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**MICROMEM TECHNOLOGIES INC.**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS**  
**FOR THE FISCAL YEAR ENDED OCTOBER 31, 2018**  
**PREPARED AS OF FEBRUARY 27, 2019**

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## **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, 2018 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, 2018 and 2017 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 OTCQB under the symbol MMTIF and on the Canadian Securities Exchange ("CSE") 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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**1. OVERVIEW**

Micromem is a company that develops customized, proprietary sensor-based solutions for large multinational corporations. It operates through its wholly owned subsidiary, Micromem Applied Sensor Technologies (“MAST”). MAST is responsible for the development of market opportunities, maintaining customer relationships and the project management of the independent engineering subcontractors that it engages once a client project has been initiated. Micromem and MAST are referred to interchangeably as “the Company” throughout this report.

The Company encountered a number of challenges during fiscal 2018. Certain of the client driven projects that it has been engaged in have continued to develop, but progress towards ultimate commercialization of the Company’s technology applications was slower than originally anticipated in 2018.

Steven Van Fleet resigned as an officer and director on August 17, 2018. The Company has moved forward since then, utilizing other personnel. We provide additional commentary in Section 2 of this report.

Mr. Van Fleet filed an action against the Company in October 2018; in December 2018 the Company filed its response, denying Mr. Van Fleet’s action and interposed 7 counterclaims. This matter is discussed further under Contingencies in Section 6.

**Business Development:**

**(a) Chevron:**

Our Joint Product Development Agreement with Chevron, as previously disclosed, progressed in 2018. We received \$713,983 of additional development funding from Chevron during the year. By yearend Chevron authorized the onsite field trials to be conducted at one of their US based operating wells. These trials are now scheduled to commence in March 2019. We are now developing a commercialization strategy based on the anticipated outcome of these trials.

**(b) Castrol:**

We have previously reported our interactions and Joint Product Development Agreement with Castrol, which began in 2014.

Through Q1 2018 we were engaged in discussion with the Castrol representatives, with whom we had been dealing to that point in time, with respect to the ongoing funding requirements to complete the development project. Ultimately, these discussions were not successful and the project was suspended. We have had only limited interaction with Castrol since mid 2018. We plan to attempt to reengage with Castrol in 2019.

**(c) Repsol S.A.:**

We have previously reported on our preliminary dealings with Repsol.

In 2017 we executed a preliminary development contract with Repsol for the utilization of the RT Lube technology to be customized to their specific requirements. Repsol provided \$75,000 of initial funding. The initial project with Repsol contemplated 2 phases of activity.

Since the departure of Mr. Van Fleet in August 2018, we have worked directly with the Repsol team. We have, since then, recast the original development project and the timetable for completion. We are currently negotiating go forward working arrangements with Repsol.

**(d) RT Lube Analyzer:**

Prior to his departure, Mr. Van Fleet undertook a number of marketing and business development initiatives, in particular with respect to the Company's RT Lube Analyzer, an instrument platform to be used for the detection of wear elements and lubricating fluids. Since September 2018, we have been pursuing those potential opportunities with mixed results. We continue to believe that there are significant potential market opportunities for this technology.

**(e) Other:**

Since September 2018 we have engaged in dialogue with several potential opportunities with similar technology focus and are anticipating positive developments in 2019.

**Financing:**

In 2018 the Company secured \$866,200 of financing from private placements (2017: \$719,403), the issuance of convertible debentures \$1,457,983 (2017: \$1,788,974) and \$738,983 from project development financing provided from its development partners (2017: \$371,000).

The Company's convertible debt structure is complex with 3 broad categories of such debt: (i) \$CDN denominated debt with fixed conversion prices; (ii) \$US denominated debt with fixed conversion prices and (iii) \$US denominated debt with variable conversion prices. The term of the debt in each instance is typically between 4 months and 12 months. In 2018 the Company has repaid certain convertible loans at maturity when due as requested by the debenture holder, or converted the debenture into common shares at the request of the debenture holder, or extended the term of the debenture through negotiations with the debenture holder – in this latter case, certain terms of the loan – interest rate and/or conversion price – may be adjusted as part of the extension.

