

MFIC CORP  
Form 10-K  
April 06, 2004

**UNITED STATES**

**SECURITIES AND EXCHANGE COMMISSION**

WASHINGTON, D.C. 20549

**FORM 10-K**

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**ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF  
THE SECURITIES EXCHANGE ACT OF 1934**

**For the fiscal year ended December 31, 2003**

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**Commission File Number: 0-11625**

**MFIC CORPORATION**

(Exact name of registrant as specified in its charter)

**Delaware**

(State or other jurisdiction of  
incorporation or organization)

**04-2793022**

(I.R.S. Employer Identification No.)

**30 Ossipee Road, P.O. Box 9101**

**Newton, Massachusetts**

(Address of principal executive offices)

**02464-9101**

(Zip Code)

Registrant's telephone number, including area code: **(617) 969-5452**

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Securities registered pursuant to Section 12(b) of the Act: **None**

Securities registered pursuant to Section 12(g) of the Act: **Common Stock, \$.01 par value**

Indicate by check mark whether the registrant; (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes  No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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The aggregate market value of Common Stock held by non-affiliates of the registrant (without admitting that any person whose shares are not included in determining such value is an affiliate), based upon the closing sale price of the Common Stock on March 31, 2004 as reported on the NASDAQ Over-the-Counter Bulletin Board was \$27,121,627.

The number of shares outstanding of the registrant's Common Stock as of March 31, 2004 was 10,802,494 shares.

**MFIC Corporation**

**2003 Form 10-K Annual Report**

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This Report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Such statements are subject to certain risks and uncertainties, including without limitation those discussed in Item 7 under the heading "Factors which may affect future operations." Such forward-looking statements speak only as of the date on which they are made, and the Company cautions readers not to place undue reliance on such statements.

Microfluidizer® is a trademark of the Company, which has been registered with the United States Patent and Trademark Office. Microfluidics™ is a trademark of the Company for which a registration application has been filed with the United States Patent and

Trademark Office. All other trademarks or trade names referred to herein are the property of their respective owners.

**Item 1. BUSINESS**

**Company Overview:**

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MFIC Corporation (MFIC or the Company), through its wholly-owned subsidiary, Microfluidics Corporation (Microfluidics Division), specializes in manufacturing and marketing a broad line of Microfluidizer® high shear fluid materials processing systems used in numerous applications in the coatings, pharmaceutical, biotech, food, and cosmetics industries. Microfluidizer® high shear fluid processor systems are produced at the Microfluidics Division. Until its sale on February 9, 2004, the Company operated its Morehouse-COWLES Division which manufactured and sold a broad line of mechanical fluid materials processing systems used for a variety of grinding, dispersing, milling, and blending applications across a variety of industries. The Morehouse-COWLES Division manufactured and distributed high shear dispersers, dissolvers, colloid mills, horizontal media mills, vertical media mills, and sold grinding media for such equipment.

For almost 20 years MFIC has offered Microfluidizer® high shear fluid processor equipment capable of creating nanostructures (commonly defined as having dimensions in the 10-1000 nanometer range), including nanoparticles, microemulsions, and nanosuspensions. The equipment's ability to produce commercial quantities of such materials has been important to producers of pharmaceuticals, coatings and in other industries. The Company's management believes that future commercialization and growth of nanotechnology will be, enabled in large part, by such manufacturing capability.

Microfluidizer® fluid processing equipment is used by industry to formulate stable emulsions, dispersions, and liposomes, and is used in general for deagglomeration and for cell disruption in the biotech industry and for liposomal encapsulation. Emulsions are found in a broad variety of common products, including processed foods, pharmaceuticals, and specialty coatings such as photographic films. Dispersions are often employed in products such as pharmaceuticals, inks, pigments and coatings. The Company believes that the processing technique of the Microfluidizer® equipment enhances the stability and consistency of emulsions and dispersions due to the equipment's unique ability to consistently produce uniform micron and sub-micron scale particles in many applications. Liposomes, which are biodegradable cell-like structures, are used to encapsulate medications or nutrients, and are typically used in cosmetic or pharmaceutical products. In addition, Microfluidizer® processor equipment is used in biotechnology applications to harvest, through cell disruption, the cultivated product contents of plant and animal cells. The design and operation of the Microfluidizer® systems with its patented and proprietary fixed geometry interaction chamber results in consistent, uniform and reproducible results. Further, the Company guarantees scaleup of formulations and results on its equipment from drops per minute on its laboratory and bench top models to gallons per minute on its production models. In many critical formulations Microfluidizer® processors produce better quality products for our customers. Further, the proprietary equipment enables manufacture of unique products which cannot otherwise be produced.

The Company's product lines are used to create stable emulsions and dispersions through deagglomeration and particle size reduction. These formulations may be liquid/liquid or liquid/solid formulations and are generally prepared in quantities ranging from less than one gallon to several thousand gallons in an industrial environment.

The Microfluidizer® equipment is generally used in the processing of high value-added end-products that require extremely small particle sizes.

The Company was incorporated in Delaware in 1983. The Company, formerly named Biotechnology Development Corporation, changed its name effective June 8, 1993 to Microfluidics International Corporation, and again changed its name effective July 12, 1999 to MFIC Corporation. Its principal executive offices are located at 30 Ossipee Road, in Newton, Massachusetts, 02464-9101 and its telephone number is (617) 969-5452.

The Technology:

The Company's Microfluidizer® materials processor equipment is based on patents and related technology that were licensed by the Company from Arthur D. Little & Co. in 1983 and subsequently purchased by the Company in 1985. The Company holds two United States patents related to the apparatus and process used to intimately mix liquids and disperse particulate solids in microemulsions. See Patents and Proprietary Rights Protection.

The Microfluidizer® material processor differs from conventional mechanical mixing and processing technologies in that it utilizes highly pressurized product streams that travel in precisely defined microchannels and collide at ultra-high velocities in a small, confined space. There are no moving parts in this mixing and collision zone ( Fixed Geometry ) Combined forces of shear and impact which on the fixed geometry design acts upon products to create what the Company believes are finer, more uniform, and more reproducible dispersions and emulsions than can be produced by any other means.

The Company's Microfluidizer® processor technology is used in materials processing and product formulation to mix materials that are normally very difficult to mix. The Microfluidizer® processor technology allows manufacturers in the chemical, pharmaceutical, biotechnology, cosmetic, and food processing industries to produce higher quality products with better characteristics on a more consistent basis than with other blending, mixing, or homogenizing techniques. Additionally, the equipment is used for cell disruption to harvest the cultivated contents of animal and/or plant cells and for liposomal encapsulation of materials for the cosmetics and biotech/ biopharma industry.

Commercial Applications:



The Microfluidizer<sup>®</sup> equipment can be used to mix and formulate stable emulsions, dispersions and liposomes, and for cell disruption.

Emulsions are homogenous mixtures of oil and water components (or other normally immiscible components), which, if mixed properly, do not readily separate. Emulsions comprise many products, such as food additives, medicines (including injectable drugs), photographic films, and polymers. The Company believes that, generally, an emulsion processed with Microfluidizer<sup>®</sup> equipment will exhibit improved stability and require reduced concentrations of costly emulsifying agents that are otherwise needed to enhance product stability.

Dispersions are mixtures of fine solids suspended in liquid so that the two do not separate readily after processing. Similar to emulsions, dispersions are used in a variety of consumer and industrial products, including pigments, medicines (including injectable drugs), paints and inks, iron oxide for magnetic tapes, phosphorescent coatings for TV screens and fluorescent lamps, barium titanate for capacitors, toners and inkjet inks.

Liposomes are biodegradable cell-like structures, formed from materials such as cholesterol and lecithin, which can be used to encapsulate medications or nutrients. Pharmaceutical and cosmetic manufacturers use liposomes as a delivery system to target active ingredients for specific anatomical sites and to prolong their efficacy. To date, liposomes have been used commercially in two predominant applications: medical diagnostic agents and cosmetics. Applications include the encapsulation of dye to be used as a marker in medical diagnostic tests and the encapsulation of ingredients for deeper skin penetration, or time-release control, as well as pharmaceutical, food and specialized agricultural applications.

In the biotechnology industry, Microfluidizer<sup>®</sup> equipment is currently used to harvest, by cell rupture, the contents of bacteria and mammalian plant or animal cells. The precision with which the Microfluidizer<sup>®</sup> equipment can be used to break up materials allows the encapsulating cell wall to be ruptured without damage to or contamination of the cell contents. The Microfluidizer<sup>®</sup> equipment minimizes the amount and presence of cell wall debris and eliminated grinding media contamination, thus minimizing downstream processing requirements.

The Microfluidizer<sup>®</sup> equipment is generally used in commercial applications where a scientist, formulator or chemist is trying to develop or improve a product formulation for an expensive, high value-added end product. Microfluidizer<sup>®</sup> equipment is initially employed in a research laboratory, with the equipment subsequently being used in scaleup to pilot scale production of new or improved products, and ultimately, for full production scale volumes as the improved product comes to market. From laboratory to production, it has been demonstrated that the volume of products processed range from less than one quarter of a gallon per minute to 18 gallons per minute.

**The Company currently manufactures and markets the following lines of equipment:**

The HC Series: The HC Series, also known as Homogenizers, is a laboratory-scale series of equipment that is intended to impart moderate levels of energy into a customer's product with greater flow rates than the more energy intensive Microfluidizer® devices. Operating pressures of products in the Company's HC Series can range from under 500 psi to as high as 8,000 psi, and will process as much as two liters of fluid per minute.

The M-110 Series: The M-110 Series, is a laboratory product line that operates with available laboratory air and is designed primarily for research and development applications. Standard models can generate pressures as high as 25,000 psi and have a product flow rate on the order of one-half liter per minute. The M-110EH includes an on-board electric hydraulic pump system for high performance lab scale micro-mixing at processing pressures up to 25,000 psi and flow rates up to 450 ml/min. It has numerous standard features and options including explosion-proof motors and steam sterilization.

The M-140 Series: The M-140K Series, is a laboratory-scale unit developed for customers in the chemical, biotechnology, pharmaceutical, cosmetic and food processing industries that require elevated operating pressures and higher shear forces to achieve better performance. The M-140K can achieve operating pressures up to 40,000 psi. The M-140K has a built-in hydraulic system and utilizes a bi-directional intensifier pump that provides a highly uniform pressure profile. It has been designed with many accessories and options including an explosion proof motor, control package, and solvent seal quench.

The M-210 Series: The M-210 Series is a pilot unit and is primarily marketed to pharmaceutical, cosmetic and food product manufacturers who have created a successful new or improved formulation on the M-110 Series unit and would like to increase their production capacity. The M-210 Series unit is typically used for testing formulations at greater volume levels before initiating full-scale production. For some customers (such as pharmaceutical product manufacturers), the M-210 Series may have the capacity to function as a production unit.

The M-700 Series: The M-700 Series was introduced at the end of fiscal 1998 and was initially designed, engineered, and constructed for use in rugged industrial environments such as coatings, paints and pigments research and manufacturing. This product line was especially designed to

withstand such hazards as dust, grease, and water spray. Through use of our own proprietary designed intensifier pump and other components, the system has also proven to be more cost-effective in many user applications.

More recently, because of the market demands of the pharmaceutical, biotech and cosmetic industries, the M-700 product line was upgraded to all stainless steel construction, and meets Good Manufacturing Practices (GMP) requirements. (See discussion under heading Government Regulations .) It also offers steam in place (SIP) and clean in place (CIP) options.

The M-700 Series equipment is available in a variety of configurations and flow rates depending upon motor size and the number of intensifier pumps. On the low end of the spectrum is the 15 HP, single intensifier pump M-7115 machine with flow rates ranging from 1.0 gpm at 10,000 psi to 0.4 gpm at 30,000 psi. The next size up is the 25 HP, single intensifier pump, M-7125 machine with flow rates ranging from 2.0 gpm at 10,000 psi to 0.6 gpm at 30,000 psi. Until September 30, 2003, the largest offering of the M-700 series product line was the 50 HP, dual intensifier pump M-7250 machine with flow rates ranging from 4.0 gpm at 10,000 psi to 1.2 gpm at 30,000 psi.

On September 30, 2003, Microfluidics introduced a new addition to the M-700 series product line, the 100 HP, dual intensifier pump, Model M-710 machine with flow rates ranging from 12 gpm at 4,000 psi to 3.0 gpm at 30,000 psi. This model has the equivalent throughput of the larger and more expensive M-610-100 H.P model.

All M-700 series machines are offered with the capability of operating at 40,000 psi. Additionally, during 2003 the Company introduced several new options and equipment features to the M-700 series product offerings including:

(i) The M-700 Microfluidizer Containment System, which is utilized for the processing of highly toxic cancer drugs and other hazardous materials. The first such recently installed system is now producing pharmaceutical product.

(ii) The M-700 Microfluidizer Split System (separating the power source from the mixing/processing apparatus) accommodates demands of limited space within clean rooms and for noise abatement within pharmaceutical production facilities. In conjunction with this system, the Company also introduced a Level II Steam Sterility Option for all pilot and production systems used for production of injectable and other pharmaceuticals. This option enables compliance with stringent regulatory production requirements. The Company has delivered such a system to a pharmaceutical manufacturer.

(iii) Ultra Clean in Place (UCIP) option, which improves the ability to clean in place (CIP) Microfluidizer processor systems between product batch runs or before storage. This capability differentiates our Microfluidizer materials processor systems from all other competitive products. Several pilot and production systems incorporating this option have already been delivered.

The Company currently manufactures and markets the following lines of equipment:

The M-610 Series: The M-610 Series consists of custom-built models used for large-scale production. These units have flow rates of up to 18 gallons per minute and generate operating pressures up to 40,000 psi. Generally, these models are available in 25 HP, 50 HP, 75 HP, 100 HP, and 200 HP.

Multiple Stream Mixer/Reactor (MMR): The Company has introduced its patented Multiple Stream Mixer-Reactor (MMR) system as a continuous chemical reactor, which the Company believes may become a standard device for conducting chemical reactions, many of which can be configured to produce nanoparticles. This system produces uniform nanoparticles with phase purity previously unachievable with conventional batch reaction technology. This degree of reaction chemistry control can lead to cost-effective product improvements and the development and manufacture of new nanomaterials in scalable quantities. Applications for the new technology include improving the performance of catalysts, planarization polishing media, superconductors, abrasive silica, recording media, photographic media and pigments. It also may be used in the development and production of unique pharmaceutical products. The Company is proceeding with projects involving other companies seeking to optimize or enable drug delivery, catalysts and coatings products, as well as an internal program on nanopolymer creation for drug delivery and other applications. The Company anticipates making delivery of its first MMR laboratory development systems (in the \$200,000-\$250,000 sales price range) in 2004, with production systems (in the \$750,000 - \$1,500,000 sales price range) in 2005. The Company believes that the MMR systems and technology make it a leader in the provision of systems for continuous production of uniform, reproducible, microparticles, nanoparticles and nanodroplets.

**Morehouse-COWLES Division:**

On February 9, 2004, pursuant to an Asset Purchase Agreement (the "Asset Purchase Agreement") dated February 5, 2004 between MFIC Corporation ("MFIC") and a wholly owned subsidiary of NuSil Corporation, a California corporation ("NuSil"), MFIC sold substantially all of the assets and selected liabilities of its Morehouse-COWLES Division (the "Division"), to NuSil. Other than NuSil's prior purchases of products from the Division, there were no preexisting relationships between MFIC and NuSil.

Prior to February 9, 2004, the Company-operated Morehouse-COWLES Division manufactured grinding and dispersing equipment used in a broad number of industries including the coatings and ink industries. The products included high-speed single and multi-shaft dissolvers and dispersers, stone mills, and vertical and horizontal media mills. As one of the early inventors of dispersers, dissolvers, stone mills, and media mills, the one hundred-year-old COWLES name is an industry-accepted symbol of quality, reliable products. The Morehouse-COWLES Division manufactures products that are generally used for blending, mixing, deagglomeration and dispersion of paints and coatings, inks, adhesives, sealants, and pigment dispersions. These applications are more conventional whereby the formulations are less expensive to produce and the volumes of product produced are large. The Morehouse-COWLES product lines are used in broader, high volume, lower value-added applications requiring less stringent particle size reduction.

The Morehouse-COWLES equipment is used independent of the Microfluidizer<sup>®</sup> processor equipment in the preparation of many industrial fluid formulations where the desired product characteristics do not require the sub-micron size of particles created by Microfluidizer<sup>®</sup> processing.

**Epworth Mill Division:**

Prior to October 1, 2000, the Company's Epworth Mill Division products consisted of ball mills and horizontal media mills. The division was also engaged in the sale and distribution of grinding media. Ball mills are used in coarse grinding application of liquid slurries such as ore from mines or coarse slurries of material that will later be processed into finer slurries. Ball mills use large media in a horizontal rotating cylindrical vessel to crush and grind the product being processed. The patented Zinger® horizontal media mill utilizes a unique design for grinding and dispersing solid materials in a liquid carrying medium. The design is based upon established rotating, horizontal shaft technology but adds the unique capability of enhanced mechanical activity between the grinding media and the product formulation. The enhanced mechanical activity is achieved through a unique combination of specially designed rotors and containment vessels. In comparison to traditional horizontal media mills, the Zinger media mill technology has demonstrated significantly improved productivity in terms of greater volumes of product processed at acceptable quality than the comparably sized and priced horizontal media mills. On July 24, 2000, the Company announced that it would transfer the manufacturing and sale of its Zinger® horizontal media mills from its Michigan-based Epworth Mill Division to the Morehouse-COWLES Division plant in Fullerton, California. The transfer began on October 1, 2000, and was completed in the fourth quarter of fiscal 2000.

On September 30, 2000, the Company ceased operations of the Ball Mill repair business and decided to sell its Ball Mill operation conducted at the Epworth Mill Division through a broker. On April 13, 2001 the Company concluded the sale of the assets of the division's operation for \$200,000 in cash and a promissory note, which resulted in a loss on the sale of these assets of approximately \$53,000.

**Marketing and Sales:**



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The Company's marketing and sales activities are conducted through a corporate marketing and sales group that is responsible for the worldwide marketing and sales of all products.

Marketing programs include media advertising, a website, direct mail, seminars, trade shows and telemarketing. In addition, the Company has an active program of field demonstrations, as well as demonstrations to potential users in the Company's laboratories located in Newton, Massachusetts, Fullerton, California, and Lampertheim, Germany. Distributors and sales agents worldwide are supported with trade advertising, collateral literature and trade show materials. The distributors and sales agents also advertise directly on their own behalf and attend regional and international trade shows. As an aid to the marketing and sales activity for the equipment, the Company provides prospective customers with access to its applications laboratories. These laboratories provide free processing and particle size and distribution analysis of a prospective customer's sample formulation. Additionally, a prospective customer may pay for subsequent laboratory time and services on a fee for services basis, which includes equipment rentals.

The Company sells its equipment in the United States through a network of independent manufacturer's representative firms who are managed by the Company's regional sales managers. In Canada, the Company has an exclusive distributor for the Company's product line. In Europe, the Company sells its equipment through a network of independent regional sales agents and distributors who are managed by the Company's European Sales organization. In Asia and the Pacific Rim, the Company sells through a network of distributors and independent manufacturer's representative firms. Customers in other geographical regions are assisted directly by Company sales staff.

### **Customers:**

The users of the Company's systems are in various industries, including the chemical, pharmaceuticals, food, cosmetic and biotechnology industries. Two customers accounted for 21% and 11%, respectively, of the revenues from continuing operations in 2003. Two customers accounted for

18% and 16% of the revenues from continuing operations in 2002, respectively. Two customers accounted for 17% and 10% of the trade accounts receivable from continuing operations as of December 31, 2003, respectively, and one customer accounted for 13% of the trade accounts receivable as of December 31, 2002. A reduction or delay in orders from these or other significant customers could have a material adverse effect on the Company's results of operations. No customer accounted for more than 10% of the Company's revenues in 2001.

