 license agreement.

*Accounts Payable Write-off:*

In 2013 the Company recovered \$181,180 of accounts payable balances recorded in previous years and relating to third party vendors whose accounts the Company has disputed. The Company has concluded that these amounts are not payable. If these amounts were successfully contested by these vendors, the Company could have an obligation for such costs.

**(c) Disclosure Controls/Internal Controls:**

The Company was not classified as an accelerated filer in 2012 or in 2013 and, accordingly, was not required to have completed an external audit on its internal controls. It filed its last audit report on internal controls in 2010.

Management and the Board of Directors, primarily through the Audit Committee, have instituted review procedures on all of our periodic filings. We have established a Disclosure Committee consisting of independent directors. Committee charters have been developed and has been ratified by our Board of Directors. We engage legal counsel, as required, to provide guidance and commentary on our press releases.

Management has concluded that our disclosure controls and procedures meet required standards. These disclosure controls and procedures are designed to provide reasonable assurance that information required to be disclosed in its various reports is recorded, processed, summarized and reported accurately. In spite of its evaluation, management does recognize that any controls and procedures, no matter how well designed and operated, can only provide reasonable assurance and not absolute assurance of achieving the desired control objectives.

**d. Off-Balance Sheet Arrangements:**

The Company has no off-balance sheet financial commitments and does not anticipate entering into any contracts of such nature other than the addition of new operating leases for equipment and premises as may be required in the normal course of business.

**e. Going Concern:**

The consolidated financial statements have been prepared on the “going concern” basis, which presumes that the Company will be able to realize its assets and discharge its liabilities in the normal course of business for the foreseeable future.

There are uncertainties related to conditions and events that cast doubt about the Company’s ability to continue as a going concern for a reasonable period of time in future. During the year ended October 31, 2013, the Company reported a loss from operations of \$5,933,928 (2012 - \$1,775,065) of which \$3,670,725 (2012 - \$391,293) of this loss are non-cash losses (2012 – gains) and negative cash flows from operations of \$2,515,315 (2012 - \$2,573,982). The Company’s working capital position as at October 31, 2013 is \$425,888 (2012 – working capital deficiency of \$1,793,217).

The Company’s success depends on the profitable commercialization of its proprietary magnetic sensor technology. There is no assurance that the Company will be successful in the profitable commercialization of its technology. Based upon its current operating and financial plans, management of the Company believes that it will have sufficient access to financial resources to fund the Company’s planned operations through fiscal 2014; however, if the Company is not able to complete its financial plans and/or is not able to profitably commercialize its technology then there is doubt the Company can continue as a going concern. Accordingly, the financial statements do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classifications of liabilities that may result from the possible inability of the Company to continue as a going concern.

If the “going concern” assumption were not appropriate for these consolidated financial statements then adjustments would be necessary to the carrying value of assets and liabilities, the reported expenses and the balance sheet classifications used; in such cases, these adjustments could be material.

**f. Liquidity and Capital Resources:**

*Liquidity:*

**Table 3** provides a summary of the financing that was raised during the 2010-2013 fiscal years.

We currently report negative cashflow from operations. This result will only change once we are generating sufficient revenue from either license fees, royalties or the sale of products utilizing our technology. In 2013 and subsequent to the end of the fiscal year, the Company raised significant funding from private placement financings and from the exercise of warrants by warrant holders. Our working capital position as reported below continues to improve.

<u>Working capital at:</u>	<u>\$</u>
October 31, 2012	(1,793,217)
October 31, 2013	425,888
January 31, 2014	1,366,024

We currently have no lines of credit in place. We must obtain financing from new investors or from investors who currently hold outstanding options and warrants if exercised in order to meet our cash flow needs until we generate revenues.

We have granted to our directors, officers and other employee's options to purchase shares at prices that are at or above market price on the date of grant. A summary of the outstanding options and warrants is provided in **Table 4**.

*Capital Resources:*

We have no commitments for capital expenditures as of October 31, 2013.