Under IFRS reporting, such loans require quarterly remeasurements. The application of the remeasurement methodology is very specific. This is more fully discussed in Section 3; in summary there are several non-cash related income and expense charges that arise from such remeasurements. We recorded the following non-cash charges in the fiscal years ending October 31, 2018 and 2017:

|  | <b>2018</b>  | <b>2017</b>  |
|--|--------------|--------------|
| Accretion expense                      | \$ 2,039,344 | \$ 1,358,101 |
| Loss on Conversion of debentures       | 63,852       | 1,009,680    |
| (Gain) on revaluation of derivatives   | (1,094,718)  | (1,614,822)  |
| (Gain) on extinguishment of debentures | (399,191)    | -            |
| Net expense                            | 609,287      | 752,959      |

There is no impact on the Company's cash flow for these non-cash charges.

**Regulatory:**

The Company encountered no issues with the Canadian or the US regulators in 2018.

Our listing status with the OTC markets was moved to the OTCQB from the OTCQX in April 2017 as the Company's financial position was below the threshold required for the senior listing status. This change has not adversely impacted on the Company's ability to function as a publicly traded entity; additionally, there is a savings in the costs associated with this listing.

Given the lower market capitalization of the Company as of the annual measurement date of April 30, it was not required to file a Section 404 audit of its internal controls in the 2017-2018 fiscal years.

In November 2017, the Company elected to change audit firms and requested that the incumbent firm, Collins Barrow Toronto LLP, resign as the auditors. There were no disagreements or other issues that gave rise to the decision to change auditors. In December 2017, MNP LLP – a national firm with significant public company expertise – was appointed as our new auditors.

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**2. PROJECT UPDATES:**

In August 2018, Mr. Steven Van Fleet resigned as President of MAST. The technical engineering and design work that has been completed to date has been undertaken by outside firms who continue to work with Micromem on its development projects. The Company has also engaged additional technical, marketing and financial assistance since the departure of Mr. Van Fleet. We have been able, on this basis, to continue our work with our development partners subsequent to Mr. Van Fleet's departure.

The current status of our development projects is as reported below:

**Chevron:** In 2018 we continued to engage with Chevron personnel and with our engineering subcontractor, Entanglement Technologies ("Entanglement").

Chevron has provided \$713,983 of funding towards our joint product development agreement in 2018. The project which relates to the use of alcohol based tracers to measure various characteristics and attributes of operating oil wells, is now scheduled to proceed. The results of our bench/laboratory testing of this technology previously completed have been successful against predetermined performance standards required. We believe that these results will be replicated in the pilot project. We anticipate that we will then move forward with commercialization of the technology.

Since September 2018 we have completed the following project related tasks and milestones:

- We met with our subcontractor, Entanglement, to review all development tasks and progress to date.
- We engaged a second independent engineering/manufacturing ("Consultant") resource to validate our cumulative development efforts to date.
- In October 2018 we participated in a meeting with the Chevron personnel responsible for this project in their Houston headquarters along with Entanglement and our Consultant. Entanglement presented a summary report on all work completed to that date; the report was accepted by Chevron. At that point, the consensus was to set a date for the onsite pilot of the technology.
- In November 2018 we again met with one of the Chevron team members in the Entanglement facilities in California for the purpose of completing the detailed plan for the onsite pilot. Thereafter, we met with the Chevron commercialization team in Houston.
- The onsite pilot was initially tentatively scheduled for mid-January. Given scheduling issues at the well site, the start date of the onsite testing has been moved to March 2019 and these tests are now proceeding on that basis.

In 2015, we initiated a development protocol with Chevron with respect to a second development project – the proposed development, over a period of 2 years, of a sensor platform to be used for testing of cement integrity in offshore oil wells. That project did not move forward at that time.

In November 2018 we reengaged with the Chevron team who have responsibilities for this development initiative within Chevron. There remains significant joint interest in the project and we anticipate follow up on this potential project opportunity in 2019.

**Castrol:** We have previously reported on our interactions and our Joint Product Development Agreement with Castrol, which began in 2014.

Through Q1 2018 we were engaged in discussion with the Castrol representatives, with whom we had been dealing to that point in time, with respect to the ongoing funding requirements to complete the development project. These discussions were not, ultimately, successful and the project was suspended. We have had only limited interaction with Castrol since mid 2018.