**Competition:**

The patented Microfluidizer<sup>®</sup> equipment product line of high shear fluid processors has direct competition in its major markets, including pharmaceutical and coatings/chemical applications, but management believes that the Company's products have larger installed bases and competitive performance advantages over products of our competitors. The Company believes that the Microfluidizer<sup>®</sup> processor equipment product line offers the highest shear forces available in the process equipment market today. It has been proven in many instances that for critical formulations Microfluidizer<sup>®</sup> processors produce better quality products for our customers.

The M-700 Series of fluid processors, together with the M-210 and M-610 product lines, provide high shear fluid processing capabilities for sanitary, sterile, and industrial applications. The Company believes that the Microfluidizer<sup>®</sup> product line provides a distinct advantage over the product lines of our competitors with respect to the processing of abrasive slurries or solids dispersed in liquids in large part because of the Company's unique, wear-resistant, diamond interaction chamber and the special design of the intensifier pumping system.

The MMR systems may encounter significant competition and there are other companies that possess patents and claims to equipment or processes that claim to make production quantities of nanoparticles. At least one of these companies, Five Star Technologies Inc. ( Five Star ), has raised significant investment capital from venture capital sources (\$4.5 million in its second round) for its patented technology. Five Star claims the use of hydrodynamic cavitation to achieve production of nano and micro materials. Five Star also claims that its process is inherently scalable. Although the Company believes that its MMR system is superior in design and function there can be no assurance that Five Star, or others, will not pose a competitive impediment to sales of the Company's MMR system.

The Company faces, and will continue to face, intense competition from other companies who manufacture and sell fluid processing systems. The Company is subject to significant competition from organizations that are pursuing technologies and products that are similar to the Company's technology and products. The Company's future success will depend in large part on its maintaining its current technologically superior product line and competitive position in the fluid processing systems field. Rapid technological development by the Company or others may result in the Company's products or technologies becoming obsolete before the Company recovers the expenses it incurs in connection with their development. Products offered by the Company could be made obsolete by less expensive or more effective technologies. There can be no assurance that the Company will be able to make the enhancements to its technology necessary to compete successfully with newly emerging technologies. The Company expects competition to intensify in the fluid processing systems field as technical advances are made and become more widely known.

**Research and Development:**

The Company's research and development efforts are focused on: (i) developing new processing applications for the process industries and further enhancing the functionality, reliability and performance of existing products, and (ii) development of the Multiple-Stream High Pressure Mixer/Reactor (MMR) by: (a) working with customers who assist in the development of the system with both application knowledge and financial support, and (b) internal development program relating to interaction chamber design and creation of a variety of nanomaterials. There can be no assurance that the Company will be able to meet the enhancement challenges posed by applications of its core Microfluidizer® processor business. Likewise there can be no assurance that the Company will be able to design and manufacture chambers for its MMR applications that will deliver the desired result for specific applications. Research and development costs for continuing operations were \$785,849, \$583,683, and \$537,428 in 2003, 2002, and 2001, respectively. Patent coverage for the MMR has been obtained both in the United States and in Europe (with national entry in process) and is prosecuting the patent application in Canada.

**Cooperative Research Arrangements:**

The Company subsidizes research and development activities centered around Microfluidizer<sup>®</sup> processor technology at a number of research centers and universities. The Company's subsidy of these activities takes the form of substantial reduction or elimination of the customary rental charges for the Microfluidizer<sup>®</sup> equipment provided for use. The Company has, in past years, subsidized research and development in the following fields at the following universities: The University of Massachusetts, Lowell biotechnology; Lehigh University polymer chemistry; Université Laval (Quebec) food science; Worcester Polytechnic Institute (WPI) catalytic chemistry; and Purdue University pharmaceuticals. In addition to their research activities, these universities provide the Company with contacts at industrial companies that may utilize the Microfluidizer<sup>®</sup> processing technology. Additionally, on occasion, research reports, technical papers, and doctoral theses may be published, which document the use of Microfluidizer<sup>®</sup> technology. Finally, the Company engages in many informal co-operative development efforts with its customers.

In addition to providing subsidies, the Company has, in the past, entered into a research arrangement with Worcester Polytechnic Institute (WPI). The Company commenced supported research and development at WPI in 1988 and continued such support until the mid 1990 s. In 1992, the Company entered into a cooperative venture with WPI to develop, patent and license for WPI, for its commercial applications, the Microfluidizer® process technology in the following fields: (i) the production of catalysts used in chemical and petroleum processing; (ii) the manufacture of advanced ceramic materials; and (iii) the destruction of volatile organic compounds and other organic contaminants in process waste water. The Company and WPI applied for United States and foreign patents in 1992 and 1993, respectively, which cite the Microfluidizer® processing technology as enabling the above process technologies. The two applied-for United States patents were both granted and issued to WPI in the United States in 1995. In 1996 one applied for patent was granted to WPI in France for European entry in the Patent Cooperation Treat (PCT) countries. The program is inactive at this time.

Patents and Proprietary Rights Protection:

To protect its proprietary rights, the Company relies on a combination of U.S. patent and trademark laws, trade secrets, confidentiality agreements, contractual provisions and technical means. In the event of patent infringement or breach of confidentiality, there can be no assurance that these measures will be adequate or that the Company will have sufficient resources to prosecute or prevail in an action against a third party. In addition, the Company has not sought patent or trademark protection for its Microfluidizer® equipment s interaction chamber in any country other than the United States and, as such, its proprietary rights are not subject to the protection of patent or trademark laws of foreign countries where the Company s equipment is sold. The Company s Microfluidizer® equipment process patent expires on March 13, 2007 and its device patent expired on August 6, 2002. The Company does not believe that the expiration of its patent will result in any material detriment to the Company since the Company has made many alterations, improvements and advances to its equipment over the years with such modification and innovations having been treated by the Company as trade secrets. In 1997 the Company completed development of a novel adaptation of its Microfluidizer® equipment a Multiple Stream High Pressure Mixer/ Reactor (MMR). In August 1997, the Company filed a patent application for the device and its processes with the United States Patent and Trademark Office (USPTO), and filed a Patent Cooperation Treaty (PCT) application on May 5, 1998. In July and November 2000, the USPTO issued to the Company notices of allowances of utility patent claims regarding the MMR and the use thereof. On September 18, 2002, the European Patent Office advised the Company it would grant its MMR patent substantially as applied for, including its device and process claims. The Company is in the process of pursuing national entry in France, Germany, Italy, The Netherlands, and the United Kingdom. The Company is prosecuting its MMR patent in Canada.

The Company maintains confidentiality agreements with its employees and also maintains confidentiality agreements and non-competition agreements with those third parties to whom it discloses non-public technical information relating to its equipment. The Company believes that enforcement of the provisions of such agreements should adequately protect the Company s proprietary information. However, in the event of a material breach of such agreements certain of the Company s valuable intellectual property may be disclosed to third parties (including competitors). In such event, despite provisions for equitable relief and damages in the event of such breaches the Company may suffer competitively and be materially impacted negatively as a result of such unauthorized disclosure.



**Manufacturing:**

At present, the Microfluidics Division subcontracts the manufacture and/or machining and finishing of many of the components of its equipment to third parties, with the Company undertaking the remaining fabrication, assembly and performance testing. The Microfluidics Division has selected certain primary suppliers based upon pricing terms, quality of their products, and the vendor's performance record. The Company believes that there are adequate available alternate manufacturing sources and suppliers for all of its components and raw materials requirements.

The loss of any primary supplier could have a material, adverse effect on the Company's business, financial condition, or results of operations. Therefore, the Company has identified alternative suppliers for its most critical components of its equipment ( Alternative Sources ). There can be no assurance that a transition to such Alternative Sources will not entail transitional delays, quality assurance and quality control difficulties, on time delivery problems, any or all of which would likely have an impact on the Company's production of equipment and may have a material adverse effect on the Company's business, financial condition, or results of operations.

**Key Management / Personnel:**

The Company's continued operation, innovation and growth are to some significant degree reliant on the continued services of its key executive officers and leading technical personnel. The Company does not maintain employment contracts with its key management or leading technical personnel. Though the Company believes that it can identify and recruit replacement key management and technical personnel, there can be no assurance as to such availability, the length of time required to obtain such replacement management and technical personnel, the salary level that may have to be paid to obtain their respective services, or the impact on operations that may be experienced through the interim absence of such key management and technical personnel. The loss of key management or leading technical personnel could, therefore, have a material adverse effect on the Company's business, financial condition, or results of operations.

**Government Regulation:**

Certain of the Company's customers utilize the Company's products in processes and production that are subject to governmental regulation. For example, the manufacturing and marketing of pharmaceutical products may require the approval of the Food and Drug Administration (FDA) within the United States and of comparable agencies in foreign countries. The FDA has established mandatory procedures, safety standards and protocols that apply to the manufacture, clinical testing and marketing of new pharmaceutical products in the United States. The process of seeking and obtaining FDA approval of a new product often takes a number of years and often involves the expenditure of substantial resources by the Company's customers. The FDA approval process can result in long lead times that are attendant to manufacturing equipment orders for these applications.

Further, in addition to product approvals, the FDA imposes requirements as to manufacturing practices, record keeping and reporting (Good Manufacturing Practices or GMP). GMP-regulated companies are subject to inspections by the FDA (inclusive of Microfluidizer<sup>®</sup> processor equipment) and product approvals may be withdrawn if GMP are not met.

At present, the Company's customers include companies who are making FDA approved drugs, preparations, and products (example: x-ray film) for external use and companies who utilize

Microfluidizer<sup>®</sup> processor equipment for the formulation or production of FDA approved parenteral (injectable) drugs or compounds.

For the Company's equipment entering Europe, CE compliance (Regulatory Compliance with European Safety Standards) is required. All products manufactured by the Microfluidics Division are CE compliant.

Various laws, regulations and recommendations relating to safe working conditions, laboratory practices and the purchase, storage, movement, import and export, use and disposal of harmful or potentially harmful substances that may be used in connection with the Company's research work are, or may, be applicable to its activities. These laws include, among others, the United States Atomic Energy Act, the Clean Air Act, the Clean Water Act, the Occupational Safety and Health Act, the National Environmental Policy Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, national restrictions on technology transfer, import, export and customs regulations and other present and possible future local, state or Federal regulation. The extent of adverse governmental regulation, which might result from future legislation or administrative action, cannot be accurately predicted. Certain agreements that may be entered into by the Company involving exclusive license rights may also be subject to national or supranational antitrust regulatory control, the effect of which cannot be predicted.

To date the Company has not been effected by any United States governmental restrictions on technology transfer, import, export and customs regulations and other present local, state or Federal regulation. The extent of adverse governmental regulation, which might result from future legislation or administrative action, cannot be accurately predicted. In particular, H.R. 3162 enacted on October 21, 2001 (the Patriot Act) and other governmental regulation may impose export restrictions on sale of equipment or transfer of technology to certain countries or groups. There can be no assurance that sale of the Company's equipment will not be impacted by such legislation or designation. Depending upon which countries and sales may be designated for trade restriction such action could have a material adverse effect on the Company's business, financial condition, or results of operations. Also, certain agreements that may be entered into by the Company involving exclusive license rights may also be subject to national or supranational antitrust regulatory control, the effect of which cannot be predicted.

Backlog:

The Company's sales order backlog related to continuing operations of accepted and unfilled orders at March 24, 2004, and March 14, 2003 was approximately \$2,226,000 and \$3,146,000, respectively. Backlog as of any particular date should not be relied upon as indicative of the Company's net revenues for any future period.

Employees:

The Company has approximately 41 full-time employees as of March 24, 2004. None of the Company's employees are covered by a collective bargaining agreement, and the Company considers its relations with its employees to be satisfactory. The Company believes that its future success will depend in large part on its ability to attract and retain highly skilled employees.

**Item 2. PROPERTIES**

The Company's corporate headquarters are in Newton, Massachusetts. The Company also maintains a sales office and laboratory facility in Lampertheim, Germany and a sales office and applications laboratory in Fullerton, California. The Company rents approximately 48,200 square feet of offices, production and research and development facilities at these locations for administrative, development and production activities. A portion of the space at the Newton, MA facility is sublet to a non-affiliated company for a total of \$12,000 per annum under a tenant at will arrangement. The lease terms expire at various times through August 2006. The Company has the option to extend the leases for up to five additional years. The Company believes these facilities will be adequate for operations for the next several years.

**Item 3. LEGAL PROCEEDINGS**

The Company is not a party to any material legal proceedings.

**Item 4. SUBMISSION OF MATTERS TO VOTE OF SECURITY HOLDERS**

No matters were submitted to a vote of the Company's security holders during the quarter ended December 31, 2003.

**Item 5. MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDER MATTERS**

Market

The Company's Common Stock is traded on the Over-the-Counter Bulletin Board under the symbol MFIC. The following table sets forth the range of quarterly high and low bid quotations for the last two fiscal years, as furnished by the National Association of Securities Dealers Automated Quotation System. The quotations represent interdealer quotations without adjustment for retail markups, markdowns, or commissions, and may not necessarily represent actual transactions.

| Quarters Ended | 12/31<br>2003 | 9/30<br>2003 | 6/30<br>2003 | 3/31<br>2003 | 12/31<br>2002 | 9/30<br>2002 | 6/30<br>2002 | 3/31<br>2002 |
|----------------|---------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|
| Low            | \$ 0.85       | \$ 0.57      | \$ 0.20      | \$ 0.23      | \$ 0.25       | \$ 0.28      | \$ 0.35      | \$ 0.41      |
| High           | \$ 2.70       | \$ 1.90      | \$ 0.73      | \$ 0.47      | \$ 0.43       | \$ 0.42      | \$ 0.45      | \$ 0.55      |

Holdings

As of March 24, 2004, there were approximately 470 holders of record of the Company's Common Stock.

Dividends

The Company has never paid any cash dividends on its Common Stock and presently anticipates that no dividends on its Common Stock will be declared in the foreseeable future. The Company's current policy is to retain all of its earnings to finance future growth. In addition, pursuant to loan covenants contained in the Company's loan agreement with its commercial lender, the Company may not pay dividends without the commercial lender's prior approval.

Equity Compensation Plan Information:

The information in the table below is as of December 31, 2003. See also the Consolidated Financial Statements Note 10.

| Plan category   | Number of securities<br>to be issued upon<br>exercise of<br>outstanding options,<br>warrants and rights<br><br>(a) | Weighted-average<br>exercise price of<br>outstanding options,<br>warrants and rights<br><br>(b) | Number of securities<br>remaining available for<br>future issuance under<br>equity compensation<br>plans (excluding<br>securities reflected in<br>column (a))<br><br>(c) |
|---|--|---|--|
| Equity compensation plans<br>approved by security holders     | 1,929,662  | \$ 0.74   | 1,206,898  |
| Equity compensation plans not<br>approved by security holders |  |   |  |
| <b>Total</b>  | <b>1,929,662</b>   | <b>\$ 0.74</b>  | <b>1,206,898</b>   |

**Item 6. SELECTED FINANCIAL DATA**

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The selected financial information presented below is derived from the audited consolidated financial statements of the Company for each of the five year period ended December 31, 2003. The information set forth below should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations and the Consolidated Financial Statements and related Notes included elsewhere in this Form 10-K. All fiscal years noted below have been restated to reflect the discontinued operations of MFIC Corporation.

**Selected Statement of Operations Data**

|  | Year Ended<br>December 31,<br>2003 | Year Ended<br>December 31,<br>2002 | Year Ended<br>December 31,<br>2001 | Year Ended<br>December 31,<br>2000 | Year Ended<br>December 31,<br>1999 |
|--|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Total revenues   | \$ 10,459,631                      | \$ 9,514,180                       | \$ 11,210,375                      | \$ 10,034,585                      | \$ 8,675,871                       |
| Total costs and expenses   | 9,693,551                          | 8,872,465                          | 10,934,902                         | 10,449,756                         | 9,284,229                          |
| Income (loss) from continuing operations   | 766,080                            | 641,715                            | 275,473                            | (415,171)                          | (608,358)                          |
| Interest expense   | (116,097)                          | (179,429)                          | (261,754)                          | (350,486)                          | (542,045)                          |
| Other expense  |                                    |                                    | (53,142)                           | (250,000)                          |                                    |
| Interest income  | 9,508                              | 7,191                              | 7,032                              | 248                                | 9,835                              |
| Gain on sale of investments  |                                    |                                    |                                    |                                    | 11,864                             |
| Net income (loss) from continuing operations before extraordinary item   | 659,491                            | 469,477                            | (32,391)                           | (1,015,409)                        | (1,128,704)                        |
| Gain on subordinated debt restructuring  |                                    |                                    |                                    | 194,500                            |                                    |
| Net income (loss) from continuing operations   | 659,491                            | 469,477                            | (32,391)                           | (820,909)                          | (1,128,704)                        |
| (Loss) income from discontinued operations (Net of loss from disposal of discontinued operations of \$1,422,715) | (4,109,925)                        | (2,983,451)                        | (492,795)                          | 347,801                            | 274,270                            |
| Net loss   | (3,450,434)                        | (2,513,974)                        | (525,186)                          | (473,108)                          | (854,434)                          |
| Weighted-average shares outstanding:   |                                    |                                    |                                    |                                    |                                    |
| Basic  | 7,767,712                          | 7,426,586                          | 7,375,102                          | 7,086,058                          | 5,818,588                          |
| Diluted  | 8,501,110                          | 7,470,090                          | 7,375,102                          | 7,086,058                          | 5,818,588                          |
| Basic amounts per common share:  |                                    |                                    |                                    |                                    |                                    |
| Net income (loss) per share from continuing operations before extraordinary gain                                 | \$ .08                             | \$ .06                             | \$ (.00)                           | \$ (.14)                           | \$ (.19)                           |
| Extraordinary gain per share:  |                                    |                                    |                                    | \$ .03                             |                                    |
| Net income (loss) per share from continuing operations   | \$ .08                             | \$ .06                             | \$ (.00)                           | \$ (.11)                           | \$ (.19)                           |
| Basic net (loss) income per share from discontinued operations   | \$ (.52)                           | \$ (.40)                           | \$ (.07)                           | \$ .05                             | \$ .04                             |
| Basic, as reported   | \$ (.44)                           | \$ (.34)                           | \$ (.07)                           | \$ (.06)                           | \$ (.15)                           |
| Diluted amounts per common share:  |                                    |                                    |                                    |                                    |                                    |
| Net income (loss) per share from continuing operations before extraordinary gain                                 | \$ .08                             | \$ .06                             | \$ (.00)                           | \$ (.14)                           | \$ (.19)                           |
| Extraordinary gain per share:  |                                    |                                    |                                    | \$ .03                             |                                    |
| Diluted net income (loss) per share from continuing operations   | \$ .08                             | \$ .06                             | \$ (.00)                           | \$ (.11)                           | \$ (.19)                           |
| Diluted net (loss) income per share from discontinued operations   | \$ (.52)                           | \$ (.40)                           | \$ (.07)                           | \$ .05                             | \$ .04                             |
| Diluted, as reported   | \$ (.44)                           | \$ (.34)                           | \$ (.07)                           | \$ (.06)                           | \$ (.15)                           |





**Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS**

**CERTAIN FACTORS AND CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS**

Management believes that this report contains forward-looking statements that are subject to certain risks and uncertainties including statements relating to the Company's plan to achieve, maintain and/or increase revenue growth and/or operating profitability, and to attain net operating profitability. Such statements are based on management's current expectations and are subject to a number of factors and uncertainties that could cause actual results achieved by the Company to differ materially from those described in the forward-looking statements. The Company cautions investors that there can be no assurance that the actual results or business conditions will not differ materially from those projected or suggested in such forward-looking statements as a result of various factors, including but not limited to, the following risks and uncertainties: (i) whether the performance advantages of the Company's Microfluidizer® materials processing equipment will be realized commercially or that a commercial market for the equipment will continue to develop, (ii) whether the Company will have access to sufficient working capital through continued and improving cash flow from sales and ongoing borrowing availability, the latter being subject to the Company's ability to comply with the covenants and terms of the Company's loan agreement with its senior lender, (iii) whether the Company's expectation that the benefits of nanotechnology will, in part, be realized by the ability of the MMR to produce innovative materials in large quantities, and (iv) whether the Company is able to increase the number of prototype MMR placements and then manufacture and introduce commercial production MMR equipment.