**8. SUBSEQUENT EVENTS**

The Company reports the following as subsequent events:

- i) The Company realized proceeds of \$1,751,924 from the exercise of a total of 7,133,354 common share purchase warrants previously issued.
- ii) The Company extended the expiry dates of a total of 1,105,026 common share purchase warrants. These warrants were extended for a period of 6 months in each case. The strike price was changed from \$0.41 and \$0.45 to \$0.50 in each case. These warrants would have otherwise expired in November 2013.
- iii) The Company announced an initial development contract with a strategic partner in the amount of \$5.4 million, tied to development milestones.
- iv) The bridge loan that was reported at October 31, 2013, in the amount of \$290,014, has since been converted in 2,517,501 equity units. Each unit consists of one common share and one common share purchase warrant. The warrants have a strike price of \$0.12 per common share and will expire on January 27, 2015 if not exercised by that date.

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**MICROMEM TECHNOLOGIES INC.  
MANAGEMENT'S DISCUSSION AND ANALYSIS  
REVIEW OF CRITICAL ACCOUNTING POLICIES  
OCTOBER 31, 2013**

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***IFRS:***

IFRS reporting has been adopted effective November 1, 2010. In preparing the opening IFRS statement of financial position, the Company has adjusted amounts reported previously in consolidated financial statements prepared in accordance with previous Canadian GAAP. These adjustments mainly relate to:

- (a) The accounting and measurement of the derivative warrant liability with respect to common share purchase warrants issued in conjunction with unit private placement financings which the Company has secured and which are not exercisable in the relevant entity's functional currency.
- (b) The accounting and measurement of the conversion feature of the bridge loans which the Company has secured, which are not convertible in the relevant entity's functional currency.

***Compound Financial Instruments:***

Compound financial instruments issued by the Company comprise convertible notes that can be converted to share capital at the option of the holder and the number of shares to be issued does not vary with changes in their fair value.

The liability component of a compound financial instrument is recognized initially at the fair value of a similar liability that does not have an equity conversion option.

The equity component, if the conversion feature of the convertible note is in US dollars, is recognized initially as the difference between the fair value of the compound financial instrument as a whole and the fair value of the liability component. Any directly attributable transaction costs are allocated to the liability and equity components in proportion to their initial carrying amounts.

Subsequent to initial recognition, the liability component of a compound financial instrument is measured at amortized cost using the effective interest rate method. The equity component of a compound financial instrument is not premeasured subsequent to initial recognition.

Interest, dividends, losses and gains relating to the financial liability are recognized in profit or loss except for borrowing costs on qualifying assets which are added to asset cost. Distributions to the equity holders are recognized in equity, net of any tax effect.

### ***Hybrid Financial Instruments:***

Financial instruments with embedded derivative liabilities are accounted for as hybrid financial instruments. The Company has hybrid financial instruments when the embedded derivative conversion option right of the convertible notes gives the right to the holder to convert into a common share in Canadian dollars (“CDN”).

An embedded derivative is a feature within a contract, such that the cash flows associated with that feature behave in a similar fashion to a stand-alone derivative. An embedded derivative is separated from its host contract and accounted for as a derivative only when three criteria are satisfied:

- When the economic risks and characteristics of the embedded derivatives are not closely related to those of the host contract;
- A separate instrument with the same terms as the embedded derivative would meet the definition of a derivative; and
- The entire instrument is not measured at fair value with changes in fair value recognized in the income statement.

Subsequent to initial recognition, the embedded derivative component is re-measured each reporting period using the Black Scholes option-pricing model with the change in fair value recognized in statement of loss and comprehensive loss.

### ***Derivative Liability:***

The Company’s derivative financial instruments consist of derivative liabilities in relation to its share purchase warrants.

#### **i) Derivative Warrant Liability:**

The Company has issued share purchase warrants in conjunction with private placements for the purchase of common shares of the Company. A number of these share purchase warrants were issued with an exercise price in CDN, rather than USD (the reporting and functional currency of the Company). Such share purchase warrants are considered to be derivative instruments and the Company is required to re-measure the fair value of these at each reporting date. The fair value of these CDN share purchase warrants are re-measured at each financial position date using the Black Scholes option-pricing model using the exchange rates at the financial position date and measured over their remaining life. Adjustments to the fair value of the derivative warrant liability as at the financial position date are recorded in the statement of loss and comprehensive loss as (gain) loss on revaluation of derivative warrant liability. Share purchase warrants that have expired or have been forfeited are adjusted to the statement of loss and comprehensive loss as (gain) loss on revaluation of derivative warrant liability.