The related work over the course of this project between 2014-2018 was completed in large part by our engineering subcontractor, SBMicrosystems (“SBM”) located in Burnie Maryland. In total, approximately \$3.5 million of funding was committed to this project up to the point that the project was suspended; this included approximately \$1 million of financing provided by Castrol.

The Company retains a substantial file of proprietary technical information, drawings and design work related to this development effort.

**RT Lube Analyzer:** In 2017-2018 the Company developed the prototype unit of this technology based on the development work completed by SBM. It began to assess potential market opportunities to commercialize this technology in a number of market verticals, in particular – shipping, large industrial applications and wind energy. We continue to pursue this opportunity and we believe that there is significant market potential in this technology.

**Repsol S.A.:** We have previously reported on our initial activity with this Spanish energy conglomerate.

During the 2017 fiscal year we executed a preliminary development contract with Repsol for the utilization of the RT Lube technology to be customized to their specific requirements. Repsol provided \$75,000 of initial funding on a purchase order of \$150,000.

SBM was commissioned to complete this initial work and a prototype unit was delivered to Repsol for initial testing.

The initial project with Repsol contemplated 2 phases of activity:

- a) Initially, a larger unit that would be used for several potential market applications (“Field Unit”) which was intended for final delivery in calendar year 2018; and,
- b) A miniaturized version of the technology to be used in automotive and transportation vehicles; this version to incorporate greater functionality and additional performance features (“Final Unit”). The original delivery date for the prototype of this Final Unit was anticipated in Q1 2019.

After the departure of Mr. Van Fleet in August 2018 we, along with SBM, engaged in direct dialogue with the Repsol team members involved in this development project. Certain of the

technical requirements to complete this work remain to be resolved. The costs associated with the completion of this project exceed the original amounts contemplated.

Since September 2018 we have worked directly with the Repsol team. Our CEO, Joseph Fuda, met with the Repsol development and commercialization teams in their Madrid offices in late September.

We have continued our discussions with Repsol since then and have recast the development project and timetables for completion. We have also added additional technical and manufacturing expertise through outside consultants to help facilitate the go forward activity with the intention of continuing the role of SBM.

At this point, we are attempting to finalize a new letter of intent with Repsol to continue this project in 2019.

**Dubai Conference:** In March 2018 Steven Van Fleet attended a conference in Dubai at the suggestion of Chevron; he was accompanied by Entanglement personnel engaged in the Chevron development project.

The “ATRA 171” technology that is under development at Entanglement for Chevron was showcased at the conference and received significant preliminary interest. After the conference through June 2018, Mr. Van Fleet responded to these expressions of interest and produced a significant number of proposals which he delivered to various companies in North America and abroad.

Since the departure of Mr. Van Fleet in August 2018, we have been pursuing certain of these proposals that were submitted by Mr. Van Fleet. In this process we have had mixed responses; nonetheless we believe that as this technology is finalized through our ongoing work with Chevron, there will be other commercial opportunities that we may realize.

**Other Opportunities:** Since September 2018 we have engaged in dialogue with a private company that has been in operation for several decades. This company has a team with engineering and manufacturing capabilities and an established presence and revenue base in North America. One of the business lines that this company has developed is a sensor based system that detects gas leakage in industrial plants. We continue to negotiate a potential business arrangement with this entity with the expectation of developing a more formal working relationship during 2019.

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**3. DISCUSSION OF OPERATING RESULTS:**

*(a) Financial Position as at October 31, 2018:*

|  | <b>October 31, 2018</b> | <b>October 31, 2017</b> |
|--|-------------------------|-------------------------|
|  | <b>('\$000)</b>         | <b>('\$000)</b>         |
| Cash                                     | 207                     | 9                       |
| Deposits and other receivables           | 99                      | 467                     |
|  | <u>306</u>              | <u>476</u>              |
| Property and equipment, net              | 9                       | 10                      |
| Patents, net                             | 396                     | 431                     |
|  | <u>711</u>              | <u>917</u>              |
| Bridge loans                             | 2,477                   | 2,489                   |
| Accounts payable and accrued liabilities | 1,007                   | 1,362                   |
| Derivative liability                     | 650                     | 490                     |
|  | <u>4,134</u>            | <u>4,341</u>            |
| Shareholders' Equity                     |                         |                         |
| Share capital:                           | 82,283                  | 80,198                  |
| Equity component of bridge loans         | 70                      | 62                      |
| Contributed surplus                      | 27,631                  | 27,361                  |
| Deficit                                  | (113,407)               | (111,045)               |
|  | <u>(3,423)</u>          | <u>(3,424)</u>          |
|  | <u>711</u>              | <u>917</u>              |

