



**MICROBIX BIOSYSTEMS INC.**  
**ANNUAL INFORMATION FORM**

For the financial year ended September 30, 2022

As at December 22, 2022

***Forward Looking Information***

This Annual Information Form contains forward-looking statements and information, which involve various risks and uncertainties. There can be no assurance the statements will prove to be accurate and actual results and future events may differ materially. See “Forward Looking Information”.

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## Forward Looking Statements

This Annual Information Form contains certain forward-looking statements and information relating to the Company including, but not limited to, the Company's operations, anticipated financial performance, business prospects and strategies. Forward-looking information typically contains statements with words such as "anticipate", "could", "expect", "seek", "may", "will", "intend" "believe", "plan" or similar words or expressions suggesting future outcomes.

All statements, other than statements of historical fact, included in this Annual Information Form are forward-looking statements that involve various risks and uncertainties, both known and unknown. There can be no assurance that such statements will prove to be accurate, and actual results and future events could differ materially from those anticipated in such statements.

By its nature, the Company's forward-looking statements and information involves numerous assumptions, inherent risks and uncertainties, including but not limited to the following factors: changes in business strategies; general global economic and business conditions; the effects of competition and pricing pressures; industry overcapacity; shifts in market demand; changes in laws and regulation changes; uncertainties of litigation; patent registration; the regulatory marketing application processes; labour disputes; timing of completion of projects; currency and interest rate fluctuations; availability of financing, either equity or debt; conducting business in foreign jurisdictions and applicability of foreign laws; results of research and development; commercialization of technologies and procedures and technological changes.

The Company undertakes no obligation to update publicly or otherwise revise forward-looking information, whether as a result of new information, future event or otherwise, except as required by applicable law.

## Corporate Structure

### *Name, Address and Incorporation*

Microbix Biosystems Inc. ("**Microbix**", the "**Company**", "**us**", "**we**", or "**our**") was amalgamated under the laws of the Province of Ontario by articles of amalgamation dated October 1, 1990. The predecessor companies of Microbix were Animal Health Laboratories Inc., a private company incorporated on October 3, 1978 under the laws of the Province of Ontario which changed its name to Microbix Biosystems Inc. on May 4, 1984, and Autocrown Corporation Limited, a public company amalgamated under the laws of the Province of Ontario on April 27, 1980.

The registered office and principal place of business of the Company is located at 265 Watline Avenue, Mississauga, Ontario. The Company also operates and maintains a second site at 235 Watline Avenue and a third site at 275 Watline Avenue (both also in Mississauga, Ontario).

## ***Intercorporate Relationships***

On December 14, 2012, the wholly owned subsidiary Crucible Biotechnologies Limited was incorporated in Ontario for future purposes, and later applied to a vaccine-related business opportunity. During fiscal 2022 there was no business activity in this subsidiary.

## **General Development of the Business**

### ***Business Overview***

Microbix specializes in developing biological and technology solutions for human health and well-being. It manufactures a wide range of critical biological materials for the global diagnostics industry in three categories, (1) “**Antigens**” as ingredients for making infectious disease tests (“**Tests**”), (2) quality assessment products (“**QAPs™**”) for helping control Test accuracy, and (3) viral transport medium (generically referred to as “**VTM**” and branded as “**DxTM™**”) to enable patient-sampling for Tests.

In the context of Microbix’s business, Antigens are purified and inactivated bacteria and viruses, which are used as ingredients in the manufacturing of the immunoassay format of Tests to assess exposure to, or immunity from, those pathogens.

In turn, QAPs are inactivated and stabilized samples of a pathogen, or analogue of a pathogen, that are formatted to resemble patient samples in order to support one or more of (i) the proficiency testing of clinical labs, (ii) Test development, instrument validation, and technician training, (iii) the quality management of Tests by clinical laboratories, or (iv) included within kits of cartridges to help quality management of Point-of-Care Tests used beyond lab settings.

Microbix’s DxTM, its newest product line, was begun in the Spring of Calendar 2020 and sales of this product line became material in the Spring of 2021. DxTM consists of vials of liquid medium that stabilize organisms, particularly viruses, in patient-samples until such time as they can be tested for disease by laboratory-based instruments. A widespread current use of DxTM is for molecular diagnostics (e.g., RT-PCR) testing for the SARS-CoV-2 virus.

Microbix’s portfolio of Antigens, QAPs, and DxTM is sold to more than 100 customers worldwide, primarily to multinational diagnostics companies, laboratory accreditation organizations, and government health procurement. Its fiscal 2022 revenues of \$19.1 million were largely from these three product lines. Microbix now employs over 100 highly skilled employees, many of whom have advanced degrees.

The company also applies its biological expertise to develop other innovative and proprietary technologies and products; currently its Kinlytic® Urokinase for injection (“Kinlytic”), a thrombolytic biologic drug used to treat blood clots.

### ***Three-Year History***

#### **Fiscal 2020, 2021, & 2022 (Oct. 1, 2019 through Sept. 30, 2022)**

Over the past three years, Microbix has been working to advance its revenue-oriented Antigens, QAPs, and DxTM businesses (collectively, the “**Revenue Businesses**” and to increase the value of its pre-revenue development projects, such as Kinlytic.

Over first year of the period, fiscal 2020, total sales were \$10.5 million vs. \$13.4 million for fiscal 2019 and principally of Antigens. In fiscal 2020, the previous years’ growth trend was disrupted by the COVID-19 pandemic, with total sales falling and with that drop-off believed due to the pandemic interrupting the normal usage of non-respiratory Tests and therefore the need for Antigens for their manufacture.

As will be described later in this document, Microbix's management believes that demand growth for its Antigen will resume and increase as the pandemic ebbs and has therefore modernized and de-bottlenecked its production to meet that growth. That being said, Antigens have been falling as a percentage of total sales as the other two revenue segments demonstrate faster growth. Specifically Antigen sales comprised 89% of total revenues in fiscal 2019, 83% in fiscal 2020, 49% in fiscal 2021, and 43% in fiscal 2022.

An important advancement made by Microbix in the Antigens segment of its Revenue Businesses has been the development and validation of bioreactor-based production. Starting with its highest-selling product, the Company developed and validated a process to move production away from the traditional less controlled roller-bottle cultures to a more efficient method that uses state-of-the-art bioreactors. Microbix’s move to bioreactors has expanded its capacity, helped reduce per-unit costs, improved in-process controls, and is enhancing product quality.

Bioreactor usage for Antigen production became commercial in fiscal 2017, was scaled-up in fiscal 2018, and the largest customer for products made in bioreactors converted in fiscal 2019. Microbix has since derived some margin benefits from this conversion, alongside the benefits of other concurrent actions it has taken to improve broader Antigens production efficiency. However, bioreactor-derived sales are to a limited number of customers, the largest of which purchases via a supply contract that provides a below-target gross margin. Microbix is undertaking the maximum annual prices increases available under that contract, and will terminate it in favour of “spot rate” sales should the related gross margins not improve.

Beyond normal-course pricing renegotiations, the adoption of new technologies for production is intended to enable Microbix to meet growth in demand without the need to proportionately expand its Antigen-related facilities or payroll – making it well-positioned to benefit from the adoption of immunoassay-based testing for infectious diseases in new markets, such as China and other Asia-Pacific nations. Microbix’s Asia-Pacific distributor advises it that Microbix Antigens have been incorporated into dozens of new Tests seeking Chinese FDA approval, providing sales growth opportunities that may become considerable.

Over a quarter of Microbix's sales are now being realized by way of using its inactivated pathogen samples or synthetic-biology analogues as "quality assessment products," broadly branded as QAPs™. As a product line, sales of QAPs have been grown considerably over the past three years, from \$1.5 million and 14% of sales in fiscal 2020, to \$4.7 million and 25% of sales in fiscal 2021, and to \$5.4 million and 28% of sales in fiscal 2022.

That sales growth has been realized by way of (i) upgrading Microbix's quality management systems to full medical devices standards (from fiscal 2018), (ii) creating fully-regulated "IVD" QAPs (from fiscal 2019), and (ii) broadening its QAPs product lines and formats while also opening new market segments and customer relationships (from fiscal 2019). The QAPs product line currently comprises dozens of discrete SKUs sold to customers around the world.

Microbix has established that there are several product/customer categories for its QAPs, namely (i) unbranded sales to clinical laboratory accreditation agencies for use in their proficiency testing ("PT") programs, (ii) "PROCEEDx™" or "ONBOARDx™" branded sales for use in research, Test development validation/verification of instruments, troubleshooting, and operator training (collectively designated Research Use Only ("RUO") applications), (iii) "REDx™" branded sales for use by clinical laboratories for formal In-Vitro Diagnostics ("IVD") quality assessments, and (iv) unbranded sales to Point-of-Care Test ("PoCT") manufacturers for inclusion into their kits of test-cartridges at fixed ratios (e.g., 1 QAP per 20 Test cartridges).

Currently, the majority of QAPs sales are into the PT market, however Microbix soon expects sales to PoCT to become the dominant category. This is due to many table-top PoCT instruments becoming perfected and available following the COVID pandemic, all of which require reliable and room-temperature stable test-controls. QAPs formatted onto the market-leading FLOQSwab® flocked patient-sampling swabs of Microbix strategic collaborator Copan Italia S.p.A. are ideally-suited for supporting the accuracy of PoCTs. Notably Microbix's "PROCEEDx™FLOQ®" and "REDx™FLOQ®" branded swab-based QAPs are engineered to quickly and reliably help detect problems with operators, consumables, and instruments. Such assurance is expected to be a predicate for PoCTs to get regulatory approvals for use in commercially-important settings outside of clinical laboratories, such as local clinics, long-term care homes, pharmacies, schools, and workplaces. FLOQ-formatted QAPs are believed to be unique in the Test-controls marketplace, offering far less variable performance than spun-fiber or sponge swabs. They are likewise protected by issued patents of Copan and patent-pending intellectual property of Microbix. For such reasons, unit volume sales of FLOQSwab-formatted QAPs exceeded the unit volume sales of liquid vial format QAPs in both fiscal 2021 and 2022, in spite of this format only being introduced in late fiscal 2020.