### **Critical Accounting Policies**

The Company considers certain accounting policies related to revenue recognition and related receivables as well as the valuation of inventories to be critical policies due to the estimation processes involved in each.

**Revenue Recognition** The Company's policy is to recognize revenue from sales of machines and spare parts upon shipment to our customers and the fulfillment of all contractual terms and conditions, pursuant to the guidance provided by Staff Accounting Bulletin No. 101, Revenue Recognition in Financial Statements (SAB 101), issued by the Securities and Exchange Commission.

**Rental income from the lease of equipment is recognized on a straight-line basis over the term of the lease agreement.**

**Judgments are required in evaluating the creditworthiness of our customers. In all instances, revenue is not recognized until the Company has determined that collection is reasonably assured.**

**Should changes in conditions cause management to determine the aforementioned criteria are not met for certain future transactions, revenue recognized for any reporting period could be adversely affected.**

**Allowance for Doubtful Accounts** The Company's policy is to maintain allowances for estimated losses resulting from the inability of our customers to make scheduled payments. The Company regularly evaluates the collectibility of our trade receivable balances based on a combination of factors. When a customer's account balance becomes past due, we initiate dialogue with the customer to determine the cause. If it is determined that

the customer will be unable to meet its financial obligation to us. The Company records a specific allowance to reduce the related receivable to the amount we expect to recover given all information presently available.

The Company believes our reported allowances are adequate as of December 31, 2003 and 2002. If the financial condition of our customers were to deteriorate, however, resulting in their inability to make payments, the Company may need to record additional allowances, which would result in additional expenses being recorded for the period in which such determination was made.

**Inventory Valuation** The Company values its inventory at the lower of cost or net realizable value on a first-in-first-out method. Management regularly evaluates inventory quantities on hand and records a provision for obsolete or excess inventory levels greater than those of anticipated usage in the subsequent two years. There are external factors that may require an adjustment to the anticipated demand including, but not limited to, technological changes in our markets, our ability to meet changing customer requirements, competitive pressures in products and prices, and the availability of key components from our suppliers. Purchasing requirements and alternative usage avenues are explored within these processes to mitigate inventory exposure. When recorded, our Company's reserves are intended to reduce the carrying value of our inventory to its net realizable value.

**Impairment** It has been the Company's policy to review the carrying values of long-lived assets and amortizable intangibles for impairment whenever an event or changes in circumstances indicated that the carrying amount of an asset may not be recoverable.

**Product Warranties** The Company's products are generally sold with a twelve month warranty provision that require us to remedy deficiencies in quality or performance of our products at no cost to our customers only after it has been determined that the cause of the deficiency is not due to the actions of the machine operator or product used in the machine.

#### Fiscal 2003 Compared to Fiscal 2002

In 1998, the Company purchased the assets and liabilities of Morehouse-COWLES Inc. ( Morehouse-COWLES ). This was done to complete a strategic combination with the Microfluidics Division, in order to enhance the Company's position in the coatings market, which, at the time, was the dominant part of the Company's business.

Since that time, the direction of the core business of the Company changed significantly from coatings to other areas, (in particular the Health Care sector). The Company determined that it could no longer support the previous strategic plan and the Company, therefore, prepared a plan to divest the Morehouse-COWLES Division.

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It was expected that the sale would positively impact the Company's cash flow, and would allow the Company to focus on the core business, and expand its sales and marketing resources for the Company's Microfluidizer® process systems line, and promote its new MMR nanoparticle production systems.

During the fourth quarter of 2003, management committed to a plan to sell substantially all the assets and associated liabilities of Morehouse-COWLES. Accordingly, at year end, the Company reported the division as discontinued operations and reclassified the assets and associated liabilities as available for sale. The search for a buyer eventually resulted in NuSil Corporation, a California corporation ( NuSil ) making an offer in December 2003 to purchase the Morehouse-COWLES Division's assets and related liabilities at a price that was acceptable to the Company.

On February 9, 2004, pursuant to an Asset Purchase Agreement (the Asset Purchase Agreement ) dated February 5, 2004 between MFIC Corporation ( MFIC ) and a wholly owned subsidiary of NuSil, MFIC sold substantially all of the assets and selected liabilities of its Morehouse-COWLES Division (the Division ), to NuSil. Other than NuSil's prior purchases of products from the Division, there were no preexisting relationships between MFIC and NuSil.

The assets of the division that were sold included accounts receivable, furniture, fixtures and equipment, inventory and supplies, books and records, bids, contracts, prepaid expenses, leases, intellectual property, goodwill, domain names and claims, all as described in the Asset Purchase Agreement (collectively, the Assets ). In addition, certain rights and obligations arising after February 9, 2004 under the division's PacifiCare Group Health Insurance Policy were assigned. The division's cash or cash equivalents on hand on February 9, 2004 were excluded from the assets being sold. Under the Asset Purchase Agreement, the division's executory obligations under certain contracts and bids, and the division's accounts payable as of February 9, 2004 in the amount of \$623,240, were assumed by NuSil.

The purchase price (other than the assumption of accounts payable described in the preceding paragraph) paid under the Asset Purchase Agreement was \$918,238. Of the purchase price, \$768,238 (the Closing Cash ) was paid in cash, \$100,000 was paid in the form of a Promissory Note (the Purchase Note ) and \$50,000 (the Holdback Payment ) was withheld for payment at a future date subject to any purchase price adjustments and offsets, as provided for in the Asset Purchase Agreement.

The Closing Cash was paid directly to PNC Bank, National Association ( PNC ), to be applied to MFIC's outstanding balance under MFIC's Revolving Credit Loan with PNC (the Revolving Credit Loan ).

The aforementioned Purchase Note bears interest at 5 percent per annum, is secured by the Assets pursuant to a Security Agreement dated February 5, 2004 (the Security Agreement ) between the parties and is subject to certain offsets as provided in the Asset Purchase Agreement. Principal and interest on the Purchase Note are payable on February 9, 2005, unless there is a claim for an offset as allowed for under the Asset Purchase Agreement, which claim might delay final payment of amounts due under the Purchase Note until final resolution of any such claim under the procedures outlined in the Asset Purchase Agreement.

Pursuant to the Asset Purchase Agreement, MFIC entered into a Noncompetition and Nonsolicitation Agreement, dated February 5, 2004, which limits MFIC's ability to compete with the business of the division for a period of five years.

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The sale generated a loss of approximately \$1,400,000. Due to the sale of the Morehouse-COWLES Division, goodwill associated with the 1998 purchase of this division in the amount of \$2,100,000 has been impaired in 2003.

## Results of Continuing Operations

Total revenues for the year ended December 31, 2003 from continuing operations were \$10,459,631 as compared to revenues of \$9,514,180 for the year ended December 31, 2002, representing an increase of \$945,451, or 10%.

North American sales for the year ended December 31, 2003 decreased to approximately \$5,337,000, or 17%, as compared to North American sales of approximately \$6,462,000 for the year ended December 31, 2002. This decrease in North American sales was principally due to a decrease in the sale of machines. Foreign sales were approximately \$5,123,000 for the year ended December 31, 2003 compared to \$3,052,000 for the year ended December 31, 2002, an increase of \$2,071,000 or 68%. This increase in foreign sales was principally due to an increase in the sale of machines.

Total cost of goods sold for 2003 from continuing operations was \$4,988,226 or 48% of revenue, as compared to \$4,438,351 or 47% of revenue for 2002. The increase in cost of goods sold reflects primarily the increase in sales generated by the Company. The Company's major product lines have different profit margins, as well as multiple profit margins within each product line. In the course of the periods compared, there may be significant changes in the cost of revenues as a percentage of revenue depending on the mix of product sold. Also, the cost of sales as a percent of revenue will differ between laboratory and pilot plant units sold, due to the difference in costs between air driven and electric-hydraulic units.

Total operating expenses from continuing operations for 2003 were \$4,705,325 or 45% of revenue, as compared to \$4,434,114 or 47% of revenue for 2002, which is an increase of \$271,211 or 6%.

Research and development expenses for 2003 were \$785,849 compared to \$583,683 for 2002, an increase of \$202,166 or 35%. The increase in research and development expenses is primarily due to an increase in research costs of approximately \$131,000, and an increase in payroll and related costs of approximately \$96,000, partially offset by a decrease in amortization costs of approximately \$12,000, and a decrease in outside contract services of approximately \$13,000.

Selling expenses for 2003 increased approximately \$101,000, from \$2,086,547 in 2002 to \$2,187,389 or 5%. The increase was due principally to an increase of approximately \$124,000 in payroll and related costs, approximately \$100,000 in travel and entertainment costs, and \$54,000 in delivery costs, partially offset by a decrease in advertising expenses of approximately \$107,000 and a decrease in commission expense of approximately \$70,000.

General and administrative expenses for 2003 decreased by approximately \$32,000, from \$1,763,884 for the year ended December 31, 2002, to \$1,732,087, or 2%. The decrease in general and administrative expenses is primarily due to a decrease in payroll costs of approximately \$87,000, a decrease in professional fees of approximately \$58,000, and a decrease in corporate expenses of approximately \$37,000, offset by increases in bad debt expense of approximately \$101,000 and overhead costs of approximately \$48,000.

Interest expense for 2003 decreased from \$179,429 in 2002 to \$116,097, a decrease of \$63,332, or 35%. The decrease was due principally to a reduction in the interest rate paid, and a reduction in the amount of debt borrowed.

Interest income for 2003 increased to \$9,508 from \$7,191 for 2002, an increase of \$2,317. The increase is due to interest earned on the note and accounts receivable remaining from the sale of the Ball Mill operation.



### Results of Discontinued Operations

Total revenues for the year ended December 31, 2003 from discontinued operations were \$3,655,237 as compared to revenues of \$5,059,202 for the year ended December 31, 2002, representing a decrease of \$1,403,965, or 28%. The decrease in revenues is due primarily to a decrease in machine sales of approximately \$930,000, and a decrease in spare parts of approximately \$496,000.

North American sales for the year ended December 31, 2003 decreased to approximately \$2,798,000, or 28%, as compared to North American sales of approximately \$3,880,000 for the year ended December 31, 2002. This decrease in North American sales was principally due to a decrease in the sale of machines. Foreign sales were approximately \$835,000 for the year ended December 31, 2003 compared to \$1,179,000 for the year ended December 31, 2002, a decrease of approximately \$344,000 or 29%.

Total cost of goods sold for 2003 was \$2,601,957 or 71% of revenue, as compared to \$3,626,407 or 72% of revenue for 2002. The decrease in cost of goods sold reflects primarily the decrease in sales generated by the division. The division's major product lines have different profit margins, as well as multiple profit margins within each product line. In the course of the periods compared, there may be significant changes in the cost of revenues as a percentage of revenue depending on the mix of product sold.

Total operating expenses for 2003 were \$1,640,490 or 45% of revenue, as compared to \$1,754,837 or 35% of revenue for 2002, which is a decrease of \$114,347 or 7%.

Research and development expenses for 2003 were \$318,105 compared to \$322,811 for 2002, a decrease of \$4,706 or 1%. The decrease in research and development expenses is primarily due to a decrease in payroll and related costs of approximately \$6,000.

Selling expenses for 2003 decreased approximately \$143,000, from \$1,006,746 in 2002 to \$863,337 or 14%. The decrease was due principally to the reduction of selling expenses at the Eastern sales office located in South Haven, Michigan of approximately \$70,000, a decrease in payroll and related costs of approximately \$68,000, a decrease in commission expense of approximately \$24,000, and a decrease in travel expenses of approximately \$79,000, partially offset by increases of approximately \$95,000 in advertising costs and approximately \$14,000 in demonstration cost expenses.

General and administrative expenses for 2003 increased by approximately \$34,000, from \$425,280 for the year ended December 31, 2002 to \$459,048, or 8%. The increase in general and administrative expenses is primarily due to an increase in professional fees of approximately \$16,000.

Under SFAS No. 142, goodwill impairment is deemed to exist if the net book value of a reporting unit exceeds its estimated fair value. Upon adoption of SFAS No. 142 in the first quarter of 2002, the Company recorded a one-time, noncash charge of \$2,661,409 to reduce the carrying value of its goodwill. Such charge is nonoperational in nature and is reflected in discontinued operations in the accompanying consolidated statement of operations pursuant to the SFAS No. 142 transition rules.



**Fiscal 2002 Compared to Fiscal 2001**

**Results of Continuing Operations**

Total revenues for the year ended December 31, 2002 from continuing operations were \$9,514,180 as compared to revenues of \$11,210,375 for the year ended December 31, 2001, representing a decrease of \$1,696,195 or 15%.

North American sales for the year ended December 31, 2002 were approximately \$6,462,000, a 13% decrease as compared to North American sales of approximately \$7,444,000 for the year ended December 31, 2001. This decrease in North American sales was principally due to a decrease in the sale of machines. Foreign sales were approximately \$3,052,000 for the year ended December 31, 2002 compared to \$3,766,000 for the year ended December 31, 2001, a decrease of \$714,000 or 19%. The decrease in foreign sales was principally due to a decrease in the sale of machines compared to 2001.

Total cost of goods sold for 2002 was \$4,438,351 or 47% of revenue, as compared to \$5,629,484 or 50% of revenue for 2001. The decrease in cost of goods sold in absolute dollars reflects principally the decrease in sales generated by the Company compared to the previous year. It also reflects an increase in profit margins. The Company's major product lines have different profit margins, as well as multiple profit margins within each product line. In the course of the periods compared, there may be significant changes in the cost of revenues as a percentage of revenue depending on the mix of product sold. Also, the cost of sales as a percent of revenue will differ between laboratory and pilot plant units sold, due to the difference in costs between air driven and electric-hydraulic units.

Total operating expenses for 2002 were \$4,434,114, or 47% of revenue, as compared to \$5,305,418, or 47% of revenue, for 2001, which is a decrease of \$871,304, or 16%.

Research and development expenses for 2002 were \$583,683 compared to \$537,428 for 2001, an increase of \$46,255, or 9%. The increase in research and development expenses is principally due to an increase in payroll costs, as a result of both an increase in headcount and pay increases.

Selling expenses for 2002 decreased approximately \$177,000, or 8% from \$2,263,226 to \$2,086,547. The decrease was due principally to a decrease in payroll costs of approximately \$141,000, a decrease in travel and entertainment of approximately \$72,000, a decrease in supplies of approximately \$23,000, partially offset by an increase in outside commissions of approximately \$66,000.

For the year ended December 31, 2002, general and administrative expenses decreased by approximately \$741,000, from \$2,504,764 for the year ended December 31, 2001, to \$1,763,884, or 30%. The decrease in general and administrative expenses was principally due to a decrease in amortization of goodwill costs of approximately \$422,000, as a result of the adoption of SFAS No. 142, media costs of approximately \$169,000, professional fees of approximately \$86,000, and other cost decreases of approximately \$64,000.

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Interest expense for 2002 decreased to \$179,429 from \$261,754 for 2001, a decrease of \$82,325, or 31%. The decrease was due primarily to a decrease in the interest rates charged the Company.

Interest income for 2002 increased to \$7,191 from \$7,032 for 2001, an increase of \$159 or 2%.

## Results of Discontinued Operations

Total revenues for the year ended December 31, 2002 were \$5,059,202 as compared to revenues of \$4,300,639 for the year ended December 31, 2001, representing an increase of \$758,563 or 18%.

North American sales for the year ended December 31, 2002 were approximately \$3,880,000, a 22% increase as compared to North American sales of approximately \$3,186,000 for the year ended December 31, 2001. The increase in North American sales was due to an increase in the sale of both machines and spare parts. Foreign sales were approximately \$1,179,000 for the year ended December 31, 2002, as compared to foreign sales of approximately \$1,114,000, an increase of \$65,000 or 1%. The increase in foreign sales was principally due to an increase in the sale of machines compared to 2001.

Total cost of goods sold for 2002 was \$3,626,407 or 72% of revenue, as compared to \$3,268,271 or 76% of revenue for 2001. The increase in cost of goods sold in absolute dollars reflects principally the increase in sales generated by the division. It also reflects an increase in profit margins. The division's major product lines have different profit margins, as well as multiple profit margins within each product line. In the course of the periods compared, there may be significant changes in the cost of revenues as a percentage of revenue depending on the mix of product sold.

Total operating expenses for 2002 were \$1,754,837, or 35% of revenue, as compared to \$1,525,163, or 35% of revenue, for 2001, which is an increase of \$229,674, or 15%.

Research and development expenses for 2002 were \$322,811 compared to \$320,063 for 2001, an increase of 2,748, or 1%.

Selling expenses for 2002 increased approximately \$221,000, or 28% from \$786,192 to \$1,006,746. The increase was due principally to an increase in media costs of approximately \$136,000, in payroll and related costs of approximately \$50,000, an increase in travel costs of approximately \$73,000, and demonstration cost expenses of approximately \$48,000, partially offset by a decrease in commission costs of approximately \$71,000.

For the year ended December 31, 2002, general and administrative expenses increased by approximately \$6,000, from \$418,908 for the year ended December 31, 2001, to \$425,280, or 2%. The increase in general and administrative expenses was principally due to an increase in payroll and related costs of approximately \$44,000, partially offset by a decrease in bad debt expense of approximately \$31,000.

On July 24, 2000, the Company announced that it would transfer the sales and manufacturing of its line of Zinger® horizontal media mills from its Michigan-based Epworth Mill Division to the Morehouse-COWLES plant in Fullerton, California. The transfer began on October 1, 2000 and did not have a material impact on the profitability of the Company. Simultaneously, the Company ceased operations of the Ball Mill repair business and decided to sell its Ball Mill product line. On March 19, 2001, the Company reached an agreement to sell the Ball Mill operation for \$200,000 in cash and notes.

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In October, 2000, the Company entered into a settlement agreement related to a warranty claim against the Epworth Mill Division, pursuant to which the Company paid \$100,000 upon execution of the agreement, and executed a promissory note for \$350,000 payable two years from the execution date, with interest payable quarterly in arrears at 10% per annum. The Company paid off the balance of this note in December, 2002.

**QUARTERLY RESULTS OF OPERATIONS**

The following table sets forth, for the periods presented, certain data from our consolidated statements of operations. In the opinion of our management, the unaudited quarterly consolidated statement of operations data have been prepared on substantially the same basis as our audited consolidated financial statements and include all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the financial information for the periods presented. This information should be read in conjunction with the consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K. The operating results in any quarter are not necessarily indicative of the results that may be expected for any future period. Fiscal 2003 and 2002 quarters have been restated to reflect the discontinued operations of the Company.