Commentary:

1. The Company's working capital deficiency is (\$3,828,503) at October 31, 2018 (2017: deficiency of \$3,865,390)
2. The Company capitalized \$121,603 of costs associated with patents in 2018 (2017 - \$161,647). These applications and filings relate to the ongoing product development work that the Company has undertaken. It has a portfolio of awarded patents in the United States and has filed for provisional patents in certain foreign countries.
3. The Company continued to secure additional financing in 2018 through convertible bridge loans. Given the terms of the bridge loans, the Company has measured, as appropriate, the prescribed accounting treatment for these bridge loans and the related derivatives. These loans were typically of a short-term nature and, in many cases,

renewed on multiple occasions; the related financial reporting has become progressively more complex.

The balance reported as bridge loans at October 31, 2018 is \$2,476,571 (2017: \$2,489,017) and the related derivative liability balance is \$650,116 (2017: \$489,734). Related thereto, the Company reports accretion expense on these debentures of \$2,039,344 (2017: \$1,358,101), a loss on the conversion of bridge loans to share capital of \$63,852 (2017:1,009,680), a gain on the revaluation of the underlying derivative liabilities of \$1,094,718 (2017: \$1,614,822) and a gain on extinguishment of convertible debentures of \$399,191 (2017: nil). Management employs a Black Scholes valuation model primarily, although for certain of the loan transactions contracted for in 2018, it used a binomial measurement model for those specific loans. Management acknowledges that:

- a. The cost of financing to the Company is significant; interest on the bridge loans is substantial. In 2018 we reported \$504,778 of interest expense (2017: \$666,245).
- b. The accounting for these transactions creates complexities in the financial reporting process.
- c. The judgements utilized are based on specific assumptions which, if changed, would generate different results. The significant point to note is that these charges as, noted above, are non-cash charges with no impact on the Company's cash flow.

4. During the 2018 and 2017 fiscal years, the Company secured financing from various sources , the significant components include:

|   | 2018                | 2017                |
|---|---------------------|---------------------|
| i) Private placements of shares for cash consideration            | \$ 866,200          | \$ 719,403          |
| iii) Settlement of trade accounts payable for share consideration | 13,379              | 107,708             |
| iv) Bridge loan financing secured                                 | 1,457,983           | 1,788,974           |
| v) Bridge loan settlements for share consideration                | 1,205,130           | 2,536,963           |
| vi) Project financing provided by development partners            | 738,983             | 371,000             |
|   | <u>\$ 4,281,675</u> | <u>\$ 5,524,048</u> |

Subsequent to October 31, 2018 the Company raised an additional \$383,600 in convertible bridge loans and \$71,000 in private placements (refer to Subsequent Events).

**(b) Operating Results:**

The following table summarizes the Company's operating results for the years ended October 31, 2018 and 2017:

**Discussion of Operating Results**

|  | Years ended October 31, |                 |
|--|-------------------------|-----------------|
|  | 2018<br>(\$000)         | 2017<br>(\$000) |
| Administration                         | 306                     | 305             |
| Interest expense                       | 505                     | 666             |
| Accretion expense                      | 2,039                   | 1,358           |
| Financing costs                        | 40                      | -               |
| Professional fees and salaries         | 747                     | 1,433           |
| Stock-based compensation               | 141                     | 442             |
| Development costs, net                 | (130)                   | 147             |
| Travel and entertainment               | 101                     | 118             |
| Foreign exchange loss (gain)           | (118)                   | 343             |
| Amortization of property and equipment | 4                       | 4               |
| Amortization of patents                | 157                     | 134             |
| Loss on conversion of debentures       | 64                      | 1,010           |
| (Gain) on revaluation of derivatives   | (1,095)                 | (1,615)         |
| (Gain) on extinguishment of debt       | (399)                   | -               |
| Total expenses                         | 2,362                   | (4,346)         |
| Net comprehensive income (loss)        | 2,362                   | (4,346)         |
| Income (loss per share)                | (0.01)                  | (0.02)          |

Commentary:

In addition to the commentary above regarding the impact of the bridge loans on the Company's operating results, we note the following.