Most sales of QAPs are to the PT and PoCT segments and made directly by Microbix at higher unit volumes and on a business-to-business basis. However, sales to the clinical laboratory market can be of smaller volumes and to a more diffuse base of customers. Accordingly, since fiscal 2020, Microbix has been continuing to build-out a network of formal distribution partners. At present, Microbix has ten (10) QAPs distributors that provide for exclusive or non-exclusive distribution access to over 30 countries, including in Africa, parts of Asia, Australia and New

Zealand, Canada, the European Union, Scandinavia, parts of South America, the United Kingdom, and the United States.

To complete this review of the QAPs business, we will discuss the availability of both RUO and IVD SKUs within this segment. At the end of fiscal 2020, Microbix had 16 RUO and 7 IVD QAPs. At the end of fiscal 2021, 30 RUO and 11 IVD QAPs. At year-end of fiscal 2022, this stands at 48 RUO and 33 IVD, with most IVDs available in Canada, the EU, the US, and elsewhere.

The final quarter of Microbix's Revenue is generated by DxTM, Microbix's brand of viral transport medium (i.e., a "VTM"). The DxTM Business was created in fiscal 2020 and generated \$0 sales in that year. Sales then reached \$4.5 million and 24% of sales in fiscal 2021, and \$5.0 million and 26% of sales in fiscal 2022. Microbix's success with DxTM came about as a result of its longstanding capabilities in formulating cell-culturing media and its being alert to emerging supply-chain challenges.

Specifically, VTMs are essential for conducting lab-based molecular testing and soon after the emergence of the pandemic Microbix reasoned-out that it would be challenging for public health authorities to reliably secure adequate amounts of high-quality supply: No company in Canada was manufacturing VTM domestically, meaning that all supply needed to be imported.

Accordingly, Microbix offered to help fulfill the VTM needs of the Province of Ontario, and as announced on October 13, 2020, it was provided with a provincial "Ontario Together Fund" grant of \$1.45 million to advance to commercial-scale VTM production. Microbix's production of its DxTM began in December, 2020, the first sale was made in February, 2021, a first order from the Province of Ontario was received in April, 2021 and a second order in December of 2021. As a result, DxTM has become an important third source of revenues for Microbix in both of fiscal 2021 and 2022.

A non-revenue generating project of Microbix's must also be mentioned as, subject to partnering, it could add significant value. Specifically, Microbix has long been interested in the market potential for a human protein drug known as urokinase. A low molecular weight form of urokinase, Kinlytic® urokinase, has had a history of clinical use in U.S. and Canadian patients — successfully treating a millions of patients for a number of disorders relating to blood clots. After first exploring the market-introduction of a generic (i.e., biosimilar) version of the original drug, Microbix ultimately acquired all rights to the original drug in 2008. Since that time, Microbix has been pursuing means to re-launch the drug into North American markets, following the dating expiry of the last lot of originator-manufactured product in 2009.

After its acquisition of the product, Microbix was focused on identifying partners to fund the construction of a new manufacturing site capable of supporting the re-launch of Kinlytic for a number of its prior clinical indications, such as pulmonary embolism, deep vein thrombosis, stroke, heart attack, and clearance of clots from implanted catheters. The funds needed for the construction and qualification of that scale of facility, coupled with the cost of human trials to revalidate the process, would have been on the order of US\$100 million. Finding a source for such funding understandably proved to be difficult, regardless of attractive project economics.

More recently, Microbix has refocused near-term objectives for Kinlytic on a specific clinical indication previously approved by FDA, namely the clearance of blocked biomedical venous catheters, which has reduced the manufacturing and clinical trial budgets to a fraction of those for the complete range of prior indications and may therefore make the project more appealing to prospective partners. Microbix has determined that a manufacturing and clinical trial investment of an estimated US\$20 million over a period of less than three years should enable the filing of a supplemental Biologics Licensing Application (sBLA) for re-introduction of Kinlytic for a clinical indication within which it could achieve annual North American sales of over US\$200 million. The Company reasons that such economics should be attractive to potential partners that are able to provide the needed investment.

Additionally, Microbix conducted a formal consultation with FDA about such plans in April 2017 and received guidance that it believes to be confirmatory and supportive. Since its FDA meeting, Microbix focused on defining the budgets and timelines for the more focused project, with those validated by way of obtaining quotations from third parties for all critical elements of the project. Microbix reasoned that having quotations from qualified contractors would provide the project greater credibility than could be obtained from its internal estimates.

In 2018, Microbix has made further progress with regards to Kinlytic. After receiving all needed third-party contractor information, it sought-out and engaged an experienced drug licensing agent, and at the end of calendar 2018, Microbix completed a due diligence “data room” in support of the project. Since fiscal 2019, the agent has undertaken outreaches to many potential development partners and a series of such parties signed confidentiality agreements with Microbix as a predicate to conducting their evaluations. Such discussions continue up to the present day.

An alliance partner for returning Kinlytic to the market has to have interest in the project, sufficient capital, U.S.-based and hospital-directed sales force capability, comfort with biological drugs, and an appropriate timeline for receiving its return on investment. Such parties do exist, and Microbix remains optimistic that an acceptable development alliance will be struck to return Kinlytic to the United States market and that its shareholders will benefit from that work.

However, it is management’s opinion that the COVID-19 pandemic has increased the difficulty of securing a partnering agreement to obtain the required re-development funding. This is for two reasons: (i) the pandemic has disrupted the business of the hospital-oriented product companies that are the more evident potential partners for this asset (due to fewer normal-course procedures being done) and thereby has constrained the new product budgets of such companies, and (ii) prior restrictions and current reticence with respect to physical travel (i.e., closed borders, quarantines, etc.) are making it more difficult to advance negotiations, conclude partnerships, and arrange off-site manufacturing or clinical trial work.

Accordingly, Microbix cannot represent a precise timeline for securing a funding partner to advance the re-development of Kinlytic to sBLA filing and renewed commercial sales. As a consequence, management followed International Financial Reporting Standards (IFRS) and

fully impaired the book value of this asset in fiscal 2020, incurring a non-cash charge to earnings and reducing the carried value of Kinlytic to zero on Microbix's financial statements. Even though this asset has been written down, management has continued efforts to partner this asset and return the drug to the United States market for its catheter-clearance sub-indication.

### ***Financial Matters***

Financial matters over the past several years are also noteworthy. Prior to fiscal 2018, growth in sales and resulting margins was more than offset by accelerating spending on pre-revenue development projects. Such spending necessitated periodic private placement financings to fund the large sums needed to advance those projects. That approach changed in fiscal 2018, when the decision was taken to focus upon the growth of Microbix's Antigens and QAPs businesses. However, further funding was still needed to provide working capital, complete the Antigen-related bioreactor project, and to make needed improvements to the manufacturing facility. A private placement was therefore undertaken in Q1 of fiscal 2018 (October 2017), for gross proceeds of \$3.5 million.

For further funding support, the Company signed an agreement with Federal Economic Development Agency for Southern Ontario ('FedDev') in July, 2019 to provide a repayable government contribution whereby FedDev agreed to contribute funding for 30% of the Business Scale-up and Productivity Project expenditures made by the Company, up to \$2,752,500 over four years. The Company submits eligible expenses on a quarterly basis to receive the interest-free contributions. These matching funds are being utilized to support the ongoing growth of our Revenue Businesses. Repayment of the FedDev contribution does not begin until December 15, 2024.

On January 30, 2020, the Company completed a private placement offering of an aggregate of 11,800,000 units for total gross proceeds of \$2,360,000, and net proceeds of \$2,150,159 after share issuance costs of \$209,241. These funds were raised to meet the Company's commitment from the agreement with FedDev, help fund growth initiatives, and bolster working capital.

In addition, as Microbix expanded and accelerated new projects such as DxTM and additional QAPs, it required additional funding support. On May 19, 2021, the Company consequently completed a public offering and a concurrent private placement offering of an aggregate of 11,500,000 units – for total gross proceeds of \$6,900,000, and net proceeds of \$6,131,567 after share issuance costs of \$768,433. Each unit consisted of one common share of Microbix and one-half of one common share purchase warrant. Each whole warrant entitles the holder to purchase one additional common share at an exercise price of \$0.80 for two years. The financing was a "bought deal", with co-lead underwriters of the offering (iA Private Wealth Inc. and Bloom Burton Securities Inc.). Cash commissions of \$402,500 were paid and an aggregate of 670,833 Broker's Warrants were issued in the public offering. Each Broker's Warrant entitles the holder to purchase one unit at a price of \$0.60 for a period of two years. All securities issued under the concurrent private placement were subject to a hold period which expired four months and one day from the date of closing.

At the end of fiscal 2020, the Company also determined that the deferred tax asset balance of \$1,568,237 was to be written down due to the heightened business uncertainties related to the COVID-19 pandemic.

On October 13, 2020, the Company announced a grant agreement with the Ontario Together Fund (“OTF”) of the Ministry of Economic Development, Job Creation and Trade (the “Grant”). The Grant of \$1,445,000 was to cover 50% of the cost to more fully automate production of the Company’s quality assessment products (QAPs™) that help ensure the accuracy of infectious disease diagnostic testing, and enable local, secure, and cost-effective automated production of the quantities of viral transport medium (generically “VTM” and branded “DxTM™”) needed for Ontario’s lab-based testing for COVID-19 disease or other Tests of concern to public safety. An initial Grant disbursement, upon execution of the agreement, in the amount of \$867,000, was received on October 13, 2020. The remaining \$578,000 of the grant was to be paid upon project completion and a review of Eligible Project Expenditures incurred during the project, up to February 28, 2022. During the year ended September 30, 2021 the Company recognized \$766,869 (2020- nil) of grant income. The company also recorded a \$680,202 reduction in capital asset costs. The excess claims of \$578,000 for the remainder of the grant were recognized in accounts receivable. Microbix has met the conditions and received the balance in April 2022.

