

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549**

**FORM 10-K**

ANNUAL REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended: DECEMBER 31, 2010

TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission File Number: 0-13092

**SPECTRASCIENCE, INC.**

(Exact name of registrant as specified in its charter)

MINNESOTA  
(State of incorporation)

41-1448837  
(I.R.S. Employer Identification No.)

11568-11 Sorrento Valley Road, San Diego, CA  
(Address of principal executive offices)

92121  
(Zip Code)

Registrant's telephone number: (858) 847-0200

Securities registered under Section 12(b) of the Exchange Act: NONE

Securities registered under Section 12(g) of the Exchange Act:  
COMMON STOCK, \$0.01 PAR VALUE  
(Title of Class)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes            No     

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act.

Yes            No     

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Exchange Act 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 whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (Sec.232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes            No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (Sec.229.405 of this chapter) 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.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer  Accelerated filer  Non-accelerated filer  Smaller reporting company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes  No

The aggregate market value of the voting Common Stock held by non-affiliates, computed by reference to the price at which the voting Common Stock was sold as of the last business day of the Company's most recently completed second fiscal quarter is \$16,735,388.

As of March 25, 2011 the number of outstanding shares of the registrant's Common Stock, par value \$0.01 per share, was 108,041,084.

#### **DOCUMENTS INCORPORATED BY REFERENCE**

None.

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**SPECTRASCIENCE, INC.**  
**FORM 10-K**  
**For the Fiscal Year Ended December 31, 2010**

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## PART I

### ITEM 1. BUSINESS.

#### *Introduction*

SpectraScience, Inc. (“SpectraScience,” the “Company,” “we,” “our,” or “us”) was incorporated in the State of Minnesota on May 4, 1983 as GV Medical, Inc. In October 1992, GV Medical discontinued its prior business, refocused its development efforts and changed its name to SpectraScience, Inc. The Company, along with its wholly owned subsidiary, Luma Imaging Corporation (“LUMA”), focuses on developing its WavSTAT<sup>(R)</sup> Optical Biopsy System (“WavSTAT”). The WavSTAT employs a non-significant risk technology that optically illuminates tissue in real-time to distinguish between normal and pre-cancerous or cancerous tissue.

Our principal executive offices are located at 11568 Sorrento Valley Rd., Suite 11, San Diego, CA 92121. You can reach us by telephone at (858) 847-0200; by fax at (858) 847-0880; or by email at [info@spectrascience.com](mailto:info@spectrascience.com). Our website address is [www.spectrascience.com](http://www.spectrascience.com). The information contained on our web site is not deemed to be a part of this document.

#### *Reorganization*

The Company adopted “fresh-start reporting” effective August 2, 2004, given the absence of any operating activity or other significant activity for almost two years, in accordance with the guidelines of the American Institute of Certified Public Accountant’s Statement of Position 90-7, “Financial Reporting by Entities in Reorganization Under the Bankruptcy Code”.

#### *Acquisition of Luma Imaging Corporation Assets*

On November 6, 2007, the Company acquired 100% of the shares of LUMA from its shareholders in consideration for 11.2 million restricted shares of SpectraScience common stock.

LUMA had developed and received approval from the U.S. Food and Drug Administration (the “FDA”) for an optical, non-invasive diagnostic imaging system that is proven to more effectively detect cervical cancer precursors than using conventional means alone (i.e. colposcopy). The LUMA Cervical Imaging System utilizes a single-use disposable probe and requires little additional training as it leverages clinician’s existing skill sets. When used as an adjunct to colposcopy, the LUMA system detects significantly more high-grade cervical cancer precursors than colposcopy alone. During the fiscal year ended December 31, 2010, the Company wrote off the remaining fair value of the LUMA inventory in order to focus on the continued development and marketing of the WavSTAT. The Company retained the intellectual property of LUMA for use in the development of future generations of the WavSTAT System.

The transaction was accounted for as an acquisition of assets that included intellectual property, inventory and equipment. The intellectual property consisted of a total of 34 issued U.S. patents and 28 additional patent applications.

#### Products and Markets

SpectraScience has developed a technology platform to instantly determine if tissue is normal, pre-cancerous or cancerous, without the need for a physical biopsy. The Company has received FDA approval to market its proprietary and patented optical biopsy system capable of determining instantaneously whether colon tissue is normal, pre-cancerous or cancerous without physically removing tissue from the body and without waiting days for a pathology report. The Company is also developing additional applications for the detection of pre-cancerous and cancerous tissue in various tissues of the body.

The WavSTAT operates by using cool, safe UV laser light to optically illuminate and analyze tissue, enabling the physician to make an instant diagnosis during endoscopy when screening for cancer and, if warranted, to begin immediate treatment during the same procedure. The WavSTAT uses laser-induced auto-fluorescence to obtain spectral information from tissue at the suspected site. The system is classified as a non-significant risk device which transmits low-level UV laser light energy through an optical fiber to the tissue via the working channel of an endoscope. The tissue in contact with the optical fiber absorbs the light and the resulting tissue auto-fluorescence spectra is collected by the same optical fiber and returned to a detector within the WavSTAT console for processing. The system analyzes the spectral data and displays the results graphically for the user as normal tissue (green light), suspected pre-cancerous tissue, or cancerous tissue (red light). Data are recorded on a printer and saved in flash memory and a hard drive. The WavSTAT has been tested at five leading medical centers, including the Mayo Clinic and Massachusetts General Hospital, with results demonstrating statistically significant improvement in physician accuracy in the ability to detect pre-cancerous and cancerous tissue during endoscopy.

The WavSTAT was specifically designed to serve as a technology platform to facilitate multiple medical applications for cancer detection. We see additional opportunities for this core technology in several other large as-yet-unexplored markets which include lung, skin, stomach, Inflammatory Bowel Disease and bladder cancer detection. The Company is currently exploring these additional applications of its platform for these markets, and is analyzing feasibility of the use of its technology and the revenue opportunity for each market.

### *Colorectal Cancer*

The American Cancer Society reports colorectal cancer as the third most common cancer diagnosed in the U.S. with approximately 141,000 new cases annually. With an estimated 49,380 deaths in 2011, colorectal cancer is second only to lung cancer as the leading cause of cancer death in the U.S. Candidates for colorectal cancer screening include all persons, with or without symptoms, over the age of 50 (or an estimated 80-90 million people in the U.S.) with the screening market expected to increase 20% over the next ten years. Demographic trends in Europe are very similar.

Colorectal cancer is primarily diagnosed through the discovery and histo-pathologic analysis of polyps. Colon polyps are small masses of tissue found in the lining of the colon that may be either benign or malignant. The most commonly performed and generally accepted colorectal cancer screening procedure to detect polyps is an endoscopy of the lower colon also known as a flexible sigmoidoscopy or, alternately, a full colonoscopy. According to the American Society for Gastrointestinal Endoscopy guidelines for colorectal cancer screening, large polyps (greater than 1 centimeter) are generally removed as a matter of course and sent to pathology for evaluation. On the other hand, the guidelines further state that small polyps (less than 1 centimeter which account for approximately 85% of all polyps) require, "individualized treatment on a case by case basis". The clinical utility of the WavSTAT occurs when the physician must decide the best course of treatment for small polyps. When small polyps are found, it is left to the physician's discretion based primarily on visual assessment, whether to remove the polyp, place the patient under surveillance, or to biopsy. If a biopsy is performed and cancer or pre-cancer is documented by pathology, the polyp must then be removed during a second costly endoscopy procedure.

Relative to colorectal cancer, five-year survival rates as reported by the American Cancer Society are as follows:

- Approximately 90% of patients live five years or longer if the cancer is detected and treated at an early stage;
- Only 68% of patients live five years or longer if the cancer spreads outside the polyp and colon to nearby organs or lymph nodes; and
- The five-year survival rate for those patients in whom the cancer has spread further to the liver or other organs is only 10%.

Early detection of colorectal cancer is essential to long-term survival. Unfortunately, the American Cancer Society reports that only 39% of colorectal cancers are detected at an early stage. Clinical studies indicate that colorectal cancer screening procedures result in earlier detection and can prevent as many as 20 to 40% of potential colorectal cancers and subsequently reduce colorectal cancer deaths by 30 to 50%. Colorectal screening procedures not only save lives, they also save money. If a patient is not diagnosed until symptoms develop and the disease has spread, or if misdiagnosed at an early stage, the chance of patient survival plummets and more advanced treatment regimens such as surgery, chemotherapy and/or radiation become necessary.

The WavSTAT was specifically designed to be used during screening endoscopy of the colon to aid and improve the physician's ability to identify small polyps as normal, pre-cancerous or cancerous tissue in real time. Results from the Company's FDA regulated clinical studies performed at the Mayo Clinic (Rochester, MN), Massachusetts General Hospital (Boston, MA), Hennepin County Medical Center (Minneapolis, MN) and Minnesota Gastroenterology P.A. (St. Paul and Minneapolis, MN) demonstrated that using the WavSTAT during colorectal endoscopic screening increased the physician's diagnostic accuracy in detecting pre-cancerous or cancerous polyps by a statistically significant amount.

Based on the results demonstrated by these clinical studies, we believe that using the WavSTAT will:

- Significantly improve the physician's diagnostic accuracy in determining whether small polyps in the colon are pre-cancerous or cancerous;
- Improve patient survival rates by earlier detection and treatment of cancers, and more importantly pre-cancers, by more accurately identifying cancers or pre-cancers the physician may misdiagnose;
- Improve the patient's quality of life by providing an immediate analysis of the tissue, thereby eliminating the anxiety of waiting several days to hear the pathology results;
- Enable the physician to diagnose and treat the patient during the same endoscopy procedure with the same biopsy instrument, thereby potentially reducing the need for scheduling a second expensive endoscopy for treatment purposes;
- Significantly reduce the number of physical biopsies performed and reduce the number of unnecessary follow-on endoscopies performed; and

- Reduce the number of misdiagnosed patients, thereby eliminating the need for more costly advanced treatments such as surgery, chemotherapy and/or radiation.

### *Esophageal Cancer*

Barrett's esophagus is a condition of the lining of the lower esophagus thought to be caused primarily by Gastro Esophageal Reflux Disease ("GERD"), more commonly known as chronic heartburn. Barrett's esophagus is considered to be a pre-malignant stage and a precursor to esophageal cancer. Physicians typically recommend that persons with chronic heartburn should have an endoscopy to look for Barrett's esophagus. Some Barrett's esophagus patients will advance further to a stage where additional abnormal tissue called dysplasia is present. Dysplasia is known to be the next progressive step toward esophageal cancer and is categorized as either low-grade or high-grade.

Barrett's esophagus, dysplasia and esophageal cancer patients are presently diagnosed via endoscopy of the esophagus with the physician taking multiple random physical biopsies of the esophageal lining; this is a significantly invasive procedure. It is critical that high-grade dysplasia is correctly diagnosed because physicians frequently recommend surgical resection or removal of the esophagus in such an event. Unfortunately, dysplasia is difficult to find and/or diagnose because it is not reliably visible to the physician during standard endoscopy. The result is that physical biopsies (as many as 20 at once) are performed either randomly or in a geometric pattern in the esophagus in the hope of finding any diseased tissue. Current medical practice typically follows the guidelines described below:

- Patients with chronic GERD (severe heartburn) receive a screening endoscopy of the esophagus with multiple biopsies to check for Barrett's esophagus;
- Patients with Barrett's esophagus receive an endoscopy with multiple biopsies every year to check for dysplasia;
- Patients with Barrett's esophagus that has progressed to include low-grade dysplasia receive an endoscopy with multiple biopsies every six months to check for high-grade dysplasia; and
- Patients with Barrett's esophagus that has progressed to include high-grade dysplasia receive an endoscopy with multiple biopsies every three months to check for cancer and/or may be referred for esophageal surgical resection, photodynamic therapy or electrical ("RF") ablation.

The relatively high death rate associated with esophageal cancer typically results from a lack of early diagnosis with the outcome being that the cancer has grown to an advanced stage. As described above, the frequency of endoscopic surveillance for these patients increases as the pre-cancerous stages advance in hopes of providing the earliest possible diagnosis.

### *Government Regulation*

#### *United States*

Extensive government regulation, both in the United States and internationally, controls the design, manufacture, labeling, distribution and marketing of our products, particularly regarding product safety and effectiveness. In the United States, medical devices are subject to review and clearance or approval by the FDA. The FDA regulates the clinical testing, manufacture, labeling, distribution and promotion of medical devices. If we fail to comply with applicable requirements, we could face:

- fines, injunctions or civil penalties;
- recall or seizure of our products;
- criminal prosecution;
- a recommendation that we not be allowed to contract with the government;
- total or partial suspension of production;
- inability to obtain pre-market clearance/approval for our devices; and
- withdrawal of marketing approvals.

The Food, Drug, and Cosmetic Act, the Public Health Service Act, and Safe Medical Devices Act of 1990 and other federal statutes and regulations also govern or influence the testing, manufacture, safety, labeling, storage, recordkeeping, clearance, advertising and promotion of such products.

In the United States, medical devices are assigned to one of three classes depending on the controls the FDA deems necessary to ensure the safety and effectiveness of the device. The WavSTAT is a Class III device; this is FDA's most highly regulated category in the Center for Devices and Radiological Health ("CDRH") guidelines. In addition to adhering to general controls to which all medical devices are subject, and special controls such as performance standards, post-market surveillance and patient registries, a Class III device must receive pre-marketing approval to ensure its safety and effectiveness prior to commercialization.

FDA approval to distribute regulated devices can be obtained in one of two ways. If a new or significantly modified device is "substantially equivalent" to an existing legally marketed device, the new device can be commercially introduced after filing a 510(k) pre-market notification with the FDA and the subsequent issuance by the FDA of an order permitting commercial distribution. Changes to existing devices that do not significantly affect safety or effectiveness may be made without an additional 510(k) notification. We received 510(k) clearance from the FDA for our disposable and reusable Optical Biopsy Forceps in December 1996.

A second, more comprehensive approval process applies to a Class III device that is not substantially equivalent to an existing product. First, the applicant must usually conduct clinical trials in compliance with testing protocols and patient "informed consent" forms approved by the Institutional Review Board ("IRB" or the "Safety Committee") at each participating research institution. These boards oversee and approve all clinical studies at their institutions (in some cases a central IRB may approve studies at multiple locations). Second, a Pre-Market Approval ("PMA") application must be submitted to the FDA describing (i) the clinical trial results, (ii) the device and its components, (iii) the methods, facilities and controls used for manufacture of the device, (iv) proposed labeling and advertising literature, and (v) the demonstration that the product is safe and effective.

If the FDA determines, upon receipt of the PMA application, that the application is sufficiently complete to permit a substantive review, they will accept the application for filing. Review of a PMA typically takes from six months to two years from the date the application is accepted for filing, but can take significantly longer. Often, during the review period, a panel primarily composed of clinicians and acting as an advisory committee will be convened to review, evaluate, and provide non-binding recommendations to the FDA as to whether the device should be approved. Toward the end of the application review process, the FDA generally will conduct an inspection of the manufacturer's facilities to ensure that the facilities are compliant with the applicable Quality System Regulations requirements.

If FDA evaluations of both the PMA application and the manufacturing facilities are favorable, the FDA will issue either an approval letter or a conditional approval letter which contains a number of conditions that must be satisfied in order to secure final approval of the PMA application. When and if those conditions are fulfilled to the satisfaction of the FDA, they will issue an approval letter, authorizing commercial marketing of the device for certain indications for use. If the FDA's evaluation of the PMA application or manufacturing facilities is not favorable, the FDA will deny approval of the application or issue a "not approvable letter." The FDA may also determine that additional clinical trials are necessary, in which case pre-market approval could be delayed for several years while additional clinical trials are conducted and submitted in an amendment to the PMA application. The pre-market approval process can be expensive, uncertain and lengthy, and a number of devices for which FDA approval has been sought have never been approved for marketing.

Any products manufactured or distributed pursuant to FDA clearances or approvals, are subject to pervasive and continuing regulation by the FDA, including record-keeping requirements and reporting of adverse experiences when using the product.

Device manufacturers are required to register their establishments and list their devices with the FDA and certain state agencies, and are subject to periodic inspections. The Food, Drug, and Cosmetic Act requires devices to be manufactured in accordance with Quality System Requirements regulations, which impose procedural and documentation requirements upon a manufacturer and any of its contract manufacturers with respect to manufacturing and quality assurance activities. The frequency and depth of inspections of PMA products are generally more detailed and frequent than products cleared in the 510(k) process. The past two inspections by the FDA did not result in any adverse findings. Quality System Requirements regulations also require design controls and maintenance of service records. Changes in existing requirements or adoption of new requirements or policies could adversely affect our ability to comply with regulatory requirements. Failure to comply with regulatory requirements could have a material adverse effect on our business, financial condition or results of operations.

The Company submitted a PMA for market clearance of the WavSTAT Optical Biopsy System for use during endoscopic screening of the colon in September 1998, and was approved by the FDA in November 2000. Based upon beta site outcome clinical studies, features were added to the WavSTAT, and submitted as a supplement to the original filing in September 2001. The supplement for the WavSTAT II was approved by the FDA in November 2001. The Company submitted a supplement for approval of WavSTAT III in February 2002 and approval was received in August 2002. We anticipate that product improvements requiring approval, or any new applications, such as for Barrett's esophagus developed for the WavSTAT will be submitted as supplements to the original filing rather than as original PMA filings. In September 2009, the FDA approved a PMA amendment for an updated WavSTAT III platform which included new state-of-the-art hardware.

We are also subject to numerous federal, state and local laws relating to such matters as safe working conditions, manufacturing practices, environmental protection, fire hazard control and disposal of hazardous or potentially hazardous substances. We are not aware of any manufacturing methods for the WavSTAT Systems that will require extensive or costly compliance with environmental regulations. However, since laws change over time there can be no assurance that (i) we will not be required to incur significant costs to comply with all applicable laws and regulations in the future, or (ii) the impact of changes in those laws or regulations or adoption of new laws and regulations will not have a material adverse effect upon our ability to do business.

## *European Union and Other Countries*

The European Union encompasses most of the major countries in Europe. The European Union has adopted numerous directives and standards regulating the design, manufacture, clinical trial, labeling, and adverse event reporting for medical devices. The principal directive prescribing the laws and regulations pertaining to medical devices in the European Union is the Medical Devices Directive, 93/42/EEC.