Consideration received upon the exercise of warrants is credited to share capital and the related amount is transferred from contributed surplus (USD warrants) or derivative warrant liability (CDN warrants) to share capital.

## ii) Conversion Feature of Bridge Loans

The conversion feature on the bridge loans allows the holder of the option to convert the outstanding principal and interest from time to time to common equity. The Company, using the Black Scholes option-pricing model, accounts for bridge loans as follows:

- (i) At date of origination the bifurcation of the total balance of the loan as debt and equity is calculated. If the conversion feature of the bridge loan is in CDN there is no equity component, resulting in an embedded derivative. Accretion expense is recorded over the term of the loan.
- (ii) The total loan proceeds are allocated between the bridge loans and the related embedded derivative based on their relative fair value. The embedded derivative conversion feature is included under the bridge loans in the statement of financial position.
- (iii) The conversion feature is revalued at the end of the reporting period and any adjustment is reflected in the statement of loss and comprehensive loss if the conversion feature is in CDN.

### ***Foreign Currency Translation:***

IFRS requires that the functional currency of each entity in the consolidated entity be determined separately in accordance with specific indicators and should be measured using the currency of the primary economic environment in which the entity operates (the “functional currency”). As a result of an assessment of the primary indicators, management assessed the functional currency of the Company and its subsidiaries to be U.S. dollar (“USD”). The consolidated financial statements of the Company are prepared and presented using the USD.

Foreign currency transactions denominated in other than U.S. dollars are translated into the functional currency on the following basis:

- i) Monetary assets and liabilities are translated at the rates of exchange prevailing at the statement of financial position date.
- ii) Non-monetary assets and liabilities that are measured at historical cost are translated using the exchange rate at the date of the transaction.
- iii) Income and expenses for each income statement line item presented are translated at average exchange rates during the quarter in which they are recognized.

Exchange differences resulting from the settlement of foreign currency transactions are recognized directly in the consolidated statement of loss and comprehensive loss in the period in which incurred.

***Stock-Based Compensation:***

The Company applies the fair value based method of accounting for all stock based payments to employees and non-employees and all direct awards of stock. For non-employees, stock based payments are measured at the fair value of the services received or the fair value of the equity instruments issued or liabilities incurred, whichever is more reliably measurable. Stock based compensation is charged to operations over the vesting period and the offset is credited to contribute surplus.

Consideration received upon the exercise of stock options is credited to share capital and the related amount is transferred from contributed surplus.

The fair value of stock options and warrants is determined by the Black Scholes option-pricing model with assumptions for risk free interest rates, dividend yields, volatility factors of the expected market price of the Company's common shares and an expected life of the option or warrant issued. A forfeiture rate is estimated on the grant date and is adjusted to reflect the actual number as options that vest. In the event that vested stock options expire, previously recognized stock based compensation is not reversed. In the event that stock options are forfeited, previously recognized stock based compensation associated with the unvested portion of the stock options forfeited is reversed. The fair value of direct awards of stock is determined by the quoted market price of the Company's stock.

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**MICROMEM TECHNOLOGIES INC.  
MANAGEMENT'S DISCUSSION AND ANALYSIS  
AS AT OCTOBER 31, 2013**

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The attached selected financial information has been summarized from the annual audited financial statements of the Company for the fiscal years ending October 31, 2008 through 2013 – reference should be made specifically to the information contained in the annual audited statement of cashflows for the fiscal years then ended from which this information has been sourced.

The purpose of this appendix is to illustrate, in summary form, the following:

1. a. The amount of cash raised in 2008 – 2013 fiscal years and on a cumulative basis. This includes private placements and warrant exercises as well as bridge loans;
- b. The major uses of cash raised during each of the fiscal years and on a cumulative basis.

This information is presented on **page 1** and reconciles to the closing cash position reported at each fiscal year end.

2. Reconciliation of the net losses as reported in the audited financial statements at each yearend to the adjusted EBITDA in operations in each of these fiscal years. In this context, there are two groupings of non-cash charges presented:
  - The non-cash charges associated with amortization expense, accretion expense, the write-down of deferred development costs in several years and, in particular, the stock compensation expense recorded annually and calculated in accordance with the Black Scholes option pricing model.
  - The gains and losses reflected in the financial statements since 2011 with the adoption of the IFRS reporting format.