In 2018, the Company instituted a series of cost cutting measures on operating expenses given its working capital constraints:

- a. We reduced professional and other fees and salaries in 2018. There was no remuneration paid to the CEO in 2018; the costs associated with Mr. Van Fleet were eliminated after his resignation in August 2018; the CFO's remuneration was significantly reduced and the

Company also rolled back certain staff salaries. We utilized less outside consulting and legal services in 2018.

Travel expenses were generally reduced in 2018; the Company incurred additional travel expenses in 2018 relating to a conference that Mr. Van Fleet attended in Dubai in March 2018 and with respect to travel relating to Madrid when our CEO met there with the representatives from Repsol.

Insurance expense increased in 2018 as the Company incurred more costs relating to coverage pertaining to its commercial insurance for its product development activity, and, with respect to its D&O coverage.

General and administrative costs were reduced on an overall basis. In 2017 we incurred approximately \$28,000 of interest on tax withholding instalments versus \$7,000 in 2018.

- b. The foreign exchange gain in 2018 of \$117,779 (2017: exchange loss on \$343,210) consists of the exchange adjustment on \$CDN denominated transactions during the year, the exchange translation arising on consolidation of the Company's financial statements and an exchange adjustment relating to the measurement of \$CDN denominated convertible debt transactions during the year. The \$CDN traded at \$1.3141 to \$1.00 USD at October 31, 2018 (2017: \$1.2545) (2016: \$1.3403). The fluctuations in the \$CDN resulted in the foreign exchange gain or loss as reported at October 31, 2018 and 2017.
- c. The Company expenses development costs as incurred because it has determined that these expenditures do not meet the criteria stipulated for capitalization of such costs. It reports funding received from development partners when it invoices such partners under the terms of the respective development agreements. These invoices are recorded as recovery of development costs that the Company has incurred.

In 2018 the Company incurred \$608,914 of development costs and received reimbursement for its development partners of \$738,983 to report a net recovery of \$130,069 (2017: incurred \$518,008 of development costs and received reimbursement of \$371,000, to report a net expenditure of \$147,008).

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

|   | 2018 | 2017 |
|---|------|------|
| General and administrative                  | 64   | 98   |
| Rent and occupancy cost                     | 71   | 73   |
| Office insurance                            | 118  | 54   |
| Investor relations, listing and filing fees | 53   | 80   |
|   | 306  | 305  |

**2) Professional and other fees and salaries compare as follows (\$000):**

|                       | 2018 | 2017  |
|-----------------------|------|-------|
| Professional fees     | 165  | 224   |
| Consulting fees       | 317  | 814   |
| Salaries and benefits | 265  | 395   |
|                       | 747  | 1,433 |

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

|         | 2018 | 2017 |
|---------|------|------|
| Airfare | 42   | 48   |
| Hotel   | 20   | 12   |
| Other   | 39   | 58   |
|         | 101  | 118  |

C. Unaudited Quarterly Financial Information – Summary

| <b>Three months ended<br/>(unaudited)</b> | <b>Revenues</b> | <b>Expenses</b> | <b>Income<br/>(loss) in<br/>period</b> | <b>Loss per<br/>share</b> |
|---|-----------------|-----------------|--|---------------------------|
|   | <b>\$</b>       | <b>\$</b>       | <b>\$</b>                              | <b>\$</b>                 |
| January 31, 2017 <b>(1)</b>               | -               | 2,431,952       | (2,431,952)                            | (0.01)                    |
| April 30, 2017                            | -               | (124,532)       | 124,532                                | -                         |
| July 31, 2017                             | -               | 400,281         | (400,281)                              | -                         |
| October 31, 2017                          | -               | 1,638,499       | (1,638,499)                            | (0.01)                    |
| January 31, 2018 <b>(1)</b>               | -               | 2,291,691       | (2,291,691)                            | (0.01)                    |
| April 30, 2018                            | -               | (207,605)       | 207,605                                | -                         |
| July 31, 2018                             | -               | (22,711)        | 22,711                                 | -                         |
| October 31, 2018                          | -               | 331,264         | (331,264)                              | -                         |