During the year ending September 30, 2022, the Company received \$2,637,330 from the exercise of 7,480,293 warrants and received \$806,800 from the exercise of 2,960,00 options. In addition, a \$500,000 debenture was converted to 2,173,913 shares during the fourth quarter of fiscal 2022.

During this fiscal year, the Company made an early repayment of the remaining outstanding principal relating to a \$2 million non-convertible 9% interest debenture. A payment of \$1,331,758, including accrued interest, was made on October 1, 2021. In addition, in April 2022 the Company repaid a non-convertible \$500,000 debenture when it came due.

On December 3, 2021 the Company prepaid in full the outstanding balance including accrued interest for a BDC loan, totalling \$266,094. See the long-term debt note for further details.

Presently, cash flow from operations, along with cash and an available and undrawn \$2.0 million bank credit facility, appears adequate to support baseline funding requirements for our Antigens, QAPs and VTM businesses. Microbix will continue to monitor and manage its cash position, with the objective of anticipating and meeting all current and future liquidity and capital needs.

Over the past three years, Microbix has achieved its objective of improving its financial position to help ensure healthy growth. During this timeframe, revenues have grown 43% to over \$19 million. We have moved from a breakeven company to generating \$5 million in net income over the past two years. Our key financial metrics have also improved significantly; current ratio to 8.45 from 1.35 and debt-equity ratio to 0.33 from 0.86. This financial performance has been a result of our generating cash from operations, securing government funding, and attracting new investors via private placements and a public offering. With over

\$13 million in cash and cash equivalents, we are now poised to further invest in the growth of our businesses.

### ***Share Capital Transactions over the 3-year period***

On January 30, 2020, the Company completed a private placement offering of an aggregate of 11,800,000 units for total gross proceeds of \$2,360,000, net proceeds of \$2,150,159 after share issuance costs of \$209,241. Each unit consists of one common share of Microbix and one common share purchase warrant. Each whole warrant entitles the holder to purchase one additional common share at an exercise price of \$0.36 for five years. Fair value of the common share purchase warrants was determined to be \$ 1,205,892. Gross proceeds were allocated to common shares and common share purchase warrants in the amount of \$ 1,611,450 and \$748,550 respectively. The financing was non-brokered. Cash commissions of \$104,300 were paid and an aggregate of 521,500 Broker's Warrants were issued in the private placement offering. Fair value of the broker warrants was determined to be \$42,476 using the Black-Scholes option pricing model. The volatility of the stock for the Black-Scholes options pricing model was based on 5-year historic volatility of the Company's stock price on the Toronto Stock Exchange (69%) and the risk free rate of interest of 1.38% is based upon the Government of Canada benchmark bond yields - 3 to 5 year at the date of the award of the Broker's warrants and a five year term. Management believes that the historic stock volatility provides a fair and appropriate basis of estimate for the expected future volatility of the stock. Each Broker's Warrant entitles the holder to purchase one common share at a price of \$0.36 for a period of five years. All securities issued under the private placement were subject to a holding period, expiring four months and one day from the date of closing.

On February 25, 2020, the Company issued 2,200,000 options to employees and directors of the Company. The options vest after three years, with a five-year term and an exercise price of \$0.215 per common share.

On August 21, 2020, the Company issued 150,000 options at an exercise price of \$0.28 as partial compensation for a consulting agreement. These options vest over a one year period and have a five year term.

On December 7, 2020, the Company issued 100,000 options to a new director. These options vest after three years, with a five-year term and an exercise price of \$0.46 per common share.

On February 17, 2021, the Company issued 2,239,000 options to employees and directors of the Company. The options vest after three years, with a five-year term and an exercise price of \$0.62 per common share.

On May 19, 2021, the Company completed a public offering and concurrent private placement offering of an aggregate of 11,500,000 units for total gross proceeds of \$6,900,000, and net proceeds of \$6,131,567 after share issuance costs of \$768,433. Each unit consisted of one

common share of Microbix and one-half of one common share purchase warrant. Each whole warrant entitles the holder to purchase one additional common share at an exercise price of \$0.80 for two years. The financing was a “bought deal”, with co-lead underwriters of the Offering (iA Private Wealth Inc. and Bloom Burton Securities Inc.). Cash commissions of \$402,500 were paid and an aggregate of 670,833 Broker’s Warrants were issued in the public offering. Each Broker’s Warrant entitles the holder to purchase one unit at a price of \$0.60 for a period of two years. All securities issued under the concurrent private placement were subject to a hold period which expired four months and one day from the date of closing.

On July 12, 2021, the Company issued 100,000 options at an exercise price of \$0.54 as partial compensation for a consulting agreement. These options vest over a one year period and have a five year term.

On August 23, 2021, the Company issued 75,000 options at an exercise price of \$0.60 as partial compensation for a consulting agreement. These options vest over a one year period and have a five year term.

On November 15, 2021, the Company issued 50,000 options to a new Director of IT. These options vest after three years, with a five-year term and an exercise price of \$0.73 per common share.

On February 18, 2022, the Company issued 2,805,000 options to employees and directors of the Company. The options vest after three years, with a five-year term and an exercise price of \$0.60 per common share.

On May 30, 2022, the Company issued 75,000 options to a new Clinical Marketing Director. These options vest after three years, with a five-year term and an exercise price of \$0.57 per common share.

Microbix intends to continue to use its stock option plan on an annual basis, as part of its compensation programs to incentivize and retain its board of directors, executives and managers. Scheduled usage of the stock option plan takes place each February following the issuance of Microbix’s Management Information Circular.

On October 3, 2022 the Company initiated Normal Course Issuer Bid (“NCIB”) program for the repurchase and cancellation of outstanding common shares. In accordance with the rules of the Toronto Stock Exchange and as detailed in the Company's news release of September 28, 2022, the NCIB enables the Company to repurchase up to 5% of its common shares over a 12-month period. During the months of October and November 2022, the Company repurchased and cancelled 558,500 shares.

## ***Significant Acquisitions***

Microbix has not made any significant acquisitions over the past three fiscal years. Over the history of the Company, it has made three material acquisitions:

1. The purchase of a building as the site for expanded production of its Antigen products, which was completed in 2008.
2. The acquisition of Kinlytic® urokinase for injection, the only FDA-approved Urokinase product in the US, in 2008.
3. The acquisition of rights to the precursor technology to a cell-sorting technology in 2005.

## **Business of the Company**

### ***General***

Microbix Biosystems Inc. (“**Microbix®**” or the “**Company**”) (TSX: MBX, OTCQB: MBXBF) specializes in developing biological and technology solutions for human health and well-being. It manufactures a wide range of critical biological materials for the global diagnostics industry in three current sales-generating categories, (1) **Antigens**, (2) quality assessment products (“**QAPs™**”), and (3) viral transport medium (“**DxTM™**”).

In the context of Microbix’s business, Antigens are purified and inactivated bacteria and viruses, which are used in the immunoassay format of Tests to assess exposure to, or immunity from, those pathogens.

QAPs are inactivated and stabilized samples of a pathogen (or an analogue with similar properties), that are created to resemble patient samples in order to support one or more of (i) clinical laboratory accreditation agencies for use in their proficiency testing (“PT”) programs, (ii) research, Test development validation/verification of instruments, troubleshooting, and operator training (collectively designated Research Use Only (“RUO”) applications), (iii) clinical laboratories for formal In-Vitro Diagnostics (“IVD”) quality assessments, and (iv) Point-of-Care Test (“PoCT”) manufacturers for inclusion into their kits of test-cartridges. (Microbix’s Antigens and QAPs are sold to more than 100 customers worldwide, primarily to multinational diagnostics companies and laboratory accreditation organizations.

DxTM is Microbix’s brand of viral transport medium, a product generically known as a “VTM.” VTMs stabilize the nucleic acids and Antigens in patient specimens until such time as they can be tested using laboratory-based instruments. A widespread current use of VTM is for molecular diagnostic (e.g., RT-PCR) testing for the presence of the SARS-CoV-2 virus that is causing the COVID-19 pandemic. Microbix’s major customer for DxTM is currently the procurement representatives of the Province of Ontario, for whom the product was designed and created.

Microbix has also applied its biological expertise and infrastructure to create proprietary new

products or technologies. Currently it has one; Kinlytic® urokinase, a biologic thrombolytic drug (used to dissolve blood clots).

### ***Antigens Business***

An Antigen is defined as a substance foreign to the (human) body that evokes an immune response and binds a product of the immune response (e.g., with an antibody). As relates to Microbix, an Antigen is best considered a preparation of concentrated, purified, intact and inactivated bacteria, parasites, or viruses (or purified fractions of such organisms), that is used as a key ingredient in Tests that establish the presence or extent of human antibodies to that bacteria, parasite, or virus.