The net result, as presented on **page 2**, shows the adjusted EBITDA from operations that the Company has recorded for each of the fiscal years and on a cumulative basis.

3. A reconciliation of the Deficit as reported in the financial statements as of October 31, 2013, as of October 31, 2007 and the cumulative deficit reported between 2008 and 2013. This is as presented on **page 3**. On this schedule, the cumulative deficit as reported in the audited financial statements is, for these purposes, adjusted for the non-cash expenses and IFRS related non-cash charges as summarized on page 2.



## **Analysis and Commentary:**

1. The Company has raised \$20.539 million of financing since 2007. Since 2007 the cash loss from operations as calculated is a cumulative amount of \$14.206 million or, on average, approximately \$2.4 million per year. In addition to the cash loss on operations, the Company has incurred, since 2009, a total of \$3.990 million on its various development projects.
2. The non-cash component of expenses and the IFRS related adjustments are substantial at \$8.786 million and \$2.3 million respectively. While these charges are included in the net losses reported in the audited financial statements, management feels it is significant and important to acknowledge the quantum of these expenses. In particular, it is essential, in our view, to note that the cumulative stock option expense of \$4.816 million and the cumulative expenses related to IFRS in the amount of \$2.3 million, are expenses that will never be paid for in cash. These are accounting measurements that are completed so as to confirm with regulatory reporting and IFRS standards, but these are not expenses that the Company will ever have to discharge in cash.
3. As outlined in this MD&A document, the Company began as a developer of memory technology and this was its sole activity through the end of the 2007 fiscal year. Commencing in the 2008 fiscal year, the Company shifted its direction and focus and began the development of its sensor technology platform. As noted in the MD&A document, the Company formally abandoned the pursuit of any further memory related technology by 2011.

It is illustrative, in management's view, to bifurcate the cumulative deficit as reported into these two periods of time, ie, the pre 2008 and post 2007 fiscal years. On page 3 of Appendix 2, this is illustrated and in each of those periods, the non-cash expenses and IFRS related non-cash charges are identified so as to illustrate the cumulative cash based deficit reported for those two periods.

Page 3 presents, in general terms, that the Company committed \$21.367 million of cash to the pursuit of its memory technology from inception in 1998 through the end of fiscal 2007. Since 2008, it has committed \$16.567 million of cash with respect to the business that it currently pursues. The \$16.567 million represents an average annual spend of approximately \$2.761 million. This includes all of the costs of maintaining the public company, all of the legal and professional fees, the development costs that have in fact been expensed, all salaries, wages, office related costs, etc.

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**Micromem Technologies Inc**  
**Management Discussion and Analysis**  
**October 31, 2013**  
**Summary of Sources/Uses of Cash (\$000)**

FY ending:

	2008	2009	2010	2011	2012	2013	6 Year Total
<u>Cash Raised from:</u>							
Private placements and warrants	\$ 5,350	\$ 4,020	\$ 1,982	\$ 2,446	\$ 2,524	\$ 3,697	\$ 20,019
Bridge loans (net)	-	-	512	(407)	541	(126)	520
	5,350	4,020	2,494	2,039	3,065	3,571	20,539
<u>Cash Used for:</u>							
Cash loss on operations	(4,370)	(2,174)	(1,768)	(1,464)	(2,166)	(2,264)	(14,206)
Capital asset additions	(32)	(10)	(1)	-	-	(13)	(56)
Patents and intangibles	-	(148)	(79)	(143)	(27)	(44)	(441)
Development projects	-	(2,001)	(879)	(425)	(263)	(422)	(3,990)
	(4,402)	(4,333)	(2,727)	(2,032)	(2,456)	(2,743)	(18,693)
Cash (used in) working capital, net	(718)	(56)	153	11	(408)	(252)	(1,270)
Change in cash	230	(369)	(80)	18	201	576	576
<b>Cash, beginning of period</b>	245	475	106	26	44	245	245
<b>Cash, end of period</b>	\$ 475	\$ 106	\$ 26	\$ 44	\$ 245	\$ 821	\$ 821