Summarized unaudited quarterly financial data are as follows:

|  | <b>Fiscal 2003 Quarters</b> |               |              |               |
|--|-----------------------------|---------------|--------------|---------------|
|  | <b>First</b>                | <b>Second</b> | <b>Third</b> | <b>Fourth</b> |
| Revenues   | \$ 2,949,677                | \$ 3,119,465  | \$ 1,912,738 | \$ 2,477,751  |
| Gross income   | 1,491,923                   | 1,666,124     | 958,398      | 1,354,960     |
| Net income (loss) from continuing operations   | 405,571                     | 341,855       | (157,266)    | 69,331        |
| (Loss) from discontinued operations Including loss on disposal of \$1,422,715 in fourth quarter 2003 | (215,899)                   | (87,215)      | (186,080)    | (3,620,731)   |
| Net income (loss)  | 189,672                     | 254,640       | (343,346)    | (3,551,400)   |
| Basic net income (loss) per share from continuing operations:  | \$ .05                      | \$ .05        | \$ (.02)     | \$ .00        |
| Basic net loss per share from discontinued operations  | \$ (.03)                    | \$ (.01)      | \$ (.02)     | \$ (.46)      |
| Basic, as reported   | \$ .03                      | \$ .03        | \$ (.05)     | \$ (.45)      |
| Diluted net income (loss) per share from continuing operations                                       | \$ .05                      | \$ .05        | \$ (.02)     | \$ .00        |
| Diluted net loss per share from discontinued operations  | \$ (.03)                    | \$ (.01)      | \$ (.02)     | \$ (.46)      |
| Diluted, as reported   | \$ .03                      | \$ .03        | \$ (.05)     | \$ (.45)      |

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|  | Fiscal 2002 Quarters |              |              |              |
|--|----------------------|--------------|--------------|--------------|
|  | First                | Second       | Third        | Fourth       |
| Revenues   | \$ 2,739,707         | \$ 2,286,564 | \$ 2,003,723 | \$ 2,484,186 |
| Gross income   | 1,442,428            | 1,083,213    | 1,154,685    | 1,395,503    |
| Net income (loss) continuing operations                          | 235,659              | (67,603)     | (19,056)     | 320,477      |
| (Loss) income from discontinued operations                       | (2,796,821)          | 123,034      | 32,742       | (342,406)    |
| Net (loss) income  | (2,561,162)          | 55,431       | 13,686       | (21,929)     |
| Basis net income (loss) per share:                               |                      |              |              |              |
| Net income (loss) per share from continuing operations           | \$ .03               | \$ (.01)     | \$ (.00)     | \$ .04       |
| Basic net (loss) income per share from discontinued operations   | \$ (.38)             | \$ .02       | \$ .00       | \$ (.04)     |
| Basic, as reported   | \$ (.33)             | \$ .01       | \$ .00       | \$ (.02)     |
| Diluted net income (loss) per share:                             |                      |              |              |              |
| Net income (loss) per share from continuing operations           | \$ .03               | \$ (.01)     | \$ .00       | \$ .04       |
| Diluted net (loss) income per share from discontinued operations | \$ (.38)             | \$ .02       | \$ .00       | \$ (.04)     |
| Diluted, as reported   | \$ (.33)             | \$ .01       | \$ .00       | \$ (.02)     |



## LIQUIDITY AND CAPITAL RESOURCES

The Company generated cash from operations of \$236,292 in 2003, \$398,748 in 2002 and \$297,127 in 2001. In 2003, the Company's principal operating cash requirements were to fund its net loss, its increase in prepaid expenses, and decrease in current liabilities, offset by a decrease in trade and other receivables, inventories and other current assets. In 2002, the Company's principal operating cash requirements were to fund its decrease in current liabilities, and increase in other current assets and prepaid expenses, offset by net income from operations, and a decrease in receivables and inventory. In 2001, the Company's principal operating cash requirements were to fund its net loss from operations, increase in other assets, and decreases in current liabilities, offset by a decrease in trade and other receivables, inventories, and prepaid expenses.

The Company used cash of \$53,172, \$38,706 and \$108,861 for investing activities in 2003, 2002, and 2001, respectively. Net cash used in investing activities for both 2003 and 2002 included the proceeds from the sale of assets, net of the purchase of capital equipment. Net cash used by investing activities for 2001 resulted from the sale of assets from the Ball Mill operation offset by the issuance of a note receivable in connection with the sale of the Ball Mill operation, and the purchase of fixed assets, partially offset by the sale of fixed assets. The Company's sale of assets principally related to used equipment. As of December 31, 2003, the Company had no material commitments for capital expenditures.

For financing activities, the Company used cash of \$217,806 in 2003, \$362,472 in 2002, and \$387,235 in 2001. In 2003, cash was used to pay down the line of credit, subordinated debt, and the line of credit term note, partially offset by the issuance of common stock. In 2002 cash was used to pay a note payable arising from a settlement agreement (See Note 7-Debt), to pay down the term note, and the subordinated debt, and was partially offset by proceeds from the line of credit, and the issuance of common stock. Cash used in 2001 reflected the payments on the line of credit, line of credit term note, and subordinated debt, partially offset by the proceeds from the issuance of common stock.

The cash and cash equivalents balance at December 31, 2003 was \$50,270, a decrease of \$34,686 from the December 31, 2002 balance of \$84,956. At December 31, 2003, the Company maintained a line of credit and a term loan (collectively the Credit Facility) with PNC Bank, N.A. (the Lender). The line of credit facility provided for a maximum borrowing of \$4,000,000. On March 3, 2004, the Company received a new line of credit from Banknorth, N.A. The proceeds of the new line of credit and term note were used to pay off the balance due the previous lender, PNC. As of December 31, 2003 and March 24, 2004, the Company had borrowings under its line of credit of \$2,425,613 and \$589,781, respectively.

Under the terms of the line of credit with the previous Lender, the Company was subject to a number of restrictions that impacted the Company's use of funds. The Company was limited to acquisition of property of \$250,000 per year or less, could not pay dividends, and maintained certain financial covenants as defined. In addition, the Company was required to maintain a lockbox arrangement with the Lender, and all cash receipts were included in the lockbox and were applied against the outstanding line of credit. As discussed in Note 7 to the consolidated financial statements, the Company was in violation of two covenants of the Credit Facility as of December 31, 2002. The Company had previously received a waiver from the Lender and the previous Lender as of December 31, 2001, but was required to meet such covenants thereafter. As indicated in Note 7, the Company determined that violations of the tangible net worth and liabilities to worth ratio covenant occurred for

the quarter ended March 31, 2001. The Company obtained a waiver for these violations from the Lender. On March 29, 2002, the Company and the previous Lender set new covenants for fiscal 2002. Borrowings outstanding under the Credit Facility were secured by a collateral pledge to the Lender of substantially all of the assets of the Company. On February 19, 2003, the Company and the Lender signed a third amendment to the original agreement extending the credit facility for one year until February 28, 2004. On February 6, 2004, the Company and the Lender entered into a Fourth Amendment and Waiver in connection with the Company's sale of the assets of the Morehouse-COWLES Division. At December 31, 2003, the Company did not meet the net income covenant and would have required a waiver from its previous lender. However, in conjunction with the new credit facility it obtained from the new lender, Banknorth, N.A., no waiver was required from the previous Lender.

On March 3, 2004, the Company entered into a Revolving Credit and Term Loan Agreement with a new lender, Banknorth, N.A. (the New Lender), providing the Company with a \$2 million credit facility (the Credit Facility). The proceeds drawn down from the New Lender under the credit facility were used to pay off both the line of credit and term loan owed PNC Bank N.A. (the previous Lender).

Under the terms of agreement with the New Lender, the Company has two covenants that it must meet on an annual basis. The Company borrows funds on the Revolving Credit Line at the prime rate. The \$1 million Term Loan is payable ratably over a four year period at the fixed rate calculated equal to the Federal Home Loan Bank Classic Rate plus 2.5%. See discussion of New Credit Facility, in the notes to the Financial Statements.

The Company's ability to continue planned operations is dependent upon access to financing which is potentially impacted by the Company's ability to achieve future compliance with financial covenants.

Assuming that there is no significant change in the Company's business, the Company believes that cash flows from operations, together with existing cash balances, will be sufficient to meet its working capital and debt service requirements for at least the next twelve months.

Additionally, although the Company has raised approximately \$3.6 million in a private placement offering which closed in March, 2004 (see Note 15 Subsequent Events), the Company may, from time to time, seek to raise additional capital for various initiatives that management believes advance the interests of the Company. The terms upon which the Company may raise such additional capital may include private placements of its stock, which placements are usually priced at discount to the then-current market price of the Company's stock (in order to compensate for the fact that the stock being sold is not freely-tradeable) or upon other terms that management believes appropriate under the circumstances

**Recent Accounting Pronouncements**

In January 2003, the FASB issued Interpretation No. 46, Consolidation of Variable Interest Entities, an Interpretation of Accounting Research Bulletin No 51, Consolidated Financial Statements (FIN 46). FIN 46 establishes accounting guidance for consolidation of variable interest entities that function to support the activities of the primary beneficiary. FIN 46 applies to any business enterprise, both public and private, that has a controlling interest, contractual relationship or other business relationship with a variable interest entity. The Company does not have any investments in or contractual relationships or other business relationships with any variable interest entity and therefore, based on present facts and circumstances, the adoption of FIN 46 is not expected to have a material impact on the Company's consolidated financial position or results of its operations.

In May 2003, the FASB issued SFAS No. 150, Accounting for Certain Financial Instruments with Characteristics of Both Liabilities and Equity (SFAS 150). SFAS 150 establishes standards for classifying and measuring as liabilities certain financial instruments that embody obligations of the issuer and have characteristics of both liabilities and equity. SFAS 150 represents a significant change in practice in the accounting for a number of financial instruments, including mandatorily redeemable

equity instruments and certain equity derivatives that frequently are used in connection with share repurchase programs. The Company does not use such instruments in its share repurchase program. SFAS 150 is effective for all financial instruments created or modified after May 31, 2003. Adoption of SFAS 150, based on present facts and circumstances, is not expected to have a material effect on the Company's consolidated financial position or results of its operations.

**Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK**

The Company's financial instruments are generally not subjected to changes in market value as a result of changes in interest rates due to the short maturities of the instruments. The Company's fixed rate debt is not exposed to cash flow or interest rate changes but is exposed to fair market value changes in the event of refinancing this fixed rate debt. The Company does not have significant exposure to fluctuations in foreign exchange rates.

The Company had approximately \$2,484,000 of variable rate borrowings outstanding under its revolving credit agreement at December 31, 2003. A hypothetical 10% adverse change in interest rates for this variable rate debt would have had an approximate \$12,000 negative effect on the Company's earnings and cash flows on an annual basis.

For additional information about the Company's financial instruments, see Note 7.

**Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA**

The Consolidated Financial Statements of the Company and its Subsidiaries appear at the end of this report starting on page F-1 and include:

Report of Independent Auditors

Consolidated Balance Sheets as of December 31, 2003 and 2002

Consolidated Statements of Operations for the years ended December 31, 2003, 2002 and 2001

Consolidated Statements of Cash Flows for the years ended December 31, 2003, 2002 and 2001

Consolidated Statements of Changes in Stockholders' Equity for the years ended December 31, 2003, 2002 and 2001

Notes to Consolidated Financial Statements

**Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE**

None.

**Item 9A. CONTROLS AND PROCEDURES**

(a) *Evaluation of disclosure controls and procedures.* Based on his evaluation as of a date within 90 days prior to the filing date of this Annual Report on Form 10-K, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures (as defined in Rules 13a-14(c) and 15d-14(c) under the Securities Exchange Act of 1934) are effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms.

(b) *Changes in internal controls.* There were no significant changes in our internal controls or in other factors that could significantly affect these controls subsequent to the date of their evaluation, including any corrective actions with regard to significant deficiencies and material

weaknesses.

## Item 10.

**DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT**

Each director of the Company is elected annually and holds office for the ensuing year and until his successor has been elected and qualified. The names of the Company's current directors, executive officers, directors-elect and certain information about them are set forth below:

| <b>Name</b>         | <b>Age</b> | <b>Title</b>  |
|---------------------|------------|---|
| Irwin J. Gruverman  | 70         | Chief Executive Officer, Chairman of the Board, Treasurer and Secretary |
| Robert P. Bruno     | 66         | President, Chief Operating Officer, and Vice-President Sales/Marketing  |
| Jack M. Swig        | 55         | Vice President - Corporate Development and General Counsel              |
| Dennis P. Riordan   | 57         | Controller  |
| James N. Little     | 63         | Director  |
| Vincent B. Cortina  | 64         | Director  |
| Edward T. Paslawski | 53         | Director  |
| Leo Pierre Roy      | 46         | Director  |

IRWIN J. GRUVERMAN has served as the Chief Executive Officer, Chairman of the Board of Directors and Secretary of the Company since its inception in 1983. He also currently serves as the Company's Treasurer. From the Company's inception in 1983 to June 1993, and from November 21, 2000 until May 17, 2001, Mr. Gruverman served as its President. In addition, Mr. Gruverman currently serves on the Board of Directors of the following public companies: North American Scientific, Inc. and InVitro International, Inc.

ROBERT P. BRUNO joined the Company on April 8, 1996 as Vice-President of Sales/Marketing. Mr. Bruno was appointed as Chief Operating Officer on November 30, 2000. Mr. Bruno was appointed as President on May 17, 2001 with such appointment becoming effective on May 21, 2001.

JACK M. SWIG joined the Company as a full time employee in January 1996 and was appointed in January 1999 as the Vice President Corporate Development and General Counsel. He has served as the Company's General Counsel and Investor Relations Manager since 1993. Mr. Swig has almost 25 years venture capital, corporate finance and merchant/investment banking experience.

DENNIS P. RIORDAN joined the Company on February 12, 1996 as the Controller. Mr. Riordan previously served as Controller-Residential Group for Winthrop Management from May, 1989 to May, 1994. From June, 1986 to May, 1989, he served in various positions as an assistant controller at Krupp Management, a real estate concern. Prior to that, Mr. Riordan had spent twelve years in public accounting, primarily as an audit manager.

JAMES N. LITTLE has served as a director of the Company since December 1995. Dr. Little serves as President of Cetek Corporation, a biotechnology drug discovery company. From August 1998 until December 26, 2001, Dr. Little served as Senior Vice President of Cetek. Prior to that, from 1981 to August 1998, Dr. Little served as a Senior Vice President of Sales, Marketing and Business Development for Zymark Corporation, a manufacturer of scientific instrumentation.

VINCENT B. CORTINA has served as a director of the Company since May 1997. Mr. Cortina serves as principal of Corvis Associates, a management consulting firm. From 1999 until mid-2001, Mr. Cortina served as Director of Operations for Advanced Instruments, Inc., a manufacturer of laboratory and clinical instruments. Prior to that he served as a self-employed business consultant. From 1990 to 1996 he served as President of Advanced Monitors, Inc., a company which develops and manufactures industrial and commercial instruments.

EDWARD T. PASLAWSKI has served as a director of the Company since June 2000. Mr. Paslawski is principal in the Arete Capital Group, a firm providing investment banking and financial advisory services. Prior to co-founding Arete, Mr. Paslawski served as the New England Regional Manager and Vice President of LaSalle Business Credit, Inc., an asset-based lending subsidiary of LaSalle Bank. Mr. Paslawski is the founder and managing partner of Durham Capital, LLC, an investment-banking firm specializing in arranging and investing equity in start-ups and growth companies. The company also provides merger and acquisition advisory services. He also serves as the Chairman of CEI Ventures Inc., the managing partner of Coastal Ventures Limited Partnership and Coastal Ventures, LLC. Mr. Paslawski has thirty years of commercial banking and venture capital experience in senior lending positions with major US and international banks including The National Bank of Canada, Meridian Capital Corp., First National Bank of Boston, and The Industrial Bank of Japan.

LEO PIERRE ROY has served as a director of the Company since June 2000. Mr. Roy has more than 20 years of experience as a senior manager and consultant. Mr. Roy currently serves as director of environmental services at Vanasse Hangen & Brustlin, Inc. (VHB), a recognized leader in providing transportation, land development, and environmental services. Prior to joining VHB, Mr. Roy was the Vice President and Chief Operating Officer of The Bioengineering Group, Inc., a firm engaged in consulting in the areas of erosion control, water quality, ecological



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restoration and bioremediation from 2000 to 2003. Between 1998 and 2000 he has served as the President of Houqua & Company, Inc., a consulting firm specializing in strategic planning and development services. From 1997 to 1998, Mr. Roy served as President and

Chief Operating Officer of Energy Answers Corporation, a designer, developer and owner of resource recovery, power, recycling and solid waste management companies. From 1992 to 1996, Mr. Roy served first as Director of Waste Policy and Planning and later as Undersecretary of the Executive Office of Environmental Affairs for the Commonwealth of Massachusetts. From 1990 to 1991, Mr. Roy was the Regional Manager of Special Projects for Waste Management, Inc. From 1985 to 1989, he was the Vice President and Chief Operating Officer of Orne Enterprises, Inc., a venture capital, environmental technology holding company.

**Section 16(a) Beneficial Ownership Reporting Compliance**

One timely filed Form 5 was not made for Robert P. Bruno, Vincent B. Cortina, James N. Little, Edward T. Paslawski, Leo Pierre Roy and Jack M. Swig, each of which would have included one transaction. One timely filed Form 5 was not made for Irwin J. Gruverman, which would have included two transactions. One timely filed Form 5 was not made for Dennis P. Riordan, which have included three transactions. Reports for each of these persons were filed on the applicable Form 5 on March 29, 2004.

**Code of Ethics**

The Company has adopted a Code of Ethics that applies to all of the Company's employees, officers and directors, and which is attached to this Report as Exhibit 14. Any person may receive a copy, without charge, of the Company's Code of Ethics by sending a request for the Code of Ethics to MFIC Corp., 30 Ossipee Road, Newton, MA 02464-9101, ATTN: Investor Relations.

**Item 11. EXECUTIVE COMPENSATION**

| Name and Principal Position  | Year | Annual Compensation |       | Long-Term Compensation                  |                           |
|--|------|---------------------|-------|---|---------------------------|
|  |      | Salary              | Bonus | Securities Underlying Stock Options (#) | All Other Compensation(1) |
| Irwin J. Gruverman   | 2003 | \$ 95,000           | 0     | 50,000                                  | 0                         |
| Chief Executive Officer, Chairman of the Board of Directors, Treasurer and Secretary | 2002 | \$ 59,025           | 0     | 150,000                                 | 0                         |
|  | 2001 | \$ 95,000           | 0     | 75,000                                  | 0                         |
| Robert P. Bruno  | 2003 | \$ 150,000          | 0     | 50,000                                  | 0                         |
| President, Chief Operating Officer, and Vice President Sales/Marketing               | 2002 | \$ 138,902          | 0     | 50,000                                  | 0                         |
|  | 2001 | \$ 118,059          | 0     | 125,000                                 | 0                         |

(1) Consists of the Company's matching contributions made under its 401(k) plan on behalf of each Named Executive Officer.

**Item 12.  
MANAGEMENT****SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND****Principal Holders Of Voting Securities**

| <b>Name and Address of<br/>Beneficial Owner</b>                                | <b>Amount and<br/>Nature of<br/>Beneficial<br/>Ownership(1)</b> | <b>Percent of<br/>Class(2)</b> |
|--|---|--------------------------------|
| Irwin J. Gruverman(3) 30 Ossipee Road Newton,<br>Massachusetts 02464           | 1,979,555   | 21.7%                          |
| Husic Capital Management(5) 555 California Street, San<br>Francisco, CA. 94104 | 1,564,988   | 17.2%                          |
| G.D. Searle & Co.(4) Box 511D Chicago, Illinois 60680                          | 600,000   | 6.6%                           |

(1) Information with respect to beneficial ownership is based upon information furnished by such shareholder.

(2) Shares of Common Stock that a person or entity has the right to acquire within 60 days of March 24, 2004, according to Registrar and Transfer Company, the Company's Transfer Agent, pursuant to the exercise of options are deemed to be outstanding for the purpose of computing the percentage ownership of such person or entity, but are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person or entity shown in the table. Percentage ownership is based on 9,115,432 shares of Common Stock issued and outstanding on March 24, 2004.

(3) Consists of (i) 342,300 shares of Common Stock, (ii) 383,750 shares of Common Stock subject to currently exercisable options, (iii) 153,505 shares of Common Stock owned jointly by Mr. Gruverman and his wife, (iv) 100,000 shares of Common Stock owned by his wife, and (v) 1,000,000 shares of restricted Common Stock purchased by Mr. Gruverman on February 28, 2000. Mr. Gruverman disclaims beneficial ownership of the 100,000 shares of Common Stock owned by his wife.