Devices that comply with the requirements of the Medical Devices Directive will be entitled to bear the CE mark, indicating that the device complies with the essential requirements of the applicable directive. In order to distribute a medical device in the European Union, the product must earn and display the CE mark. Generally, companies must also go through the ISO certification process in order to obtain the CE mark. SpectraScience received ISO 9001 certification in July 2000, and CE mark authorization for our products in October 2000. In order to maintain ISO 9001 certification SpectraScience must undergo a yearly audit to assure the European Union regulatory agencies of our compliance with ISO 9001 standards. Our last audit was in 2007, when we earned certification for an additional standard, EN 13485:2003, which is a medical device adaptation of the ISO 9001 standard. We are periodically re-audited to remain ISO 9001 and EN 13485 certified. There can be no assurance that we will be able to maintain international certification or CE mark authorization for any of our products or product components. Furthermore, even though a device bears the CE Mark, practical complications may arise with respect to market introduction because of differences among countries in areas such as labeling requirements and reimbursement practices. We may be required to spend significant amounts of capital in order to comply with the various regulatory requirements of foreign countries and achieve reasonable payment for our products.

## *Product Research and Development*

The Company invested similar capital in research and development for the fiscal year ended December 31, 2010 as compared to prior recent history. Research and development expenses were approximately \$2,066,000 and \$2,127,000 for the fiscal years ended December 31, 2010 and 2009, respectively. In 2010 the Company recognized approximately \$1,025,000 of non-cash expense related to the write-off of remaining LUMA assets previously classified as long-lived assets (equipment).

## *Compliance with Environmental Laws*

Management has reviewed the cost of compliance with environmental laws and deemed the cost of such compliance to be immaterial for the fiscal year ended December 31, 2010.

## *Distribution, Sales and Customers*

Our objective is to become a leader in the development and commercialization of advanced proprietary diagnostic products with the capability to differentiate in real-time between healthy, and pre-cancerous or cancerous tissue. During 2010, our sales and marketing efforts have been, and will continue to be focused on marketing the WavSTAT System in the colorectal diagnostic market. We envision particular emphasis on selling the WavSTAT System in international markets and are actively working to solicit strategic distribution partners.

In the United States, successful product introduction will require a larger direct sales force or a strategic corporate partner that has strongly established call patterns within managed care organizations. Management believes the availability of clinical support specialists to support the sales force, and to conduct training seminars to educate endoscopists and other health care providers regarding proper use of the WavSTAT System will be an important component of a product introduction strategy. To further international objectives during 2011, the Company will focus on developing strategic partnerships with large endoscope manufacturers. Management believes this is important to achieve commercial success internationally.

## *Third-Party Reimbursement in the United States*

We expect to market and sell the WavSTAT System primarily through hospitals and clinics. In the United States, the purchasers of medical devices generally rely on Medicare, Medicaid, private health insurance plans, health maintenance organizations and other sources of third party reimbursement for health care costs, to reimburse all or part of the cost of medical devices and/or the procedure in which the medical device is used. Significant sales of our products will, in part, be dependent on the availability of adequate reimbursement from these third party payers for procedures carried out using our products. We believe that less invasive procedures generally provide less costly overall therapies compared to conventional drugs, surgery and other treatments. We anticipate hospital administrators and physicians will justify the use of our products by the cost and time saving recognized and clinical benefits that we believe will be derived from the use of our products.

Third party payers determine whether to provide coverage for a particular procedure and reimburse health care providers for medical treatment at a fixed rate based on the diagnosis-related group established by the Center for Medicare and Medicaid Services. The fixed rate of reimbursement is based on the procedure performed and is unrelated to the specific type or number of devices used in a procedure. If a procedure is not covered by a diagnosis-related group, payers may deny reimbursement. If reimbursement for a particular procedure is approved, third party payers will reimburse health care providers for medical treatment based on a variety of methods, including a lump sum prospective payment system based on a diagnosis-related group or per diem, a blend between the health care provider's reported costs and a fee schedule, a payment for all or a portion of charges deemed reasonable and customary, or a negotiated per capita fixed payment.

Upon product introduction, currently existing available codes can be used to provide a level of reimbursement to users. Management believes however, that currently available reimbursement codes do not adequately reimburse for the anticipated value that optical biopsy technology brings to the medical care system. Optical biopsies are not currently approved for reimbursement by third-party payers, and there can be no assurance that optical biopsy technology will be approved for any third party reimbursement, even if it proves to play a significant role in improving the endoscopist's ability to accurately differentiate among polyps in the colon, thereby leading to early detection and subsequent treatment.

Medical equipment capital costs incurred by hospitals are reimbursed separately from diagnosis-related group payments. Changes in federal legislation, or policies of the government or third-party payers that reduce reimbursements under capital cost pass through-systems, could adversely affect the market for our products.

As provided above, demonstrating cost-effectiveness and improved patient outcomes is critical to the sales cycle since payers evaluate these factors in determining whether to reimburse for new technologies. Payers may also delay reimbursement decisions for a year or more, even when provided with cost-effectiveness data, while they conduct their own technology assessments. The availability of peer-reviewed literature regarding the technology may help payers in reducing this technology assessment timeline. To promote the dissemination of literature regarding the WavSTAT optical biopsy technology, we are working to have published clinical utility and cost/benefit data in peer-reviewed journals.

We expect that there will be continued pressure on cost-containment throughout the United States health care system. Cost reduction, cost containment, managed care, and capitation pricing (putting a ceiling on price) are very familiar themes within health care. Limits on third-party reimbursements that lead to cuts in reimbursements for new or experimental procedures would affect the ability of smaller companies with new technologies to compete with larger established firms or with established technologies. Lobbying activities are often necessary to bring to light the value of these new technologies but require extensive amounts of corporate resources that the Company may not be able to afford.

Reimbursement systems in international markets vary significantly by country and by region within some countries, and reimbursement approvals must be obtained on a country-by-country basis. Many international markets have government managed health care systems that control reimbursement for new products and procedures. In most markets, there are private insurance systems as well as government managed systems. Market acceptance of our products will depend on the availability and level of reimbursement in our targeted international markets. We may not be able to obtain reimbursement in any country within a particular time, for a particular time, for a particular amount, or at all.

We are unable to predict what additional legislation or regulation relating to the health care industry or third-party coverage and reimbursement may be enacted in the future, if any, or what effect it might have on us. In particular, we are unable to yet predict the impact that recently signed health care reform legislation will have on our business. Reforms may include (i) mandated basic health care benefits, (ii) controls on health care spending through limitations on the growth of private health insurance premiums and Medicare and Medicaid spending, (iii) greater reliance on prospective payment systems, (iv) the creation of large insurance purchasing groups, and (v) fundamental changes to the health care delivery system. Management anticipates that Congress and state legislatures will continue to review and assess alternative health care delivery systems and payment mechanisms. Due to uncertainties regarding the ultimate features of reform initiatives and their enactment and implementation, we cannot predict which reform proposals, if any, will be adopted, when they may be adopted or what impact they may have on us. Failure by hospitals and other users of our products to obtain reimbursement from third-party payers, or changes in government and private third-party payers' policies toward reimbursement for procedures employing our products, could have a material adverse effect on our business, financial condition and results of operations.

### *Manufacturing and Sources of Supply*

SpectraScience manufactures the WavSTAT System at its facility in San Diego. The WavSTAT forceps are outsourced to United States contract OEM manufacturers. At the present time, SpectraScience performs the manufacturing of the optical fiber portion of the forceps in-house. The Company also performs certain final assembly processes of the WavSTAT forceps. All WavSTAT Systems previously used for pre-clinical testing, FDA compliant clinical trials, and cost effectiveness/outcome clinical studies were manufactured under a Quality System with Standard Operating Procedure controls. Management continues to utilize these quality control systems and adds to or modifies them as necessary.

The WavSTAT Systems are, and will be, manufactured in accordance with current FDA Quality System Regulations and ISO 9001 International Standards, both of which are necessary to sell products within the United States and the European Union. These requirements impose certain procedural and documentation requirements upon SpectraScience with respect to manufacturing and quality assurance activities, as well as upon those third parties with whom the Company contracts to perform certain manufacturing processes.

During the third quarter of 2007, SpectraScience was granted ISO 9001 and 13485:2003 certification for its manufacturing facility and Quality System. These international standards are the European equivalent to the FDA's Quality System Regulations. Meeting these standards permits use of the "CE mark" to export the WavSTAT optical biopsy system to the European Union and most other countries of the world.

The manufacturing processes and Standard Operating Procedures required to build a WavSTAT System have been reviewed by the FDA and we are authorized to manufacture the product in our current facility. Both the FDA and the European Notified Body will continue to perform periodic audits as long as SpectraScience manufactures and commercializes medical products.

### *Competition*

The medical device industry is highly competitive. Management believes the Company has few direct competitors in applying spectroscopy for the differentiation of normal, pre-cancerous or cancerous tissues in the gastrointestinal tract; however, the development of products using spectroscopic diagnostics for various medical specialties is rapidly growing. To the best of our knowledge, no other competitors have completed FDA clinical studies or submitted a pre-market approval application to the FDA or received CE Mark authority to distribute a product for the detection of colorectal or esophageal cancer.

Many competitors have substantially greater resources than we do, either internally or in combination with strategic partners. These resources may allow them to develop, market and distribute technologies or products that could be more effective than those developed or marketed by us, or that would render our technologies and products obsolete. The resource advantages they may have are:

- greater capital resources;
- greater manufacturing resources;
- greater resources and expertise in testing products in clinical trials;
- greater resources and expertise in the areas of research and development;
- greater expertise in obtaining regulatory approvals; and
- greater resources for marketing and sales activities.

## Patents

SpectraScience currently owns exclusive rights to a total of eight issued U.S. patents and international patents for the WavSTAT technology.

<b>Patent Name</b>	<b>U.S. Patent Number</b>
Optical Biopsy Forceps	5,762,613
System for Diagnosing Tissue with Guidewire	5,601,087
Method of Diagnosing Tissue with Guidewire	5,439,000
Guidewire Catheter and Apparatus for Diagnostic Imaging	5,383,467
Optical Biopsy Forceps System and Method of Diagnosing Tissue	6,066,102
Optical Biopsy Forceps	6,129,683
Optical Biopsy System and Methods for tissue Diagnosis	6,174,291
Optical Forceps System and Method of Diagnosing and Treating Tissue	6,394,964

SpectraScience is also the exclusive licensee through the Massachusetts General Hospital of U.S. Patent 5,843,000 entitled, “Optical Biopsy Forceps and Method of Diagnosing Tissue” and a pending international patent application. The above patents expire between January 2015 and May 2022. Each of the international patents designates several countries for patent protection.

SpectraScience currently owns exclusive rights to a total of 34 issued U.S. patents and international patents for the LUMA technology.

<b>Patent Name</b>	<b>U.S. Patent Number</b>
Spectral Volume Microprobe Analysis of Materials	5,713,364
Spectral Volume Microprobe Arrays	6,104,945
Sheath for Cervical Optical Probe	D453,832
Sheath for Cervical Optical Probe	D453,962
Sheath for Cervical Optical Probe	D453,963
Sheath for Cervical Optical Probe	D456,964
Spectroscopic System Employing a Plurality of Data Types	6,385,484
Spectral Volume Microprobe Arrays	6,411,835
Systems and Methods for Optical Examination of Samples	6,411,838
Spectral Data Classification of Samples	6,421,553
Optical Methods and Systems for Rapid Screening of the Cervix	6,427,082
Sheath for Cervical Optical Probe	D460,821
Substantially Monostatic, Substantially Confocal Optical Systems for Examination of Samples	6,760,613
Fluorescent Fiberoptic Probe for Tissue Health Discrimination and Method of Use Thereof	6,768,918
Method and Apparatus for Identifying Spectral Artifacts	6,818,903
Spectral Volume for Microprobe Arrays	6,826,422
Sheath for Cervical Optical Probe	D507,349
System for Normalizing Spectra	6,839,661
Optical Probe Accessory Device for Use In-Vivo Diagnostic Procedures	6,847,490
Methods of Monitoring Effects of Chemical Agents on a Sample	6,902,935
Sheath for Cervical Optical Probe	D500,134
Optimal Windows for Obtaining Optical Data for Characterization of Tissue Samples	6,933,154
Methods and Apparatus for Displaying Diagnostic Data	7,136,518
Spectral Volume Microprobe Analysis of Materials	5,813,987
Colonic Polyp Discrimination by Tissue Florescence and Fiberoptic Probe	7,103,401
Optical Methods and Systems for Rapid Screening of the Cervix	7,127,282
Methods and Systems for Correcting Image Misalignment	7,187,810
Image Processing using Measures of Similarity	7,260,248
Methods and Apparatus for Processing Spectral Data for use in Tissue Characterization	7,282,723
Methods and apparatus for characterization of tissue samples	7,309,867
Fluorescent fiberoptic probe for tissue health discrimination	7,310,547
Methods and Systems for Correcting Image Misalignment	7,406,215
Unique Methods of Calibrating Spectral Data	7,459,696
Unique Methods and Apparatus for Evaluation of Image Focus	7,469,160

An additional 18 patent applications are pending. The above patents expire between 2015 and 2022. In total, more than 500 valid claims have been granted covering a broad range of technology and methods. Foreign rights have further been secured for many of the most important patents.

SpectraScience believes that it holds the single largest patent portfolio of its kind in the field of optical methods for identifying tissue abnormalities, particularly for identifying cancer and its precursors. The Company also believes that its portfolio will protect the core technology and methods embodied in the WavSTAT System and for many of its foreseeable product extensions and will create a substantial barrier to entry for others pursuing similar approaches.

### *Core Areas of Patent Protection*

More specifically, SpectraScience's portfolio provides protection in the following key technology, design and methods areas:

- Localized tissue characterization using optical methods;
- Specific application of fluorescence and broadband spectroscopy, and video imaging, particularly in combination;
- Designs and use of a disposable sheath, particularly in combination with systems and methods, including use of unique identifiers;
- Algorithmic methods specific to optical assessment of tissue characteristics, particularly involving identification, classification and calibration methods;
- Clinical applications of these methods and systems for identifying tissue characteristics, including use of display methods, marking methods (including biomarkers), and in combination with treatment; and
- Applications to further system development, including applications for screening, treatment and other fields beyond cervical cancer.

SpectraScience holds registered trademarks for the WavSTAT System and SpectraScience documents, and software and graphics are protected by appropriate copyrights.

SpectraScience's ability to obtain and maintain patent protection for its products, preserve its trade secrets and operate without infringing on the proprietary rights of others will directly affect the success the Company's operations. The Company's strategy regarding the protection of its proprietary intellectual property and innovations is to seek patents on those portions of its technology that management believes are patentable, to obtain copyrights for its software if appropriate, and to protect as trade secrets other confidential information and proprietary know-how. There are certain technological aspects of the WavSTAT Systems that are not covered by any patents or patent applications. SpectraScience seeks to protect its trade secrets and proprietary know-how by obtaining confidentiality and invention assignment agreements in connection with employment, consulting and advisory relationships.

Our ability to obtain and maintain patent protection for our products, preserve our trade secrets and operate without infringing on the proprietary rights of others will directly affect how successful our operations will be. Our strategy regarding the protection of our proprietary rights and innovations is to seek patents on those portions of our technology that we believe are patentable, and to protect as trade secrets other confidential information and proprietary know-how.

The patent and trade secret positions of medical device companies like SpectraScience are uncertain and involve complex and evolving legal and factual questions. To date, no claims have been brought against SpectraScience alleging that our technology or products infringe intellectual property rights of others. Often, patent and intellectual property disputes in the medical device industry are settled through licensing or similar arrangements. However, necessary licenses from other parties may not be available to us on satisfactory terms, if at all. The costs associated with such arrangements may be substantial and could include ongoing royalties.

United States patent applications are secret until patents are issued or corresponding foreign applications are published in other countries. Since publication of discoveries in the scientific or patent literature often lags behind actual discoveries, management cannot be certain that SpectraScience was the first to invent the inventions covered by each of its pending patent applications, or that it was the first to file patent applications for such inventions. In addition, the laws of some foreign countries do not provide the same degree of intellectual property rights protection as do the laws of the United States. Litigation associated with patent or intellectual property infringement or protection can be lengthy and prohibitively costly. There can be no assurance that SpectraScience would have the financial resources to defend its patents from infringement or claims of invalidity, or to successfully defend itself against intellectual property infringement claims by third parties.

### *Product Liability*

The risk of product liability claims, product recalls and associated adverse publicity is inherent in the testing, manufacturing, marketing and sale of medical products. We have clinical trial liability insurance coverage for our clinical programs. There can be no assurance that future insurance coverage will be adequate or available. We may not be able to secure product liability insurance coverage on acceptable terms or at reasonable costs when needed. Any liability damages could exceed the amount of our coverage. A successful product liability claim against us could require us to pay a substantial monetary award. Moreover, a product recall could generate substantial negative publicity about our products and business and inhibit or prevent commercialization of other future products.

### *Employees*

As of March 25, 2011, SpectraScience had six full-time employees, with three involved with manufacturing/engineering, one in sales and marketing and two engaged in finance and administration. The Company's payroll is administered through an independent third party. SpectraScience is not subject to any collective bargaining agreement and management believes that employee relations are generally satisfactory.

SpectraScience relies on external consultants in the financial, regulatory, software development and design engineering areas. When management determines to increase our workforce in response to improved economic, market, and/or business conditions, we may not be able to attract or retain employees with the skills we require.

#### ITEM 1A. RISK FACTORS.

We describe below a number of uncertainties and risks which, in addition to uncertainties and risks presented elsewhere in this annual report, may adversely affect our business, operating results and financial condition. The uncertainties and risks enumerated below as well as those presented elsewhere in this annual report should be considered carefully in evaluating our company and our business and the value of our securities.

#### **RISKS RELATED TO OUR BUSINESS**

***We have a limited operating history with significant losses and expect losses to continue for the foreseeable future.***

We have yet to establish any history of profitable operations. We have incurred annual operating losses of approximately \$4,098,000 and \$4,437,000, respectively, during the past two years of operations. As a result, at December 31, 2010 we had an accumulated deficit of approximately \$24,770,000. We have incurred net losses from continuing operations of approximately \$4,098,000 and \$4,432,000 for the fiscal years ending 2010 and 2009, respectively. Our revenues have not been sufficient to sustain our operations and we expect that they will be insufficient to sustain our operations for the foreseeable future. Our failure to generate meaningful revenues and ultimately profits from the WavSTAT System and applications of our technology could force us to raise additional capital which may not be available or available on acceptable terms. This could ultimately reduce or suspend our operations and ultimately cause us to go out of business. Our profitability will require the successful commercialization of our imaging systems and no assurances can be given when this will occur or if we will ever be profitable.