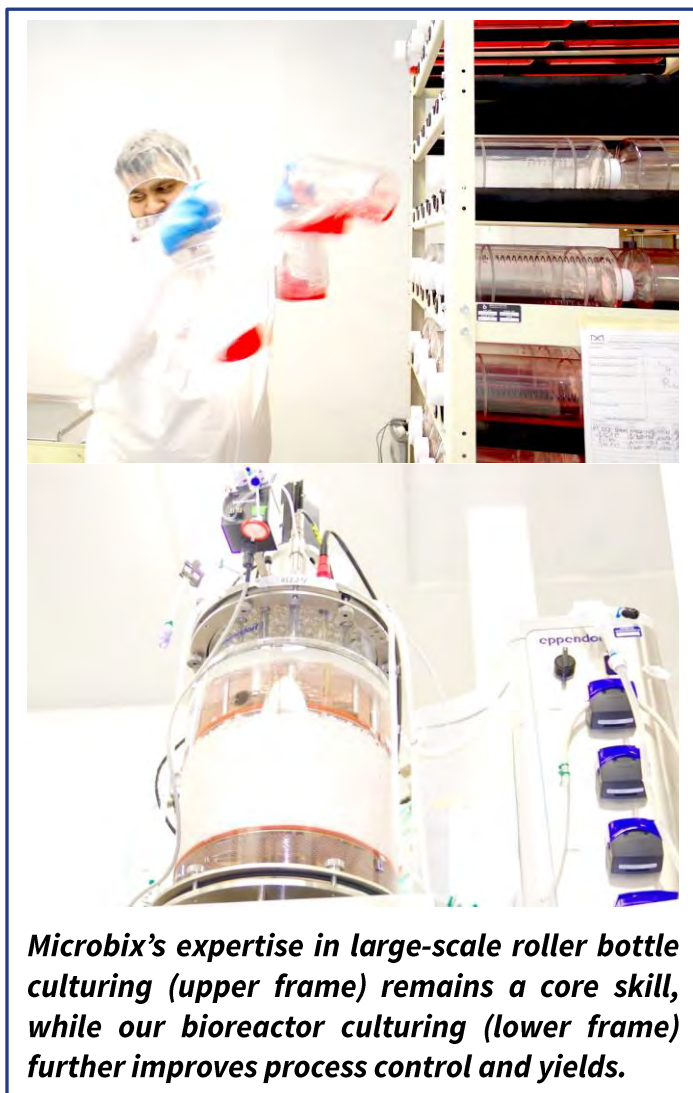
Such “immunoassay” Tests are used to determine whether patients have been exposed to a disease organism (e.g., to bacteria causing a respiratory illness such as pneumonia) or to measure pre-existing exposure or immunity to a disease by establishing the presence of circulating antibodies to it (e.g., a pregnant woman's immunity to a virus that could harm her baby *in-utero*). Immunoassays to establish exposure to disease or resistance to it are a mainstay of medical testing in North America, Europe and other regions of the economically-developed world.

Microbix’s business of producing high quality Antigens is the result of three decades of experience in the field, including strain selection, safe, reliable and efficient organism culture at scale, purification, and methods of inactivation. As a result of Microbix’s expertise, its products have received widespread and longstanding customer acceptance, with continuing growth in demand. Microbix’s current catalogue of Antigens covers over 30 bacterial and viral pathogens that are implicated in maternal, pediatric, childhood, respiratory, sexually-transmitted and insect-borne diseases.

Microbix is a leading supplier of natural pathogen-derived Antigens to many multinational producers of immunoassays, with over 100 customers principally located in the United States and Europe. The top five Antigen customers account for approximately 83% of Antigen sales.

Due to a multi-month Antigens production cycle, customers under contract typically order product well in advance of targeted delivery dates, with Microbix maintaining a backlog of open purchase orders. To improve its management of working capital in the face of growing demand, Microbix has moved to partial sales deposits upon the order of product by larger contract customers, with such deposits being accounted for as “deferred revenues” and totaling \$619,404 at September 30, 2022.

Until the advent of the COVID-19 pandemic, growth in demand for its Antigens had been accelerating as a number of diagnostic protocols for infectious diseases important to public health gain adoption in the Asia-Pacific region. Microbix’s distribution agreement for the Asia-Pacific region, executed in 2017, positions it to capture this growth.



***Microbix’s expertise in large-scale roller bottle culturing (upper frame) remains a core skill, while our bioreactor culturing (lower frame) further improves process control and yields.***

Based on projections from its customers, management expects that sales of Antigens will resume prior growth once the COVID-19 pandemic ebbs. This should provide Microbix benefits due to it having increased its capacity to make Antigen using bioreactors, reallocating its traditional (e.g., roller-bottle) Antigen production space, and improving its in-process controls and downstream production capacity and methods. It is still intended that these steps increase the revenue potential of current facilities while also improving margins. As a result of these efforts, management expects to grow Antigen sales and improve profitability. See the preceding discussion in the Three-Year History section of this document for further bioreactor information.

### **Quality Assessment Products**

Immunoassays using natural pathogen-derived Antigens are not the only means of diagnosing diseases. In some cases, Antigens can be made synthetically for immunoassays — generally where a

single Antigen is highly abundant and conserved within a pathogen species. In other instances, Tests can look for the genetic material of a pathogen to identify disease — using a class of techniques called nucleic-acid amplification (e.g., “PCR” polymerase chain reaction-based amplification of DNA), with Tests based on such techniques broadly dubbed “**molecular diagnostics.**” There can be advantages to using synthetic Antigens or molecular diagnostics, but for certain vital applications such as assessing maternal immunity, natural Antigens such as those made by Microbix are not readily substituted.

To capture growth opportunities beyond the natural Antigens market, Microbix is exploiting its expertise for a newer class of products that assist diagnostics industry participants with meeting quality objectives or requirements — broadly characterized as quality assessment products and branded as QAPs™. At present, such products comprise approximately 28% of annual sales, with that proportion expected to increase.

Microbix's quality assessment products consist of samples of pure, intact and inactivated pathogen samples (or analogues) that may also include human cells or nucleic acids (and negative "mock" samples) that are used to establish whether or not an immunoassay or molecular Test is being performed properly. Such QAPs samples may be used to establish Test operator/lab proficiency (as either "white label" product or under the PTDx™ or ONBOARDx™ line), whether a test or testing instrument is functioning properly (PROCEEDx™ and PROCEEDx™FLOQ® lines), or as part of a formal laboratory quality management system (REDx™ and REDx™FLOQ® lines). For all such usage, it is vital that the sample be like that of a real pathogen that is inactivated, stable over time, and consistent. Microbix's expertise is well-

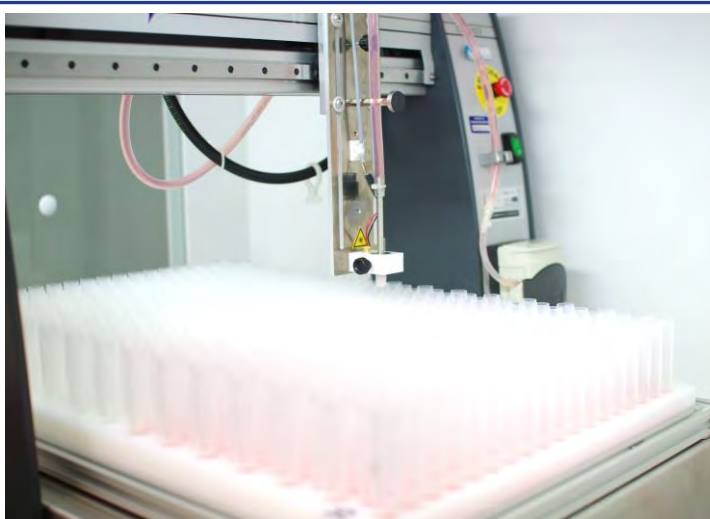
suitable for the creation of such products, with longstanding success in growing and inactivating pathogens in relation to its Antigens business line.

The manufacture of Microbix's quality assessment products is governed by the requirements of the ISO 13485 quality management system standard (Europe) and 21CFR part 820 (United States). Microbix was certified as compliant with the 13485 standard in December of 2018 and re-certified in June, 2021. The Company's QAPs products are unassayed (not quantitatively certified) controls intended for evaluating molecular diagnostic testing workflow performance for Tests that detect various human pathogens. The REDx family of controls have, in most instances, received EU "CE mark" and U.S. FDA registrations.



***Microbix's REDx Controls and REDxFLOQ QAPs are for use to support the testing Quality Measurement Systems of Clinical Laboratories.***

Microbix has a selection of QAPs for the proficiency sub-set of applications (its PTDx line) which represented approximately 18% of its fiscal 2022 sales. Additions to its catalogue of offerings and the creation of the PROCEEDx and REDx product lines increased QAPs sales by another 10% of total sales for fiscal 2022 and are expected to continue growing. Management believes these moves will enable it to realize the full scope of opportunities for quality assessment product (QAPs) sales.



***Microbix's DxTM brand of viral transport medium is now in widespread use for COVID-19 testing in the Province of Ontario.***

Microbix's third revenue generating segment is its **DxTM** brand of viral transport medium. DxTM was designed to meet the technical requirements of Public Health Ontario and thereby provide a secure local supply of the highest-quality VTM in strategically-meaningful quantities. DxTM is used to stabilize patient testing-specimens taken using nasal or pharyngeal swabs (e.g., Copan FLOQSwabs) to enable laboratory-based testing 48 hours or more after sample collection.

DxTM is formulated by and at Microbix, following which vials are filled, capped, and labelled at Microbix facilities, currently using a semi-automated process. Microbix's processes have supported production of up to 100,000 vials per week across parts of fiscal 2021 and 2022, from which more than two million vials have been delivered to customers. To the greatest extent possible, ingredients and materials for DxTM are sourced from Canada.

Microbix's third site at 275 Watline Avenue has been renovated to house a fully-automated filling, capping, and labeling line for production of DxTM. This new automated production system is intended to support production of approximately 100,000 vials of DxTM per day. The required automation equipment is also being purchased from a Canadian supplier.

A summary of Microbix's product offering is set out in our product catalogue, which can be found on our corporate website [www.microbix.com](http://www.microbix.com).



### ***Development Projects***

Microbix has one active development project that has not generated revenues from product sales over the last three years. This project is Kinlytic® urokinase (Kinlytic).