(4) Information with respect to beneficial ownership is based upon information furnished by G.D. Searle & Co. in a Form 4 filed with the Securities and Exchange Commission on January 5, 1994.

(5) Information with respect to beneficial ownership is based upon information furnished by Husic Capital Management on form 4 and schedule 13G filed with the Securities and Exchange Commission dated February 11, 2004 and January 15, 2004 respectively, which ownership is deemed to be under common control.

**Beneficial Ownership Of Directors And Executive Officers**

The following table sets forth for current directors and each executive officer named in the Executive Compensation table below, the positions currently held by each person with the Company and the number and percentage of outstanding shares of Common Stock beneficially owned by each person and by all current directors and executive officers as a group as of February 12, 2004.

|                    | Positions and Offices with<br>the Company  | Amount and Nature of<br>Beneficial Ownership<br>(1)(2) | Percent of Class |
|--------------------|--|--|------------------|
| Irwin J. Gruverman | Chief Executive Officer,<br>Chairman of the Board of<br>Directors, Secretary, and<br>Treasurer | 1,979,555(3)   | 24.71%           |
| Robert P. Bruno    | President, Chief Operating<br>Officer, and Vice President                                      | 282,050(4)   | 3.5%             |

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| Sales/Marketing  |   |               |        |
|--|---|---------------|--------|
| Dennis P. Riordan  | Controller  | 113,327(5)    | 1.41%  |
| Jack M. Swig   | V.P. Corporate Development<br>and General Counsel | 98,290(6)     | 1.22%  |
| Edward T. Paslawski  | Director  | 41,875(7)     | *      |
| Leo Pierre Roy   | Director  | 41,875(8)     | *      |
| James N. Little  | Director  | 24,375(9)     | *      |
| Vincent B. Cortina   | Director  | 24,375(10)    | *      |
| All current directors and executive officers<br>as a group (8 persons) |   | 2,665,722(11) | 37.52% |

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\* Less than 1%

(1) Unless otherwise indicated, each person possesses sole voting and investment power with respect to the shares.

(2) Shares of Common Stock that a person has the right to acquire within 60 days of February 12, 2004, pursuant to the exercise of options are deemed to be outstanding for the purpose of computing the percentage ownership of such person, but are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person shown in the table. The inclusion herein of any shares of Common Stock deemed beneficially owned does not constitute an admission of beneficial ownership of those shares. Percentage ownership is based on 8,011,691 shares of Common Stock issued and outstanding on February 12, 2004.

(3) Consists of (i) 342,300 shares of Common Stock, (ii) 383,750 shares of Common Stock subject to currently exercisable options, (iii) 153,505 shares of Common Stock owned jointly by Mr. Gruverman and his wife, (iv) 100,000 shares of Common Stock owned by his wife, and (v) 1,000,000 shares of restricted Common Stock. Mr. Gruverman disclaims beneficial ownership of the 100,000 shares of Common Stock owned by his wife.

(4) Consists of 278,750 shares of Common Stock subject to currently exercisable options, and 3,300 shares of Common Stock.

(5) Consists of 103,750 shares of Common Stock subject to currently exercisable options and 9,577 shares of Common Stock owned jointly by Mr. Riordan and his wife.

(6) Consists of 98,250 shares of Common Stock subject to currently exercisable options and 40 shares of Common Stock owned by Mr. Swig.

(7) Consists of 41,875 shares of Common Stock subject to currently exercisable options.

(8) Consists of 41,875 shares of Common Stock subject to currently exercisable options.

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- (9) Consists of 24,375 shares of Common Stock subject to currently exercisable options.
- (10) Consists of 24,375 shares of Common Stock subject to currently exercisable options.
- (11) Includes 997,000 shares of Common Stock subject to currently exercisable options. See footnotes 3 through 10 above.

**Item 13.**

**CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS**

During 2002 and 2003, the Company leased a facility in South Haven, Michigan from B-2 Enterprises, Inc. This entity is owned and controlled by Messrs. J.B. Jennings and Bret A. Lewis, former principal shareholders. In 2003 and 2002, the Company paid B-2 Enterprises, Inc. approximately \$63,295 and \$102,180 in rent, respectively.

**Item 14.**

**INDEPENDENT ACCOUNTANT FEES FOR FISCAL 2003 AND FISCAL 2002**

*Audit Fees*

The aggregate fees billed by Brown & Brown LLP for services completed during fiscal 2003 and fiscal 2002 were approximately \$70,000 and \$74,000 respectively related to its audit and quarterly reviews.

*Financial Information Systems Design and Implementaion Fees*

During the years ended December 31, 2003 and December 31, 2002, Brown & Brown LLP did not provide any services to the Company relating to financial information systems design and implementation.

*All Other Fees*

During the years ended December 31, 2003 and December 31, 2002, Brown & Brown LLP was paid approximately \$16,000 and \$8,000 respectively for non-audit services. During the year ended December 31, 2002, Deloitte & Touche LLP was paid approximately \$16,000 for non-audit services

The Audit Committee has considered whether the provision of non-core audit services to the Company by the Company's principal auditor is compatible with maintaining independence, and has made an affirmative decision in each instance that the provision of such service was compatible with the principal auditor's independent role.

**Item 15.  
FORM 8-K**

**EXHIBITS, FINANCIAL STATEMENT SCHEDULES AND REPORTS ON**

**(a)1. Consolidated Financial Statements.**

The following Consolidated Financial Statements are included in Item 8:

|   | <b>Page</b> |
|---|-------------|
| <u>Reports of Independent Auditors</u>  | F-1         |
| <u>Consolidated Balance Sheets as of December 31, 2003 and 2002</u>   | F-2         |
| <u>Consolidated Statements of Operations for the years ended December 31, 2003, 2002, and 2001</u>                      | F-4         |
| <u>Consolidated Statements of Cash Flows for the years ended December 31, 2003, 2002, and 2001</u>                      | F-5         |
| <u>Consolidated Statements of Changes in Stockholders' Equity for the years ended December 31, 2003, 2002, and 2001</u> | F-6         |
| <u>Notes to Consolidated Financial Statements</u>   | F-7         |

**(b) Reports on Form 8-K.**

- 1.) The Company filed a current report on Form 8-K regarding preliminary unaudited fiscal 2003 and fourth quarter sales results dated March 5, 2004.
  
- 2.) The Company filed a current report on Form 8-K regarding the commencement of a private placement offering dated February 20, 2004.
  
- 3.) The Company filed a current report on Form 8-K regarding the disposition of selected assets and liabilities dated February 13, 2004.
  
- 4.) The Company filed a current report on Form 8-K regarding changes in its certifying accountant dated October 29, 2001.



(c) **Exhibits.**

The Company hereby files as part of this Form 10-K the Exhibits listed in Item 15(a)3 as set forth above.

(d) **Financial Statement Schedules.**

The following Consolidated Financial Statement Schedule of the Registrant is filed as part of this report:

Schedule II Valuation and Qualifying Accounts and Reserves

**INDEPENDENT AUDITORS REPORT**

The Board of Directors and Stockholders of MFIC Corporation:

We have audited the accompanying consolidated balance sheets of MFIC Corporation and subsidiaries as of December 31, 2003 and 2002 and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2003. Our audits also included the financial statement schedule listed in the Index at Item 15(a). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements and schedule based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the 2003 consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of MFIC Corporation and subsidiaries at December 31, 2003 and 2002 and the consolidated results of their operations and their cash flows for the three years in the period ended December 31, 2003, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

As discussed in Note 4 to the financial statements, on February 5, 2004, the Company entered into an agreement to sell a major division of its operations. The division represents a significant portion of the Company's total assets and operations.

/s/ BROWN & BROWN, LLP

Boston, Massachusetts  
March 11, 2004, Except for Note 15, as to which  
the date is March 31, 2004

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**MFIC CORPORATION**

**CONSOLIDATED BALANCE SHEETS**

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|  | December 31,        |                     |
|--|---------------------|---------------------|
|  | 2003                | 2002                |
| <b>ASSETS</b>  |                     |                     |
| <i>Current Assets:</i>   |                     |                     |
| Cash and cash equivalents  | \$ 50,270           | \$ 84,956           |
| Accounts receivable, less allowance for doubtful accounts of \$58,500 and \$33,500 in 2003 and 2002, respectively. | 1,814,584           | 1,535,951           |
| Note receivable - current  | 16,429              | 16,429              |
| Inventories, net   | 1,683,703           | 2,066,462           |
| Prepaid expenses   | 207,210             | 157,710             |
| Other current assets   | 38,749              | 166,030             |
| Assets available for sale  | 1,383,118           | 5,131,464           |
| <b>TOTAL CURRENT ASSETS</b>  | <b>5,194,063</b>    | <b>9,159,002</b>    |
| <i>Property and Equipment, at cost:</i>  |                     |                     |
| Furniture, fixtures and office equipment   | 330,022             | 288,472             |
| Machinery and equipment  | 219,765             | 219,765             |
| Leasehold improvements   | 50,568              | 45,337              |
|  | <b>600,355</b>      | <b>553,574</b>      |
| Less: Accumulated depreciation and amortization  | (418,066)           | (356,764)           |
| <b>Net property and equipment</b>  | <b>182,289</b>      | <b>196,810</b>      |
| Note receivable - long-term  | 54,761              | 71,190              |
| Patents, licenses and other assets (net of accumulated amortization of \$303,785 in 2003 and \$299,985 in 2002)    | 55,978              | 59,778              |
| <b>TOTAL ASSETS</b>  | <b>\$ 5,487,091</b> | <b>\$ 9,486,780</b> |

The accompanying notes are an integral part of these consolidated financial statements.

|  | December 31,        |                     |
|--|---------------------|---------------------|
|  | 2003                | 2002                |
| <b>LIABILITIES AND STOCKHOLDERS EQUITY</b>   |                     |                     |
| <i>Current Liabilities:</i>  |                     |                     |
| Line of credit   | \$ 2,425,613        | \$ 2,681,987        |
| Accounts payable and accrued expenses  | 1,061,897           | 1,335,289           |
| Accrued interest related party   | 2,639               | 14,980              |
| Accrued compensation and vacation pay  | 111,855             | 158,119             |
| Customer advances  | 223,501             | 232,035             |
| Current portion of term note payable   | 58,735              | 95,004              |
| Current portion of long-term debt- related party   | 75,000              | 75,000              |
| Liabilities associated with assets available for sale  | 661,095             | 652,013             |
| <b>TOTAL CURRENT LIABILITIES</b>   | <b>4,620,335</b>    | <b>5,244,427</b>    |
| Long-term debt, net of current portion- related party  | 6,250               | 81,250              |
| Term note  |                     | 58,735              |
| Commitments (Note 11)  |                     |                     |
| <i>Stockholders Equity:</i>  |                     |                     |
| Common Stock, par value \$.01 per share, 20,000,000 shares authorized; 8,288,604 and 7,965,510 shares issued; 8,028,158 and 7,705,064 shares outstanding at December 31, 2003 and 2002, respectively | 80,281              | 77,051              |
| Additional paid-in capital   | 13,150,862          | 12,945,520          |
| Accumulated deficit  | (11,682,936)        | (8,232,502)         |
| Less: Treasury Stock, at cost, 260,446 shares at December 31, 2003 and 2002, respectively  | (687,701)           | (687,701)           |
| <b>TOTAL STOCKHOLDERS EQUITY</b>   | <b>860,506</b>      | <b>4,102,368</b>    |
| <b>TOTAL LIABILITIES AND STOCKHOLDERS EQUITY</b>   | <b>\$ 5,487,091</b> | <b>\$ 9,486,780</b> |

The accompanying notes are an integral part of these consolidated financial statements.

## MFIC CORPORATION

## CONSOLIDATED STATEMENTS OF OPERATIONS

|   | Years Ended December 31, |                |               |
|---|--------------------------|----------------|---------------|
|   | 2003                     | 2002           | 2001          |
| Revenues  | \$ 10,459,631            | \$ 9,514,180   | \$ 11,210,375 |
| Cost of goods sold  | 4,988,226                | 4,438,351      | 5,629,484     |
| Gross income  | 5,471,405                | 5,075,829      | 5,580,891     |
| Operating expenses:   |                          |                |               |
| Research and development  | 785,849                  | 583,683        | 537,428       |
| Selling   | 2,187,389                | 2,086,547      | 2,263,226     |
| General and administrative  | 1,732,087                | 1,763,884      | 2,504,764     |
| Total operating expenses  | 4,705,325                | 4,434,114      | 5,305,418     |
| Income from continuing operations   | 766,080                  | 641,715        | 275,473       |
| Interest expense  | (116,097)                | (179,429)      | (261,754)     |
| Interest income   | 9,508                    | 7,191          | 7,032         |
| Other expense   |                          |                | (53,142)      |
| Net income (loss) from continuing operations  | 659,491                  | 469,477        | (32,391)      |
| Loss from discontinued operations (Net of loss from disposal of discontinued operations of \$1,422,715 in 2003) | (4,109,925)              | (2,983,451)    | (492,795)     |
| Net loss  | \$ (3,450,434)           | \$ (2,513,974) | \$ (525,186)  |
| Weighted average number of common and common equivalent shares outstanding:                                     |                          |                |               |
| Basic   | 7,767,712                | 7,426,586      | 7,375,102     |
| Diluted   | 8,501,110                | 7,470,090      | 7,375,102     |
| Basic amounts per common share:   |                          |                |               |
| Net income (loss) per share from continuing operations  | \$ .08                   | \$ .06         | \$ (.00)      |
| Basic net (loss) per share from discontinued operations   | \$ (.52)                 | \$ (.40)       | \$ (.07)      |
| Basic, as reported  | \$ (.44)                 | \$ (.34)       | \$ (.07)      |
| Diluted amounts per common share:   |                          |                |               |
| Net income (loss) per share from continuing operations  | \$ .08                   | \$ .06         | \$ (.00)      |
| Diluted net (loss) per share from discontinued operations   | \$ (.52)                 | \$ (.40)       | \$ (.07)      |
| Diluted, as reported  | \$ (.44)                 | \$ (.34)       | \$ (.07)      |

The accompanying notes are an integral part of these consolidated financial statements.



**MFIC CORPORATION**

## CONSOLIDATED STATEMENTS OF CASH FLOWS

|  | Years Ended December 31, |                |              |
|--|--------------------------|----------------|--------------|
|  | 2003                     | 2002           | 2001         |
| <i>Cash flows from operating activities:</i>   |                          |                |              |
| Net loss   | \$ (3,450,434)           | \$ (2,513,974) | \$ (525,186) |
| Adjustments to reconcile net loss to net cash used in operating activities:                  |                          |                |              |
| Change in accounting principle   |                          | 2,661,409      |              |
| Impairment of Goodwill   | 2,100,000                |                |              |
| Provision for disposal of discontinued operations  | 1,422,715                |                |              |
| Depreciation and amortization  | 264,101                  | 308,131        | 726,252      |
| Provision for loss on trade receivables  | 24,378                   | 6,985          | (17,322)     |
| Provision for other receivables  | 76,000                   |                |              |
| Provision for obsolete inventory   | 60,000                   |                |              |
| Gain on sale of assets   | (26,931)                 | (42,268)       | (32,254)     |
| Issuance of restricted common stock to consultants   |                          | 11,668         |              |
| <i>Changes in assets and liabilities:</i>  |                          |                |              |
| Receivables  | 146,573                  | 242,043        | 143,892      |
| Inventories  | (49,733)                 | 64,647         | 60,495       |
| Prepaid expenses   | (50,209)                 | (11,831)       | 42,413       |
| Other current assets   | 51,281                   | (40,229)       | (61,882)     |
| Current liabilities  | (331,449)                | (287,833)      | (92,423)     |
| Loss on sale of Ball Mill repair business assets   |                          |                | 53,142       |
| Net cash provided by operating activities  | 236,292                  | 398,748        | 297,127      |
| <i>Cash flows from investing activities:</i>   |                          |                |              |
| Proceeds from sale of fixed assets   | 26,931                   | 105,991        | 37,925       |
| Purchase of fixed assets   | (96,532)                 | (163,864)      | (200,000)    |
| Issuance of note receivable in connection with sale of Ball Mill operation                   |                          |                | (115,000)    |
| Proceeds from note receivable  | 16,429                   | 19,167         | 8,214        |
| Proceeds from sale of Ball Mill repair business assets (net of selling expenses of \$40,000) |                          |                | 160,000      |
| Net cash used in investing activities  | (53,172)                 | (38,706)       | (108,861)    |
| <i>Cash flows from financing activities:</i>   |                          |                |              |
| Net payments on bank line of credit  | (256,374)                |                | (188,223)    |
| Net proceeds from bank line of credit  |                          | 146,195        |              |
| Payments on term note  | (95,004)                 | (95,004)       | (155,004)    |
| Payments on note payable   |                          | (350,000)      |              |
| Issuance of common stock under employee stock purchase plan                                  | 11,713                   | 11,581         | 17,909       |
| Issuance of common stock under employee stock option plan                                    | 144,859                  | 6,006          | 7,614        |
| Issuance of common stock purchased through warrants  | 52,000                   |                |              |
| Purchase of common stock   |                          |                | (7,031)      |
| Payments on subordinated debt-related party  | (75,000)                 | (81,250)       | (62,500)     |
| Net cash (used in) provided by financing activities  | (217,806)                | (362,472)      | (387,235)    |
| Net (decrease) in cash and cash equivalents  | (34,686)                 | (2,430)        | (198,969)    |
| Cash and cash equivalents, beginning of year   | 84,956                   | 87,386         | 286,355      |



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|   |    |         |    |         |    |         |
|---|----|---------|----|---------|----|---------|
| Cash and cash equivalents, end of year            | \$ | 50,270  | \$ | 84,956  | \$ | 87,386  |
| Supplemental disclosure of cash flow information: |    |         |    |         |    |         |
| Cash paid for interest                            | \$ | 130,967 | \$ | 204,977 | \$ | 269,421 |

The accompanying notes are an integral part of these consolidated financial statements.

## MFIC CORPORATION

## CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS EQUITY

|   | Number<br>of<br>Shares | Common Stock<br>\$0.01<br>Par Value | Additional<br>Paid-in<br>Capital | Accumulated<br>Deficit | Treasury Stock<br>Number<br>of<br>Shares | Stated at<br>Cost | Total<br>Stockholders<br>Equity |
|---|------------------------|-------------------------------------|----------------------------------|------------------------|--|-------------------|---------------------------------|
| Balance, December 31, 2000                                  | 7,588,948              | \$ 75,889                           | \$ 12,891,904                    | \$ (5,193,342)         | 250,219                                  | \$ (680,670)      | \$ 7,093,781                    |
| Stock options exercised                                     | 24,375                 | 245                                 | 7,369                            |                        |  |                   | 7,614                           |
| Issuance of common stock under employee stock purchase plan | 30,658                 | 306                                 | 17,603                           |                        |  |                   | 17,909                          |
| Purchase of treasury stock                                  |                        |                                     |                                  |                        | 10,227                                   | (7,031)           | (7,031)                         |
| Net loss  |                        |                                     |                                  | (525,186)              |  |                   | (525,186)                       |
| Balance, December 31, 2001                                  | 7,643,981              | 76,440                              | 12,916,876                       | (5,718,528)            | 260,446                                  | (687,701)         | 6,587,087                       |
| Stock options exercised                                     | 19,375                 | 194                                 | 5,812                            |                        |  |                   | 6,006                           |
| Issuance of common stock under employee stock purchase plan | 29,207                 | 292                                 | 11,289                           |                        |  |                   | 11,581                          |
| Issuance of common stock to consultants                     | 12,501                 | 125                                 | 11,543                           |                        |  |                   | 11,668                          |
| Net loss  |                        |                                     |                                  | (2,513,974)            |  |                   | (2,513,974)                     |
| Balance, December 31, 2002                                  | 7,705,064              | 77,051                              | 12,945,520                       | (8,232,502)            | 260,446                                  | (687,701)         | 4,102,368                       |
| Stock options exercised                                     | 186,377                | 1,863                               | 142,996                          |                        |  |                   | 144,859                         |
| Issuance of common stock under employee stock purchase plan | 36,717                 | 367                                 | 11,346                           |                        |  |                   | 11,713                          |
| Stock warrants exercised                                    | 100,000                | 1,000                               | 51,000                           |                        |  |                   | 52,000                          |
| Net loss  |                        |                                     |                                  | (3,450,434)            |  |                   | (3,450,434)                     |
| Balance, December 31, 2003                                  | 8,028,158              | \$ 80,281                           | \$ 13,150,862                    | \$(11,682,936)         | 260,446                                  | \$ (687,701)      | \$ 860,506                      |

The accompanying notes are an integral part of these consolidated financial statements.