***We will require additional financing to sustain our operations and without it, we may not be able to continue operations.***

At December 31, 2010, we had a working capital balance of approximately \$4,001,000. We had an operating cash flow deficit of approximately \$2,328,000 for the fiscal year ended December 31, 2010 and an operating cash flow deficit of approximately \$2,463,000 in 2009. We may not have sufficient financial resources to fund our operations and will likely require additional funds to continue our operations.

***We may face intense competition from companies that have greater financial, personnel and research and development resources.***

Competitive forces may impact our projected growth and ability to generate revenues and profits, which would have a negative impact on our business and the price of our common stock. Our competitors may be developing products that compete with the WavSTAT Systems. Our commercial opportunities would then be reduced or eliminated should our competitors develop and market products for any of the diseases that we target that are more effective or are less expensive than the products or product candidates we are developing.

Even if we are successful in developing effective WavSTAT System, and we obtain FDA and other regulatory approvals necessary for commercialization, our products may not compete effectively with other successful products. Researchers are continually learning more about diseases, which may lead to new technologies and tools for analysis.

Our competitors include fully integrated medical device companies, universities and public and private research institutions. Many of the organizations competing with us may have substantially greater capital resources, larger research and development staffs and facilities, greater experience in product development and in obtaining regulatory approvals, and greater marketing capabilities than we do.

The market for medical devices is intensely competitive. Many of our potential competitors have longer operating histories, greater name recognition, more employees, and significantly greater financial, technical, marketing, public relations, and distribution resources than we have. This intense competitive environment may require us to make changes in our products, pricing, licensing, services or marketing to develop, maintain and extend our current technology. Price concessions or the emergence of other pricing or distribution strategies of competitors may diminish our revenues, adversely impact our margins or lead to a reduction in our market share, any of which may harm our business.

***Our WavSTAT System technology may become obsolete.***

Our WavSTAT System products may be made unmarketable by new scientific or technological developments where new treatment modalities are introduced that are more efficacious or more economical. Any one of our competitors could develop a more effective product which would render our technology obsolete.

***Our inability to attract and retain qualified personnel could impede our ability to generate revenues and profits and to otherwise implement our business plan and growth strategies, which would have a negative impact on our business and could adversely affect the price of our common stock.***

We currently have a staff of six full time employees, consisting of, among others, our Chief Executive Officer, Chief Financial Officer, Director of Sales and Marketing and Chief Engineer Director, as well as administrative employees and other personnel retained on a contract basis. Although we believe that these employees, together with the consultants currently engaged by the Company, will be able to handle most of our additional administrative, research and development and business development in the near term, we will nevertheless be required over the longer-term to hire highly skilled managerial, scientific and administrative personnel to fully implement our business plan and growth strategies. We cannot assure you that we will be able to engage the services of such qualified personnel at competitive prices or at all, particularly given the risks of employment attributable to our limited financial resources and lack of an established track record.

***We plan to grow very rapidly, which will place strains on our management team and other company resources to both implement more sophisticated managerial, operational and financial systems, procedures and controls and to train and manage the personnel necessary to implement those functions. Our inability to manage our growth could impede our ability to generate revenues and profits and to otherwise implement our business plan and growth strategies, which would have a negative impact on our business.***

We will need to significantly expand our operations to implement our longer-term business plan and growth strategies. We will also be required to manage multiple relationships with various strategic partners, technology licensors, customers, manufacturers and suppliers, consultants and other third parties. This expansion and these expanded relationships will require us to significantly improve or replace our existing managerial, operational and financial systems, procedures and controls; to improve the coordination between our various corporate functions; and to manage, train, motivate and maintain a growing employee base. The time and costs to effectuate these steps may place a significant strain on our management personnel, systems and resources, particularly given the limited amount of financial resources and skilled employees that may be available at the time. We cannot assure you that we will institute, in a timely manner or at all, the improvements to our managerial, operational and financial systems, procedures and controls necessary to support our anticipated increased levels of operations and to coordinate our various corporate functions, or that we will be able to properly manage, train, motivate and retain the anticipated increased number of employees.

***We may have difficulty in developing and retaining an effective sales force or in obtaining effective distribution partners and may not be able to achieve sufficient revenues to effect our business plan.***

The market for skilled sales and marketing personnel is highly competitive and specialized. If we are unable to hire and retain skilled and knowledgeable sales people it may negatively impact our ability to introduce our products or generate revenue sufficient to affect our future business plans. In addition, our inability to develop business relationships with key technical distributors may also negatively impact our ability to successfully market our products.

***We may have difficulty in attracting and retaining management and outside independent members to our Board of Directors as a result of their concerns relating to their increased personal exposure to lawsuits and shareholder claims by virtue of holding these positions in a publicly held company.***

The directors and management of publicly traded corporations are increasingly concerned with the extent of their personal exposure to lawsuits and shareholder claims, as well as governmental and creditor claims which may be made against them, particularly in view of recent changes in securities laws imposing additional duties, obligations and liabilities on management and directors. Due to these perceived risks, directors and management are also becoming increasingly concerned with the availability of directors and officers liability insurance to pay on a timely basis the costs incurred in defending such claims. We currently carry directors and officers liability insurance, but such insurance is expensive and can be difficult to obtain. If we are unable to obtain directors and officers liability insurance at affordable rates or at all in the future, it may become increasingly more difficult to attract and retain qualified outside directors to serve on our board of directors. The fees of directors are also rising in response to their increased duties, obligations and liabilities as well as increased exposure to such risks. As a company with a limited operating history and limited resources, we will have a more difficult time attracting and retaining management and outside independent directors than a more established company due to these enhanced duties, obligations and liabilities.

***If we fail to comply with extensive regulations enforced by domestic and foreign regulatory authorities, the commercialization of our products could be prevented or delayed.***

Our WavSTAT Systems are subject to extensive government regulations related to development, testing, manufacturing and commercialization in the United States and other countries. The determination of when and whether a product is ready for large scale purchase and potential use will be made by the government through consultation with a number of governmental agencies, including the FDA, the National Institutes of Health, and the Centers for Disease Control and Prevention. Some of our product candidates are in the clinical stages of development and have not received required regulatory approval from the FDA for the esophageal or lung applications we hope to commercially market. The process of obtaining and complying with the FDA and other governmental regulatory approvals and regulations is costly, time consuming, uncertain and subject to unanticipated delays. Despite the time and expense incurred, regulatory approval is never guaranteed. We also are subject to the following risks and obligations, among others:

- The FDA may refuse to approve an application if they believe that applicable regulatory criteria are not satisfied;
- The FDA may require additional testing for safety and effectiveness;
- The FDA may interpret data from pre-clinical testing and clinical trials in different ways than us;

- If regulatory approval of a product is granted, the approval may be limited to specific indications or limited with respect to its distribution; and
- The FDA may change their approval policies and/or adopt new regulations.

Failure to comply with these or other regulatory requirements of the FDA may subject us to administrative or judicially imposed sanctions, including:

- Warning letters;
- Civil penalties;
- Criminal penalties;
- Injunctions;
- Product seizure or detention;
- Product recalls; and
- Total or partial suspension of production.

***Delays in successfully completing our clinical trials could jeopardize our ability to obtain regulatory approval or market our WavSTAT System candidates on a timely basis.***

Our business prospects will depend on our ability to complete clinical trials, obtain satisfactory results, obtain required regulatory approvals and successfully commercialize our WavSTAT System product candidates. Completion of our clinical trials, announcement of results of the trials and our ability to obtain regulatory approvals could be delayed for a variety of reasons, including:

- Unsatisfactory results of any clinical trial;
- The failure of principal third-party investigators to perform clinical trials on our anticipated schedules; and
- Different interpretations of pre-clinical and clinical data, which could initially lead to inconclusive results.

***Our development costs will increase if we have material delays in any clinical trial or if we need to perform more or larger clinical trials than planned.***

If clinical trial delays are significant, or if any of our WavSTAT System product candidates do not prove to be safe or effective or do not receive required regulatory approvals, our financial results and the commercial prospects for our product candidates will be harmed. Furthermore, our inability to complete our clinical trials in a timely manner could jeopardize our ability to obtain regulatory approval.

***The independent clinical investigators that we rely upon to conduct our clinical trials may not be diligent, careful or timely, and may make mistakes, in the conduct of our clinical trials.***

We depend on independent clinical investigators to conduct our clinical trials. The investigators are not our employees, and we cannot control the amount or timing of resources that they devote to our product development programs. If independent investigators fail to devote sufficient time and resources to our product development programs, or if their performance is substandard, it may delay FDA approval of our products. These independent investigators may also have relationships with other commercial entities, some of which may compete with us. If these independent investigators assist our competitors at our expense, it could harm our competitive position.

***Our product development efforts may not yield marketable products due to results of studies or trials, failure to achieve regulatory approvals or market acceptance, proprietary rights of others or manufacturing issues.***

Our success depends on our ability to successfully develop and obtain regulatory approval to market new products. We expect that a significant portion of the research that we will conduct will involve new and unproven technologies. Development of a product requires substantial technical, financial and human resources even if the product is not successfully completed.

Potential products may appear to be promising at various stages of development yet fail to reach the market for a number of reasons, including the:

- Lack of adequate quality or sufficient prevention benefit, or unacceptable safety during pre-clinical studies or clinical trials;
- Failure to receive necessary regulatory approvals;
- Existence of proprietary rights of third parties; and/or
- Inability to develop manufacturing methods that are efficient, cost-effective and capable of meeting stringent regulatory standards.

***Our inability to protect our intellectual property rights could negatively impact our projected growth and ability to generate revenues and profits, which would have a negative impact on our business.***

We rely on a combination of patent, patent pending, copyright, trademark and trade secret laws, proprietary rights agreements and non-disclosure agreements to protect our intellectual properties. These measures may not prove to be effective in protecting our intellectual properties.

In the case of patents, our existing patents may be invalidated, any patents that we currently or prospectively apply may not be granted, or any of these patents may not ultimately provide significant commercial benefits. Further, competing companies may circumvent any patents that we may hold by developing products which closely emulate but do not infringe our patents. While we currently have and intend to seek patent protection for our products in selected foreign countries, those patents may not receive the same degree of protection as they would in the United States. We may not be able to successfully defend our patents and proprietary rights in any action we may file for patent infringement. Similarly, we may be required to defend litigation involving the patents or proprietary rights of others, or we may be able to obtain licenses for these rights. Legal and accounting costs relating to prosecuting or defending patent infringement litigation may be substantial.

The WavSTAT System is protected by eight issued patents, in the United States, Canada, Europe and Japan, which we own, and one additional patent for which we own the exclusive license. We also have 34 patents related to the LUMA technology, which provides for additional light-based cancer detection and diagnostic applications for use in future products.

We also rely on proprietary designs, technologies, processes and know-how not eligible for patent protection. Our competitors may independently develop the same or superior designs, technologies, processes and know-how.

While we have and will continue to enter into proprietary rights agreements with our employees and third parties giving us proprietary rights to certain technology developed by those employees or parties while engaged by the Company, courts of competent jurisdiction may not enforce those agreements.

***The patents we own comprise a large portion of our assets, which could limit our financial viability.***

The WavSTAT System is protected by eight issued patents, in the United States, Canada, Europe and Japan, and an additional patent for which we own an exclusive license. One of the eight patents has lapsed for failure to pay maintenance fees, and we are in the process of reinstating the patent. We may not be successful in reinstating the patent. In addition, our LUMA System is the subject of 34 issued patents. These patents comprise approximately 38% of our assets at December 31, 2010. If our existing patents are invalidated or if they fail to provide significant commercial benefits, it will severely hurt our financial condition, as a significant percentage of our assets would lose their value. Further, since our patents are amortized over the course of their term until they expire, our assets comprised of patents will systemically be written down to zero.

***Legislative actions and potential new accounting pronouncements are likely to impact our future financial position and results of operations.***

Compliance with publicly-traded company regulations adversely impacts our resources. As a publicly-traded company, we are subject to rules and regulations that increase our legal and financial compliance costs, make some activities more time-consuming and costly, and divert our management's attention away from the operation of our business. We are obligated to file with the U.S. Securities and Exchange Commission, or the SEC, annual and quarterly information and other reports that are specified in the Securities Exchange Act of 1934, or the Exchange Act, and are also subject to other reporting and corporate governance requirements, including requirements of the Sarbanes-Oxley Act of 2002, and the rules and regulations promulgated thereunder, which impose significant compliance and reporting obligations upon us. We may not be successful in complying with these obligations, and compliance with these obligations could be time consuming and expensive. Failure to comply with the additional reporting and corporate governance requirements could lead to fines imposed on us, deregistration under the Exchange Act and, in the most egregious cases, criminal sanctions could be imposed.

***Our products may be subject to recall or product liability claims.***

Our WavSTAT System products may be used in connection with medical procedures in which it is important that those products function with precision and accuracy. If our products do not function as designed, or are designed improperly, we may be forced by regulatory agencies to withdraw such products from the market. In addition, if medical personnel or their patients suffer injury as a result of any failure of our products to function as designed, or an inappropriate design, we may be subject to lawsuits seeking significant compensatory and punitive damages. Any product recall or lawsuit seeking significant monetary damages may have a material effect on our business and financial condition.

***We have not paid any cash dividends and no cash dividends will be paid in the foreseeable future.***

We do not anticipate paying cash dividends on our Common Stock in the foreseeable future, and we cannot assure an investor that funds will be legally available to pay dividends or that even if the funds are legally available, that the dividends will be paid.

### **RISKS RELATED TO OUR CAPITAL STOCK**

***The application of the “penny stock” rules could adversely affect the market price of our Common Stock and increase your transaction costs to sell your stock.***

As long as the trading price of our Common Stock is below \$5 per share, the open-market trading of our Common Stock will be subject to the “penny stock” rules. The “penny stock” rules impose additional sales practice requirements on broker-dealers who sell securities to persons other than established customers and accredited investors (generally those with assets in excess of \$1,000,000 or annual income exceeding \$200,000 or \$300,000 together with their spouse). For transactions covered by these rules, the broker-dealer must make a special suitability determination for the purchase of securities and have received the purchaser’s written consent to the transaction before the purchase. Additionally, for any transaction involving a penny stock, unless exempt, the broker-dealer must deliver, before the transaction, a disclosure schedule prescribed by the SEC relating to the penny stock market. The broker-dealer also must disclose the commissions payable to both the broker-dealer and the registered representative and current quotations for the securities. Finally, monthly statements must be sent disclosing recent price information on the limited market in penny stocks. These additional burdens imposed on broker-dealers may restrict the ability or decrease the willingness of broker-dealers to sell our Common Stock, and may result in decreased liquidity for our Common Stock and increased transaction costs for sales and purchases of our Common Stock as compared to other securities.

***Our common stock is thinly traded, so investors may be unable to sell at or near ask prices or at all.***

Our Common Stock has historically been sporadically or “thinly-traded”, meaning that the number of persons interested in purchasing our Common Stock at or near ask prices at any given time may be relatively small or non-existent. As of March 25, 2011, our average trading volume per day for the past three months was approximately 83,000 shares a day with a high of 647,500 shares traded and a low of 0 shares traded per day. This situation is attributable to a number of factors, including the fact that we are a small company which is relatively unknown to stock analysts, stock brokers, institutional investors and others in the investment community that generate or influence sales volume, and that even if we came to the attention of such persons, they tend to be risk-averse and would be reluctant to follow an unproven company such as ours or purchase or recommend the purchase of our shares until such time as we became more seasoned and viable. As a consequence, there may be periods of several days or more when trading activity in our shares is minimal or non-existent, as compared to a seasoned issuer which has a large and steady volume of trading activity that will generally support continuous sales without an adverse effect on share price. A broader or more active public trading market for our Common Stock may not develop or be sustained, and current trading levels may not be sustained.

***The market price for our Common Stock is particularly volatile, given our status as a relatively unknown company with a small and thinly-traded public float, limited operating history and lack of revenues which could lead to wide fluctuations in our share price.***

The market for our Common Stock is characterized by significant price volatility when compared to seasoned issuers, and we expect that our share price will continue to be more volatile than a seasoned issuer for the foreseeable future. In fact, during the 90-day period ended March 25, 2011, the high and low closing prices of a share of our Common Stock were \$0.15 and \$0.08, respectively. The volatility in our share price is attributable to a number of factors. First, as noted above, our stock is sporadically and/or thinly-traded. As a consequence of this lack of liquidity, the trading of relatively small quantities of shares by our shareholders may disproportionately influence the price of those shares in either direction. The price for our shares could, for example, decline precipitously in the event that a large number of our shares are sold on the market without commensurate demand, as compared to a seasoned issuer which could better absorb those sales without adverse impact on its share price. Secondly, we are a speculative or “risky” investment due to our limited operating history and lack of revenues or profits to date and uncertainty of future market acceptance for our potential products. As a consequence of this enhanced risk, more risk-averse investors may, under the fear of losing all or most of their investment in the event of negative news or lack of progress, be more inclined to sell their shares on the market more quickly and at greater discounts than would be the case with the stock of a seasoned issuer. The following factors may add to the volatility in the price of our Common Stock: actual or anticipated variations in our quarterly or annual operating results; acceptance of our proprietary technology; government regulations, announcements of significant acquisitions, strategic partnerships or joint ventures; our capital commitments; and additions or departures of our key personnel. Many of these factors are beyond our control and may decrease the market

price of our Common Stock, regardless of our operating performance. We cannot make any predictions or projections as to what the prevailing market price for our Common Stock will be at any time, including as to whether our Common Stock will sustain its current market prices, or as to what effect that the sale of shares or the availability of Common Stock for sale at any time will have on the prevailing market price.

***The market for penny stocks such as ours has been subject to fraud and abuse and may cause our stock price to be more volatile.***

Shareholders should be aware that, according to SEC Release No. 34-29093, the market for penny stocks has suffered in recent years from patterns of fraud and abuse. Such patterns include (1) control of the market for the security by one or a few broker-dealers that are often related to the promoter or issuer; (2) manipulation of prices through prearranged matching of purchases and sales and false and misleading press releases; (3) boiler room practices involving high-pressure sales tactics and unrealistic price projections by inexperienced sales persons; (4) excessive and undisclosed bid-ask differential and markups by selling broker-dealers; and (5) the wholesale dumping of the same securities by promoters and broker-dealers after prices have been manipulated to a desired level, along with the resulting inevitable collapse of those prices and consequent investor losses. Our management is aware of the abuses that have occurred historically in the penny stock market. Although we do not expect to be in a position to dictate the behavior of the market or of broker-dealers who participate in the market, management will strive within the confines of practical limitations to prevent the described patterns from being established with respect to our securities. The occurrence of these patterns or practices could increase the volatility of our share price. In addition, potential dilutive effects of future sales of shares of Common Stock by shareholders and by the Company could have an adverse effect on the market price of our shares.