Kinlytic is a biological therapeutic that will require material additional investment to complete its commercialization – in amounts much greater than can be supported from the near-term free cash flow realizable from Microbix's Revenue Businesses. Accordingly, in 2017, management determined that full realization of the value of this asset would best be accomplished by partnering the project, as opposed to funding it with Company resources.

Partnering efforts are ongoing in relation to Kinlytic, however in Q4 of fiscal 2020, Microbix wrote-off the carried value of this asset as a result of the heightened difficulty of achieving a funded partnership for this asset caused by the COVID-19 pandemic. The drivers for this assessment are detailed earlier in this document, so discussion in this section will focus upon the nature of this project asset.

### ***Kinlytic® urokinase***

Kinlytic® urokinase for injection is an FDA-approved biologic drug that has a long history of successfully clearing blood clots in a variety of conditions — including pulmonary embolism, deep vein thrombosis, stroke, heart attack and in indwelling venous catheters. The drug is a natural human protein that acts by activating another human protein called plasminogen, converting plasminogen to the active form plasmin that in turn dissolves the protein fibrin, which forms much of the structural substance of a blood clot. It is through this mechanism that the drug dissolves clots.

Kinlytic is a low molecular weight form of urokinase, a protein naturally excreted by human kidney cells and that was developed into a drug by a major international drug company in the

1970s. Peak annual U.S. sales were estimated to be US\$275 million in 1998, principally for its two FDA-approved indications of treating pulmonary embolism and catheter-based clots. An estimated 4 million patients have been treated over the commercial history of the drug, with an excellent record of safety and efficacy.

The drug is produced by propagating small seeding quantities of donated human kidney cells into greater numbers of urokinase-excreting cells using roller-bottle cultures. Mammalian cell culture in roller-bottles is a process that has been successfully practiced by Microbix for many years, as such methods are used for the production of the host cells for some of its viral Antigen products. It is that closely-related expertise that led Microbix to first pursue the introduction of a “biosimilar” to the original product and later to purchase all rights to the original drug in 2008, after the drug’s innovator faced regulatory missteps, a corporate restructuring and asset divestments,

The acquisition of all rights to the product included its U.S. “NDA” regulatory approval (now an active “BLA”), all manufacturing process information and regulatory files, along with a substantial amount of finished product inventory and raw material to produce new drug. However, the transaction did not include facilities for manufacturing, which meant that no new product could be made without a new and fully-validated manufacturing site. The purchased product inventory reached its expiration dating in 2009 and no Kinlytic has been available for treating patients since that time.



The need for a clot-busting drug in the U.S. has since been fulfilled by a single product, another protein-based drug called tissue Plasminogen Activator (tPA). tPA is produced by culturing of genetically-engineered (recombinant) cells from the ovaries of Chinese hamsters (“CHO” cells). The drug was approved for sale in the U.S. in 1996 and it has had an effective monopoly there since Kinlytic became unavailable in 2009. U.S. sales of tPA are currently estimated at over US\$1.2 billion per year, growing by approximately 10% per year via a combination of modest unit volume growth and more substantive semi-annual price increases.

From 2008 until 2017, Microbix pursued financial partners to fund its construction of a manufacturing facility of sufficient scale to enable the reintroduction of Kinlytic urokinase for its prior systemic applications,

such as pulmonary embolism. This project would have required a large production facility, one

or more large Phase III clinical trials to re-establish the clinical efficacy of the product and a process for regularly obtaining human kidney cell donations.

The economics of the product fully-justified such investment, but a high overall project cost, likely totalling US\$100 million or more, limited the list of potential partners. One such partner was secured in August of 2012, but shifting strategic priorities of the partner firm led to the project being returned to Microbix in December of 2013. Since that time, Microbix has not secured a partner to fund a full product re-introduction.

More recently, Microbix has refined its thinking around the project. The continuing monopoly for clot-busting drugs in the U.S. market has expanded the market for each clinical sub-indication to the point where it is attractive to re-introduce Kinlytic® urokinase for a single such sub-indication — clearance of blood clots from indwelling venous catheters. Given Microbix's status as holder of the original NDA/BLA, such a focused indication reduces the overall project cost and complexity – by reducing the scale of manufacturing requirements, the cost, risk and duration of clinical trial work, and eliminating the need for a regular source of cell donations.

In fact, when it was available, Kinlytic urokinase (under its prior brand name of Abbokinase®) was the standard of care for the clearance of blocked venous catheters, including catheters placed deep within the body (central venous catheters or CVCs). Millions of such venous catheters are used annually in the US for indications such as oncology, infection, nutrition and dialysis, and use of these devices has continued to grow. These types of catheters often become blocked through the deposition of blood clots inside the catheter lumen (catheter occlusion). This results in the inability to remove blood for sampling and/or the inability to infuse medications through the catheter into the body.

Specifically, catheter-related thrombosis occurs in approximately 1.5 million patients per year, indicating a high incidence of clotting given the estimated 7 to 8 million annual catheter placements (United States market figures). Replacement of clot-occluded catheters can cost approximately \$7,000 per patient and brings the risk of serious complications such as catheter-related bloodstream infections and catheter-related thrombosis. Both of those complications entail considerable personal and healthcare costs.

Microbix undertook to consult with the U.S. FDA in April 2017 about the refined manufacturing, clinical and regulatory plans for the re-introduction of the product into the U.S. market for the indication of clearing blood clots from catheters. Management believes that the formal feedback received from FDA was supportive, clarifies important questions about Kinlytic's return to market and greatly de-risks the project.

Following the FDA consultation, Microbix has obtained third-party quotations for the key elements of its re-introduction plan. The result of this process has been to develop an overall project cost to the filing of a supplemental BLA (sBLA) of and estimated US\$20 million on the basis of full out-sourcing to qualified third-parties. With annual revenue potential for the targeted sub-indication estimated at over US\$200 million, the economics of the project appear very compelling for partners capable of committing US\$20 million over a three-year term.

Across fiscal 2018, Microbix perfected its detailed development plans for returning Kinlytic to the U.S. market for its catheter-clearance indication. This work has included non-confidential outreach presentations and an extensive electronic “data room” of confidential materials to support the due diligence investigations of prospective development partners. This work was completed to management’s satisfaction subsequent to the fiscal 2018 year-end.

The U.S. agent engaged by Microbix assisted in the editing and organization of partnering materials. During fiscal 2019 and 2020, the agent led a program of outreaches to prospective partners, with the goal of securing an optimal agreement with an appropriately-resourced party. Many initial approaches were conducted and multiple parties entered-into confidential discussions.

The pandemic has negatively-impacted Microbix’s partnering discussions, as firms supplying hospital-oriented therapies such as Kinlytic have experienced substantial declines in their sales – thereby reducing their appetite for taking on new projects. In spite of this more-challenging environment, Microbix’s objective remains to conclude a beneficial development agreement that provides all or most of the needed project funding, although no assurances of success can be offered.

### ***Summary of the Business of the Company***

To summarize, management believes that the outlook for Microbix’s Revenue Businesses is positive and that increased sales, margins and profits are likely from those operations. In turn, Microbix is continuing to work toward a successful partnering of Kinlytic.

The Company has exposure to credit risk, liquidity risk and market risk. The Company’s Board of Directors has the overall responsibility for the oversight of these risks and reviews the Company’s policies on an ongoing basis to ensure that these risks are appropriately managed, including through the use of financial instruments where appropriate. Further discussion of the management of such risks is included in note 21 to the audited consolidated financial statements for the year ended September 30, 2022.

## **Risks and Uncertainties**

### **COVID-19 Pandemic**

As previously discussed, the Company’s business may be negatively impacted by the COVID-19 pandemic, which has created, and continues to create, significant societal and economic disruptions. The changing and rapidly-evolving effects of the COVID-19 pandemic and its sequelae – the duration, extent and severity of which are currently unknown – on investors, businesses, the economy, government bodies, society and the financial markets could, among other things, add volatility to the global stock markets and change interest rate environments. The COVID-19 pandemic and measures to prevent its spread may negatively impact the Company, its customers, counterparties, employees, third-party service providers and other

stakeholders, as applicable, in a number of ways, including, but not limited to, by: (i) adversely affecting the business operations of the Company, including the Company's planned sales and marketing processes for its approved products; (ii) disrupting the Company's supply chain, including the manufacture and/or delivery of its products to its customers and distributors on which the Company relies; (iii) adversely affecting local, national or international economies and employment levels; (iv) causing business interruptions, including as a result of steps taken by the Company in compliance with government recommendations and orders, such as requiring employee to work remotely, which may cause strain on such existing resources as information technology systems, and suspension of all non-essential travel; (v) disrupting public and private infrastructure, including communications and financial services, which could disrupt the Company's normal business operations; (vi) disrupting health care delivery; disrupting or prolonging business development initiatives such as the partnering of Kinlytic® urokinase. At this point, the extent to which the COVID-19 pandemic will or may impact the Company is uncertain and these factors are beyond the Company's control; however, any of these events, in isolation or in combination, could have a material adverse effect on the Company's business, results of operations and financial condition and the market price of the Company's securities. The Company is exposed to business risks, both known and unknown, which may or may not affect its operations. Management works continuously to mitigate unacceptable risk, while still allowing the business to grow and prosper. These risk factors include the following:

***A significant portion of Antigens Product sales are dependent on key clients, open borders, international transportation systems, and access to raw materials.***

A significant share of the Company's Antigen product sales are sold to a few key customers globally. These products contributed a significant share of the revenues. The loss of a key customer, or restrictions on export, import, or international transportation of its products, raw materials or insufficient marketing resources, could materially impact revenue and profitability.

***Environmental, safety and other regulatory***

Microbix' research and manufacturing operations involve potentially hazardous materials. The Company takes extensive precautions to appropriately manage these materials as regulated by the applicable environmental and safety authorities. Changes in environmental and safety legislation may limit the Company's activities or increase costs. An environmental accident could adversely impact its operations. Microbix' Antigen products are considered a production ingredient and not directly regulated by governments in Canada or other jurisdictions. Commercialization of certain quality assessment products require approval of regulatory agencies such as the FDA, in which case Microbix will not receive revenue until regulatory approval is obtained.