**MFIC CORPORATION**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

**Note 1**  
**POLICIES**

**ORGANIZATION AND SUMMARY OF SIGNIFICANT ACCOUNTING**

**Organization**

MFIC Corporation (MFIC or the Company), through its wholly-owned subsidiaries, Microfluidics Corporation (Microfluidics) and MediControl Corporation (MediControl), as well as its operating division, Microfluidics, operates in one segment, specializing in producing and marketing a broad line of proprietary fluid materials processing systems used for a variety of grinding, mixing, milling, and blending applications across a variety of industries and for use in numerous applications within those industries. Microfluidizer<sup>®</sup> materials processor systems are produced at the Microfluidics Division.

**Management's Plans**

The Company's ability to continue operations is dependent upon access to financing, which is potentially impacted by the Company's ability to achieve future compliance with financial covenants. It is expected by management that the Company will be in compliance with required covenants. Borrowings outstanding are secured by a collateral pledge of substantially all of the assets of the Company.

Management of the Company is executing plans for a return to profitability; however, there can be no assurance that the Company will be successful in implementing these plans.

**Principles of Consolidation**

The consolidated financial statements of the Company include the accounts of the Company and its wholly owned subsidiaries. All significant intercompany transactions and balances have been eliminated in consolidation.

**Reclassifications**

As described in Note 4, in December 2003, the Company committed to a plan to sell substantially all the assets and associated liabilities of its Morehouse-COWLES division. As such, in accordance with generally accepted accounting principles, results of operations have been reclassified to reflect Morehouse-COWLES' operating results, net of income taxes, as Discontinued Operations. Further, certain prior period balances have been reclassified to conform to the current period presentation.

**Use of Estimates**

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

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### **Revenue Recognition**

Revenue from the sale of machines and spare parts is generally recognized upon shipment of the product or when the earnings process is complete. Rental income for the lease of equipment is recognized on a straight-line basis over the term of the lease agreement. Rental income and equipment sales are classified in revenues in the consolidated statement of operations.

The Company has adopted Securities and Exchange Commission (SEC) Staff Accounting Bulletin (SAB) No. 101, *Revenue Recognition in Financial Statements*. The Company recognizes sales at the time of shipment of the system to the customer. Management believes the customer's post-delivery acceptance provisions and installation are routine. The Company has never failed to successfully complete a system installation. Should an installation not be successfully completed, the contractual provisions do not provide for forfeiture or refund. Installation costs are predictable and insignificant to the total purchase price. The Company has demonstrated a history of customer acceptance subsequent to shipment and installation of these systems.

### **Cash and Cash Equivalents**

The Company considers all highly liquid securities with initial maturities of 90 days or less, at the time of acquisition, to be cash equivalents.

### **Allowance for Doubtful Accounts**

The Company maintains an allowance for estimated losses resulting from the inability of its customers to make required payments. An estimate of uncollectable amounts is made by management based upon historical bad debts, current customer receivable balances, age of customer receivable balances, the customer's financial condition and current economic trends. If the actual uncollected amounts significantly exceed the estimated allowance, then the Company's operating results would be significantly adversely affected.

### **Inventories**

Inventories consist of material, labor and manufacturing overhead and are stated at the lower of cost or net realizable value. Cost is determined on a first-in, first-out basis. (FIFO)

The Company periodically reviews quantities of inventory on hand and compares these amounts to expected usage of each particular product line. Reserves are established to record provisions for slow moving inventories in the period in which it becomes reasonably evident that the item is not useable, salable or the net realizable value is less than cost.

**Property and Equipment**

The Company's property and equipment is recorded at cost. Depreciation is computed using the straight-line method, based upon useful lives of 3 to 7 years. Leasehold improvements are amortized using the straight-line method based upon the shorter of the estimated useful lives or remaining life of the lease. Expenditures for maintenance and repairs are expensed as incurred. Upon retirement or sale of property and equipment, the cost of the disposed asset and the related accumulated depreciation are removed from the accounts and any resulting gain, or loss is credited or charged to operations.

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### **Patents, Licenses, and Other Intangible Assets**

In accordance with Statements of Financial Accounting Standards ( SFAS ) No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets* ( SFAS No. 144 ), the Company reviews long-lived assets and all amortizing intangible assets for impairment whenever events or changes in circumstances indicate the carrying amount of such assets may not be recoverable. Recoverability of these assets is determined by comparing the forecasted undiscounted net cash flows of the operation to which the assets relate, to the carrying amount. If the operation is determined to be unable to recover the carrying amount of its assets, then intangible assets are written down first, followed by the other long-lived assets of the operation, to fair value. Fair value is determined based on discounted cash flows or appraised values, depending upon the nature of the assets.

Patents, patent applications and rights, are stated at acquisition cost. Amortization is recorded using the straight-line method over the shorter of the legal lives or useful life of the patents. Patents, licenses and other intangible assets are being amortized over a period of 3 to 17 years.

### **Goodwill**

Goodwill represents the excess of cost over the fair value of net assets of a business acquired. The Company adopted SFAS No. 141, *Business Combinations* ( SFAS No. 141 ) in fiscal 2001 and SFAS No. 142, *Goodwill and Other Intangible Assets* ( SFAS No. 142 ) in fiscal year 2002. SFAS No. 141 requires that the purchase method of accounting be used for all business combinations initiated after June 30, 2001. SFAS No. 141 also specifies the criteria that intangible assets acquired in a purchase method business combination must meet in order to be recognized and reported apart from goodwill.

SFAS No. 142 requires that goodwill and intangible assets with indefinite lives no longer be amortized, but instead be tested for impairment, at least annually. SFAS No. 142 also requires that the intangible assets with definite lives be amortized over their respective estimated useful lives to their residual value and reviewed for impairment in accordance with SFAS No. 144.

### **Research and Development Expenses**

The Company charges research and development expenses to operations as incurred.

### **Earnings (Loss) per Share**

Basic and diluted net loss per share is presented in conformity with SFAS No. 128, *Earnings per Share*, for all periods presented. In accordance with SFAS No. 128, basic and diluted net loss per common share was determined by dividing net income or loss applicable to common stockholders by the weighted average number of common shares outstanding during the period. Options to purchase 1,929,662, 2,010,650, and

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1,612,980 shares of common stock were outstanding for the years ended 2003, 2002, and 2001, respectively. Basic and diluted net loss per share are \$(.44) per share for 2003. Although there were dilutive shares of common stock for 2002, the basic and diluted net loss per share were the same.

### **Fair Value of Financial Instruments**

The carrying amount of cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities approximates fair value due to the short term nature of these accounts. The Company's bank debt, because it carries a variable interest rate, is stated at its approximate fair market value. The Company's subordinated debt bears interest at 10%, which approximates fair market value.

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## Income Taxes

The Company accounts for income taxes under SFAS No. 109, *Accounting for Income Taxes*. Under SFAS No. 109, deferred tax assets or liabilities are computed based on the differences between the financial statement and income tax bases of assets and liabilities using the effective tax rates. Deferred income tax expense or credits are based on changes in the asset or liability from period to period. The Company records a valuation allowance against any net deferred tax assets if it is more likely than not that they will not be realized.

## Stock Based Compensation

As allowed by SFAS No. 123, *Accounting for Stock-Based Compensation*, the Company has elected to account for stock-based compensation at intrinsic value with disclosure of the effects of fair value accounting on net income and earnings per share on a pro forma basis. At December 31, 2003, the Company had one stock incentive plan, which is described more fully in Note 10. The Company accounts for awards issued to employees under the plan under the recognition and measurement principles of Accounting Principles Board (APB) Opinion No. 25, *Accounting for Stock Issued to Employees*, and the related interpretations. No stock-based employee compensation cost is reflected in net income, as all options granted under the plan had an exercise price equal to the market value of the underlying common stock on the date of grant. The following table illustrates the effect on net income and earnings per share if the Company had applied the fair value recognition provisions of SFAS No. 123:

|   | 2003           | 2002           | 2001         |
|---|----------------|----------------|--------------|
| Net loss, as Reported   | \$ (3,450,434) | \$ (2,513,974) | \$ (525,186) |
| Deduct: Total stock-based employee compensation expense determined under fair value based method for all awards, net of related tax effects | (113,509)      | (340,178)      | (318,438)    |
| Pro forma net loss  | \$ (3,563,943) | \$ (2,854,152) | \$ (843,264) |
| Net loss per share:   |                |                |              |
| Basic -as reported  | \$ (0.44)      | \$ (0.34)      | \$ (0.07)    |
| Diluted-as reported   | \$ (0.44)      | \$ (0.34)      | \$ (0.07)    |
| Basic - pro forma   | \$ (0.46)      | \$ (0.38)      | \$ (0.11)    |
| Diluted pro forma   | \$ (0.46)      | \$ (0.38)      | \$ (0.11)    |

Stock options granted to non-employees are accounted for in accordance with SFAS No. 123 and the Emerging Issues Task Force (EITF) Abstract No. 96-18, *Accounting for Equity Instruments That Are Issued to Other Than Employees for Acquiring, or in Conjunction with Selling, Goods or Services*, and the related interpretations, which generally requires the value of options to be periodically remeasured and charged to expense as they are earned over the performance period. Compensation related to stock appreciation rights and other variable stock option or award plans should be measured at the end of each period. The Company did not grant any stock options to non-employees, excluding board members, during 2003, 2002, or 2001.

#### **Recent Accounting Pronouncements**

In January 2003, the FASB issued Interpretation No. 46, *Consolidation of Variable Interest Entities*, an Interpretation of Accounting Research Bulletin No 51, *Consolidated Financial Statements* (FIN 46). FIN 46 establishes accounting guidance for consolidation of variable interest entities that function to support the activities of the primary beneficiary. FIN 46 applies to any business enterprise, both public and private, that has a controlling interest, contractual relationship or other business relationship with a variable interest entity. The Company does not have any investments in or contractual relationships or other business relationships with any variable interest entity and therefore, based on present facts and circumstances, the adoption of FIN 46 is not expected to have a material impact on the Company's consolidated financial position or results of its operations.

In May 2003, the FASB issued SFAS No. 150, *Accounting for Certain Financial Instruments with Characteristics of Both Liabilities and Equity* (SFAS 150). SFAS 150 establishes standards for classifying and measuring as liabilities certain financial instruments that embody obligations of the issuer and have characteristics of both liabilities and equity. SFAS 150 represents a significant change in practice in the accounting for a number of financial instruments, including mandatorily redeemable equity instruments and certain equity derivatives that frequently are used in connection with share repurchase programs. The Company does not use such instruments in its share repurchase program. SFAS 150 is effective for all financial instruments created or modified after May 31, 2003. Adoption of SFAS 150, based on present facts and circumstances, is not expected to have a material effect on the Company's consolidated financial position or results of its operations.

**Note 2**  
**REPORTING**

**INDUSTRY SEGMENT, GEOGRAPHIC AND ENTERPRISE-WIDE**

SFAS No. 131, *Disclosures about Segments of an Enterprise and Related Information* ( SFAS No. 131 ), requires companies to report selected information about operating segments, as well as enterprise-wide disclosures about products, services, geographic areas and major customers. Operating segments are determined based on the way management organizes its business for making operating decisions and assessing performance. The Company's chief decision-maker, as defined under SFAS No. 131, is the chairman and chief executive officer. The Company has determined that it conducts its operations in one business segment: the development, manufacture, marketing and sale of process and formulation equipment. The Company's sales are primarily to companies with processing needs in the chemical, pharmaceutical, food, cosmetic, and biotechnology industries. The Company conducts its business primarily in the United States of America. The Company has less than 1% of total assets overseas. As a result, the financial information disclosed herein represents all of the material financial information related to the Company's principal operating segment.

Approximate sales to customers from continuing operations outside North America are broken out, by geographic foreign markets, as follows:

|               | <b>2003</b>          |           | <b>2002</b>      |           | <b>2001</b>       |
|---------------|----------------------|-----------|------------------|-----------|-------------------|
| North America | \$ 5,337,000         | \$        | 6,462,000        | \$        | 7,444,000         |
| Asia          | 3,204,000            |           | 2,350,000        |           | 2,480,000         |
| Europe        | 1,919,000            |           | 702,000          |           | 1,286,000         |
|               | <b>\$ 10,460,000</b> | <b>\$</b> | <b>9,514,000</b> | <b>\$</b> | <b>11,210,000</b> |

Two customers accounted for 21% and 11% of the revenues from continuing operations, respectively, in 2003. Two customers accounted for 18% and 16% of the revenues from continuing operations in 2002, respectively, and one customer accounted for 13% of the trade accounts receivable as of December 31, 2002. No customer accounted for more than 10% of the Company's revenues in 2001. A reduction or delay in orders from these or other significant customers could have a material adverse effect on the Company's results of operations.

**Note 3****INVENTORIES**

The components of inventories are as follows at December 31:

|   | 2003                | 2002                |
|---|---------------------|---------------------|
| Raw materials                           | \$ 1,580,991        | \$ 1,670,891        |
| Work in progress                        | 80,439              | 298,649             |
| Finished goods                          | 132,273             | 146,922             |
|   | 1,793,703           | 2,116,462           |
| Less : Provision for obsolete inventory | 110,000             | 50,000              |
| <b>TOTAL</b>                            | <b>\$ 1,683,703</b> | <b>\$ 2,066,462</b> |

**Note 4****ASSETS AVAILABLE FOR SALE**

In the fourth quarter of 2003 the company determined that its Morehouse-COWLES Division was not strategic to the Company's on-going objectives and in December 2003, management committed to a plan to sell substantially all the assets and associated liabilities of the division. Accordingly, the Company reported the division as a discontinued operation in accordance with SFAS 144. The Consolidated financial statements have been reclassified to segregate the assets and associated liabilities available for sale and operating results of these discontinued operations for all periods presented.

Assets and Liabilities of discontinued operations are as follows:

| December 31  | 2003        | 2002       |
|--|-------------|------------|
| <u>Assets available for sale</u>                             |             |            |
| Accounts receivable-trade                                    | \$ 472,573  | \$ 922,157 |
| Inventory  | 2,204,128   | 1,831,636  |
| Prepaid expense  | 35,517      | 34,808     |
| Net property and equipment                                   | 93,615      | 242,863    |
| Goodwill   |             | 2,100,000  |
| Total assets available for sale                              | 2,805,833   | 5,131,464  |
| Less: Provision for loss on disposal                         | (1,422,715) |            |
| Net assets available for sale                                | 1,383,118   | 5,131,464  |
| <u>Liabilities associated with assets available for sale</u> |             |            |
| Accounts payable and accrued expenses                        | 457,139     | 563,824    |
| Customer deposits  | 203,956     | 88,189     |
| Liabilities associated with assets held for sale             | \$ 661,095  | \$ 652,013 |

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Summary Operating Results of the Discontinued Operations of Morehouse-COWLES are as follows:

|   | 2003           | 2002           | 2001         |
|---|----------------|----------------|--------------|
| Revenues  | \$ 3,655,237   | \$ 5,059,202   | \$ 4,300,639 |
| Cost of Sales   | 2,601,957      | 3,626,407      | 3,268,271    |
| Gross Income  | 1,053,280      | 1,432,795      | 1,032,368    |
| Total Operating Expenses  | 3,740,490      | 1,754,837      | 1,525,163    |
| Loss from Discontinued Operations before cumulative effect of change in accounting principle and disposal | (2,687,210)    | (322,042)      | (492,795)    |
| Loss on disposal of Discontinued Operations   | (1,422,715)    |                |              |
| Cumulative effect of change in accounting principle   |                | (2,661,409)    |              |
| Loss from Discontinued Operations   | \$ (4,109,925) | \$ (2,983,451) | \$ (492,795) |

Upon adoption of SFAS No. 142 in the first quarter of 2002, the Company recorded a one-time, noncash charge of \$2,661,409 to reduce the carrying value of its goodwill. Such charge is nonoperational in nature and is reflected as a cumulative effect of an accounting change pursuant to the SFAS No. 142 transition rules.

In December 2003, in conjunction with the establishment of management's plan to sell the Morehouse-COWLES Division, the Company determined that the remaining goodwill of \$2,100,000 was fully impaired and accordingly charged to Discontinued Operations.

On February 9, 2004, pursuant to an Asset Purchase Agreement (the "Asset Purchase Agreement") dated February 5, 2004 between MFIC Corporation ("MFIC") and a wholly owned subsidiary of NuSil Corporation ("NuSil"), MFIC sold substantially all of the assets and selected liabilities of its Morehouse-COWLES Division (the "Division"), to NuSil. Other than NuSil's prior purchases of products from the Division, there were no preexisting relationships between MFIC and NuSil.

The assets of the division that were sold included accounts receivable, furniture, fixtures and equipment, inventory and supplies, books and records, bids, contracts, prepaid expenses, leases, intellectual property, goodwill, domain names and claims, all as described in the Asset Purchase Agreement (collectively, the "Assets"). In addition, certain rights and obligations arising after February 9, 2004 under the division's PacifiCare Group Health Insurance Policy were assigned. The division's cash or cash equivalents on hand on February 9, 2004 were excluded from the assets being sold. Under the Asset Purchase Agreement, the division's executory obligations under certain contracts and bids, and the division's accounts payable as of February 9, 2004 in the amount of \$623,240, were assumed by NuSil.

The purchase price (other than the assumption of accounts payable described in the preceding paragraph) paid under the Asset Purchase Agreement was \$918,238. Of the purchase price, \$768,238 (the "Closing Cash") was paid in cash, \$100,000 was paid in the form of a Promissory Note (the "Purchase Note") and \$50,000 (the "Holdback Payment") was withheld for payment at a future date subject to any purchase price adjustments and offsets, as provided for in the Asset Purchase Agreement.

The Closing Cash was paid directly to PNC Bank, National Association ("PNC"), to be applied to MFIC's outstanding balance under MFIC's Revolving Credit Loan with PNC (the "Revolving Credit Loan").

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The aforementioned Purchase Note bears interest at 5 percent per annum, is secured by the Assets pursuant to a Security Agreement dated February 5, 2004 (the Security Agreement ) between the parties and is subject to certain offsets as provided in the Asset Purchase Agreement. Principal and interest on the Purchase Note are payable on February 9, 2005, unless there is a claim for an offset as allowed for under the Asset Purchase Agreement, which claim might delay final payment of amounts due under the Purchase Note until final resolution of any such claim under the procedures outlined in the Asset Purchase Agreement.

Pursuant to the Asset Purchase Agreement, MFIC entered into a Noncompetition and Nonsolicitation Agreement, dated February 5, 2004, which limits MFIC's ability to compete with the business of the division for a period of five years.

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**Note 5**

**INTANGIBLES AND OTHER ASSETS**

The Company purchased the rights and title of certain liposome and microemulsion technology devices from Arthur D. Little in 1985. The unamortized license fee and patent are included in intangible assets and are being amortized using the straight-line method over the useful life of the patent, which is 17 years. In 1995, the Company capitalized \$96,680 of patent costs related to a cooperative research venture. Amortization of these assets charged to expense was \$0 in 2003, \$14,896 in 2002, and \$24,576 in 2001. In 2001, the Company capitalized \$64,528 of costs related to the Multi-Stream Mixer Reactor patent, which is being amortized over a 17-year period, beginning in the last quarter of 2001. Amortization of these costs was \$3,800 in both 2003 and 2002, and \$950 in 2001.