***Volatility in our Common Stock price may subject us to securities litigation.***

The market for our Common Stock is characterized by significant price volatility when compared to seasoned issuers, and we expect that our share price will continue to be more volatile than a seasoned issuer for the indefinite future. In the past, plaintiffs have sometimes initiated securities class action litigation against a company following periods of volatility in the market price of its securities. We may in the future be the target of similar litigation. Securities litigation could result in substantial costs and liabilities and could divert management's attention and resources.

***A large number of shares of Common Stock are issuable upon exercise of outstanding options and the exercise of these securities could result in the substantial dilution of the investment of other shareholders in terms of percentage ownership in the Company as well as the book value of the Common Stock.***

As of March 25, 2011, there are outstanding Common Stock purchase options entitling the holders to purchase 15,295,000 shares of Common Stock at a weighted average exercise price of \$0.20 per share (3,366,667 of these shares are exercisable within 60 days of March 25, 2011). The exercise price for all of the options may be less than the cost to acquire our Common Stock. In addition, the holders of the common stock purchase options may sell Common Stock in tandem with their exercise of those options to finance that exercise, or may resell the shares purchased in order to cover any income tax liabilities that may arise from their exercise of the options, which could substantially depress the prevailing market price of our stock.

***Our issuance of additional common stock, or options to purchase our common stock, would dilute the proportionate ownership and voting rights of shareholders.***

We are entitled under our articles of incorporation to issue up to 225,000,000 shares of capital stock which includes 175,000,000 shares of Common Stock, 3,585,000 shares of Preferred Stock and 46,415,000 undesignated shares. Our undesignated shares may be designated as in a senior position to our Common Stock. After taking into consideration our outstanding Common Stock at March 25, 2011, we will be entitled to issue up to 20,059,399 additional shares of Common Stock (175,000,000 authorized less 108,041,095 common shares outstanding, 3,585,000 shares for issuance upon conversion of Preferred Stock, 17,695,000 shares reserved for issuance of stock options, 25,247,660 shares reserved for issuance of Common Stock purchase warrants and 371,846 shares of Common Stock issued for payment of cumulative preferred dividends) and up to 46,415,000 shares of undesignated capital stock. Our board of directors may generally issue stock, or options or warrants to purchase those shares, without further approval by our shareholders based upon such factors as our board of directors may deem relevant at that time. It is likely that we will be required to issue a large amount of additional securities to raise capital to further our development. It is also likely that we will be required to issue a large amount of additional securities to directors, officers, employees and consultants as compensatory grants in connection with their services, both in the form of stand-alone grants or under our stock plans. We may not be able to issue additional shares of Common Stock, or options or warrants to purchase those shares, under circumstances we may deem appropriate at the time.

***The limitation of monetary liability of our directors, officers and employees under our articles of incorporation and the indemnification rights of our directors, officers, consultants and employees may result in substantial expenditures by us and may discourage lawsuits against our directors, officers, consultants and employees.***

Our articles of incorporation contain provisions which eliminate the liability of our directors and officers for monetary damages to the Company and shareholders. Our bylaws also require us to indemnify our officers and directors. We may also have contractual indemnification obligations under our agreements with our directors, officers, consultants and employees. The foregoing indemnification obligations could result in the Company incurring substantial expenditures to cover the cost of settlement or damage awards against directors, officers, consultants and employees, which we may be unable to recoup. These provisions and resultant costs may also discourage us from bringing a lawsuit against directors, officers, consultants and employees for breaches of their fiduciary duties, and may similarly discourage the filing of derivative litigation by our shareholders against our directors, officers, consultants and employees even though such actions, if successful, might otherwise benefit the Company and shareholders.

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*Anti-takeover provisions may impede the acquisition of the Company.*

Certain provisions of the Minnesota Business Corporation Act and other Minnesota laws have anti-takeover effects and may inhibit a non-negotiated merger or other business combination. These provisions are intended to encourage any person interested in acquiring us to negotiate with, and to obtain the approval of, our board of directors in connection with such a transaction. However, certain of these provisions may discourage a future acquisition of the Company, including an acquisition in which the shareholders might otherwise receive a premium for their shares. As a result, shareholders who might desire to participate in such a transaction may not have the opportunity to do so.

ITEM 1B. UNRESOLVED STAFF COMMENTS.

None

ITEM 2. PROPERTIES.

SpectraScience leases its principal facility from an unrelated third party. The facility is located at 11568-11 Sorrento Valley Road, San Diego, California 92121, and is well maintained and approved by the FDA for manufacturing. The facility consists of approximately 5,080 square feet of office, research and development, manufacturing, quality testing, and warehouse space. The lease provides for monthly rental payments of \$4,318 through December 2011, plus a pro rata share of operating expense and real estate taxes (approximately \$972 per month). We believe that our present facility is adequate for our needs for the foreseeable future. In the event of the termination of this lease, we believe that we could lease other acceptable space on a comparable basis.

ITEM 3. LEGAL PROCEEDINGS.

We are not currently a party to any legal proceedings.

ITEM 4. (REMOVED AND RESERVED)

## PART II

### ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED SHAREHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

#### Market Information

Our Common Stock is quoted on the OTCQB under the symbol SCIE.QB. The last reported bid price of the Common Stock on March 25, 2011 was \$0.10

The following table sets forth for the calendar period indicated; the quarterly high and low bid prices of our Common Stock as reported by the OTCBB, the bulletin board on which our common stock was traded during fiscal years 2010 and 2009. The prices represent quotations between dealers, without adjustment for retail markup, markdown or commission, and do not necessarily represent actual transactions.

PERIOD	BID PRICE	
	HIGH	LOW
2010:		
Fourth Quarter	\$ 0.25	\$ 0.11
Third Quarter	0.27	0.14
Second Quarter	0.35	0.21
First Quarter	0.47	0.29
2009:		
Fourth Quarter	\$ 0.50	\$ 0.31
Third Quarter	1.77	0.25
Second Quarter	0.75	0.18
First Quarter	0.35	0.15

On March 25, 2011 we had approximately 850 registered shareholders of record of the 108,041,084 shares of our common stock.

To date, we have not declared or paid cash dividends on our common stock. The current policy of the board of directors is to retain any earnings to fund the development and growth of our business. Any future determination to pay cash dividends will be at the discretion of our board of directors, and will be dependent upon our financial condition, results of operations, capital requirements and other factors our board may deem relevant at the time.

#### Recent Sales of Unregistered Securities

##### **Year Ended December 31, 2010**

###### *Common Stock*

From January through July 2010, the Company issued 385,000 restricted shares of Common Stock to a vendor for services. The fair value of the shares was determined to be \$110,600, and the Company recognized expense in the amount of \$110,600, based upon the market value of the stock on the date of issuance. This transaction was deemed to be exempt from the registration requirements of the Securities Act of 1933 pursuant to Section 4(2) of the Securities Act of 1933, as the transaction involved an issuance of our Common Stock to a single party and did not involve any public offering.

In April 2010, the Company issued 225,170 shares of Common Stock to current and former holders of Series B Convertible Preferred Stock, pursuant to a dividend declaration on the Series B Convertible Preferred Stock. The fair value of the shares was determined to be \$90,068, based upon the market value of the Common Stock on December 31, 2009, the date the dividends were determined. This transaction was deemed to be exempt from the registration requirements of the Securities Act of 1933 pursuant to Section 4(2) of the Securities Act of 1933, as the transaction did not involve any public offering.

In August 2010, the Company issued 589 shares of Common Stock to current and former holders of Series B Convertible Preferred Stock, pursuant to a dividend declaration on the Series B Convertible Preferred Stock. The fair value of the shares was determined to be \$235, based upon the market value of the Common Stock on December 31, 2009, the date the dividends were determined. This transaction was deemed to be exempt from the registration requirements of the Securities Act of 1933 pursuant to Section 4(2) of the Securities Act of 1933, as the transaction did not involve any public offering.

From August through December 2010, the Company issued 60,000 restricted shares of Common Stock to a vendor for services. The fair value of the shares was determined to be \$9,150, and the Company recognized expense in the amount of \$9,150, based upon the market value of the stock on the date of issuance. This transaction was deemed to be exempt from the registration requirements of the Securities Act of 1933 pursuant to Section 4(2) of the Securities Act of 1933, as the transaction involved an issuance of our Common Stock to a single party and did not involve any public offering.

#### *Securities Authorized for Issuance Under Equity Compensation Plans*

Please see Item 12 in this annual report on Form 10-K for information regarding our securities authorized for issuance under equity compensation plans.

#### ITEM 6. SELECTED FINANCIAL DATA

Not required.

#### ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis provides information that management believes is relevant to assess and understand our results of operations and financial condition. This discussion should be read in conjunction with the consolidated financial statements and footnotes that follow such consolidated financial statements.

Certain statements contained in this Annual Report on Form 10-K, including in this Item 7, that are not related to historical results, including, without limitation, statements regarding the Company's business strategy and objectives, near term operating goals, our expectations regarding the market for our products and beliefs with respect to opportunities and industry conditions in those markets, our beliefs about our products and expectations with respect to their performance and acceptance, regulatory developments, our beliefs about our employees, our beliefs and intentions with respect to intellectual property, our beliefs with respect to reimbursement, our beliefs and expectations regarding competition, our future financial position, our expectations regarding future stock issuances, stock option exercises and potential dilution, our expectations with respect to future cash needs and the sufficiency of our working capital, and estimated cost savings, are forward-looking statements and involve risks and uncertainties. Although we believe that the assumptions on which these forward-looking statements are based are reasonable, such assumptions may not prove to be accurate and actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, changes in law or regulatory policies, unanticipated competition from other similar businesses, adverse outcomes from litigation, unexpected employee departures or disruptions, adverse market and general economic factors and other factors described in Item 1A of this Form 10-K. All forward-looking statements contained in this Form 10-K are qualified in their entirety by this statement.

#### Plan of Operation

The Company currently has FDA approval to market the WavSTAT System for detecting pre-cancerous and cancerous tissue in the colon. Our plan is to add another indication for use in detecting pre-cancer and cancer in the esophagus. Over the next 12 months, SpectraScience intends to:

- Establish a strategic distribution partnership preferably with a large endoscope manufacturer continue selling the WavSTAT System in international markets for the detection and treatment of colon cancer and pre-cancer;
- Continue WavSTAT System clinical trials related to the diagnosis of esophageal cancers with an updated WavSTAT System;
- Begin marketing and selling the WavSTAT System in targeted international markets for the detection of colon cancer and pre-cancer;
- Enhance our San Diego facility and grow our organization to allow for the manufacturing of WavSTAT Systems in-house and also to begin the design and planning for the next generation of multi-modal fluorescence and broadband spectroscopy systems;
- Begin the process of incorporating some of the LUMA multi-modal light-based detection and diagnostic capabilities into a future generation of WavSTAT System.

#### *Cash Requirements*

SpectraScience expects to incur significant additional operating losses through 2011, as we complete proof of concept trials, continue with outcome-based clinical studies, continue research and development activities, and ramp up sales and marketing efforts to sell the WavSTAT Systems. We may incur unexpected expenses, or we may not be able to meet our revenue forecast, and such events will require us to seek additional capital.

SpectraScience has financed its capital requirements principally through the private sale of equity securities. The Company had cash, cash equivalents and short-term certificates of deposit of approximately \$3,764,000 at December 31, 2010 and \$3,408,000 at December 31, 2009. The approximate \$356,000 increase in cash for the fiscal year was a result of net cash proceeds of approximately \$2,700,000 from the sale of Series C Convertible Preferred Stock offset by approximately \$2,328,000 of cash used in operations and approximately \$15,000 related to acquisitions of equipment. We believe that the Company has sufficient working capital for planned operations for the next 12 months.

SpectraScience's future liquidity and capital requirements will depend upon a number of factors, including but not limited to:

- The timing and progress of proof-of-concept clinical trials;
- The timing and extent to which SpectraScience's products gain market acceptance;
- The timing and expense of developing marketing and strategic distribution channels;
- The progress and expense of developing next generation products and new applications for the WavSTAT Systems;
- The potential requirements and related costs for product modifications;
- The timing and expense of various U.S. and foreign regulatory filings;
- The maintenance of various U.S. and foreign government approvals, or the timing of receipt of additional approvals;
- The status, maintenance and enhancement of SpectraScience's patent portfolio; and
- The overall effect of the present global economic recession on the ability of the Company to generate sales revenue.

## **Results of Operations**

The following discussion should be read in conjunction with the consolidated Financial Statements and Notes thereto appearing elsewhere in this report.

### ***Comparison of years ended December 31, 2010 and December 31, 2009***

#### *Revenue and Grant Income*

The Company recognized approximate revenue of \$23,000 for the fiscal year ending December 31, 2010 as compared to approximate revenue of \$167,000 for the fiscal year ending December 31, 2009. The decrease was a result of difficulties associated with the marketing of our WavSTAT and LUMA Systems. Revenue for the fiscal year ending December 31, 2010 was comprised primarily of sales of forceps to existing customers. The Company also recognized \$359,690 of federal grant income as a result of its successful grant submissions for Qualifying Therapeutic Discovery Projects under Section 48D of the Internal Revenue Code. The Company does not expect to receive any additional funds from the federal Qualifying Therapeutic Discovery Project program.

#### *Cost of Revenue*

Cost of revenue decreased from approximately \$111,000 for the fiscal year ending December 31, 2009 to approximately \$13,000 for the fiscal year ending December 31, 2010. The decrease of \$98,000 was a result of the decrease in sales revenue as compared to the prior fiscal period.

#### *Operating Expenses*

Operating expenses were approximately \$4,468,000 (of which approximately \$288,000 was for non-cash stock-option compensation expense) for the fiscal year ended December 31, 2010, as compared to approximately \$4,493,000 (of which approximately \$696,000 was for non-cash compensation from stock options) for the comparable period one year ago. The net decrease of \$25,000 was comprised of an approximate \$61,000 decrease in research and development expenses, a \$22,000 decrease in general and administrative expenses offset by a \$58,000 increase in sales and marketing expenses. The overall decrease was a result of the Company's efforts to minimize cash expenditures while at the same time investing in sales and marketing efforts in Europe.

Research and development expenses decreased by approximately \$61,000 due to decreases of approximately \$204,000 in stock compensation expense and a \$70,000 decrease in clinical trials expense, offset by approximate increases of \$166,000 in inventory write-downs, \$28,000 of consulting expense and \$19,000 in other expenses. The Company continued to focus on minimizing cash expenditures. The decrease in stock compensation expense is due to some stock options fully vesting during 2009, as well as the Company's Common Stock price declining during 2010. The increase in asset impairment and inventory obsolescence expense is the result of management's analysis of the reduction in the fair

value of LUMA-related inventory assets. During the fiscal year ended December 31, 2010, the Company decided to focus on developing and marketing the WavSTAT System and to abandon attempts to market the LUMA Cervical Imaging System machines. The Company does retain the LUMA-related intellectual property which management believes will be valuable to incorporate into future generations of the WavSTAT System. The increase in consulting expense reflects management's preference to acquire technical expertise on an as-needed basis, as opposed to retaining engineers as employees.

General and administrative expenses decreased approximately \$22,000 due to approximate decreases of \$265,000 in stock compensation expense, \$27,000 in insurance expense and \$32,000 in other expenses offset by approximate increases of \$131,000 in investor relations expense, \$103,000 in payroll expense, \$47,000 in consulting expense and \$21,000 in travel expense. The decrease in stock compensation expense was due to some stock options fully vesting during 2009, as well as the Company's Common Stock price declining. The decrease in insurance expense was a result of a decrease in premiums as a result of a more favorable insurance market. The increase in investor relations expense, all of which was non-cash expense paid in restricted Common Stock, is a result of the Company retaining investor relations services. Payroll expenses increased as a result of the Company's Chief Executive Officer's salary being returned to its former base level as compared to the prior fiscal year. The increase in consulting expense reflects management's preference to acquire regulatory expertise on an as-needed basis, as opposed to retaining regulatory experts as full-time employees. Travel expense increased as a result of increased European travel related to our efforts to establish a distribution partnership with a large multi-national endoscope manufacturer.

Sales and marketing expenses increased by approximately \$58,000 as compared to the prior fiscal year. The increase was comprised of approximately \$61,000 in stock compensation expense, a \$59,000 increase in consulting expense, a \$13,000 increase in consulting expense and a \$15,000 increase in all other expenses offset by an approximate \$90,000 decrease in payroll expense. The increase in stock compensation expense is a result of the recapture of stock option expense in the prior comparative period a year ago due to the termination of certain sales employees early in fiscal 2009. The increase in consulting expense reflects management's preference to acquire European sales support expertise on an as-needed basis, as opposed to retaining sales support people as full-time employees. The decrease in payroll expense is a result of the termination of domestic sales employees in fiscal 2009.

#### *Other Income*

Other income, net decreased approximately \$5,000 due to relatively lower interest earnings on cash balances for the year as compared to the prior fiscal year.

#### *Liquidity and Capital Resources*

On December 31, 2010, the Company had cash and short-term certificate of deposit balances of approximately \$3,764,000 as compared with a cash balance of approximately \$3,408,000 at December 31, 2009, representing an increase of approximately \$356,000 in cash for the period. The cash balances increased primarily due to sales of Series C Convertible Preferred Stock and receipt of government grant funds offset by working capital used in operations. Historically, we have incurred minimal capital equipment expenditures and no large capital outlays are foreseen. We believe that the Company has sufficient working capital for planned operations for the next 12 months.

From April 29, 2010 through June 17, 2010, the Company sold 15,766,155 shares of Series C Convertible Preferred Stock to accredited investors at a price of \$0.20 per share for an aggregate consideration of approximately \$3,153,000. The Company received net cash proceeds of approximately \$2,700,000 after payment of agent fees and expenses of approximately \$453,000. The Series C Convertible Preferred Stock was sold as a component of a Units offering described in more detail in Note 8 to the consolidated financial statements.

In July 2010, the Company applied for several grants offered by the Federal Government through Qualifying Therapeutic Discovery Projects under Section 48D of the Internal Revenue Code. In November 2010, the Company was notified that the grants were accepted and in December 2010 we received approximately \$318,000 in cash as a result. In addition for the year ended December 31, 2010, we recognized additional grant income that was recorded as a receivable as of year end in an amount of approximately \$41,000.

We expect to incur significant additional operating losses through at least 2011, as we complete proof-of-concept trials, begin outcome-based clinical studies and increase sales and marketing efforts to commercialize the WavSTAT systems in Europe. If we do not receive sufficient funding, we may be unable to continue as a going concern. We may incur unknown expenses or we may not be able to meet our revenue forecast, and one or more of these circumstances would require us to seek additional capital. We may not be able to obtain equity capital or debt funding on terms that are acceptable. Even if the Company receives additional funding, such proceeds may not be sufficient to allow the Company to sustain operations until it attains profitability and positive cash flows from operations.