| <b>Three months ended<br/>(unaudited)</b> | (1)<br><b>Working<br/>capital<br/>(deficiency)</b> | <b>Capital<br/>assets at NBV</b> | <b>Other Assets</b> | <b>Total Assets</b> | <b>Long term<br/>liability</b> | <b>Shareholders<br/>equity (deficit)</b> |
|---|--|----------------------------------|---------------------|---------------------|--------------------------------|--|
|   | <b>\$</b>  | <b>\$</b>                        | <b>\$</b>           | <b>\$</b>           | <b>\$</b>                      | <b>\$</b>                                |
| January 31, 2017                          | (4,583,257)  | 13,732                           | 389,412             | 524,937             | -                              | (5,995,385)                              |
| April 30, 2017                            | (5,355,571)  | 12,672                           | 410,178             | 501,472             | -                              | (5,457,278)                              |
| July 31, 2017                             | (5,743,486)  | 10,769                           | 414,525             | 515,663             | -                              | (5,357,580)                              |
| October 31, 2017                          | (3,375,656)  | 9,822                            | 431,462             | 916,643             | -                              | (3,424,106)                              |
| January 31, 2018                          | (3,619,741)  | 8,968                            | 451,454             | 566,763             | -                              | (5,382,493)                              |
| April 30, 2018                            | (3,551,233)  | 8,117                            | 438,725             | 597,983             | -                              | (4,805,909)                              |
| July 31, 2018                             | (3,639,419)  | 7,275                            | 427,179             | 605,309             | -                              | (4,088,047)                              |
| October 31, 2018                          | (3,828,503)  | 9,228                            | 396,105             | 710,737             | -                              | (3,423,170)                              |

(1) The net loss reported for the quarter ended January 31, 2018 includes non-cash related expenses with respect to accretion expense of \$345,170 (2017: \$140,912) and with respect to loss on revaluation of derivative liabilities of \$1,419,676 (2017: \$1,046,968).

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**4. RISKS AND UNCERTAINTIES**

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 strides in advancing its technology and in developing a product portfolio and in engaging customers in joint development projects. 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 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 time and effort and incurred significant costs with respect to the maintenance and development of our intellectual property portfolio. In 2018 it decided to abandon certain provisional patent filings in international jurisdictions which it believes does not impact on the core patent technology that the Company maintains. 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 Company must continue to source financing in order to continue to support its business initiatives.

*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.

*Outstanding Lawsuit:*

The Company is engaged in a lawsuit with Mr. Steven Van Fleet who, until his resignation on August 17, 2018, served as a director of the Company and as the President of the Company's wholly-owned subsidiary, MAST, Inc. This matter is discussed further in Section 6 (c) - Contingencies – in this report. The outcome of this lawsuit has not been determined at this stage.

*Foreign Currency Exposure:*

The Company expects to sell its products and license technologies in the United States, in Canada and abroad. It has raised financing in both \$CDN and \$USD. The Company has not hedged its foreign currency exposure. Foreign currency fluctuations present an ongoing risk to the business.

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**5. 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 material uncertainties related to conditions and events that cast significant 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, 2018 the Company reported a net loss and comprehensive loss of \$2,362,239 (2017 - \$4,346,200; 2016 - \$6,805,535) and negative cash flow from operations of \$1,464,637 (2017 - \$2,721,487; 2016 - \$2,889,025). The Company’s working capital deficiency as at October 31, 2018 is \$3,828,503 (2017 – \$3,865,390).

The Company’s future 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 2019 and beyond; however, the ability of the Company to continue as a going concern is dependent on its ability to secure additional financing and/or to profitably commercialize its technology. 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 would be material.

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**6. OTHER MATTERS**

**(a) Critical Accounting Policies:**

The accounting policies the Company believes are critical to the financial reporting process include foreign currency translation, financial instruments, compound and hybrid financial instruments, derivative liabilities, conversion features of bridge loans, patents, impairment of long-term assets, deferred development costs, stock-based compensation and income taxes. These critical accounting policies are set forth in Note 4 to our consolidated financial statements as of October 31, 2018.