Costs incurred in connection with the debt refinancing that occurred on February 28, 2000 are being amortized over three years, the initial term of the line of credit. The total of such costs was approximately \$207,000. Amortization of these costs amounted to \$11,534 in 2003, and \$69,204 in both 2002 and 2001, respectively.

**Note 6**

**GOODWILL**

In 1998, MFIC purchased substantially all of the assets and assumed certain liabilities of Epworth Manufacturing Company Inc. of South Haven, Michigan (Epworth) and Morehouse-COWLES, Inc. of Fullerton, California (Morehouse COWLES) pursuant to an Asset Purchase Agreement (The Agreement).

In accordance with the Agreement, MFIC paid the following as consideration for the purchase price: (i) \$5,508,480 in cash, (ii) two subordinated promissory notes in the aggregate principal amount of \$800,000 (the Promissory Notes) and (iii) 900,000 shares of MFIC's restricted common stock, \$0.01 par value per share, subject to the restrictions as defined. MFIC also incurred approximately \$500,000 in expenses. In addition, MFIC assumed approximately \$1,930,000 in accounts payable and accrued liabilities. The acquisition had been accounted for under the purchase method of accounting, and the Company recognized goodwill of \$6,194,459 which was fully allocated to Morehouse-COWLES.

On January 1, 2002, the Company adopted SFAS No. 142, *Goodwill and Other Intangible Assets*, which requires companies to discontinue the amortization of goodwill and certain intangible assets with an indefinite useful life. Instead, SFAS No. 142 requires that goodwill and intangible assets deemed to have an indefinite useful life be reviewed for impairment upon adoption of SFAS No. 142 and annually thereafter.

Under SFAS No. 142, goodwill impairment is deemed to exist if the net book value of a reporting unit exceeds its estimated fair value. Upon adoption of SFAS No. 142 in the first quarter of 2002, the Company recorded a one-time, noncash charge of \$2,661,409 to reduce the carrying value of its

goodwill. Such charge is nonoperational in nature and is reflected as a cumulative effect of an accounting change in the accompanying consolidated statement of operations pursuant to the SFAS No. 142 transition rules. The Company performed its annual impairment review during the fourth quarter of 2002, and determined that no impairment of goodwill had occurred since it had recorded a one-time, non-cash charge of \$2,661,409 in the first quarter of 2002.

In December 2003, in conjunction with the establishment of management's plan to sell the Morehouse-COWLES Division, the Company determined that the remaining goodwill of \$2,100,000 was fully impaired and accordingly charged to operations.

Pursuant to SFAS 142, the goodwill impairment charges of \$2,661,409 and \$2,100,000 have been classified in discontinued operations in the accompanying consolidated statements of operations.

**Note 7 DEBT**

Long-term debt as of the following dates consisted of:

|  | December 31, |              |
|--|--------------|--------------|
|  | 2003         | 2002         |
| Line of credit                                 | \$ 2,425,613 | \$ 2,681,987 |
| 10% subordinated note payable to related party | 81,250       | 156,250      |
| Term note payable                              | 58,735       | 153,739      |
|  | 2,565,598    | 2,991,976    |
| Less current portion                           | (2,559,348)  | (2,851,991)  |
| Long term debt, net of current portion         | \$ 6,250     | \$ 139,985   |

**Subordinated Note Payable**

The subordinated note is payable to Lake Shore Industries Inc, a related party is defined and disclosed in note 13 of the financial statements.

### Notes Payable

In October, 2000, the Company entered into a settlement agreement related to a warranty claim dating back to 1998 for the Epworth Mill Division pursuant to which the Company paid \$100,000 upon execution of the agreement, and executed a promissory note for \$350,000 payable two years from the execution date, with interest payable quarterly in arrears at 10% per annum. The Company paid off the balance of this note in December, 2002.

### Credit Facility

On February 28, 2000, the Company entered into a revolving credit and term loan agreement with National Bank of Canada providing the Company with a \$4,475,000 three-year revolving credit and term loan facility. The Credit Facility was comprised of: (i) a \$4 million three year revolving line of credit (Revolving Credit Line) with advances thereunder bearing interest at an interest rate equal to the prime rate (the Prime Rate for United States borrowings from the National Bank of Canada as publicly announced from time to time) plus one-half percent (0.50%). All borrowings under the Revolving Credit Line were evidenced by a \$4 million promissory note having a maturity date of February 28, 2003 (the Revolving Note), and (ii) a \$475,000 term promissory note, amortized over a five-year period but having a maturity date of February 28, 2003 and bearing interest at an interest rate equal to the Prime Rate (4.75% at December 31, 2001) plus three quarters of one percent (0.75%). Loans under the Credit Facility were secured by a collateral pledge to the Lender of substantially all the assets of the Company and its subsidiaries. The Company's Microfluidics Corporation subsidiary guaranteed the Company's obligations to the Lender under the Credit Facility. The Company also pledged to the Lender all shares of Microfluidics Corporation owned by the Company.

After review of the results as of and for the quarter ended March 31, 2001, the Company notified the National Bank of Canada that it was in violation of the tangible net worth and liabilities to worth ratio covenants contained in the Credit Facility for the quarter ended March 31, 2001. On April 13, 2001, the Company received a waiver of these violations from the National Bank of Canada, but is required to meet all covenant requirements thereafter. As a result of the waiver and management's expectations of future compliance, the non-current portion of the term Promissory Note was classified as a non-current liability, as of December 31, 2000.

On January 16, 2002, the United States portion of National Bank of Canada's operations and its loan portfolio was sold to PNC Bank, N.A. On February 19, 2003, the Company and PNC Bank, N.A. entered into an extension of the loan for an additional year, until February 28, 2004.

At December 31, 2002, the Company was in violation of the net income and debt service coverage covenants. At December 31, 2001, the Company was not in compliance with the tangible net worth, liabilities to worth ratio, net income covenants, and the debt service covenant. The Company received a waiver of these violations from the Lender for both years, but is required to meet all covenant requirements thereafter. On March 29, 2002, the Company

and the Lender agreed on a revised set of covenants for fiscal 2002 under a second amendment to the original agreement. On February 19, 2003, the Company and the Lender entered into a third amendment to the original agreement extending the credit facility for an additional year until February 28, 2004, with no change to the revised covenants agreed upon under the agreement of March 29, 2002.

On February 6, 2004 the Company and PNC Bank, N.A ( PNC ) entered into a Fourth Amendment and Waiver to Revolving Credit and Term Loan Agreement permitting the sale of the assets of the Company's Morehouse-COWLES Division in exchange for payment to PNC of all monies received by the Company in connection with such sale and assignment to PNC of deferred payments and a promissory note from the purchase issued as part of the purchase price. On March 3, 2004, the outstanding loan balance was repaid from the proceeds of a new senior debt financing from Banknorth, N.A.

Due to the subjective acceleration clause, and the lock-box arrangement, the revolving credit line was classified as a current liability in the consolidated balance sheet. At December 31, 2003, the outstanding balance on the Revolving Credit Line was \$2,425,613, having an interest rate of 5.5%. The balance outstanding on the term loan was \$58,735, at an interest rate of 5.75%.

At December 31, 2003, the Company did not meet the net income covenant which, according to the terms of the lending agreement, would have required a waiver from its previous lender, PNC. However, in conjunction with the subsequent credit facility it obtained from the new lender, Banknorth, N.A., no waiver was required from the previous lender.

On March 3, 2004, the Company and its Microfluidics Corporation subsidiary, as co-borrowers, entered into a revolving credit and term loan agreement with Banknorth, N.A. (the Lender ) providing the Company with a \$2,000,000 demand revolving credit and four year term loan facility (the Credit Facility ). The Credit Facility was comprised of (i) a \$1 million demand revolving line of credit (Revolving Credit Line) with advances thereunder bearing interest at an interest rate equal to the prime rate (the Prime Rate for United States borrowings from Banknorth, N.A. as publicly announced from time to time). All borrowings under the Revolving Credit Line were evidenced by a \$1 million demand promissory note (the Revolving Note ), and (ii) a \$1,000,000 term promissory note, amortized over a four year period but having a maturity date of March 3, 2008 and bearing interest at an interest rate equal to the Federal Home Loan Bank Classic Rate at March 4, 2004 plus two and one-half percent (2.50%). Loans under the Credit Facility are secured by a collateral pledge to the Lender of substantially all the assets of the Company and its subsidiaries. The Company's Microfluidics Corporation subsidiary guaranteed the Company's obligations to the Lender under the Credit Facility. The Company also pledged to the Lender all shares of Microfluidics Corporation owned by the Company. The Company is required to meet two covenants on an annual (calendar) basis as of December 31 of a given year. (i) The Company's senior debt may not be more than four times the amount of its tangible capital base, and (ii) its debt service coverage ratio may not be less than 1.20 to 1.

**Note 8 EMPLOYEE BENEFIT PLANS**

The Company offers a 401(k) profit-sharing plan (the 401K Plan), to its employees. All Company and related entity employees who are eighteen years of age and have completed one hour of service are eligible to participate in the 401K Plan. Employees may contribute from 1% to 20% of their compensation. The Company's contribution is discretionary, with contributions made from time to time as management deems advisable. The Company has made no matching contributions during 2003, 2002, and 2001. The Company also instituted a cafeteria plan in 1992, giving the employees certain pre-tax advantages on specific payroll deductions.

**Note 9 INCOME TAXES**

At December 31, 2003, the Company had net operating loss and research tax credit carryforwards of approximately \$4,650,000 and \$171,000, respectively, for financial reporting purposes, which may be used to offset future taxable income.

The components of the net deferred tax asset with the approximate income tax effect of each type of carryforward, credit and temporary difference are as follows:

|                              | December 31, |              |
|------------------------------|--------------|--------------|
|                              | 2003         | 2002         |
| Operating loss carryforwards | \$ 1,757,000 | \$ 2,048,000 |
| Tax credit carryforwards     | 171,000      | 171,000      |
| Temporary differences        | 2,332,000    | (22,000)     |
|                              | 4,260,000    | 2,197,000    |
| Less Valuation allowance     | (4,260,000)  | (2,197,000)  |
| Net deferred tax asset       | \$           | \$           |

The Company has recorded a full valuation allowance against its deferred tax assets because, based on the weight of available evidence, the Company believes it is more likely than not that the deferred tax assets will not be realized in the near future. The carryforwards expire from 2003 through 2021 and are subject to review and possible adjustment by the Internal Revenue Service. The Internal Revenue Code contains provisions that may limit the net operating loss and research tax credit carryforwards in the event of certain changes in the ownership interests of significant stockholders.

**Note 10****STOCKHOLDERS EQUITY**

The Company adopted the 1988 Stock Plan (the Plan) as the successor plan to the 1987 Stock Plan, which, as amended at the 2002 stockholders meeting, authorizes the grant of Stock Options for up to 3,500,000 shares of common stock and the 1989 Non-Employee Director Stock Option Plan which, as amended at the 1996 stockholders meeting, authorizes the grant of nonqualified stock options for up to 500,000 shares of common stock.

**Stock Option Plans**

Options granted under the Plans vest over a three-to-five-year period and expire 5 - 10 years from the grant date. At December 31, 2003, 1,206,898 shares were available for future grant under the Plans. Information with respect to activity under the Plans are as follows:

|                                | Number of Shares |    | Weighted Average<br>Exercise Price |
|--------------------------------|------------------|----|------------------------------------|
| Outstanding, December 31, 2000 | 1,761,575        | \$ | 0.94                               |
| Granted                        | 328,500          |    | 0.81                               |
| Exercised                      | (24,375)         |    | 0.31                               |
| Canceled                       | (452,720)        |    | 0.98                               |
| Outstanding, December 31, 2001 | 1,612,980        |    | 0.88                               |
| Granted                        | 532,045          |    | 0.52                               |
| Exercised                      | (19,375)         |    | 0.31                               |
| Canceled                       | (115,000)        |    | 0.60                               |
| Outstanding, December 31, 2002 | 2,010,650        | \$ | 0.90                               |
| Granted                        | 257,409          |    | 0.47                               |
| Exercised                      | (186,377)        |    | 0.78                               |
| Canceled                       | (152,020)        |    | 1.13                               |
| Outstanding, December 31, 2003 | 1,929,662        | \$ | 0.74                               |
| Exercisable, December 31, 2001 | 878,803          | \$ | 1.06                               |
| Exercisable, December 31, 2002 | 1,093,972        | \$ | 1.01                               |

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|                                |           |    |      |
|--------------------------------|-----------|----|------|
| Exercisable, December 31, 2003 | 1,102,020 | \$ | 0.96 |
|--------------------------------|-----------|----|------|

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The following table summarizes information relating to outstanding and exercisable stock options as of December 31, 2003:

| Exercise Price | Outstanding      |   | Weighted Average Exercise Price | Exercisable      |                                 |
|----------------|------------------|---|---------------------------------|------------------|---------------------------------|
|                | Number of Shares | Weighted Average Remaining Contractual Life (Years) |                                 | Number of Shares | Weighted Average Exercise Price |
| \$0.31 to 1.24 | 1,929,662        | 6.5   | \$ 0.74                         | 1,102,020        | \$ 0.96                         |

### Accounting for Stock-Based Compensation

SFAS No. 123, *Accounting for Stock-Based Compensation*, requires the measurement of the fair value of stock options to be included in the statement of income or disclosed in the notes to the financial statements. The Company has determined that it will continue to account for stock-based compensation for employees under APB Opinion No. 25, *Accounting for Stock issued to Employees*, and elect the disclosure-only alternative under No. SFAS 123.

The Company has computed the pro forma disclosures required under SFAS No. 123 for its stock compensation plan for employees during the years ended December 31, 2003, 2002 and 2001 using the Black-Scholes option pricing model under the fair value method as prescribed by SFAS No. 123. The assumptions used for the years ended December 31, 2003, 2002 and 2001 are as follows:

|                          | December 31, |         |         |
|--------------------------|--------------|---------|---------|
|                          | 2003         | 2002    | 2001    |
| Risk-free interest rates | 4.75%        | 4.36%   | 5.25%   |
| Expected lives           | 5 years      | 5 years | 5 years |
| Expected volatility      | 164%         | 75%     | 197%    |
| Dividend yield           | 0%           | 0%      | 0%      |

Stock or other equity-based compensation for nonemployees must be accounted for under the fair value method as required by SFAS No. 123 and Emerging Issues Task Force No. 96-18, *Accounting for Equity Instruments That Are Issued To Other Than Employees for Acquiring, or in Conjunction with Selling, Goods or Services*, and the related interpretations. Under this method, the equity-based instrument is valued at either the fair value of the consideration received or the fair value of the equity instruments issued, whichever is more reliably measurable. The measurement date is generally the vesting date for nonemployees. Compensation related to stock appreciation rights and other variable stock option or award plans should be measured at the end of each period. The resulting noncash expense is recorded in the statements of operations over the vesting period of the stock. The Company did not grant any options to non-employees, excluding board members, in 2003, 2002 or 2001.





**Warrants**

On September 23, 1999, the Chief Executive Officer of the Company, Irwin J. Gruverman, was granted warrants to purchase up to 100,000 shares of the Company's common stock at a price of \$0.52 per share, having an expiration date of July 2, 2004. The warrants were exercised on November 25, 2003.

**Employee Stock Purchase Plan**

The Company has an employee stock purchase plan (the Purchase Plan). Under the Purchase Plan, participants are granted options to purchase the Company's common stock twice a year at the lower of 85% of market value at the beginning or end of each period. Calculation of the number of options granted, and subsequent purchase of these shares, is based upon voluntary payroll deductions during each six-month period. The number of options granted to each employee under this plan is limited to a maximum amount of 1,000 shares for each six-month period. The number of shares issued pursuant to this plan totaled 36,717, 29,207, and 30,658, in 2003, 2002, and 2001, respectively.

**Note 11**

**COMMITMENTS**

The Company leases its facilities under non-cancelable operating leases expiring through August 2006. Future minimum rental payments under the operating leases at December 31, 2003 are approximately as follows:

|                             |                   |
|-----------------------------|-------------------|
| 2004                        | 341,000           |
| 2005                        | 327,000           |
| 2006                        | 138,000           |
| <b>Total Lease Payments</b> | <b>\$ 806,000</b> |

Rent expense for 2003, 2002, and 2001 was approximately \$439,000, \$402,000, and \$415,000, respectively. A portion of the space is sublet to non-affiliated company under a tenant at will arrangement for a total of \$12,000 per annum.

**Note 12**

**RELATED PARTY TRANSACTIONS**

During 2001, the Company and G&G Corporation (G&G), an entity controlled by Mr. Gruverman, the Company's Chairman, entered into an arrangement whereby G&G reimbursed the Company for certain administrative expenses incurred for services performed by the Company. The Company was reimbursed approximately \$0, and \$30,407 by G&G during 2002 and 2001, respectively. At both December 31, 2003 and 2002, G&G owed the Company \$0.



As discussed in Notes 6 and 13, the Company owed the former Principals of Morehouse and Epworth \$81,250, \$156,250, and \$237,500 at December 31, 2003, 2002, and 2001, respectively. Interest capitalized on the \$300,000 note in connection with the Settlement Agreement discussed in Note 13 amounted to \$88,750 and is being amortized over 5 years. Total payments in 2003 and 2002 were \$12,340 and \$21,989, respectively.

**Note 13            SETTLEMENT AGREEMENT, DEBT RESTRUCTURING AND REFINANCING**

On December 20, 1999 the Company signed an agreement in principle (the Agreement In Principle) with J.B. Jennings and Bret A. Lewis, the former owners of the Epworth Mill and Morehouse-COWLES businesses (the Sellers), Lake Shore Industries, Inc., and JLJ Properties, Inc., entities owned and controlled by the Sellers. The Agreement In Principle sets forth understandings among the parties concerning restructuring of the Company's subordinated debt and resolution of various disputes. On January 17, 2000 a definitive settlement agreement incorporating these subject matters was executed between the parties (the Settlement Agreement). In connection with the closing of the Credit Facility, and pursuant to a Settlement Agreement dated January 17, 2000 with the Company's subordinated debt holders, the subordinated debt of the Company was restructured in the following manner. The outstanding August 14, 1998 \$500,000 subordinated promissory note, having a remaining \$475,000 principal balance together with accrued interest at the Closing Date in the approximate amount of \$77,500, and accrued interest on the August 14, 1998 \$300,000 subordinated note were converted to 500,000 shares of MFIC restricted common stock (the Conversion Shares). The fair market value of the Company's Common Stock on the date of the Agreement In Principle was \$0.31 per share. MFIC was granted the right for a three-year period to repurchase the Conversion Shares at a purchase price of \$1.75 per share. The August 14, 1998 \$300,000 subordinated note was replaced with a new \$300,000 subordinated promissory note dated February 28, 2000 (the 2000 Subordinated Note). The 2000 Subordinated Note has a maturity date of February 28, 2005 and bears interest at a rate of ten percent (10%) per annum. The note is payable interest only in its first year and then is payable in equal quarterly installments of principal together with outstanding interest thereon until maturity.