#### Off Balance Sheet Arrangements

The Company has no Off Balance Sheet arrangements.

#### Critical Accounting Policies and Estimates

This discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses and related disclosure of contingent assets and liabilities. On an on-going basis, we evaluate these estimates, including those related to intangibles, income taxes, financing operations, contingencies and litigation. We base our estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments

about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We have identified the policies below as critical to our business operations and the understanding of our results of operations. The impact and any associated risks related to these policies on our business operations is discussed throughout this Management's Discussion and Analysis of Financial Condition and Results of Operations where such policies affect our reported and expected financial results. Note that our preparation of this Report on Form 10-K requires us to make estimates and assumptions that affect the reported amount of assets and liabilities, disclosure of contingent assets and liabilities at the date of our consolidated financial statements, and the reported amount of revenue, if any, and expenses during the reporting period. Actual results may differ from those estimates.

#### *Revenue Recognition*

We recognize revenues when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price is fixed or determinable and collectability is reasonably assured. Revenue from the sale of our products is generally recognized when title and risk of loss transfers to the customer, the terms of which are generally free on board shipping point. We use customer purchase orders to determine the existence of an arrangement. We use shipping documents and third-party proof of delivery to verify that title has transferred. We assess whether the fee is fixed or determinable based upon the terms of the agreement associated with the transaction. To determine whether collection is probable, we assess a number of factors, including past transaction history with the customer and the creditworthiness of the customer.

#### *Accounting For Transactions Involving Stock Compensation*

We account for stock-based compensation under the provisions of FASB ASC Topic 718, *Compensation—Stock Compensation*, or ASC 718, which requires the measurement and recognition of compensation expense for all stock-based awards made to employees and directors based on estimated fair values on the grant date. We estimate the fair value of stock-based awards on the date of grant using the Black-Scholes-Merton option pricing model, or Black-Scholes model. These standards require us to expense employee stock options and other share-based payments. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period. These expenses amounted to approximately \$288,000 and \$696,000 for the years ended December 31, 2010 and 2009, respectively.

#### *Inventory Valuation*

We state our inventories at the lower of cost or market value, determined on a specific cost basis. We provide inventory allowances when conditions indicate that the selling price could be less than cost due to obsolescence and reductions in estimated future demand. We balance the need to maintain strategic inventory levels with the risk of obsolescence due to changing technology and customer demand levels. Unfavorable changes in market conditions may result in a need for additional inventory reserves that could adversely impact our gross margins. Conversely, favorable changes in demand could result in higher gross margins when we sell products.

#### *Valuation of Long-lived Assets*

Our long-lived assets consist of property and equipment and intangible assets. Equipment is carried at cost and is depreciated over the estimated useful lives of the assets, which are generally two to three years, and leasehold improvements are amortized over the lesser of the lease term or the estimated useful lives of the improvements. The straight-line method is used for depreciation and amortization. Equipment related to our LUMA Systems is not currently being depreciated but is reviewed for impairment at the end of each reporting period. In 2010, the equipment was fully written-off. Intangible assets consist of patents and trademarks, which are amortized using the straight-line method over the estimated useful lives of the assets. We do not capitalize external legal costs and filing fees associated with obtaining patents on our new discoveries. Acquired intellectual property is recorded at cost and is amortized over its estimated useful life. We believe the useful lives we assigned to these assets are reasonable. The Company assesses the recoverability of long-lived assets whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. These computations utilize judgments and assumptions inherent in management's estimate of future cash flows to determine recoverability of these assets. If management's assumptions about these assets were to change as a result of events or circumstances, the Company may be required to record an impairment loss. With respect to the Company's long-lived assets, the Company recorded impairment charges of approximately \$1,025,000 and \$761,000 for the years ended December 31, 2010 and 2009, respectively. The impairment charges noted are related to LUMA System assets. During the fiscal year ended December 31, 2010, management decided to focus its efforts on marketing the WavSTAT System and abandon pursuit of the commercialization of the LUMA Cervical Imaging System. For a variety of reasons that include the large size, the complexity, the difficulty of servicing and the lack of market acceptance of the LUMA System, the Company believed that it was in the best interest of the shareholders to focus its efforts on the WavSTAT System. Management does believe that it is important to retain the intellectual property related to the LUMA System for use in further generations of the WavSTAT System.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Not required.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

Consolidated audited financial statements for the years ended December 31, 2010 and 2009 are filed as part of this Form 10-K.

SpectraScience, Inc. and Subsidiary  
Consolidated Financial Statements  
Years Ended December 31, 2010 and 2009

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***Report of Independent Registered Public Accounting Firm***

To the Board of Directors and Shareholders  
SpectraScience, Inc.

We have audited the accompanying consolidated balance sheets of SpectraScience, Inc., and subsidiary as of December 31, 2010 and 2009, and the related consolidated statements of operations, shareholders' equity, and cash flows for the years then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of SpectraScience, Inc. and subsidiary as of December 31, 2010 and 2009, and the results of their operations and their cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

/s/ McGladrey & Pullen, LLP

Des Moines, Iowa  
March 31, 2011

SpectraScience, Inc. and Subsidiary  
Consolidated Balance Sheets  
December 31, 2010 and 2009

	<u>December 31,</u> 2010	<u>December 31,</u> 2009
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 1,764,803	\$ 3,408,237
Certificates of deposit	1,998,974	-
Accounts receivable	-	40,271
Inventories	491,133	405,675
Prepaid expenses and other current assets	69,384	195,568
Total current assets	<u>4,324,294</u>	<u>4,049,751</u>
Fixed assets, net	59,082	1,139,839
Patents, net	<u>2,666,417</u>	<u>2,915,984</u>
<b>TOTAL ASSETS</b>	<u><u>\$ 7,049,793</u></u>	<u><u>\$ 8,105,574</u></u>
<b>LIABILITIES AND SHAREHOLDERS' EQUITY</b>		
Current liabilities:		
Accounts payable	\$ 205,266	\$ 219,783
Accrued expenses	<u>117,569</u>	<u>167,475</u>
Total liabilities	<u>322,835</u>	<u>387,258</u>
<b>COMMITMENTS</b>		
<b>SHAREHOLDERS' EQUITY</b>		
Series B Convertible Preferred Stock, \$.01 par value:		
Authorized – 2,585,000 shares; shares issued and outstanding – 2,585,000 shares at December 31, 2010 (25,000,000 shares at December 31, 2009), liquidation value of \$517,000 and \$5,000,000 plus accumulated and unpaid dividends of \$106,931 and \$99,685 as of December 31, 2010 and 2009, respectively	25,850	250,000
Series C Convertible Preferred Stock, \$.01 par value:		
Authorized – 1,000,000 shares; shares issued and outstanding – 1,000,000 shares at December 31, 2010 (-0- shares at December 31, 2009), \$200,000 liquidation value	10,000	-
Common stock, \$.01 par value:		
Authorized — 175,000,000 shares		
Issued and outstanding—107,994,529 and 70,142,615 shares at December 31, 2010 and 2009, respectively	1,079,945	701,426
Additional paid-in capital	30,380,879	25,511,360
Accumulated deficit	<u>(24,769,716)</u>	<u>(18,744,470)</u>
<b>TOTAL SHAREHOLDERS' EQUITY</b>	<u>6,726,958</u>	<u>7,718,316</u>
<b>TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY</b>	<u><u>\$ 7,049,793</u></u>	<u><u>\$ 8,105,574</u></u>

*See accompanying notes to the consolidated financial statements*

SpectraScience, Inc. and Subsidiary  
Consolidated Statements of Operations  
For the Years Ended December 31, 2010 and 2009

	Year Ended December 31,	
	2010	2009
Revenue	\$ 23,650	\$ 167,123
Cost of revenue	13,277	110,572
Gross profit	10,373	56,551
Grant income	359,690	-
Operating expenses:		
Research and development	2,065,616	2,126,574
General and administrative	1,985,170	2,007,380
Sales and marketing	417,313	359,409
Total operating expenses	4,468,099	4,493,363
Operating loss	(4,098,036)	(4,436,812)
Other income (expense), net	(586)	4,625
Net loss	(4,098,622)	(4,432,187)
Deemed dividend on preferred stock	(1,836,319)	(2,592,010)
Accumulated but unpaid dividend on preferred stock	(106,931)	(99,685)
Net loss applicable to common shareholders	\$ (6,041,872)	\$ (7,123,882)
Basic and diluted net loss per share	\$ (0.07)	\$ (0.10)
Weighted average common shares outstanding	92,446,627	69,780,156

*See accompanying notes to the consolidated financial statements*

SpectraScience, Inc. and Subsidiary  
Consolidated Statements of Shareholders' Equity  
For the Year's Ended December 31, 2010 and 2009

	<u>Preferred Stock</u>		<u>Common Stock</u>		<u>Additional Paid-In Capital</u>	<u>Accumulated Deficit</u>	<u>Total Shareholders' Equity</u>
	<u>Shares</u>	<u>Amount</u>	<u>Shares</u>	<u>Amount</u>			
<b>Balance, December 31, 2008</b>	-	\$ -	68,613,598	\$ 686,136	\$ 17,835,865	\$ (11,720,273)	\$ 6,801,728
Stock based compensation – consultants					133,402		133,402
Stock based compensation – employees					562,222		562,222
Stock options exercised			400,000	4,000	56,000		60,000
Common stock issued for services			1,129,017	11,290	273,415		284,705
Sale of Series B Preferred Stock At \$0.20 per share	25,000,000				4,308,446		4,308,446
Deemed Dividend Preferred Stock		250,000			2,342,010	(2,592,010)	-
Net loss						(4,432,187)	(4,432,187)
<b>Balance, December 31, 2009</b>	<u>25,000,000</u>	<u>250,000</u>	<u>70,142,615</u>	<u>701,426</u>	<u>25,511,360</u>	<u>(18,744,470)</u>	<u>7,718,316</u>
Stock based compensation – consultants					16,441		16,441
Stock based compensation – employees					271,337		271,337
Common Stock issued for services			445,000	4,450	115,300		119,750
Conversion of Series B Preferred Stock	(22,415,000)	(224,150)	22,415,000	224,150			-
Sale of Series C Preferred Stock at \$0.20 per share	15,766,155	157,662			2,542,074		2,699,736
Conversion of Series C Preferred Stock	(14,766,155)	(147,662)	14,766,155	147,662			-
Deemed Dividend -- Preferred Stock					1,836,319	(1,836,319)	-
Accrued Dividend paid in Common Stock			225,759	2,257	88,048	(90,305)	-
Net loss						(4,098,622)	(4,098,622)
<b>Balance, December 31, 2010</b>	<u><u>3,585,000</u></u>	<u><u>\$ 35,850</u></u>	<u><u>107,994,529</u></u>	<u><u>\$ 1,079,945</u></u>	<u><u>\$ 30,380,879</u></u>	<u><u>\$ (24,769,716)</u></u>	<u><u>\$ 6,726,958</u></u>

*See accompanying notes to the consolidated financial statements*

SpectraScience, Inc. and Subsidiary  
Consolidated Statements of Cash Flows  
For the years ended December 31, 2010 and 2009

	Year Ended December 31,	
	2010	2009
<b>OPERATING ACTIVITIES:</b>		
Net loss	\$ (4,098,622)	\$ (4,432,187)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	320,769	290,509
Stock-based compensation employees	271,337	562,222
Stock-based compensation consultants	16,441	133,402
Impairment of LUMA equipment	1,025,373	760,776
Provision for inventory obsolescence	-	100,000
Amortization of prepaid financing costs	152,877	141,263
Common stock issued for services	119,750	284,705
Changes in operating assets and liabilities:		
Accounts receivable	40,271	(16,394)
Inventories	(85,458)	10,596
Prepaid expenses and other current assets	(26,693)	(251,487)
Accounts payable	(14,517)	(125,979)
Accrued expenses	(49,906)	79,394
Net cash (used in) operating activities	<u>(2,328,378)</u>	<u>(2,463,180)</u>
<b>INVESTING ACTIVITIES:</b>		
Purchase of certificates of deposit	(1,998,974)	-
Acquisition of fixed assets	(15,818)	(115,210)
Net cash used in investing activities	<u>(2,014,792)</u>	<u>(115,210)</u>
<b>FINANCING ACTIVITIES:</b>		
Net proceeds from issuance of preferred stock	2,699,736	4,308,446
Proceeds from exercise of stock options	-	60,000
Net cash provided by financing activities	<u>2,699,736</u>	<u>4,368,446</u>
Net increase (decrease) in cash and cash equivalents	<u>(1,643,434)</u>	<u>1,790,056</u>
<b>CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR</b>	<u>3,408,237</u>	<u>1,618,181</u>
<b>CASH AND CASH EQUIVALENTS AT END OF YEAR</b>	<u>\$ 1,764,803</u>	<u>\$ 3,408,237</u>

*See accompanying notes to the consolidated financial statements*

SpectraScience, Inc. and Subsidiary  
Notes to Consolidated Financial Statements

Note 1: Organization and Description of Business

SpectraScience, Inc. was incorporated in the State of Minnesota on May 4, 1983 as GV Medical, Inc. In October 1992, GV Medical discontinued its prior business, refocused its development efforts and changed its name to SpectraScience, Inc. The “Company,” hereinafter, refers to SpectraScience, Inc. and its wholly owned subsidiary Luma Imaging Corp. From 1996, the Company primarily focused on developing the WavSTAT Optical Biopsy System (the “WavSTAT System”).

The Company has developed and received FDA approval to market a proprietary, minimally invasive technology that optically illuminates tissue in real-time to distinguish between normal, pre-cancerous or cancerous cells without the need to remove the subject cell tissue from the body to make such determinations. The WavSTAT System operates by using cool, safe UV laser light to optically illuminate and analyze tissue, enabling the physician to make an instant diagnosis during endoscopy when screening for cancer, and if warranted, to begin immediate treatment during the same procedure. The WavSTAT is FDA approved for colon cancer detection.

On November 6, 2007, the Company acquired the assets of Luma Imaging Corporation (“LUMA”) in an equity transaction accounted for as an acquisition of assets and now operates LUMA as a wholly-owned subsidiary of the Company. LUMA had acquired the assets from a predecessor company that had developed, and received FDA approval for, a non-invasive diagnostic imaging system that can detect cervical cancer precursors and which utilizes an underlying technology that is similar to that of the WavSTAT System. The addition of the LUMA technology to the Company’s existing WavSTAT System technology provides the Company with a broad suite of fluorescence-based intellectual property and know-how. During the fiscal year ended December 31, 2010, the Company wrote off the remaining fair value of the LUMA inventory in order to focus on the continued development and marketing of the WavSTAT. The Company retained the intellectual property of LUMA for use in the development of future generations of the WavSTAT System.

The transaction was accounted for as an acquisition of assets that included intellectual property, inventory and equipment. The intellectual property consisted of a total of 34 issued U.S. Patents and 28 additional patent applications.

Note 2: Significant Accounting Policies

*Revenue Recognition*

The Company recognizes revenues when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price is fixed or determinable and collectability is reasonably assured. Revenue from the sale of the Company’s products is generally recognized when title and risk of loss transfers to the customer, the terms of which are generally free on board shipping point. The Company uses customer purchase orders to determine the existence of an arrangement. The Company uses shipping documents and third-party proof of delivery to verify that title has transferred. The Company assesses whether the fee is fixed or determinable based upon the terms of the agreement associated with the transaction. To determine whether collection is probable, the Company assesses a number of factors, including past transaction history with the customer and the creditworthiness of the customer.

The Company recognizes grant income from the Federal Qualifying Therapeutic Discovery Project Program under Section 48D of the Internal Revenue Code after the grants have been approved and once qualifying reimbursable clinical expenditures have been paid.

*Consolidation*

The accompanying consolidated financial statements include the accounts of SpectraScience, Inc. and its wholly-owned subsidiary LUMA. All significant intercompany balances and transactions have been eliminated in consolidation.

*Risks and Uncertainties*

The Company operates in an industry that is subject to intense competition, government regulation and rapid technological change. The Company's operations are subject to significant risk and uncertainties including financial, operational, technological, regulatory and other risks, including the potential risk of business failure.

*Use of Estimates*

The Company prepares its consolidated financial statements in conformity with accounting principles generally accepted in the United States of America, which requires management to make estimates and assumptions that affect the amounts reported in the financial statements and disclosures made in the accompanying notes to the financial statements. Significant estimates made by management include, among others,

realization of long-lived assets, assumptions used to value stock options, assumptions used to value the common stock issued and the realization of intangible assets. Actual results could differ from those estimates.

### *Cash and Cash Equivalents*

Highly liquid investments with original maturities of three months or less when purchased are considered to be cash equivalents. Financial instruments which potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents. The Company maintains its cash and cash equivalents with high-credit quality financial institutions. At times, such amounts may exceed insured limits. The Company has not experienced any losses in such accounts and believes it is not exposed to any significant credit risk on its cash equivalent accounts.

### *Liquidity*

We expect to incur significant additional operating losses through at least 2011, as we complete proof-of-concept trials, begin outcome-based clinical studies and increase sales and marketing efforts to commercialize the WavSTAT systems in Europe. If we do not receive sufficient funding, we may be unable to continue as a going concern. We may incur unknown expenses or we may not be able to meet our revenue forecast, and one or more of these circumstances would require us to seek additional capital. We may not be able to obtain equity capital or debt funding on terms that are acceptable. Even if the Company receives additional funding, such proceeds may not be sufficient to allow the Company to sustain operations until it attains profitability and positive cash flows from operations.

### *Inventory Valuation*

We state our inventories at the lower of cost (using the first-in, first-out method) or market value, determined on a specific cost basis. We provide inventory allowances when conditions indicate that the selling price could be less than cost due to obsolescence and reductions in estimated future demand. We balance the need to maintain strategic inventory levels with the risk of obsolescence due to changing technology and customer demand levels. Unfavorable changes in market conditions may result in a need for additional inventory reserves that could adversely impact our gross margins. Conversely, favorable changes in demand could result in higher gross margins when we sell products.