### ***Quality Assessment Products in development***

The Company has multiple quality assessment products under development, with the goal of building its sales of this category of product. There is no assurance that these development activities will result in the completion of new commercial products. If the Company is unable to develop and commercialize products, it will be unable to recover its related product development investments.

### ***Viral Transport Medium Products (DxTM)***

Microbix's newest product offering, DxTM is principally reliant upon sales to designates of the Government of Ontario. There is no assurance that sales to such designates will be ongoing or that other customers will be secured.

### ***Product commercialization requires strategic relationships***

To commercialize large market products in development, Microbix may need to establish strategic partnerships, joint ventures or licensing relationships with pharmaceutical, biotechnology or animal genetics companies. It is possible the Company may be unable to negotiate mutually acceptable terms.

### ***Operating and capital requirements***

Microbix seeks to earn a profit on the sale of its Antigens, QAPs and VTM products, which is a major source of funding for its new product oriented research and development activities. The Company believes that cash generated from operations is sufficient to meet normal operating and capital requirements. However, the Company may need to raise additional funds, from time to time for several reasons including, to expand production capacity, to advance its current research and development programs, to support various collaboration initiatives with third parties, to underwrite the cost of filing, prosecuting and enforcing patents and other intellectual property rights, to invest in acquisitions, new technologies and new market developments. Additional financing may not be available, and even if available, may not be offered on acceptable terms.

### ***Future success may depend on successfully commercializing new products or technologies***

In the nearer term, Microbix must maintain and grow its existing product sales. To survive and prosper over the longer term, Microbix may need to commercialize new products or technologies. Such work is inherently uncertain and there is no guarantee that Microbix will be successful with its efforts.

### ***Failure to obtain and protect intellectual property could adversely affect business***

Microbix' future success depends, in part, on its ability to obtain patents, or licenses to patents, maintain trade secret protection and enforce its rights against others. The Company's intellectual property includes trade secrets and know-how that may not be protected by patents. There is no assurance that the Company will be able to protect its trade know-how. To help protect its intellectual property, the Company requires employees, consultants, advisors and collaborators to enter into confidentiality agreements. However, these agreements may not adequately protect trade secrets, know-how or other proprietary information in the event of any unauthorized use or disclosure. Protection of intellectual property may also entail prosecuting claims against others who the Company believes are infringing its rights or securing its freedom to operate relative to the rights of other parties. Involvement in intellectual property litigation could result in significant costs, adversely affecting the development of products or sales of the challenged product, or intellectual property, and divert the efforts of its scientific and management personnel, whether or not such litigation is resolved in the Company's favour.

### ***Microbix will continue to face significant competition***

Competition from life sciences companies, and academic and research institutions is significant. Many competitors have substantially greater resources and may have greater general capabilities in the areas of scientific and product development, legal review, manufacturing, sales and marketing, and financial support than Microbix. While the Company continues to expand its technological, commercial, legal and financial capabilities in order to remain competitive, Microbix' competitors may also be making significant investments in all of these areas, which could make it more difficult for Microbix to commercialize its products and technologies.

## **Financial Risk**

The primary risks affecting the Company are summarized below and have not changed during the fiscal year. The list does not cover all risks, nor is there an assurance that the strategy of management to mitigate the risks is sufficient to eliminate the risk.

### **Credit risk:**

The Company's cash is held in accounts or short-term interest-bearing accounts at one of the major Canadian chartered banks. Management perceives the credit risk to be low. Typically the outstanding accounts receivable balance is relatively concentrated with a few large customers representing the majority of the value. As at September 30, 2022, five customers accounted for 56% (September 30, 2021 - five customers accounted for 80%) of the outstanding balance. In addition, for the year ended September 30, 2022, five customers accounted for 58%

(September 30, 2021 - five customers accounted for 63%) of revenues. The Company has had minimal bad debts over the past several years and accordingly management has recorded an allowance of \$35,000 (September 30, 2021 - \$35,000).

### Currency risk:

The Company is exposed to currency risk given its global customer base. 60-70% of its revenue is denominated in either U.S. dollars or Euros. The Company does not use financial instruments to hedge this currency risk. At September 30, 2022, the significant balances, quoted in Canadian dollars, held in foreign currencies are:

|                                          | US Dollars       |           | Euros            |         |
|------------------------------------------|------------------|-----------|------------------|---------|
|                                          | 2022             | 2021      | 2022             | 2021    |
| Cash                                     | <b>302,698</b>   | 3,601,394 | <b>87,613</b>    | 135,388 |
| Accounts receivable                      | <b>1,645,040</b> | 836,390   | <b>1,221,837</b> | 727,708 |
| Accounts payable and accrued liabilities | <b>126,716</b>   | 131,002   | <b>45,994</b>    | 47,009  |

Based upon 2022 results, the impact of a 5% increase in the U.S. dollar against the Canadian dollar would result in an increase in annual U.S. dollar based revenue of approximately \$478,300 Cdn. The impact of a 5% increase in the Euro against the Canadian dollar would result in an increase in annual Euro based revenue of approximately \$165,800. Correspondingly, the impact of a 5% decrease in the U.S. dollar against the Canadian dollar would result in a loss in annual U.S. dollar based revenue of approximately \$478,300 Cdn. The impact of a 5% decrease in the Euro against the Canadian dollar would result in a loss in annual Euro-based revenue of approximately \$165,800.

### Liquidity risk

Liquidity risk measures the Company's ability to meet its financial obligations when they fall due. To manage this situation, the Company projects and monitors its cash requirements to accommodate changes in liquidity needs. In addition, during fiscal 2017 the Company announced that it has arranged a secured revolving credit facility with The Toronto-Dominion Bank ("TD Bank") and Export Development Canada ("EDC"). The credit facility is being used to fund the Company's need for working capital to grow its existing business. When employed, this facility has helped to satisfy the Company's liquidity needs and to manage the liquidity risk.

### Interest rate risk

Financial instruments that potentially subject the Company to interest rate risk include those assets and liabilities with a variable interest rate. Exposure to interest rate risk is primarily on the BDC debt that has a variable rate pegged to the bank rate. The rate can be fixed, if the

outlook indicates interest rates will move higher. The only other variable debt the Company has is the \$2,000,000 line of credit that bears interest at the bank's prime lending rate plus 2.0%. As at September 30, 2022 the Company has not drawn on this line of credit. A 1% increase in the bank rate would cost the Company approximately \$20,000 per year for BDC and about \$20,000 on the line of credit usage if it were fully used throughout the fiscal year.

### **Market risk**

Market risk reflects changes in pricing for both Antigens & QAPs and raw materials based on supply and demand criteria; also market forces can affect foreign currency exchange rates as well as interest rates which could affect the Company's financial performance or the value of its financial instruments. Microbix products are valuable components in our customers' products and cannot be easily replaced. The Company works closely with customers to ensure its products meet their specific criteria.

### **Fair value**

The fair value of a financial instrument is approximated by the consideration that would be agreed to in an arm's length transaction between willing parties and through appropriate valuation methods, but considerable judgement is required for the Company to determine the value. The actual amount that could be realized in a current market exchange could be different than the estimated value. The fair values of financial instruments included in current assets and current liabilities approximate their carrying values due to their short-term nature.

The fair value of the long-term debt is based on rates currently available for items with similar terms and maturities. The convertible and non-convertible debenture fair values are not readily determinable as the convertible debentures have been issued to shareholders of the Company. The fair values of financial instruments in other long-term liabilities approximate their carrying values as they are recorded at the net present values of their future cash flows, using an appropriate discount rate.

### **Business Conduct and Ethics**

The Company has a Code of Business Conduct and Ethics, which governs the behaviour of board members, management and employees. The Code is posted on its website at [www.microbix.com](http://www.microbix.com). Microbix is an equal opportunity employer as set out in its Human Resources Policies and Procedures.

## Dividends

Microbix has never declared dividends on its common shares. Other than the generally applicable corporate law provisions respecting the declaration and payment of dividends there are no constraints or restrictions that could prevent the Company from paying dividends.

## Description of Capital Structure and Market for Securities

The Company is authorized to issue an unlimited number of Common Shares without nominal or par value.

### *Common Shares*

The holders of the Company's Common Shares are entitled to dividends as and when declared by the board of directors of the Company, to one vote per share at meetings of shareholders of the Company and, upon liquidation, to receive such assets of the Company as are distributable to the holders of the Common Shares. All of the Common Shares are fully paid and non-assessable.

### *Market for Securities*

The Common Shares of the Company are listed for trading on the Toronto Stock Exchange (the "TSX") under the trading symbol "MBX" and the majority of share trades are transacted on the TSX. Microbix shares are also traded on the United States OTCQX® Best Market under the symbol MBXBF. The following charts set forth the reported high and low prices and the volume of trading of the Common Shares on the TSX for the periods indicated.

### *Monthly Summary – Common Shares*

| Date      | High | Low  | Volume    |
|-----------|------|------|-----------|
| 10/1/2021 | 0.79 | 0.61 | 2,724,900 |
| 11/1/2021 | 0.76 | 0.66 | 2,000,700 |
| 12/1/2021 | 0.87 | 0.67 | 1,891,200 |
| 1/1/2022  | 0.84 | 0.65 | 1,483,500 |
| 2/1/2022  | 0.70 | 0.51 | 2,157,800 |
| 3/1/2022  | 0.60 | 0.49 | 1,333,200 |
| 4/1/2022  | 0.69 | 0.50 | 1,206,200 |
| 5/1/2022  | 0.57 | 0.43 | 1,400,200 |
| 6/1/2022  | 0.56 | 0.42 | 700,300   |
| 7/1/2022  | 0.55 | 0.45 | 582,200   |
| 8/1/2022  | 0.55 | 0.48 | 682,700   |
| 9/1/2022  | 0.55 | 0.48 | 909,100   |
| 10/1/2022 | 0.52 | 0.47 | 769,300   |

## **Directors and Officers**

The board of directors as of September 30, 2022 consisted of seven (7) directors to be elected annually. The following table states the names of the directors and officers, all other positions and offices with the Company held by them, their principal occupations or employments, the period or periods of service as directors of the Company and the number of voting securities of the Company beneficially owned, directly or indirectly, or over which control or direction is maintained.