**Micromem Technologies Inc**  
**Management Discussion and Analysis**  
**October 31, 2013**

**Reconciliation of Net Loss as Reported to Adjusted EBITDA on Operations (\$'000)**

	2008	2009	2010	2011	2012	2013	Total 6 year
<b>Net Loss as Reported in Audited Financial Statements:</b>	\$ (5,416)	\$ (4,311)	\$ (4,675)	\$ (3,181)	\$ (1,775)	\$ (5,934)	\$ (25,292)
<u>Adjust for non cash expenses reported:</u>							
a) Amortization	5	12	9	50	24	24	124
b) Stock option expense	1,041	1,952	95	928	431	369	4,816
c) Accretion expense	-	-	5	12	187	19	223
d) Writedown of assets	-	-	2,711	129	-	-	2,840
e) Securities issued as compensation/settlement	-	173	-	-	306	-	479
f) Other, net	-	-	87	-	165	52	304
Subtotal	1,046	2,137	2,907	1,119	1,113	464	8,786
<u>Adjusted for IFRS related adjustments</u>							
(Gain) loss on derivative warrant liability	-	-	-	410	(1,327)	3,246	2,329
(Gain) loss on embedded derivative	-	-	-	2	(177)	(40)	(215)
Bridge loan modification	-	-	-	186	-	-	186
Subtotal	-	-	-	598	(1,504)	3,206	2,300
<b>Adjusted EBITDA on Operations</b>	\$ (4,370)	\$ (2,174)	\$ (1,768)	\$ (1,464)	\$ (2,166)	\$ (2,264)	\$ (14,206)

**Micromem Technologies Inc**  
**Management Discussion and Analysis**  
**Analysis of Cumulative Deficit (\$'000)**  
**As of October 31, 2013**

	Oct 31, 2013	Oct 31, 2007	2008-2013 Deficit
<b>Cumulative Deficit as reported:</b>	\$ (89,043)	\$ (61,390)	\$ (27,653)
Adjusted for non-cash expenses reported	48,809	40,023	8,786
Adjusted for IFRS related net non-cash expenses reported	2,300	-	2,300
<b>Cumulative cash based deficit on operations</b>	<b>\$ (37,934)</b>	<b>\$ (21,367)</b>	<b>\$ (16,567)</b>

**Table 1**

Micromem Technologies Inc  
 Management Discussion and Analysis  
 Annual and Quarterly financial information  
 October 31, 2013  
 (\$US)

Fiscal year ending October 31	Interest and other income	Net Loss	Loss per share (basic and fully diluted)
2012	-	(1,775,066)	(0.01)
2013	-	(5,933,428)	(0.04)
Quarter ending			
October 31, 2013	-	(5,239,307)	(0.03)
July 31, 2013	-	(261,031)	(0.00)
April 30, 2013	-	(17,012)	(0.00)
January 31, 2013	-	(416,078)	(0.01)
October 31, 2012	-	1,606,175	0.01
July 31, 2012	-	(507,079)	(0.00)
April 30, 2012	-	(2,849,835)	(0.02)
January 31, 2012	-	(24,327)	(0.00)

**Table 2**

Micromem Technologies Inc  
Management Discussion and Analysis  
Selected Balance Sheet Information  
October 31, 2013  
(\$US)

<b>Fiscal year ending October 31</b>	<b>Working capital (deficiency)</b>	<b>Capital assets at NBV</b>	<b>Other Assets</b>	<b>Total Assets</b>	<b>Shareholders equity (deficit)</b>
October 31, 2012	(1,793,217)	5,787	883,400	1,180,278	(904,030)
2013	425,888	13,998	1,096,433	2,166,455	1,536,319
<b>Quarter ending</b>					
October 31, 2013	425,888	13,998	1,096,433	2,166,455	1,536,319
July 31, 2013	(1,018,591)	11,438	1,240,317	1,498,756	233,164
April 30, 2013	(977,307)	14,248	1,102,715	1,464,445	139,656
January 31, 2013	(1,665,021)	5,014	1,040,224	1,418,921	(619,783)
October 31, 2012	(1,793,217)	5,787	883,400	1,180,278	(904,030)
July 31, 2012	(2,995,822)	6,892	705,677	850,064	(2,283,253)
April 30, 2012	(3,826,860)	7,995	692,155	828,130	(3,126,710)
January 31, 2012	(2,270,655)	9,098	916,429	1,016,467	(1,345,129)