### *Valuation of Long-lived Assets*

Our long-lived assets consist of property and equipment and intangible assets. Equipment is carried at cost and is depreciated over the estimated useful lives of the assets, which are generally two to three years, and leasehold improvements are amortized over the lesser of the lease term or the estimated useful lives of the improvements. The straight-line method is used for depreciation and amortization. Equipment related to our LUMA Systems is not currently being depreciated but is reviewed for impairment at the end of each reporting period. During 2010, management decided to focus efforts on the marketing of the WavSTAT System and to abandon attempts at commercializing the LUMA System and, as a result, wrote the value of the LUMA-related equipment down to zero. Intangible assets consist of patents, which are amortized using the straight-line method over the estimated useful lives of the assets. We do not capitalize external legal costs and filing fees associated with obtaining patents on our new discoveries. Acquired intellectual property is recorded at cost and is amortized over its estimated useful life. We believe the useful lives we assigned to these assets are reasonable. The Company assesses the recoverability of long-lived assets whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. These computations utilize judgments and assumptions inherent in management's estimate of future cash flows to determine recoverability of these assets. If management's assumptions about these assets were to change as a result of events or circumstances, the Company may be required to record an impairment loss. With respect to the Company's long-lived LUMA-related assets, the Company recorded impairment charges of approximately \$1,025,000 and \$761,000 for the years ended December 31, 2010 and 2009. The impairment is recorded in research and development expense on the statement of operations.

### *Income Taxes*

Income taxes are provided for the tax effects of transactions reported in the consolidated financial statements and consist of taxes currently due plus deferred income taxes. Deferred income taxes are recognized for temporary differences between the financial statement and tax bases of assets and liabilities that will result in taxable or deductible amounts in the future. Deferred income taxes are also recognized for net operating loss carryforwards that are available to offset future taxable income and research and development credits. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized. Because the Company had a full valuation allowance on its deferred tax assets as of December 2010 and 2009, the Company has not recognized any tax benefits since inception.

FASB ASC Topic 740, Income Taxes ("ASC 740"), clarifies the accounting for uncertainty in income taxes recognized in the financial statements. ASC 740 provides that a tax benefit from an uncertain tax position may be recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on the technical merits of the position. Income tax positions must meet a more-likely-than-not recognition threshold to be recognized. ASC 740 also provides guidance on measurement, derecognition, classification, interest and penalties, accounting in interim periods, disclosure and transition. We have determined that the Company does not have uncertain tax positions on its 2005, 2006, 2007, 2008 and 2009 tax returns. Based on evaluation of the 2010 transactions and events, the Company does not have any material uncertain tax positions that require measurement.

Our policy is to recognize interest and/or penalties related to income tax matters in income tax expense. We had no accrual for interest or penalties on our consolidated balance sheets at December 31, 2010 or 2009, and have not recognized interest and/or penalties in the consolidated statement of operations for the years ended December 31, 2010 or 2009.

We are subject to taxation in the U.S. and the state of California. All of our tax years are subject to examination by the U.S. and California tax authorities due to the carryforward of unutilized net operating losses.

#### *Stock-Based Compensation*

We account for stock-based compensation under the provisions of FASB ASC Topic 718, *Compensation—Stock Compensation* (“ASC 718”), which requires the measurement and recognition of compensation expense for all stock-based awards made to employees and directors based on estimated fair values on the grant date. We estimate the fair value of stock-based awards on the date of grant using the Black-Scholes-Merton option pricing model (“Black-Scholes model”). The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service periods using the straight-line method. We estimate forfeitures at the time of grant and revise our estimate in subsequent periods if actual forfeitures differ from those estimates.

We account for stock-based compensation awards to non-employees in accordance with FASB ASC Topic 505-50, *Equity-Based Payments to Non-Employees* (“ASC 505-50”). Under ASC 505-50, we determine the fair value of the warrants or stock-based compensation awards granted as either the fair value of the consideration received or the fair value of the equity instruments issued, whichever is more reliably measurable.

All issuances of stock options or other equity instruments employees and to non-employees as the consideration for goods or services received by the Company are accounted for based on the fair value of the equity instruments issued. Any stock options issued to non-employees are recorded in expense and additional paid-in capital in stockholders’ equity over the applicable service periods based on the fair value of the options at the end of each period.

As of December 31, 2010, the Company had one stock-based employee compensation plan (the “Option Plan”). The Option Plan provides for the grant of incentive stock options (“ISOs”) to full-time employees (who may also be directors) and nonqualified stock options (“NSOs”) to non-employee directors, consultants, vendors or providers of services and expired on January 30, 2011. The exercise price of any ISO may not be less than the fair market value of the common stock on the date of grant and the term shall not exceed ten years. The amount reserved under the Option Plan equals 15% of the outstanding shares of the Company, totaling 16,199,179 reserved at December 31, 2010. At December 31, 2010 the Company had outstanding 14,695,000 options under the Option Plan representing approximately 13.61% of the outstanding shares (4,433,333 of which were exercisable), with 1,504,179 available for future issuance. Awards under the Company’s Option Plan generally vest over three years.

For the years ended December 31, 2010 and 2009, stock-based compensation was approximately \$288,000 and \$696,000, respectively. In fiscal 2010, stock option expense was approximately \$55,000 for research and development, \$207,000 in general and administration and \$26,000 in sales and marketing. In fiscal 2009, stock option expense was approximately \$259,000 in research and development, \$472,000 in general and administrative and (\$35,000) in sales and marketing.

The fair value of options granted were estimated at the date of grant using a Black-Scholes option-pricing model which includes several variables including expected life, risk free interest rate, expected stock price volatility, stock option exercise patterns and expected dividend yield. The Company also must estimate forfeitures for employee stock options. The following average assumptions were used to value non-employee options in the past two years:

	2010		2009	
Expected life	5 years		5 years	
Risk-free interest rate	2.01	%	2.58	%
Expected volatility	116	%	124	%
Expected dividend yield	0	%	0	%
Weighted average grant date fair value	\$ 0.10		\$ 0.32	

Non- employee stock option grants were valued at approximately \$55,000 and \$226,000 for the fiscal years ended December 31, 2010 and 2009, respectively.

Management used the following assumptions to value employee options over the past two years:

	2010		2009	
Expected life	5 years		5 years	
Risk-free interest rate	1.98	%	2.36	%
Expected volatility	116	%	124	%
Expected dividend yield	0	%	0	%
Weighted average grant date fair value	\$ 0.12		\$ 0.23	

Employee stock option grants were valued at approximately \$1,020,000 and \$91,000 for the fiscal years ended December 31, 2010 and 2009, respectively.

In addition to the above, management estimated the forfeitures on employee options under the Option Plan would have negligible effects because such forfeitures would be a very small percentage. Management believes that options granted have been to a group of individuals that have a high desire to see the Company succeed and have aligned themselves to that end.

The expected lives used in the calculations were selected by management based on past experience, forward looking profit forecasts and estimates of what the trading price of the Company’s stock might be at different future dates. Risk-free interest rates used are the five-year U.S. Treasury rate as published for the applicable measurement dates.

Volatility is a calculation based on the Company's stock price and historical trading volume and becomes a risk-measurement component included in the Black-Scholes calculation of estimated fair value. Management computed and reviewed its volatility calculation for reasonableness and found it to be acceptable based on a number of factors including the Company's current market capitalization and comparisons to other companies similar to SpectraScience, Inc.

#### *Patents*

The Company accounts for acquired intangible assets under FASB ASC Topic 350 *Goodwill and Other Intangibles – 30 General Intangibles Other than Goodwill*. On August 2, 2004, at the inception of the Successor Company, the Company capitalized \$290,000 to value eight WavSTAT System patents. On November 6, 2007, coincident with the acquisition of the LUMA assets, the Company capitalized an additional \$3,226,000 to value the 28 patents acquired. In both cases, the capitalized amounts were initially determined based upon management's assessment of fair value using a market-based forecast which utilized comparable assumed royalty revenue streams over several possible scenarios. These forecasted cash flows were then discounted to present value to determine valuation. The Company reviews the carrying value of patents at the end of each reporting period as described in "Valuation of Long-Lived Assets". Based upon managements review, there were no intangible asset impairments in 2010 or 2009.

All patents are amortized over the shorter of their remaining legal lives or estimated economic lives. When acquired, the WavSTAT System patents had an average remaining useful life of 14 years, while the LUMA patents had an average remaining life of approximately 16 years. Amortization expense associated with patents for both of the fiscal years ended December 31, 2010 and 2009 was approximately \$250,000. Patents are reported net of accumulated amortization of \$849,583 and \$600,016 at December 31, 2010 and 2009, respectively. Amortization expense in each of the five years subsequent to December 31, 2010 is expected to approximate \$250,000 per year.

#### *Research and Development*

Research and development costs are expensed as incurred. There may be cases in the future where certain research and development costs such as software development costs are capitalized. For the years ended December 31, 2010 and 2009, research and development costs were approximately \$2,066,000 and \$2,127,000, respectively. In 2010 the Company recognized approximately \$1,025,000 of non-cash expense related to the impairment of LUMA assets classified as long-lived assets (equipment). In 2009 the Company recognized approximately \$761,000 of non-cash expense related to the impairment of LUMA assets classified as long-lived assets (equipment) as well as approximately \$100,000 in WavSTAT inventory obsolescence expense.

#### *Accounts Receivable*

Accounts receivable are carried at original invoice amount less payment received and an estimate made for doubtful receivables based on a review of all outstanding amounts on a monthly basis. Accounts receivables are generally considered past due 30 days after payment date as specified on the invoice. We determine allowance for doubtful accounts by regularly evaluating individual receivables and considering a creditor's financial condition, credit history and current economic conditions. Accounts receivables are written off when deemed uncollectible. Recoveries of previously written off receivables previously written off are recorded when received.

#### *Fixed Assets*

Fixed assets are stated at cost less accumulated depreciation. Depreciation expense is computed using the straight-line method over the estimated useful lives of the related assets, which range from two to three years. For the years ended December 31, 2010 and 2009, depreciation expense was approximately \$70,000 and \$41,000, respectively. Repairs and maintenance are charged to expense as incurred while improvements are capitalized. Upon the sale, retirement or disposal of fixed assets, the accounts are relieved of the cost and the related accumulated depreciation with any gain or loss recorded to the consolidated statements of operations. The fixed asset account balance at December 31, 2010 and 2009 includes approximately \$0 and \$1,025,000 of LUMA inventory, respectively. The LUMA inventory included in fixed asset accounts is evaluated for impairment at the end of each reporting period. During 2010, the Company evaluated the ongoing value of the LUMA inventory due to difficulties successfully marketing the LUMA System. Based on this evaluation, the Company determined that LUMA assets with a carrying value of approximately \$1,025,000 were impaired and wrote off the entire remaining asset balance.

#### *Fair Value of Financial Instruments*

The carrying amount of the Company's cash and cash equivalents, certificates of deposit, accounts receivable, accounts payable and accrued liabilities approximate their estimated fair values due to the short-term maturities of those financial instruments.

#### *Earnings (Loss) Per Share*

Basic earnings (loss) per share is computed by dividing net income (loss) available to common shareholders by the weighted average number of common shares assumed to be outstanding during the period of computation. Diluted earnings per share is computed similar to basic earnings per share except that the denominator is increased to include the number of additional common shares that would have been outstanding if the potential common shares had been issued and if the additional common shares were dilutive. For all periods presented, basic and diluted loss per share are the same, as any additional common stock equivalents would be antidilutive due to net loss, and as such have

been excluded from the calculation of the weighted average number of dilutive common shares. For the year ended December 31, 2010, utilizing the treasury stock method, there were no additional potentially dilutive shares of common stock. As of the fiscal year ended December 31, 2009, there were 15,787,966 common stock purchase warrants and 7,450,000 stock options outstanding. As of the fiscal year ended December 31, 2010, there were 25,247,660 common stock purchase warrants and 14,695,000 stock options outstanding.

*Recent Accounting Pronouncements*

*ASU 2009-13, Revenue Recognition (Topic 605) – Multiple-Deliverable Revenue Arrangements – a consensus of the FASB Emerging Issues Task Force* addresses the accounting for multiple-deliverable arrangements to enable vendors to account for products or services (deliverables) separately rather than as a combined unit. The ASU is effective prospectively for revenue arrangements entered into or materially modified in fiscal years beginning on or after June 15, 2010. This pronouncement is not expected to have a material effect on the consolidated financial statements of the Company.

*ASU 2010-06, Fair Value Measurements and Disclosures (Topic 820) – Improving Disclosures about Fair Value Measurements* affects all entities that are required to make disclosures about recurring and nonrecurring fair value measurements under FASB ASC Topic 820, originally issued as FASB Statement No. 157, *Fair Value Measurements*. The ASU requires certain new disclosures and clarifies two additional disclosure requirements. The new disclosures and clarifications of existing disclosures were adopted during the year ended December 31, 2010, except for the disclosures about purchases, sales, issuances, and settlements in the roll forward of activity in Level 3 fair value measurements. Those disclosures are effective for fiscal years beginning after December 15, 2010, and for interim periods within those fiscal years. This pronouncement is not expected to have a material effect on the consolidated financial statements of the Company.

*ASU 2010-7, Revenue Recognition – Milestone Method (Topic 605) – Milestone Method of Revenue Recognition – a consensus of the FASB Emerging Issues Task Force* provides guidance to vendors on the criteria that should be met for determining whether the milestone method of revenue recognition is appropriate. This ASU is effective on a prospective basis for milestones achieved in fiscal years, and interim periods within those years, beginning on or after June 15, 2010. This pronouncement is not expected to have a material effect on the consolidated financial statements of the Company.

Other accounting standards that may have been issued or proposed by the FASB or other standards-setting bodies are not expected to have a material impact on the Company's consolidated financial statements.

Note 3: Inventories

Inventories consisted of the following at December 31, 2010 and 2009. Included in inventories is an inventory reserve for obsolescence of approximately \$100,000 on both December 31, 2010 and 2009 respectively:

	December 31,	
	2010	2009
Raw Materials	\$ 192,204	\$ 175,527
Finished Goods	298,929	230,148
Total inventories	<u>\$ 491,133</u>	<u>\$ 405,675</u>

#### Note 4: Income Taxes

The significant components of net deferred tax assets as of December 31, 2010 and 2009 are shown below. A valuation allowance has been established to offset the deferred tax assets, as realization of such assets is uncertain.

	December 31, 2010	December 31, 2009
<b>Deferred tax assets:</b>		
Net operating loss carryforward	\$ 11,478,827	\$ 11,180,062
Research and development credits	486,887	512,515
Stock compensation	958,803	1,477,485
Inventory Reserve	34,294	34,802
Accrued liabilities and other	68,061	45,082
<b>Total deferred tax assets</b>	<b>13,026,872</b>	<b>13,249,946</b>
Valuation allowance	(11,964,721)	(11,691,089)
<b>Net deferred tax assets</b>	<b>(1,062,151)</b>	<b>1,558,857</b>
<b>Deferred tax liabilities:</b>		
Acquired intangibles	-	(73,611)
Fixed assets	-	(397,293)
Patents	(1,062,151)	(1,087,953)
<b>Total deferred tax liabilities</b>	<b>(1,062,151)</b>	<b>(1,558,857)</b>
<b>Net deferred taxes</b>	<b>\$ —</b>	<b>\$ —</b>

The following reconciles the tax provision (benefit) with the expected provision or benefit obtained by applying statutory rates to pretax income:

	Year Ended December 31, 2010		Year Ended December 31, 2009	
	Amount	% of Pretax Loss	Amount	% of Pretax Loss
Income tax benefit at federal statutory rate	\$ (1,394,000)	34.0%	\$ (1,506,000)	34.0%
State tax provision, net of federal tax benefit	(239,000)	5.8	(259,000)	5.8
Nondeductible differences	59,000	(1.4)	(17,000)	0.4
Nonqualified stock option forfeitures	633,000	(15.5)	—	—
Tax credits	33,000	(0.8)	41,000	(0.9)
Change in valuation allowance	274,000	(6.7)	1,102,000	(24.9)
Expiration of net operating losses	574,000	(14.0)	593,000	(13.4)
Other	60,000	(1.5)	46,000	(1.0)
<b>Provision for income taxes</b>	<b>\$ —</b>	<b>0.0%</b>	<b>\$ —</b>	<b>0.0%</b>

At December 31, 2010, the Company had federal net operating loss carry-forwards of approximately \$27,700,000 that expire from 2011 through 2030. During 2010, the Company had federal net operating losses of approximately \$1,459,000 expire. In addition, the Company had research and development tax credits of approximately \$445,000 that expire from 2011 through 2030. As a result of certain stock transactions, the Company's ability to utilize its net operating loss carryforwards to offset future taxable income and utilize future research and development tax credits is subject to certain limitations under Section 382 and Section 383 of the Internal Revenue Code due to changes in equity ownership of the Company.

The Company has a history of operating losses and, as of yet, has not had any taxable income. The Company has calculated a deferred tax asset for its tax credits but offsets the tax asset with a valuation allowance. As a result, the Company has not realized or recorded any tax benefit related to its tax credits.

#### Note 5: Lease Commitment

The Company leases its principal facility from an unrelated third party. The facility consists of approximately 5,080 square feet of office, research and development, manufacturing, quality testing, and warehouse space. The lease provides for monthly rental payments of \$4,318 and additional shared estimated facility costs of \$972 per month through December 2011. Total commitment under this lease for 2011 is approximately \$64,000. For the years ended December 31, 2010 and 2009, rent expense totaled \$65,273 and \$80,332, respectively.



## Note 6: Stock-Based Compensation Plans

The Option Plan was amended in 2004. The Option Plan provides for the grant of ISOs to our full-time employees (who may also be Directors) and NSOs to non-employee directors, consultants, customers, vendors or providers of significant services and expired on January 30, 2011. The exercise price of any ISO may not be less than the fair market value of the common stock on the date of grant and the term shall not exceed ten years. The amount reserved under the Plan shall equal 15% of the outstanding shares of the Company totaling 16,199,179 at December 31, 2010. At December 31, 2010, the Company had granted 14,695,000 options under the Plan (4,433,333 of which are exercisable), with 1,504,179 available for future issuance.

Options outstanding as of December 31, 2010 are as follows:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term in Years	Aggregate Intrinsic Value (1)
Vested	4,433,333	\$ 0.50	6.20	\$ —
Unvested	10,261,667	\$ 0.18	9.72	-
<b>Total</b>	<b>14,695,000</b>			<b>\$ -</b>

(1) These amounts represent the difference, if any, between the exercise price and \$0.12, the closing market price of the Company's common stock on December 31, 2010 as quoted on the Over-the-Counter Bulletin Board under the symbol "SCIE.OB".