During this fiscal year Microbix announced that Mr. Anthony Giovinazzo resigned from the Board of Directors. In addition, Jennifer Stewart joined the board and was appointed as a member of the Human Resources, Compensation & Governance Committee.

| <b>Name, Office and Principal Occupation</b>                                                                                     | <b>Director/Officer Since</b>                                       | <b>No. of Voting Securities Owned, Controlled or Directed<sup>(1)</sup></b> |
|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Peter Blecher<br>Ontario, Canada<br>Director<br>Medical Director<br>NeuPath Centre for Pain & Spine                              | December 6, 2005                                                    | 2,714,474<br>1.95%                                                          |
| Mark A Cochran <sup>(3)</sup><br>Virginia, USA<br>Director<br>Executive Director (Retired)<br>Johns Hopkins Healthcare Solutions | October 1, 1990 to<br>August 28, 2002 and<br>since October 16, 2002 | 549,277<br>0.40%                                                            |
| Vaughn Embro-Pantalony <sup>(2)(3)</sup><br>Ontario, Canada<br>Director<br>Pharmaceutical Executive                              | February 6, 2007                                                    | 1,616,704<br>1.16%                                                          |
| Cameron Groome <sup>(3)</sup><br>Ontario Canada<br>Director<br>President and Chief Executive Officer<br>Microbix Biosystems Inc. | March 8, 2012                                                       | 2,920,000<br>2.10%                                                          |
| Martin Marino <sup>(2)(3)</sup><br>Director<br>Ontario Canada<br>Pharmaceutical Executive                                        | February 17, 2009                                                   | 1,366,667<br>0.98%                                                          |
| Joseph D. Renner <sup>(2)(3)</sup><br>New Jersey, USA<br>Director<br>Pharmaceutical Executive                                    | February 25, 2003                                                   | 9,340,037<br>6.72%                                                          |
| Jennifer Stewart <sup>(3)</sup><br>Ontario, Canada<br>Director<br>President, Syntax Strategic                                    | 30/3/2022                                                           | 0<br>0.00%                                                                  |
| Jim Currie<br>Ontario, Canada<br>Chief Financial Officer<br>Microbix Biosystems Inc.                                             | January 1, 2017                                                     | 180,500<br>0.13%                                                            |
| Ken Hughes<br>Ontario, Canada<br>Chief Operating Officer<br>Microbix Biosystems Inc.                                             | June 3, 2019                                                        | 325,000<br>0.23%                                                            |

Notes:

(1) The information as to voting securities beneficially owned, controlled or directed, not being within the knowledge of the Company, has been furnished by the respective directors and officers as of September 30, 2022

(2) Member of the Audit Committee.

(3) Member of the Human Resources, Compensation and Governance Committee.

### ***Cease Trade Orders, Bankruptcies, Penalties or Sanctions***

To the knowledge of Microbix, no director or officer of Microbix, or any shareholder holding a sufficient number of securities of Microbix to materially affect, its control, is or has been, within 10 years preceding the date of this annual information form, a director or officer of any other issuer which, while that person was acting in that capacity:

- was the subject of a cease trade or similar order, or any order that denied the relevant company access to any statutory exceptions for a period of more than 30 consecutive days;
- was subject to an event that resulted, after the director or officer ceased to be a director or officer, in the issuer being the subject of a cease trade or similar order
- or an order that denied the relevant issuer access to any exemption under securities legislation, for a period of more than 30 consecutive days; or
- or within a year of ceasing to act in that capacity became bankrupt, made a proposal under any legislation relating to the bankruptcy or insolvency or was subject to or instituted any proceedings, arrangement or compromise with creditors or had a receiver, manager or trustee appointed to hold its assets.

To the knowledge of the Company, no director or officer of the Company or any shareholder holding a sufficient number of securities of the Company to affect materially its control, or a personal holding company of any such persons has, within 10 years before the date of this annual information form, become bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency, or been subject to or instituted any proceedings, arrangement or compromise with creditors, or had a receiver manager or trustee appointed to hold the assets of the director, officer or shareholder.

To the knowledge of Microbix, no director or officer of Microbix or any shareholder holding a sufficient number of securities of Microbix to materially affect its control, has:

- been subject to any penalties or sanctions imposed by a court relating to securities legislation or by a securities regulatory authority or has entered into a settlement agreement with a securities regulatory authority; or
- been subject to any other penalties or sanctions imposed by a court or regulatory body that would be likely to be considered important to a reasonable investor making an investment decision.

### ***Conflicts of Interest***

Certain of the directors of the Corporation also serve as directors and officers of other companies involved in a wide range of industry sectors, including biotechnology; consequently, there exists the possibility for such directors to be in a conflict of interest.

Conflicts of interest will be subject to the applicable provisions of the Business Corporations Act (Ontario) and may result in a director abstaining from voting on a resolution of the board of directors which involves a conflict in order to have the matter resolved by the independent directors, or the matter may be presented to the shareholders of the Corporation for

ratification. When a conflict of interest arises, the directors of the Corporation must, in accordance with the applicable provisions of the Business Corporations Act (Ontario) act honestly and in good faith with a view to the best interests of the Corporation and must exercise the care, diligence and skill a reasonably prudent person would exercise in comparable circumstances.

## **Transfer Agent and Registrar**

The Company's transfer agent and registrar is TSX Trust Company, 1 Toronto Street, Suite 1200, Toronto, ON M5C 2V6

## **Audit Committee Information**

### ***Members***

The members of the Audit Committee on September 30, 2022 were Vaughn Embro-Pantalony (Chair), Martin Marino, and Joseph Renner, with Cameron Groome and Jim Currie participating in a non-voting capacity. Mr. Embro-Pantalony, Mr. Marino, and Mr. Renner are considered independent. Mr. Groome is President and Chief Executive Officer and Mr. Currie is Chief Financial Officer. All members of the Audit Committee are financially literate.

Mr. Embro-Pantalony's background is financial and general management. He has a degree in economics, an MBA and he is a Fellow Chartered Professional Accountant. He also holds the designations Chartered Director and Audit Committee Certified. Professionally, he was CFO and General Manager in large companies including a large reporting issuer.

Mr. Marino's background is legal and financial. He is a corporate lawyer and has been general counsel to companies in the pharmaceutical industry. He has also had international business development responsibilities involving large transactions as well as responsibility for financial results relating to foreign operating entities. He has a thorough knowledge of the global industry in which Microbix practices its business

Mr. Renner's background is principally as a senior executive in the pharmaceutical industry. He currently serves as Chairman of the Board of the U.S. division of an established international firm and has served as COO of other such firms, with more than 25 years of experience in the industry.

Mr. Groome's background is in the financial, human life sciences and animal health industries. He has held senior executive roles with life sciences companies, headed life sciences investment banking for a major national investment dealer and has 30 years of experience as an equity research analyst, corporate advisor and director.

Mr. Currie most recently served as CFO of SMTC Corporation, a publicly-traded global electronic manufacturing services company. Previously, he was Vice President, Finance at MDS SCIEX, a global leader in life sciences and analytical technologies.

### ***Auditors***

The following table summarizes the fees billed to the Company for services provided by its external auditors, Ernst & Young LLP, Chartered Accountants for the fiscal year ended September 30, 2022:

| Fiscal Year | Audit Fees | Tax Fees | Other Fees |
|-------------|------------|----------|------------|
| 2022        | \$227,500  | \$4,500  | \$0        |

### ***Audit Fees***

Audit Fees were for professional services provided by Ernst & Young LLP, Chartered Accountants, for the audit of our annual consolidated financial statements.

### ***Tax Fees***

Tax Fees were for tax compliance, tax advice, tax review and tax planning professional services.

### ***Audit Committee Charter***

A copy of the Company's Audit Committee Charter can be found at Appendix "A".

## **Additional Information**

Additional information relating to Microbix may be found on SEDAR at [www.sedar.com](http://www.sedar.com). Additional information, including directors' and officers' remuneration and indebtedness, principal holders of the Company's securities and securities authorized for issuance under equity compensation plans is contained in the Company's information circular for the annual meeting held March 30, 2021 available on SEDAR at [www.sedar.com](http://www.sedar.com). Additional information is provided in the Company's audited financial statements and Management Discussion and Analysis, both for the most recently completed financial year ended September 30, 2021 available on SEDAR at [www.sedar.com](http://www.sedar.com).

## Glossary

**Antigen** — A foreign substance which, when introduced into the body, stimulates the production of antibodies, which are part of the protective immune response. In general, disease-causing organisms, including viruses, fungi and bacteria, are Antigens in humans. Microbix manufactures disease-causing organisms and, after they are purified and inactivated, provides them in various forms for use in detecting infections and immune responses in medical diagnostic tests. For this reason, the organisms manufactured by Microbix are customarily and correctly referred to as Antigens.

**Bioreactor** — equipment for the growth of cells in relatively large numbers and in a small footprint, providing a high degree of control and monitoring of the nutrients, waste products, and growth environment.

**Biosimilar** — biologic medical product which is almost an identical copy of an original product that is manufactured by a different company.

**BLA and sBLA** — The Biologics License Application (BLA) or supplemental Biologics License Application (sBLA) is a request for permission to introduce, or deliver for introduction, a biologic product into the United States under applicable federal regulations.