**(b) Commitments:**

The Company has extended its lease for premises through July 2022. The lease term is for 5 years and stipulates base monthly rental expenses of \$4,005 CDN. Lease commitments are as follows – commitments less than one year of \$48,060 CDN, years 2-5: \$132,165 CDN,

**(c) Contingencies:**

*Legal Matters:*

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.

On October 7, 2018, the former President of MAST, Inc. (the Company's wholly-owned subsidiary), Mr. Steven Van Fleet, filed a lawsuit against Micromem and MAST in New York State Supreme Court, Dutchess County. In the action, Mr. Van Fleet is seeking payment of \$214,574 plus interest relating to alleged remuneration and expense reimbursements due to him prior to his resignation as an officer and director of Micromem and MAST on August 17, 2018. The Company answered the complaint December 7, 2018 by denying the material allegations in Mr. Van Fleet's claims. In addition, the Company interposed 7 counterclaims against Mr. Van Fleet seeking, among other things: (i) damages of not less than \$2.75 million, (ii) specific performance to compel Mr. Van Fleet to comply with his contractual obligations which were required for the period of time that he served as an officer and director through to his resignation date; (iii) repayment of certain salary and expenses paid to Mr. Van Fleet; (iv) a direction for Mr. Van Fleet to turn over all Company property in his possession or control; (v) an accounting to determine all money and property belonging to the Company and/or MAST. On January 24, 2019, the Company amended its original answer and counterclaims to include, among other things, a demand for additional damages based on new information that has come to light. On February 8, 2019 Mr. Van Fleet, through his counsel, replied to and denied the material allegations in Micromem's counterclaims. The Company reports an accrual of \$205,788 at October 31, 2018 with respect to alleged remuneration and expense reimbursements claimed by Mr. Van Fleet but,

nonetheless, has denied the allegations in Mr. Van Fleet's claims. This matter remains as a contingency at February 28, 2019.

In addition to the above, the Company may be subject to litigation, claims and governmental and regulatory proceedings arising in the ordinary course of business. In such cases, the Company accrues a loss contingency for these matters when it is probable that a loss has been incurred and the amount of the loss can be reasonably estimated.

**(d) Off-Balance Sheet Arrangements:**

At October 31, 2018, 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) Share Capital**

At October 31, 2018 the Company reports 259,602,699 common shares outstanding (2017: 228,562,711). Additionally, the Company has 6,250,000 stock options outstanding with a weighted average exercise price of \$0.29 per share (2017: 6,595,000 options outstanding with a weighted average exercise price of \$0.37 per share).

**(f) Management and Board of Directors**

At our last Annual Meeting of Shareholders held on July 21, 2017, Joseph Fuda, David Sharpless, Steven Van Fleet, Oliver Nepomuceno, Larry Blue, Alex Dey, and Brian Von Herzen were re-elected to serve on our Board of Directors. Joseph Fuda and Dan Amadori continue to serve as officers of the Company. Steven Van Fleet resigned as an officer and director of the Company on August 17, 2018. As of October 31, 2018 the Company is engaged in a lawsuit with Mr. Van Fleet, as outlined in Section 6(c) of this MD&A report.

David Sharpless resigned as a director of the Company on March 30, 2018 after 18 years of service to pursue other business interests. Mr. Sharpless served as Chair of the Audit Committee until his resignation; he was replaced by Mr. Alex Dey who assumed the role of Chair of the Audit Committee at that time.

Larry Blue resigned as a director of the Company on September 30, 2017 after 12 years of service to the Company to pursue other business interests.