**Note 14**      **QUARTERLY RESULTS OF OPERATIONS**

Summarized unaudited quarterly financial data are as follows:

|  | Fiscal 2003 Quarters |              |              |              |
|--|----------------------|--------------|--------------|--------------|
|  | First                | Second       | Third        | Fourth       |
| Revenues   | \$ 2,949,677         | \$ 3,119,465 | \$ 1,912,738 | \$ 2,477,751 |
| Gross income   | 1,491,923            | 1,666,124    | 958,398      | 1,354,960    |
| Net income (loss) from continuing operations                                   | 405,571              | 341,855      | (157,266)    | 69,331       |
| Loss from discontinued operations including<br>loss on disposal of \$1,422,715 | (215,899)            | (87,215)     | (186,080)    | (3,620,731)  |
| Net income (loss)  | 189,672              | 254,640      | (343,346)    | (3,551,400)  |
| Basic net income (loss) per share from<br>continuing operations:               | \$ .05               | \$ .05       | \$ (.02)     | \$ .00       |
| Basic net loss per share from discontinued<br>operations                       | \$ (.03)             | \$ (.01)     | \$ (.02)     | \$ (.46)     |
| Basic, as reported   | \$ .03               | \$ .03       | \$ (.05)     | \$ (.45)     |
| Diluted net income (loss) per share from<br>continuing operations              | \$ .05               | \$ .05       | \$ (.02)     | \$ .00       |
| Diluted net loss per share from discontinued<br>operations                     | \$ (.03)             | \$ (.01)     | \$ (.02)     | \$ (.46)     |
| Diluted, as reported   | \$ .03               | \$ .03       | \$ (.05)     | \$ (.45)     |

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|  | Fiscal 2002 Quarters |              |              |              |
|--|----------------------|--------------|--------------|--------------|
|  | First                | Second       | Third        | Fourth       |
| Revenues   | \$ 2,739,707         | \$ 2,286,564 | \$ 2,003,723 | \$ 2,484,186 |
| Gross income   | 1,442,428            | 1,083,213    | 1,154,685    | 1,395,503    |
| Net income (loss) continuing operations                          | 235,659              | (67,603)     | (19,056)     | 320,477      |
| (Loss) income from discontinued operations                       | (2,796,821)          | 123,034      | 32,742       | (342,406)    |
| Net (loss) income  | (2,561,162)          | 55,431       | 13,686       | (21,929)     |
| Basis net income (loss) per share:                               |                      |              |              |              |
| Net income (loss) per share from continuing operations           | \$ .03               | \$ (.01)     | \$ (.00)     | \$ .04       |
| Basic net (loss) income per share from discontinued operations   | \$ (.38)             | \$ .02       | \$ .00       | \$ (.04)     |
| Basic, as reported   | \$ (.33)             | \$ .01       | \$ .00       | \$ (.02)     |
| Diluted net income (loss) per share:                             |                      |              |              |              |
| Net income (loss) per share from continuing operations           | \$ .03               | \$ (.01)     | \$ .00       | \$ .04       |
| Diluted net (loss) income per share from discontinued operations | \$ (.38)             | \$ .02       | \$ .00       | \$ (.04)     |
| Diluted, as reported   | \$ (.33)             | \$ .01       | \$ .00       | \$ (.02)     |

**Note 15****SUBSEQUENT EVENTS**

On March 31, 2004, the Company completed a private placement offering of investment units (each unit consisting of one share of common stock and a 3-year warrant to purchase an additional 1/2 share of common stock). A total of 1,426,616 units were sold, yielding gross proceeds of \$3,566,540. The units were priced at \$2.50 and the associated warrants are exercisable at \$3.05. Additionally, the placement agent for the offering received 5 year warrants to purchase 142,662 share of common stock at an exercise price of \$3.20 per share.

**List of Exhibits**

| <b>Exhibit Number</b> | <b>Description of Exhibit</b>   |
|-----------------------|---|
| 3(a)                  | Certificate of Incorporation for the Company, as amended (filed as Exhibit 2A to Registration Statement No. 0-11625 on Form 8-A and as Exhibit 3.1(a) to the Company's Report on Form 10-Q for the quarterly period ended September 30, 1999 and incorporated herein by reference).   |
| 3(b)                  | Amended and Restated By-Laws for the Company (filed as Exhibit 3.3(b) to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1996 and incorporated herein by reference).  |
| *4.2                  | Form of Warrant issued to placement agent under the Placement Agent Agreement attached as Exhibit 10.62   |
| *4.3                  | Form of Warrant issued to investors in the private placement described in the Placement Agency Agreement attached as Exhibit 10.62  |
| 10.1                  | 1987 Stock Plan (filed as Exhibit 10(g) to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1987 and incorporated herein by reference).  |
| 10.2                  | 1988 Stock Plan (filed as Exhibit 10(g) to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1988 and incorporated herein by reference).  |
| 10.3                  | 1989 Non-Employee Directors Stock Option Plan (filed as Exhibit 10.1 to the Company's registration statement on Form S-8 filed October 22, 1996 and incorporated herein by reference).  |
| 10.4                  | Lease for 30 Ossipee Road, Newton, Massachusetts dated May 23, 1997 between Microfluidics International Corporation and J. Frank Gerrity, Trustee of 1238 Chestnut Street Trust under Declaration of Trust dated May 23, 1969, recorded with Middlesex South Registry of Deeds in Book 11682, Page 384 (filed as Exhibit 3.10(a) to the Company's form 10-Q for the quarterly period ended June 30, 1997 and incorporated herein by reference). |
| 10.5                  | Letter of Understanding between Microfluidics International Corporation and Worcester Polytechnic Institute dated as of April 3, 1992 (filed as Exhibit 3.10(f) to the Company's Form 10-K for the fiscal year ended December 31, 1993 and incorporated herein by reference).   |
| 10.6                  | Agreement between Microfluidics International Corporation and Catalytica, Inc. dated as of October 18, 1993 (filed as Exhibit 3.10(g) to the Company's Form 10-K for the fiscal year ended December 31, 1993 and incorporated herein by reference) with amendments dated September 1, 1994 and March 31, 1995.  |
| 10.7                  | Amendment to agreement dated September 1, 1994 between Microfluidics International Corporation and Catalytica, Inc. dated as of October 18, 1993 (filed as Exhibit 3.10(g) to the Company's Form 10-K for the fiscal year ended December 31, 1993, and incorporated herein by reference).   |

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- 10.8 Amendment to agreement dated March 31, 1995 between Microfluidics International Corporation and Catalytica, Inc. dated as of October 18, 1993 (filed as Exhibit 3.10(g) to the Company's Form 10-K for the fiscal year ended December 31, 1993, and incorporated herein by reference)
  - 10.9 License Agreement among Microfluidics International Corporation, Worcester Polytechnic Institute and Catalytica, Inc. dated as of October 18, 1993 (filed as Exhibit 3.10(h) to the Company's Form 10-K for the fiscal year ended December 31, 1993 and incorporated herein by reference).
  - 10.10 Amendment to agreement dated September 1, 1994 between Microfluidics International Corporation and Catalytica, Inc. dated as of October 18, 1993 (filed as Exhibit 3.10(g) to the Company's Form 10-K for the fiscal year ended December 31, 1993, and incorporated herein by reference).
  - 10.11 Letter, dated August 15, 1995, from Microfluidics International Corporation to Michael T. Rumley. (filed as Exhibit 3.10(j) to the Company's Form 10-K for fiscal year ended December 31, 1995 and incorporated herein by reference).
  - 10.12 Letter, dated December 31, 1995 from Microfluidics International Corporation to Irwin J. Gruverman. (filed as Exhibit 3.10(k) to the Company's Form 10-K for fiscal year ended December 31, 1996 and incorporated herein by reference).
  - 10.13 Warrant for the Purchase of Shares of Common Stock, dated July 14, 1993, in favor of Ladenburg, Thalmann & Co. Inc. (filed as Exhibit 3.10(l) to the Company's Form 10-K for fiscal year ended December 31, 1996 and incorporated herein by reference).
  - 10.14 Letter, dated December 31, 1996, from Microfluidics International Corporation to Irwin J. Gruverman. (filed as Exhibit 3.10(o) to the Company's Form 10-K for fiscal year ended December 31, 1996 and incorporated herein by reference).
  - 10.15 Agreement between Microfluidics International Corporation and Catalytica, Inc. dated January 1, 1995 regarding participation in and management of the Advanced Technology Program (ATP). (filed as Exhibit 3.10(p) to the Company's Form 10-K for fiscal year ended December 31, 1996 and incorporated herein by reference).
  - 10.16 Consulting Agreement with James Little. (filed as Exhibit 3.10(q) to the Company's Form 10-K for fiscal year ended December 31, 1996 and incorporated herein by reference).
  - 10.17 Supplemental Agreement between Catalytica Advanced Technologies, Inc. and Microfluidics International Corporation dated December 31, 1997. (filed as Exhibit 3.10(r) to the Company's Form 10-k for fiscal year ended December 31, 1997, and incorporated herein by reference)
  - 10.18 Letter dated December 31, 1997, from Microfluidics International Corporation to Irwin J. Gruverman and G & G Diagnostics Corp. (filed as Exhibit 3.10(s) to the Company's Form 10-K for fiscal year ended December 31, 1997, and incorporated herein by reference).
  - 10.19 1988 Stock Plan as amended (filed as Exhibit 10(a) to the Company's Form 10-Q for the quarterly period ended March 31, 1997 and incorporated herein by reference).
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- 10.20 Asset Purchase Agreement, dated as of June 19, 1998, by and among the Company, Epworth Manufacturing Company and Morehouse-COWLES, Inc.(filed as Exhibit 2.1 to Schedule 13D of Bret A. Lewis, File No. 005-35850, and incorporated herein by Reference).
  - 10.21 Stockholders Agreement, dated August 14, 1998, by and among the Company and J.B. Jennings and Bret A. Lewis (filed as exhibit 2.2 to Schedule 13D of Bret A. Lewis, File No. 005-35850, and incorporated herein by reference).
  - 10.22 \$500,000 Subordinated Promissory Note issued by the Company to Epworth Manufacturing Company (filed as exhibit 99.2 to the Company's Form 8-K on August 27, 1998, File No. 000-11625, and incorporated herein by reference).
  - 10.23 \$300,000 Subordinated Promissory Note issued by the Company to Epworth Manufacturing Company (filed as exhibit 99.2 to the Company's Form 8-K on August 27, 1998, File No. 000-11625, and incorporated herein by reference).
  - 10.24 Revolving credit loan between Comerica Bank and the Company dated August 12, 1998 (filed as Exhibit 10.1 to the Company's form 10-Q for the quarterly period ended September 30, 1998 and incorporated herein by reference).
  - 10.25 Letter dated December 31, 1998 from Microfluidics International Corporation To Irwin J. Gruverman. (Filed as exhibit 3.10(2) to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 1998 and incorporated herein by reference.)
  - 10.26 Revolving Credit and Term Loan Agreement among MFIC Corporation and National Bank of Canada dated February 28, 2000. (Filed as exhibit 10.26 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
  - 10.27 Revolving Credit Note of the Company in favor of National Bank of Canada in the amount of \$4,000,000.00 dated February 28, 2000. (Filed as exhibit 10.27 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
  - 10.28 Term Note of the Company in favor of National Bank of Canada in the amount of \$475,000.00 dated February 28, 2000. (Filed as exhibit 10.28 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
  - 10.29 Security Agreement of the Company in favor of National Bank of Canada dated February 28, 2000. (Filed as exhibit 10.29 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
  - 10.30 Trademark and Trademark Applications Security Agreement of the Company in favor of National Bank of Canada, dated February 28, 2000. (Filed as exhibit 10.30 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
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- 10.31 Patent and Patent Applications Security Agreement of the Company in favor of National Bank of Canada, dated February 28, 2000. (Filed as exhibit 10.31 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.32 Unlimited Guaranty of Microfluidics Corporation in favor of National Bank of Canada Dated February 28, 2000. (Filed as exhibit 10.32 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.33 Stock Pledge Agreement between the Company and National Bank of Canada dated February 28, 2000. (Filed as exhibit 10.33 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.34 Subordination Agreement among the Company, Lake Shore Industries, Inc. and National Bank of Canada dated as of February 28, 2000. (Filed as exhibit 10.34 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.35 Subordinated Promissory Note on the Company in favor of Lake Shore Industries, Inc. in the amount of \$300,000.00 dated February 28, 2000. (Filed as exhibit 10.35 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.36 Forbearance Agreements with Comerica. (Filed as exhibit 10.36 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.37 Settlement Agreement, dated January 17, 2000 by and among the Company, Bret A. Lewis, J. B. Jennings, Lake Shore Industries, Inc., and JLJ Properties, Inc., with \$300,000 Subordinated Promissory Note dated February 28, 2000, issued by the Company to Lake Shore Industries, Inc. (FKA Epworth Manufacturing Company, Inc). (Filed as exhibit 10.37 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.38 Letter, dated December 31, 1999, from MFIC Corporation to Irwin J. Gruverman and G&G Diagnostics Corp. (Filed as exhibit 10.38 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.39 Letter, dated December 31, 1999, from MFIC Corporation to Irwin J. Gruverman. (Filed as exhibit 10.39 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.40 First Amendment to Revolving Credit and Term Loan Agreement between the Company and National Bank of Canada dated March 30, 2000. (Filed as exhibit 10.40 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.41 Lease between ABB and Microfluidics dated April 14, 2000 for space at Lampertheim, Germany. (Filed as exhibit 10.41 to the Company's Annual Report on Form 10-K for fiscal year
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ended December 31, 2000, and incorporated herein by reference.)

- 10.42 Security Agreement between MFIC Corporation and J.M. Huber Corporation dated October 18, 2000. (Filed as exhibit 10.42 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
  - 10.43 Settlement agreement between MFIC Corporation and J.M. Huber Corporation dated December 18, 2000. (Filed as exhibit 10.43 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
  - 10.44 Letter, dated December 31, 2000, from MFIC Corporation to Irwin J. Gruverman and G&G Diagnostics Corporation. (Filed as exhibit 10.45 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
  - 10.45 Letter, dated December 31, 2000, from MFIC Corporation to Irwin J. Gruverman. (Filed as exhibit 10.46 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
  - 10.46 Lease for 30 Ossipee Road, Newton, Massachusetts dated October 19, 2001, between Microfluidics International Corporation and King Real Estate Corp., Trustee of 1238 Chestnut Street Trust under Declaration of Trust dated May 23, 1969, recorded with Middlesex South Registry of Deeds in Book 11682, Page 384. (Filed as Exhibit 10.47 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2001, and incorporated herein by reference.)
  - 10.47 Consulting agreement with Vincent Cortina dated January 2, 2002. (Filed as Exhibit 10.48 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2001, and incorporated herein by reference.)
  - 10.48 Letter dated December 31, 2001 from MFIC Corporation to Irwin J. Gruverman. (Filed as Exhibit 10.49 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2001, and incorporated herein by reference.)
  - 10.49 Second Amendment to Revolving Credit and Term Loan Agreement between the Company and PNC Bank, N.A. dated March 29, 2002. (Filed as Exhibit 10.50 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2001, and incorporated herein by reference.)
  - 10.50 1986 Employee Stock Purchase Plan as Amended. (Filed as Exhibit 10.51 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2001, and incorporated herein by reference.)
  - 10.51 1988 Stock Plan as Amended. (Filed as Exhibit 10.52 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2001, and incorporated herein by reference.)
  - 10.52 Letter dated December 31, 2002 from MFIC Corporation to Irwin J. Gruverman. (Filed as Exhibit 10.53 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2002, and incorporated herein by reference.)
  - 10.53 Third Amendment to Revolving Credit and Term Loan Agreement between the Company and
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PNC Bank N.A. dated February 19, 2003. (Filed as Exhibit 10.54 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2002, and incorporated herein by reference.)

- \*10.54 Fourth Amendment and Waiver to Revolving Credit and Term Loan Agreement between the Company and PNC Bank, N.A. dated February 6, 2004.
- 10.55 Asset Purchase Agreement dated February 5, 2004, by and among MFIC Corporation and Morehouse-COWLES, Inc. (Filed as Exhibit 2 to the Company's Form 8K dated February 13, 2004, and incorporated herein by reference.)
- \*10.56 Revolving Line of Credit Note in the amount of \$1,000,000 in favor of Banknorth, N.A. dated March 3, 2004. (Filed as Exhibit 10.57 to the Company's Annual Report on Form 10K for the fiscal year ended December 31, 2003, and incorporated herein by reference.)
- \*10.57 Letter dated December 31, 2003 from MFIC Corporation to Irwin Gruverman
- \*10.58 Secured Term Note in the amount of \$1,000,000 in favor of Banknorth, N.A. dated March 3, 2004.
- \*10.59 Loan and Security Agreement between Banknorth, N.A. and the Company dated March 3, 2004.
- \*10.60 Trademark Security Agreement of the Company in favor of Banknorth, N.A., dated March 3, 2004.
- \*10.61 Patent Security Agreement of the Company in favor of Banknorth, N.A., dated March 3, 2004.
- \*10.62 Placement Agency Agreement between the Company and Casimir Capital L.P. dated February 13, 2004.
- \*10.63 First Amendment to Placement Agency Agreement between the Company and Casimir Capital L.P. dated March 12, 2004.
- \*10.64 Registration Rights Agreement between the Company and Purchasers dated March 16, 2004.
- \*14.00 Code of Ethics, as adopted by the Company
- \*23(a) Consent of Brown & Brown, LLP
- \*31.1 Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2003.
- \*31.2 Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2003.
- \*32.1 Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
- \*32.2 Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

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\*Filed herewith

\*\*Management contracts or compensatory plan or arrangement required to be filed as an exhibit to this Form 10-K pursuant to of this report.

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**SIGNATURES**

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized, in the city of Newton, Commonwealth of Massachusetts, on the 5<sup>th</sup> day of April 2004.

By: /s/ Irwin J. Gruverman  
 Irwin J. Gruverman  
 Chief Executive Officer

Pursuant to the requirements of the Securities and Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

| Signature                                      | Title   | Date          |
|--|---|---------------|
| /s/ Irwin J. Gruverman<br>Irwin J. Gruverman   | Chief Executive Officer<br>(Principal Executive Officer), Chairman of<br>the Board of Directors and Secretary | April 5, 2004 |
| /s/ James N. Little<br>James N. Little         | Director  | April 5, 2004 |
| /s/ Vincent Cortina<br>Vincent Cortina         | Director  | April 5, 2004 |
| /s/ Leo Pierre Roy<br>Leo Pierre Roy           | Director  | April 5, 2004 |
| /s/ Edward T. Paslawski<br>Edward T. Paslawski | Director  | April 5, 2004 |

## SCHEDULE II

## MFIC CORPORATION

Valuation and Qualifying Accounts and Reserves  
For the years ended December 31, 2003, 2002, and 2001

|   | Balance at<br>Beginning of<br>Period |    | Additions<br>Charged to Costs<br>and Expenses |    | Deductions<br>and<br>Adjustments |    | Balance at End<br>of Period |
|---|--------------------------------------|----|---|----|----------------------------------|----|-----------------------------|
| <b>ALLOWANCE FOR DOUBTFUL ACCOUNTS</b>  |                                      |    |   |    |                                  |    |                             |
| For the year ended December 31, 2003  | \$ 33,500                            | \$ | 25,000  | \$ |                                  | \$ | 58,500                      |
| For the year ended December 31, 2002  | 48,500                               |    |   |    | 15,000                           |    | 33,500                      |
| For the year ended December 31, 2001  | 33,500                               |    | 15,000  |    |                                  |    | 48,500                      |
| <b>INVENTORY RESERVE</b>  |                                      |    |   |    |                                  |    |                             |
| For the year ended December 31, 2003  | \$ 50,000                            | \$ | 60,000  | \$ |                                  | \$ | 110,000                     |
| For the year ended December 31, 2002  | 40,000                               |    | 10,000  |    |                                  |    | 50,000                      |
| For the year ended December 31, 2001  | 65,000                               |    |   |    | 25,000                           |    | 40,000                      |
| <b>ACCUMULATED AMORTIZATION RELATED<br/>TO GOODWILL AND OTHER INTANGIBLES</b> |                                      |    |   |    |                                  |    |                             |
| For the year ended December 31, 2003  | \$ 4,814,444                         | \$ | 2,103,800                                     | \$ |                                  | \$ | 6,918,244                   |
| For the year ended December 31, 2002  | 2,065,135                            |    | 2,749,309                                     |    |                                  |    | 4,814,444                   |
| For the year ended December 31, 2001  | 1,548,371                            |    | 516,764                                       |    |                                  |    | 2,065,135                   |