**Diagnostics** — Tests used to help identify a disease or medical condition.

**DNA** — a molecule that carries the genetic instructions used in the growth, development, functioning and reproduction of all known living organisms and many viruses.

**DxTM** — Microbix's brand of VTM.

**FDA** — the U.S. Food and Drug Administration.

**Immunoassay** — a test that measures some aspect of the immune response to an Antigen.

**IVD** – The abbreviation for *In-Vitro Diagnostic*. In this context meaning a “QAPs” product that is registered or licensed as a medical device for workflow support of infectious-disease assays evaluating patient samples.

**Molecular Diagnostics** — Tests that can detect the genetic material within a patient sample in order to diagnose disease.

**NDA** — The New Drug Application (NDA) is a request for permission to introduce, or deliver for introduction, a drug product into the United States under applicable federal regulations.

**Pathogen** — an organism, including a virus, fungus, or bacterium, that is capable of causing disease.

**PCR** — Polymerase Chain Reaction. A technology for the highly sensitive and specific detection of genetic material. PCR permits (among other things) the detection of disease-causing organisms in very small quantities. When used to diagnose disease, PCR is part of a group of related technologies referred to as Molecular Diagnostics.

**QAPs** — Microbix’s shorthand name for its Test Quality Assessment Products, capturing their usages for both IVD- and RUO-oriented purposes.

**Revenue Businesses** — The Microbix operations creating, manufacturing, and selling Antigens, QAPs, and DxTM.

**RUO** – The abbreviation for *Research Use Only*. In this context meaning a QAPs product that is not registered or licensed as a medical device for use with patient samples, but that can be used by lab accreditation agencies, to help qualify instruments for use or train technicians, or to assist with assay development.

**Tests** — Medical tests to establish whether a human patient has been infected with a pathogen such as bacteria, fungi, parasites, or viruses.

**Thrombolytic** — a protein or drug that is capable of breaking down a blood clot (‘thrombus’), or more generally a protein such as Urokinase that is capable of initiating a process that leads to the breakdown of a blood clot. Thrombolytic drugs are used to treat conditions involving blockage of blood vessels in the lung (pulmonary embolism), heart (coronary artery thrombosis) or brain (ischemic stroke).

**Urokinase** — a naturally occurring protein enzyme capable of initiating the process leading to the breakdown of a blood clot by the degradation of the fibrin; an FDA approved drug owned by Microbix under the brand name Kinlytic® urokinase.

**VTM** — Viral Transport Medium, the generic term for vials of liquid solutions used for the purpose of stabilizing patient-specimens until such time as they can be tested by a clinical laboratory (e.g., medical testing for the presence of viral pathogens)

## Trademarks

Trademarks used in this document are:

Copan® (Copan Italia S.p.A.)

DxTM™ (Microbix Biosystems Inc.)

FLOQ® and FLOQSwab® (Copan Italia S.p.A.)

Kinlytic® (Microbix Biosystems Inc.)

Microbix® (Microbix Biosystems Inc.)

OTCQX® (OTC Markets Group Inc.)

PROCEEDx® (Microbix Biosystems Inc.)

PROCEEDx®FLOQ® (Microbix Biosystems Inc. in association with Copan Italia S.p.A.)

QAPs™ (Microbix Biosystems Inc.)

REDx™ Controls (Microbix Biosystems Inc.)

REDx™FLOQ® (Microbix Biosystems Inc. in association with Copan Italia S.p.A.)

## **Appendix “A” Microbix Biosystems Inc.**

### ***Audit Committee Charter***

#### ***Role***

The purpose of the Audit Committee of the Board of Directors (the “Board”) of Microbix Biosystems Inc. (the “Company”) is to assist the Board in fulfilling its responsibility for oversight of the quality and integrity of the accounting, auditing, and reporting practices of the Company, and such other duties as directed by the Board. The Audit Committee’s role includes a particular focus on the qualitative aspects of financial reporting to shareholders, on the Company’s processes to manage business and financial risk, and on compliance with applicable legal, ethical and regulatory requirements.

#### ***Membership***

The membership of the Audit Committee shall consist of at least three directors who are (or within a reasonable period of time become) financially literate and generally knowledgeable in financial and auditing matters, including at least one member with accounting or related financial management expertise. Each member of the Audit Committee must be financially literate, that is having the ability to read and understand a set of financial statements that present a breadth and level of complexity of accounting issues that are generally comparable to the breadth and complexity of the issues that can reasonably be expected to be raised by the Company’s financial statements. Each member shall be independent, meaning that the member shall be free of any direct or indirect material relationship with the Company. A material relationship means a relationship that, in the view of the Board, could reasonably interfere with the exercise of the member’s independent judgment. The provisions and requirements of Multilateral Instrument 52-110 “Audit Committee” related to determining the independence of individuals shall apply to members of the Audit Committee. In addition, each member of the Audit Committee shall be an “unrelated director” within the meaning of the rules of the Toronto Stock Exchange (the “TSX”).

The Chair of the Audit Committee shall be appointed by the full Board.

#### ***Communications and Reporting***

The Committee is expected to maintain free and open communication with the external auditors, the internal accounting staff, and the Company’s management. This communication shall include private executive sessions, at least annually, with each of these parties. The Committee chairperson shall report on Audit Committee activities to the full Board.

## ***Authority***

In discharging its oversight role, the Audit Committee is empowered to investigate any matter brought to its attention, with full power to retain outside counsel or other advisors and experts for this purpose. The Audit Committee shall be empowered to set and pay the compensation for any such advisors employed by the Audit Committee. The Audit Committee shall have the authority to communicate directly with the internal and external auditors of the Company.

## ***Responsibilities***

### **Oversight**

The Audit Committee is directly responsible for overseeing the work of the external auditor engaged for the purpose of preparing or issuing an auditor's report or performing other audit, review or attest services for the Company, including the resolution of disagreements between management of the Company and the external auditor regarding financial reporting.

### **Recommend Auditor**

The Audit Committee must recommend to the Board the external auditor to be nominated (subject to shareholder approval) for the purpose of preparing and issuing an auditor's report or performing other audit, review or attest services for the Company and the compensation of the external auditor.

### **Pre-Approve Non-Audit Services**

The Audit Committee must pre-approve all non-audit services to be provided to the Company (or any of its subsidiary entities) by the Company's external auditor.

### **Review Financial Disclosure**

The Audit Committee must review the Company's financial statements, management's discussion and analysis (MD&A) and annual and interim financial press releases before the Company publicly discloses this information.

The Audit Committee must be satisfied that adequate procedures are in place for the review of the Company's public disclosure of financial information extracted or derived from the Company's financial statements, and must periodically assess the adequacy of those procedures.

## ***Whistle Blower Procedures***

The Audit Committee must establish procedures for the receipt, retention and treatment of complaints received by the Company regarding accounting, internal accounting controls or auditing matters and the confidential, anonymous submission by employees of the Company of concerns regarding questionable accounting or auditing matters.

## ***Reliance on Management and Auditors***

The Audit Committee relies on the expertise and knowledge of management, the internal auditors, and the external auditor in carrying out its oversight responsibilities. Management of the Company is responsible for determining the Company's financial statements are complete, accurate, and in accordance with generally accepted accounting principles. The external auditor is responsible for auditing the Company's financial statements. The Audit Committee should assure itself that the Company's internal policies, procedures and controls are adequate and are being implemented and followed.

### ***Relationship with Auditors***

The Audit Committee is also responsible for ensuring that the Company's external auditors submit on a periodic basis to the Committee a formal written statement delineating all relationships between the external auditors and the Company and actively engaging in a dialogue with the external auditors with respect to any disclosure relationships or services that may impact the objectivity and independence of the external auditors and for taking appropriate action to ensure the independence of the external auditors within the meaning of applicable Canadian law.

The Audit Committee must review and approve the Company's hiring policy regarding partners, employees and former partners and employees of the present and former external auditor of the Company.

### ***Guidelines for Audit Committee***

With respect to the exercise of its duties and responsibilities, the Audit Committee should, among other things:

- report regularly to the Board on its activities, as appropriate;
- exercise reasonable diligence in gathering and considering all material information;
- remain flexible, so that it may be in a position to best react or respond to changing circumstances or conditions;
- understand and weigh alternative courses of conduct that may be available;
- focus on weighing the benefit versus harm to the Company and its shareholders when considering alternative recommendations or courses of action;
- if the Audit Committee deems it appropriate, secure independent expert advice and understand the expert's findings and the basis for such findings, including retaining independent counsel, accountants or others to assist the Audit Committee in fulfilling its duties and responsibilities; and
- provide management and the Company's independent auditors with appropriate opportunities to meet privately with the Audit Committee.

### ***Meetings***

The Audit Committee shall meet with such frequency and at such intervals as it shall determine is necessary to carry out its duties and responsibilities. As part of its purpose to foster open communications, the Audit Committee shall meet at least annually with management and the Company's external auditors in separate executive sessions to discuss any matters that the

Audit Committee or each of these groups or persons believe should be discussed privately. In addition, the Audit Committee should meet or confer with the external auditors and management to review the Company's interim consolidated financial statements and related filings prior to their filing with the Ontario Securities Commission, or any other regulatory body. The Chairman should work with the Chief Financial Officer and management to establish the agendas for Audit Committee meetings. The Audit Committee, in its discretion, may ask members of management or others to attend its meetings (or portions thereof) and to provide pertinent information as necessary. The Audit Committee shall maintain minutes of its meetings and records relating to those meetings and the Audit Committee's activities and provide copies of such minutes to the Board to be included in the minute books of the Company.

### ***Disclosure and Review of Charter***

This Charter shall be published in the Company's annual report, information circular or annual information form of the Company as required by law. The Audit Committee should review and assess annually the adequacy of this Charter as required by the applicable rules of the TSX or applicable Canadian securities regulators.