Our management team and directors, along with their 2018 remuneration, is presented as below:

|                   |  | 2018 remuneration |         |         |
|-------------------|--|-------------------|---------|---------|
|                   |  | Cash              | Options | Total   |
| Individual        | Position   |                   |         |         |
| Joseph Fuda       | President, Director                                    | -                 | 15,979  | 15,979  |
| Steven Van Fleet  | President, MAST Inc., Director (until August 17, 2018) | 186,059           | -       | 186,059 |
| David Sharpless   | Director (until March 31, 2018)                        | -                 | -       | -       |
| Oliver Nepomuceno | Director   | -                 | 6,391   | 6,391   |
| Alex Dey          | Director   | -                 | 6,391   | 6,391   |
| Brian Von Herzen  | Director   | -                 | -       | -       |
| Dan Amadori       | CFO  | 49,238            | 15,979  | 65,217  |

**(g) Transactions with Related Parties**

The Company reports the following related party transactions:

(a) Former Chairman (until April 26, 2016)

The former Chairman's term expired on April 26, 2016; his compensation for services rendered was extended until October 31, 2016 and was then terminated. He received cash compensation on a month to month basis totaling \$113,266 (\$CDN 150,000), which was fully paid in 2016. Additionally, the Chairman exercised 700,000 stock options and the Company realized proceeds of \$140,000 in 2016.

(b) Key management compensation

Key management personnel are persons responsible for planning, directing and controlling activities of the Company, including officers and directors. Compensation paid or payable to these individuals (or companies controlled by such individuals) are summarized as:

|                                       |            |              |            |
|---------------------------------------|------------|--------------|------------|
|                                       | 2018       | 2017         | 2016       |
| Professional, other fees and salaries | \$ 235,297 | \$ 667,724   | \$ 840,641 |
| Stock based compensation              | 44,740     | 382,531      | -          |
|                                       | \$ 280,037 | \$ 1,050,255 | \$ 840,641 |

In 2018, these parties were awarded a total of 700,000 options at an exercise price of \$0.10 (2017 - 1,950,000 options at an exercise price of \$0.25; 2016 nil options).

In 2016, officers, directors and a senior employee exercised 3,056,366 options resulting in realized proceeds of \$611,273.

(c) Advances

In 2016, an officer was provided a short term non-interest bearing advances totaling \$42,144 between November 2015 and January 2016. These advances were settled in January 2016 through the allocation of compensation due to the officer.

(d) Trade payables and other liabilities

At October 31, 2018 the Company reports in trade payables and other liabilities, a balance owing to the former President of MAST of \$193,174 which amount represents alleged outstanding wages payable, see Note 19(b) to the consolidated financial statements.

As at October 31, 2018 and 2017 the Company includes \$167,000 in trade payables and other liabilities owing to a company whose major shareholder is a director of the Company and who has also served as its Chief Technology Officer. This individual was elected as a director on February 19, 2014. The balance reported relates to services provided in 2015; there have been no invoices submitted by this related party after October 31, 2015.

(e) Convertible debentures

The CEO of the Company provided a convertible debenture of \$100,000 CDN (\$76,092 USD) in September 2016, which was converted to common shares in July 2017. In January 2018, he provided an additional convertible debenture of \$150,000 CDN (\$114,138 USD). At October 31, 2018, \$100,862 CDN (\$76,748 USD) in loan principal remains outstanding.

**(g) Liquidity and Capital Resources:**

*Liquidity:*

We currently report negative cash flow 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 2018 and subsequent to the end of the fiscal year, the Company continued to raise additional financing.

We currently have no lines of credit in place. We must continue to obtain financing from investors or from clients in support of our development projects.

We have granted to our directors, officers and employees options to purchase shares at prices that are at or above market price on the date of grant. At October 31, 2018 there are 6,250,000 options outstanding at an average exercise price of \$0.29 per share.

*Capital Resources:* We have no commitments for capital expenditures as of October 31, 2018.

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**7. SUBSEQUENT EVENTS**

Subsequent to October 31, 2018:

- (a) The Company secured, in aggregate, \$383,600 in convertible debentures with one year terms. These loans have conversion features which become effective six months after initiation date.
- (b) The Company repaid \$106,500 CDN and \$75,600 USD in convertible debentures and \$219,747 in convertible debentures were converted into 12,382,097 common shares.
- (c) The Company extended convertible debentures that were within 3 months of maturity from October 31, 2018. Extensions terms ranged from 2 to 6 months.
- (d) The Company completed two private placements with arms' length investors realizing total proceeds of \$71,000 and issued a total of 1,665,789 shares.
- (e) 350,000 stock options, which were issued on February 10, 2014, expired.

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