Additional information with respect to stock option activity is as follows:

	Options Available For Grant	Outstanding Options			
		Plan Options Outstanding	Weighted Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term (years)	Aggregate Intrinsic Value (1)
December 31, 2008	2,142,040	8,150,000	\$ 0.58		
Options granted	(1,100,000)	1,100,000	\$ 0.31		
Options exercised	400,000	(400,000)	\$ 0.15		
Options forfeited	1,400,000	(1,400,000)	\$ 0.71		
Additional options authorized	229,352	—			
December 31, 2009	3,071,392	7,450,000	\$ 0.54		
Options granted	(8,995,000)	8,995,000	\$ 0.16		
Options exercised	-	-	\$ -		
Options forfeited	1,750,000	(1,750,000)	\$ 0.79		
Additional options authorized	5,677,787	—			
December 31, 2010	1,504,179	14,695,000	\$ 0.37	8.66	\$ —
Exercisable December 31, 2010		4,433,333	\$ 0.50	6.20	\$ —

The total intrinsic value of options exercised during the years ended December 31, 2010 and 2009 was \$0 and \$160,000, respectively. At December 31, 2010, total unrecognized estimated employee and director compensation cost related to non-vested stock options granted prior to that date is \$1,190,195, which is expected to be recognized over approximately three years.

For the fiscal year ended December 31, 2010, the Company granted stock options to purchase 8,420,000 common shares to employees and directors and 575,000 to non-employees. At the time of grant, those options were estimated to have an aggregate fair value of approximately \$949,000 and \$55,000, respectively. For the fiscal year ended December 31, 2009, the Company granted stock options to purchase 400,000 common shares to employees and directors and 700,000 to non-employees. At the time of grant, these options were estimated to have an aggregate fair value of approximately \$91,000 and \$226,000, respectively.

## Note 7: Undesignated Capital Stock

The Company has authorized 46,415,000 of undesignated shares of capital stock with undesignated par value. The undesignated stock may be issued in one or more series as determined from time to time by the Board of Directors. Any series authorized for issuance by the Board of Directors may be senior to the common stock with respect to any distribution if so designated by the Board of Directors upon issuance of the shares of that series. The Board of Directors are granted the express authority to fix by resolution any other designations, powers, preferences,

rights (including voting rights), qualifications, limitations or restrictions with respect to any particular series created from the undesignated stock prior to issuance thereof.

## Note 8: Equity Transactions

### **Fiscal Year Ended December 31, 2010**

#### *Common Stock*

In December 2010, the Company issued 45,000 shares of common stock to a vendor for services. The fair value of the shares was determined to be \$6,750, and the Company recognized expense in the amount of \$6,750, based upon the market value of the common stock on the date of issuance.

In December 2010, the holder of 250,000 shares of Series B Convertible Preferred Stock converted his holdings into an equal number of shares of unrestricted common stock. The aforementioned common stock was registered with the effectiveness of a registration statement declared effective by the Securities and Exchange Commission on February 11, 2010.

In September 2010, the holders of 14,766,155 shares of Series C Convertible Preferred Stock converted their holdings into an equal number of shares of unrestricted common stock. The aforementioned common stock was registered with the effectiveness of a registration statement declared effective by the Securities and Exchange Commission on September 10, 2010.

In August 2010, the holder of 50,000 shares of Series B Convertible Preferred Stock converted his holdings into an equal number of shares of unrestricted common stock. The aforementioned common stock was registered with the effectiveness of a registration statement declared effective by the Securities and Exchange Commission on February 11, 2010.

In August 2010, the Company issued approximately 589 shares of common stock to a former holder of Series B Convertible Preferred Stock, pursuant to a dividend declaration on the Series B Convertible Preferred Stock. The fair value of the shares was determined to be approximately \$200, based upon the market value of the common stock on the date of issuance.

In August 2010, the Company issued 15,000 shares of common stock to a vendor for services. The fair value of the shares was determined to be \$2,400, and the Company recognized expense in the amount of \$2,400, based upon the market value of the common stock on the date of issuance.

In July 2010, the Company issued 210,000 shares of common stock to a vendor for services. The fair value of the shares was determined to be \$52,500, and the Company recognized expense in the amount of \$52,500, based upon the market value of the common stock on the date of issuance.

From March through August 2010, holders of 22,165,000 shares of Series B Convertible Preferred Stock converted their holdings into an equal number of shares of unrestricted common stock. The aforementioned common stock was registered with the effectiveness of a registration statement declared effective by the Securities and Exchange Commission on February 11, 2010.

Between January and May 2010, the Company issued 175,000 restricted shares of common stock to a vendor for services. The fair value of the shares was determined to be \$58,100, and the Company recognized expense in the amount of \$58,100, based upon the market value of the common stock on the dates of issuance.

In April 2010, the Company issued 225,170 shares of common stock to current and former holders of Series B Convertible Preferred Stock, pursuant to a dividend declaration on the Series B Convertible Preferred Stock. The fair value of the shares was determined to be \$90,068, based upon the market value of the common stock on December 31, 2009, the date the dividends were determined.

#### *Series B Convertible Preferred Stock*

From March through December 2010, holders of 22,465,000 shares of Series B Convertible Preferred Stock converted their holdings into an equal number of shares of unrestricted common stock. At December 31, 2010, there remained outstanding 2,535,000 shares of Series B Convertible Preferred Stock and accumulated and unpaid dividends of \$106,931.

#### *Series C Convertible Preferred Stock*

In August 2010, holders of 14,766,155 shares of Series C Convertible Preferred Stock converted their holdings into an equal number of shares of unrestricted common stock. At December 31, 2010, there remained outstanding 1,000,000 shares of Series C Convertible Preferred Stock.

From April 29, 2010 through June 17, 2010, as a part of a Units offering, the Company sold 15,766,155 shares of its Series C Convertible Preferred Stock to accredited investors for an aggregate consideration of approximately \$3,153,000. The Company received net cash proceeds of approximately \$2,700,000 after the payment of finders' fees and expenses of approximately \$453,000. In addition, the Company issued five

year warrants to purchase 7,883,078 additional shares of common stock at an initial exercise price of \$0.30 per share and 1,576,616 agent warrants at an initial exercise price of \$0.35 per share. The fair-value of the agent warrants, as determined using the Black-Scholes Model at the time of issuance, was approximately \$354,000. The convertible feature of the Series C Convertible Preferred Stock and the terms of the warrants provide for a rate of conversion or exercise that was below market value at date of issuance. Such feature, as it specifically relates to the convertible feature of the Series C Convertible Preferred Stock, is characterized as a “ Beneficial Conversion Feature ” ( “ BCF ” ). The Series C Preferred has rights which provide for (i) dividend payments senior with respect to common shares, (ii) voting rights equal to the number of common shares into which the Series C Preferred is convertible and (iii) adjustments to the conversion price in the event of stock dividends, stock splits or other effective stock subdivisions. The Series C Preferred is subject to automatic conversion in the event of (a) an underwritten public offering exceeding \$10 million in gross proceeds to the Company or, (b) the approval of 67% of the Series C Preferred holders or (c) the underlying conversion shares becoming freely tradable and the average daily trading volume of the underlying stock being not less than 50,000, nor the average closing price of the underlying stock being not less than the conversion price then in effect for 10 consecutive trading days.

Pursuant to existing accounting standards, the estimated relative fair values of the BCF and the warrants, in approximate amounts of \$1,836,000 and \$909,000, respectively, were calculated. The value of the BCF was determined utilizing an intrinsic value method with the fair value of the warrants determined using the Black-Scholes Model at the date of issuance. The warrant fair values were determined assuming a five-year term, stock volatility of between approximately 118% and 119% and risk-free interest rates of between 1.95% and 2.49%. Per the guidance of accounting standards, the value of the BCF is treated as a deemed dividend to the Series C Convertible Preferred Stock shareholders and, due to the potential immediate convertibility of the Series C Convertible Preferred stock at issuance, this value is recorded as an increase to both additional-paid-in-capital and accumulated deficit at the time of issuance.

## **Fiscal Year Ended December 31, 2009**

### *Common Stock*

On January 30, 2009, we entered into a Common Stock Purchase Agreement (the "Purchase Agreement") with Fusion Capital Fund II, an Illinois limited liability company ("Fusion Capital"). Under the Purchase Agreement, Fusion Capital is obligated, under certain conditions, to purchase shares from us in an aggregate amount of \$6.0 million from time to time over a twenty-four (24) month period. Under the terms of the Purchase Agreement, Fusion Capital has received a commitment fee consisting of 1,094,017 shares of our common stock. Also, we will issue to Fusion Capital an additional 547,009 shares as a commitment fee pro-rata as we receive the \$6.0 million of future funding. In addition, in December 2008, we issued 100,000 shares to Fusion Capital as an expense reimbursement.

Under the Purchase Agreement and the associated Registration Rights Agreement we are required to register 13,000,000 common shares comprised of: (1) 1,094,017 shares which have already been issued, (2) an additional 547,009 shares which we may issue in the future as a commitment fee pro rata as we receive the \$6.0 million of future funding, (3) 100,000 shares we previously issued to Fusion Capital as an expense reimbursement and (4) at least 11,558,974 shares which we may sell to Fusion Capital after a registration statement is declared effective. Under the Purchase Agreement, we have the right but not the obligation to sell more than the 13,300,000 shares to Fusion Capital. As of the date hereof the Purchase Agreement has expired and no shares were sold to Fusion during its term.

In December 2009, the Company issued 35,000 restricted common shares to a vendor for services. The fair value of the shares was determined to be \$11,200, and the company recognized expense in the amount of \$11,200, based upon the market value of the stock on the date of issuance.

### *Series B Convertible Preferred Stock and Warrants*

On June 22, 2009, the Board of Directors designated 25,000,000 of the Company's undesignated capital stock as Series B Convertible Preferred Stock (the "Preferred") with par value of \$0.01 per share. The Preferred is convertible into an equal number of shares of the Company's Common Stock based upon an initial conversion price of \$0.20 per share and carries a liquidation preference of like amount plus declared but unpaid cumulative dividends at December 31, 2009, the total liquidation preference is equal to \$5,100,000. At December 31, 2009 there were approximately \$100,000 in accumulated, but unpaid dividends. The Preferred is entitled to receive cumulative dividends in preference to any dividend which may be declared on the Common Stock at the rate of 8% of the original issue price. In addition, the Preferred has rights which provide for (i) dividend payments senior to those with respect to common shares, (ii) voting rights equal to the number of common shares into which the Preferred is convertible and (iii) adjustments to the conversion price in the event of stock dividends, stock splits or other effective stock subdivisions. The Preferred is subject to automatic conversion in the event of (a) an underwritten public offering exceeding \$10 million in gross proceeds to the Company or, (b) the approval of 67% of the Preferred holders or (c) the underlying conversion shares becoming freely tradable and the average daily trading volume of the underlying stock being not less than 50,000, nor the average closing price of the underlying stock being not less than the conversion price then in effect for 10 consecutive trading days.

From May through December 2009, as a part of a Units offering, the Company sold 25,000,000 shares of its Preferred to accredited investors for an aggregate consideration of \$5,000,000. The Company received net cash proceeds of \$4,308,446 after the payment of finders' fees and expenses of \$691,554. In addition, the Company issued five-year warrants to purchase 12,500,000 additional shares of Common Stock at an initial exercise price of \$0.30 per share and 2,500,000 agent warrants at an initial exercise price of \$0.35 per share. The fair-value of the agent warrants, as determined using the Black-Scholes option-pricing model at the time of issuance, was approximately \$850,000. The convertible feature of the Preferred and the terms of the warrants provide for a rate of conversion or exercise that was below market value at issuance. Such feature, as it specifically relates to the convertible feature of the Preferred, is characterized as a BCF. Pursuant to existing accounting standards, the estimated relative fair values of the BCF and the warrants, in approximate amounts of \$2,592,000 and \$2,349,000, respectively, were calculated. The value of the BCF was determined utilizing an intrinsic value method with the fair value of the warrants determined using the Black-Scholes option-pricing model at the date of issuance. The warrant fair values were determined assuming a five-year term, stock volatility of between approximately 125% and 122% and risk-free interest rates of between 1.98% and 2.74%. The stand-alone fair value of the BCF was then determined to be higher than the remaining proceeds received and, accordingly, the value assigned to the BCF was limited to the gross proceeds received from the offering net of the fair value of the warrants. Per the guidance of accounting standards, the value of the BCF is treated as a deemed dividend to the Preferred stockholders and, due to the potential immediate convertibility of the Preferred stock at issuance, this value is recorded as an increase to both additional-paid-in-capital and accumulated deficit at the time of issuance.



#### Note 9: Related Party Transactions

On May 21, 2010, the Board of Directors approved the grant of 400,000 options to a non-employee director. The terms are as follows: 1/3 of the grant will vest after one year and the remaining options will vest an additional 1/3 over each of the next three years. The options were granted at the closing price of our Common Stock on the date of grant.

#### Note 10: License Agreement

The Company is the exclusive licensee through the Massachusetts General Hospital of U.S. Patent number 5,843,000 entitled, "Optical Biopsy Forceps and Method of Diagnosing Tissue" and a pending international patent application. This license agreement requires a royalty be paid on sales of the patent on products using claims described within the patent under the license.

#### Note 11: Fair Value Disclosures

The Fair Value Measurements and Disclosures Topic (the "Topic") of the FASB Accounting Standards Codification defines fair value, establishes a framework for measuring fair value and requires disclosure of fair value measurements. The fair value hierarchy set forth in the Topic is as follows:

Level 1: Quoted prices (unadjusted) for identical assets or liabilities in active markets that the entity has the ability to access as of the measurement date.

Level 2: Significant other observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data.

Level 3: Significant unobservable inputs that reflect a reporting entity's own assumptions about the assumptions that market participants would use in pricing an asset or liability.

A description of the valuation methodologies used for assets and liabilities measured at fair value, as well as the general classification of such instruments pursuant to the valuation hierarchy, is set forth below.

The Company does not record long lived assets at fair value on a recurring basis. However, from time to time, a long lived asset is considered impaired and the asset value is written down. The impairment is based on management's estimate of future cash flows from these assets. Adjustments are based on unobservable inputs, the resulting fair value measurement is categorized as a level 3 measurement. Total LUMA equipment of approximately none and \$1,025,000 was valued under this level as of December 31, 2010 and 2009, respectively. The fair value of the LUMA equipment was determined to be \$0 and \$1,025,224 on December 31, 2010 and December 31, 2009, respectively. During 2010, management decided to focus efforts on the marketing of the Wav STAT System and to abandon attempts at commercializing the LUMA System and, as a result, wrote the value of the LUMA-related equipment down to zero.

#### Note 12: Subsequent Events

##### *Common Stock*

In January 2011, the Company issued 4,333 shares of Common Stock to a former holder of Series B Convertible Preferred Stock, pursuant to a dividend declaration on the Series B Convertible Preferred Stock. The fair value of the shares was determined to be approximately \$1,733, based upon the value of the Common Stock on December 31, 2009, the date the dividends were determined.

In February 2011, the Company issued 42,222 shares of restricted Common Stock to Mark McWilliams, a director of the Company, in compensation for his service as interim Chief Executive Officer during October and November 2010. The Company recognized expense in the amount of \$8,000, based upon the average market value of the stock during the October and November 2010 time period.

In February 2011, the Board approved the issuance of 348,392 shares of Common Stock for payment of accrued dividends related to the Company's Series B Convertible Preferred Stock (the "Series B Preferred"). The Series B Preferred accumulated a dividend equal to \$106,931 on December 31, 2010. As per the terms of the Series B Preferred, the Company may pay the dividend either in cash or Common Stock as determined by the Board of Directors.

##### *Stock Options*

In February 2011, the Board of Directors approved the SpectraScience, Inc. 2011 Equity Incentive Plan. In conjunction with this approval, the Board reserved 5,000,000 shares of Common Stock available for issuance of options under the Plan.



In February 2011, the Board approved the cancellation of certain stock options and the issuance of new stock options to directors of the Company. Previously issued stock options to purchase 2,000,000 shares of Common Stock at an average exercise price of \$0.50 were cancelled and new stock options to purchase 2,600,000 at an exercise price of \$0.11 were issued to directors of the Company.

Subsequent events have been evaluated through the date financial statements are filed with the Securities and Exchange Commission.

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

None.

ITEM 9A. CONTROLS AND PROCEDURES.

*Evaluation of Disclosure Controls and Procedures*

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in the Exchange Act Rule 13a-15(e)) as of the end of the period covered by this report (the "Evaluation Date"). Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of the Evaluation Date.

### *Evaluation of Internal Control over Financial Reporting*

Management is responsible for establishing and maintaining adequate internal control over financial reporting. The Company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with authorization of management and directors of the Company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company's assets that could have a material effect on the financial statements.

Under supervision and with the participation of management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in *Internal Control-Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework within the *Internal Control-Integrated Framework*, management concluded that our internal control over financial reporting was effective as of December 31, 2010.

Management's assessment of the effectiveness of our internal control over financial reporting as of December 31, 2010 has not been attested to by McGladrey & Pullen, LLP, the Company's independent registered public accounting firm, as stated in their report which is included herein pursuant to rules of the Securities and Exchange Commission that permit the Company to provide only management's report within this annual report.

### *Changes in Internal Financial Controls*

There was no change in the Company's internal control over financial reporting that occurred during the Company's most recently completed fiscal quarter that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

### ITEM 9B. OTHER INFORMATION.

None.

## PART III

### ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE.

The following information is provided with respect to the directors and officers of the Company:

Name	Age	Director/Officer Since
Michael P. Oliver, <i>President and Chief Executive Officer, Director</i>	62	2010
Jim Dorst, <i>Chief Financial Officer and Chief Operating Officer</i>	56	2007
Mark McWilliams, <i>Chairman of the Board</i>	54	2004
Sheldon L. Miller, <i>Director</i>	74	2010
Stanley Pappelbaum, M.D., <i>Director</i>	73	2006
Chester E. Sievert, <i>Director</i>	59	2004
F. Duwane Townsen, <i>Director</i>	77	2009

**Michael P. Oliver, President and Chief Executive Officer, Director**, joined SpectraScience as President and Chief Executive Officer in November 2010, and was elected a director in February 2011. Prior to joining the Company and since 2007, Mr. Oliver was Executive Vice President for Worldwide Marketing and Business Development for Silicon Border Development, a privately-owned developer of industrial properties for high technology companies. From 2004 to 2007, Mr. Oliver was a Senior Vice President at Thomas Group, a consultancy that specialized in operational improvement. From 1998 to 2003, Mr. Oliver was engaged as in a business development role with PricewaterhouseCoopers working with medical device and technology companies. From 1990 to 1998, Mr. Oliver was a member of four separate management teams that took struggling medical device companies, increased their revenues and profitability and sold them to strategic buyers. In those companies he served in the capacity of head of sales and marketing and, in two cases, had major operational responsibilities as well. He began his career with American Hospital Supply Corporation serving in a variety of sales, marketing and general management positions. Mr. Oliver received his MSA from George Washington University and his BS from the United States Naval Academy. The Board believes that Mr. Oliver's experience in the medical device and technology industries, as well as his success in increasing revenues for medical device companies, make Mr. Oliver a valuable resource for the Board.