**Table 3**

Micromem Technologies Inc  
Management Discussion and Analysis  
Summary of financing raised by Company  
October 31, 2013

**Summary of financing raised by Company**

Date of financing	2012			2013		
	Shares	Price / share	\$	Shares	Price / share	\$
<b>Private placements</b>						
Q1	2,005,022	0.107	214,478	1,967,117	0.161	316,373
Q2	2,178,592	0.213	464,495	5,358,704	0.159	852,809
Q3	708,333	0.210	148,510	2,126,603	0.158	336,504
Q4	1,452,952	0.147	213,416	6,654,533	0.211	1,404,846
<b>Exercise of warrants</b>						
Q1	-	-	-	3,393,912	0.126	428,650
Q2	1,270,000	0.141	179,270	753,334	0.176	132,220
Q3	4,513,045	0.127	573,927	1,120,000	0.115	129,064
Q4	6,292,813	0.119	746,516	686,667	0.193	132,457
<b>Conversion of bridge loan</b>						
July 31, 2012	1,120,000	0.098	109,825	-	-	-
October 31, 2012	740,080	0.158	117,075	-	-	-
	<u>20,280,837</u>		<u>2,767,512</u>	<u>22,060,870</u>	<u>-</u>	<u>3,732,923</u>

**Table 4**

Micromem Technologies Inc  
Management Discussion and Analysis  
October 31, 2013

Outstanding options at 10/31/2013	Strike price	Expiry date
1,090,000	0.30	January 22, 2018
125,000	0.35	April 5, 2016
7,275,000	0.20	October 31, 2016
1,905,000	0.35	April 10, 2017
780,000	0.27	September 16, 2018
300,000	0.35	October 17, 2018
<b>11,475,000</b>	<b>0.24</b>	

Total proceeds if all options exercised: \$ **2,808,100**

Warrants at  
10/31/2013

765,188	0.41	November 25, 2013
400,000	0.21	November 30, 2013
339,838	0.45	December 15, 2013
20,000	0.19	December 17, 2013
300,000	0.21	December 20, 2013
250,000	0.19	January 4, 2014
750,000	0.21	January 11, 2014
312,500	0.38	January 12, 2014
25,000	0.55	January 15, 2014
312,500	0.40	January 22, 2014
1,967,117	0.21	January 24, 2014
300,000	0.55	January 26, 2014
325,000	0.21	January 31, 2014
799,904	0.21	February 1, 2014
111,111	0.56	February 1, 2014
88,236	0.19	February 8, 2014
142,858	0.42	February 10, 2014
133,333	0.56	February 12, 2014
312,500	0.19	February 15, 2014
562,499	0.30	February 27, 2014
208,333	0.29	February 27, 2014
291,666	0.29	March 13, 2014
2,691,250	0.20	March 19, 2014
58,333	0.29	March 23, 2014
617,550	0.20	April 10, 2014
83,333	0.29	April 18, 2014
937,500	0.20	April 30, 2014
208,333	0.30	May 11, 2014
303,346	0.21	June 3, 2014
406,250	0.21	June 6, 2014
918,750	0.20	June 20, 2014
498,257	0.21	June 20, 2014
500,000	0.24	July 13, 2014
553,413	0.20	August 8, 2014
1,374,435	0.20	August 20, 2014
418,500	0.20	August 28, 2014
200,000	0.29	August 30, 2014
728,572	0.20	September 12, 2014
1,666,667	0.20	September 16, 2014
250,000	0.20	September 27, 2014
1,601,250	0.19	September 27, 2014
585,384	0.31	October 9, 2014
1,325,000	0.24	October 15, 2014
69,891	0.21	October 22, 2014
2,424,964	0.38	October 22, 2014
654,489	0.21	October 29, 2014
123,276	0.75	November 11, 2014
429,686	0.80	November 14, 2014
600,000	0.77	December 14, 2014
815,000	0.56	December 16, 2014
<b>29,761,012</b>	<b>0.28</b>	

Total proceeds if all warrants exercised: \$ **8,263,947**