**Jim Dorst, Vice President of Finance and Chief Financial Officer and Chief Operating Officer**, joined the Company as Vice President of Finance and Chief Financial Officer in December 2007, and was appointed the Company's Chief Operating Officer in October 2010. Mr. Dorst brings to the Company over 20 years of senior management experience in finance, operations, planning and business transactions. From July 2004 to December 2007, Mr. Dorst was Chief Financial Officer of Aethlon Medical, Inc., a public medical device development company. Before joining Aethlon, Mr. Dorst was Vice President of Finance and Operations for Verdisoft Corporation, a developmental-stage mobile-software developer acquired by Yahoo, Inc. Previously, he held executive positions as SVP of Finance and Administration at SeeCommerce, COO/CFO of Omnis Technology Corp and CFO / SVP of Information Technology at Savoir Technology Group, Inc. (acquired by Avnet, Inc.). Mr. Dorst practiced as a Certified Public Accountant with Coopers & Lybrand (now PricewaterhouseCoopers LLP) and holds an MS in Accounting and a BS in Finance from the University of Oregon.

**Mark McWilliams, Director**. Since June 2007, Mr. McWilliams has served as the CEO of Medipacs, Inc., a development stage infusion pump company. From December 2003 to November 2005, Mr. McWilliams was Director of Cell Imaging and Analysis at Beckman Coulter after the sale of Q3DM to Beckman in December 2003. He was President and Chief Executive Officer and Director of Q3DM from October 2001 to December 2003, a life-sciences startup that raised several angel and venture capital funding rounds that was acquired by Beckman Coulter. Previously, he was founder and COO of Medication Delivery Devices ("MDD"), an alternate care infusion systems company that was acquired by Baxter Healthcare in 1996. Mr. McWilliams served as a VP of Research and Development at Baxter Healthcare for three years following the sale of MDD. Prior to MDD, he served as Product Development Manager at the founding of Block Medical where he was responsible for bringing the company's first two FDA approved products rapidly to market. Block was sold to Hillenbrand Industries in 1991. He previously worked for Hughes Aircraft, Vacuum General and Martin Marietta. Mr. McWilliams brings his expertise in managing and growing small technology companies and his strong network of contacts within the medical devices industry, to the Board of Directors. He earned his MSME from the Massachusetts Institute of Technology, his BSME from Northeastern University and holds eight utility patents.

**Sheldon L. Miller, Director**. Sheldon L. Miller has been a litigator and expert counsel for more than forty years and in private practice for more than 30 years. Mr. Miller has operated the Law Office of Sheldon Miller, PC for the past 30 years. Mr. Miller was a member of the Board of Governors of the American Trial Lawyers Association from 1977 through 2009 (longest tenure in history). From 1979 through 1992, he was the President of the Mediation Tribunal Association in Wayne County (Detroit), Michigan. In 1971, he pioneered the concept of mediation and was the first mediator on behalf of the Plaintiff's Bar in the State of Michigan. Mr. Miller was also the first to prosecute and articulate the concept of "comparative negligence" in the State of Michigan. Mr. Miller graduated from Wayne State University Law School in Detroit in 1961. Mr. Miller brings his considerable experience in legal risk analysis and responsibility to the Board of Directors.

**Stanley J. Pappelbaum M.D., Director**. Dr. Pappelbaum has been Managing Partner of Pappelbaum, Turner & Associates, a national healthcare consultancy company that advises hospital, medical group, health insurance, and governmental healthcare clients, since 2000. Dr. Pappelbaum joined Scripps hospital in 1996 as Chief Transformational Officer in charge of creating and implementing Scripps' strategic vision of the future. In 1997, he was promoted to Executive Vice President and Chief Operating Officer and, in 1999, he was promoted to President

and Chief Executive Officer when the hospital reached annual revenues of over \$1 billion. From 1985 to 1995, he was the managing partner of Professional Health Consulting Group, a national company of physician executives that analyzed and managed change for complex not-for-profit healthcare systems clients throughout the United States. From 1969 to 1984, Dr. Pappelbaum taught and practiced Pediatric Cardiology at the University of California, San Diego and at San Diego Children's Hospital, where he was Chief of Pediatric Cardiology from 1972 to 1978. Dr. Pappelbaum completed his undergraduate work at McGill University in Montreal and received his medical degree from the University of British Columbia Faculty of Medicine in Vancouver. He completed his residency in pediatric medicine at Montreal Children's Hospital of McGill University and did graduate studies in cardiovascular physiology and a fellowship in pediatric cardiology at the University of California, Los Angeles. He also was awarded an Alfred P. Sloan Fellowship at the Massachusetts Institute of Technology, where he earned a Master's degree in management (health option). Dr. Pappelbaum brings his intimate knowledge of the healthcare industry and familiarity with recent changes in the healthcare environment to the Board of Directors.

**Chester E. Sievert, Jr., Director.** Mr. Sievert has been President of Advanced Photodynamic Technologies since January 2003. He previously worked at SpectraScience as a consultant in June 1996, and subsequently held various executive positions. Mr. Sievert served as Chairman of the Board of SpectraScience beginning in June 1999. He served as President from March 1998, and Chief Executive Officer from January 1999 until December 2001. He then became Executive Vice President of Technology and Chairman of the Board until September 2002. Prior to joining SpectraScience, Mr. Sievert was a founder and President of two medical product companies: ReTech, Inc., from 1980 to 1986, and FlexMedics Corporation, from 1986 to 1995. Both companies were sold to American Endoscopy, Inc. and Phillips Plastics Corporation, respectively. As a former Senior Research Health Scientist on staff at the University of Minnesota Medical School and the Veterans Administration Medical Center, Mr. Sievert has published more than 50 medical journal articles in the fields of gastroenterology, endoscopy and fiber optics. He has also been awarded eight United States and international patents. Mr. Sievert has a Bachelor of Science Degree in Comparative Physiology from the University of Minnesota. Mr. Sievert brings his significant experience in the application of light based and fluorescence technologies in the medical field to the Board of Directors, as well as his significant management experience and legacy understanding of the Company.

**F. Duwaine Townsend, Director.** Mr. Townsend co-founded and has been the Managing Partner of EndPoint Late-Stage Fund of San Diego since 1999. This fund invests exclusively in late-stage life science companies. Mr. Townsend co-founded the Ventana Growth Funds in 1982 and served as the group's Managing Partner directing investments in early and middle stage life-science, high-technology and telecommunications companies. Prior to this, Mr. Townsend was the CEO and Chairman of Kay Laboratories, Inc., a medical device company, where he led the company through a successful IPO in 1978 and subsequent sale to American Hospital Supply Corporation in 1981. Following his public accounting experience, Mr. Townsend became a founder and Chief Financial Officer of Oceanographic Engineering Corporation and guided the company to profitability and its sale to Dillingham Corporation in 1967. Mr. Townsend serves as a director on the board of Sequal Technologies, a privately held high-technology company and has held numerous directorships at private and public companies, some of which included Agouron Pharmaceuticals, Inc., Brooktree Corporation, Cymer, Inc. and Maxim Pharmaceuticals, Inc. Mr. Townsend began his career with Arthur Young & Co. after graduating from San Diego State University. Mr. Townsend brings his specific public accounting environment and public markets experience to the Board of Directors, as well as his deep expertise related to corporate governance and fiduciary responsibility issues.

Our Board of Directors has the responsibility for establishing broad corporate policies and for overseeing our overall performance. Members of the Board are kept informed of our business activities through discussions with the CEO and other officers, by reviewing analyses and reports sent to them, and by participating in Board and committee meetings. Our bylaws provide that each of the directors serves for a term that extends until resignation or replacement and the elections of directors that serve for an indefinite term shall take place at each regular shareholders meeting.

**Code of Ethics.** The Company has adopted a code of ethics applicable to all employees, officers and directors of the Company. The code is available at no charge by request to the Company in writing, to the attention of the CFO. The Code is also available on the Corporate Governance section of the Company's website at [www.spectrascience.com](http://www.spectrascience.com). The Company intends to satisfy Form 8-K disclosure requirements by including on its website any amendment to, or waiver from, a provision of its Code of Ethics policy that applies to the principal executive officer, principal financial officer, principal accounting officer and controller that relates to any element of the code of ethics definition enumerated in Item 406(b) of Regulation S-K under the Securities Act of 1933.

## SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Securities Exchange Act of 1934 requires the Company's executive officers and directors, and persons who own more than ten percent of the Company's Common Stock, to file with the Securities and Exchange Commission initial reports of ownership and reports of changes in ownership of Common Stock and other equity securities of the Company. Officers, directors and greater than ten percent shareholders ("Insiders") are required by SEC regulation to furnish the Company with copies of all Section 16(a) forms they file.

To the Company's knowledge, based on a review of the copies of such reports furnished to the Company during the fiscal year ended December 31, 2010, all Section 16(a) filing requirements applicable to Insiders were complied with, except for the following:

- James W. Dorst filed two late reports, each of which was regarding the grant of one stock option.
- Mark McWilliams filed one late Form 4 to report a stock option grant that occurred in 2008 and also reported two sales of common stock in 2009.
- Sheldon Miller filed four late reports: one late Form 3 to report his appointment as a director and three late Form 4s to report (1) the grant of a stock option, (2) his purchase of Units of Series C Preferred Stock and Warrants and (3) his purchase of common stock. Mr. Miller also filed a Form 5 in 2011 to report common stock ownership and a warrant not previously reported on his original Form 3 filing in 2010.
- Michael P. Oliver filed two late reports: one Form 3 that reported his appointment as an officer and one Form 4 that reported the grant of a stock option.
- Stanley J. Pappelbaum filed a Form 5 in 2011 to report the grant of a 2008 stock option.
- Chet Sievert filed one late Form 4 to report his 2008-2010 sales of common stock and his 2008 grant of a stock option.

**Audit Committee Financial Expert.** The Audit Committee of the Board of Directors is comprised of three non-employee directors; F. Duwane Townsen (Chairman), Mark McWilliams and Dr. Stanley Pappelbaum. The Board of Directors has determined that Mr. Townsen is an audit committee financial expert and is independent as defined under NASDAQ Rule 5605(a)(2).

### ITEM 11. EXECUTIVE COMPENSATION

#### *Summary Compensation Table*

The following table summarizes compensation awarded to, earned by or paid to each person that served as the Company's Chief Executive Officer during fiscal year 2010 and the most highly compensated executive officer other than the Chief Executive Officer, with respect to our fiscal years ended December 31, 2010 and 2009. In this annual report on Form 10-K, we refer to these executive officers collectively as our "named executive officers."

Name and Principal Position	Year	Salary (\$)	Stock Awards (\$)	Option Awards (\$) (5)	Total (\$)
Jim Hitchin - (1) Former Chairman, President and Chief Executive Officer	2010	\$ 182,838	\$ -	\$ -	\$ 182,838
	2009	\$ 88,929	\$ -	\$ -	\$ 88,929
Mark McWilliams (2) – Chairman and Interim Chief Executive Officer	2010	\$ -	\$ 8,000	\$ -	\$ 8,000
	2009	\$ -	\$ -	\$ -	\$ -
Michael P. Oliver – (3) President and Chief Executive Officer	2010	\$ 17,308	\$ -	\$ 373,455	\$ 390,763
	2009	\$ -	\$ -	\$ -	\$ -
Jim Dorst – (4) Chief Financial Officer and Chief Operating Officer	2010	\$ 154,110	\$ -	\$ 212,602	\$ 366,712
	2009	\$ 160,101	\$ -	\$ -	\$ 153,916

- (1) Mr. Hitchin, the Company's former Chairman, President and CEO, resigned his positions on October 20, 2010. Through that date he had received \$174,504 in compensation for the fiscal year ended December 31, 2010. Mr. Hitchin also received \$8,333 in compensation under a consulting agreement for the fiscal year ended December 31, 2010.
- (2) Mr. McWilliams served as the Company's Interim Chief Executive Officer during October and November 2010. In January 2011, the Board of Directors approved the issuance of 42,222 shares of restricted Common Stock to Mr. McWilliams, valued at approximately \$8,000, the fair market value of the stock on the date of issuance, as compensation for his services during that time. The shares were issued without any risk of forfeiture of provisions.
- (3) Mr. Oliver was appointed President and CEO on November 29, 2010. On December 17, 2010, Mr. Oliver received a stock option grant to purchase 3,300,000 shares of Common Stock at an exercise price of \$0.15, which was the fair market value of the underlying stock on the date of grant. This stock option vests 1/4 on the first anniversary date of grant and 1/36 monthly thereafter for the remaining 36 months. This stock option was valued at \$373,455 at the time of grant using the Black-Scholes option pricing model. Mr. Oliver is paid a base annual salary of \$225,000 and may earn up to an additional \$75,000 upon the

achievement of goals related to the Company's entry into certain international distribution agreements and is not subject to any severance or change in control agreements.

- (4) Mr. Dorst is the Company's Vice President of Finance, Chief Financial Officer and Chief Operating Officer. He does not have a written employment agreement, his salary is not dependent on performance targets, goals or other conditions and he is not subject to any severance or change in control arrangements. Mr. Dorst received a stock option grant to purchase 400,000 shares of Common Stock on May 21, 2010 at an exercise price of \$0.24 per share and a grant to purchase 1,500,000 shares of Common Stock on December 17, 2010 at an exercise price of \$0.15 per share. On December 17, 2010, Mr. Dorst forfeited the right to receive a previously issued stock option grant to purchase 400,000 shares of Common Stock at an exercise price of \$0.90 per share. The fair value of the 2010 stock option grants was determined using the Black-Scholes option pricing model and the grants were valued at \$78,924 and \$133,678, respectively. Mr. Dorst's 400,000 stock option grant vests over three years, 1/3 annually on each anniversary date of grant, Mr. Dorst's 1,500,000 stock option vests 1/4 on the first anniversary date of grant and 1/36 monthly thereafter for the remaining 36 months.
  - (5) The value of each option award is the grant date fair value as determined under FASB ASC Topic 718, *Compensation – Stock Compensation*, or ASC 718.
-

**Pension Benefits.** The Company does not have a pension benefit plan.

**Nonqualified Deferred Compensation.** There was no nonqualified deferred compensation in fiscal year 2010 to officers of the Company.

**Grants of Plan-Based Awards, Option Exercises and Stock Vested.** The following table describes the outstanding stock option grants to executive officers and required additional individuals at fiscal year end. There are no Stock Awards issued or outstanding.

<b>Outstanding Equity Awards at Fiscal Year End Options Awards</b>					
<b>Name</b>	<b>Number of Securities Underlying Unexercised Options (#) Exercisable</b>	<b>Number of Securities Underlying Unexercised Options (#) Unexercisable</b>	<b>Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)</b>	<b>Option Exercise Price (\$)</b>	<b>Option Expiration Date</b>
Michael P. Oliver	3,300,000	3,300,000	—	\$ 0.15	12/17/2020
Jim Dorst	400,000	400,000	—	\$ 0.24	05/21/2020
	1,500,000	1,500,000	—	\$ 0.15	12/17/2020

#### **Compensation of Directors.**

The Company does not pay directors for Board of Directors' meetings or committee meetings attended, but reimburses each such director for reasonable travel and out-of-pocket expenses for attendance at these meetings.

Pursuant to the SpectraScience, Inc. Amended 2001 Stock Option Plan, non-employee directors McWilliams and Sievert were granted non-qualified stock options to purchase 400,000 and 300,000 shares of Common Stock, respectively, on July 26, 2004 at an exercise price of \$0.15 per share. Dr. Pappelbaum joined the Board on June 2006 and was granted a non-qualified stock option to purchase 400,000 shares of Common Stock at an exercise price of \$1.09 per share. On November 7, 2008 directors McWilliams, Pappelbaum and Sievert were each granted non-qualified stock options to purchase 400,000 shares of common stock at an exercise price of \$0.38 per share. Mr. Townsen was granted a non-qualified stock option to purchase 400,000 shares of Common Stock at an exercise price of \$0.27 per share on July 20, 2009. Mr. Miller was granted a non-qualified stock option to purchase 400,000 shares of Common Stock at an exercise price of \$0.24 per share on May 21, 2010. The exercise prices of the options were based on the prevailing market price (defined as the closing price) of the Common Stock on the date of grant.

The options granted to employee and non-employee directors under the Amended 2001 Stock Option Plan expire ten years from the date of grant (subject to earlier termination in the event of death or termination), are not transferable (except by will or the laws of descent and distribution), and become exercisable in three equal annual installments commencing on the date of grant except for the November 7, 2008, July 20, 2009, December 4, 2009 and May 21, 2010 grants which commence vesting in three equal annual amounts one year from the date of grant.

The following table shows the fair value of the compensation earned by each of our non-employee directors who received stock option grants during the year ended December 31, 2010:

## DIRECTOR COMPENSATION

Name	Option Awards (\$) <sup>(3)</sup>	Total
Sheldon L. Miller <sup>(1)(2)</sup>	\$ 78,924 <sup>(2)</sup>	\$ 78,924

- (1) The aggregate number of stock awards and options awards issued and outstanding as of December 31, 2010 are 0 and 400,000.
- (2) On May 21, 2010, Mr. Miller was granted a non-qualified stock option to purchase 400,000 shares of Common Stock at an exercise price of \$0.24 per share. The option vests one-third on each anniversary date from initial grant and will be fully vested on May 21, 2013. The \$78,924 represents the fair value of the stock option as determined on the date of grant.
- (3) The value of each option award is the grant date fair value as determined under FASB ASC Topic 718, *Compensation – Stock Compensation*, or ASC 718.

### ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED SHAREHOLDER MATTERS.

#### *Summary of Securities Authorized for Issuance Under Equity Compensation Plans*

The following table sets forth December 31, 2010 information on our equity compensation plans in effect as of that date:

Plan category	EQUITY COMPENSATION PLAN INFORMATION		
	(a)	(b)	(c)
	Number of securities to be issued upon exercise of outstanding options, warrants and rights (1)	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders	14,695,000	\$ 0.37	1,504,179
Equity compensation plans not approved by security holders	—	—	—
<b>Totals</b>	<b>14,965,000</b>	<b>\$ 0.37</b>	<b>1,504,179</b>

(1) Net of equity instruments forfeited, exercised or expired.

#### *2001 Amended Stock Option Plan*

Our 2001 Amended Stock Option Plan (the “Option Plan”) provides for the grant of incentive stock options (“ISOs”) to our employees (who may also be directors) and nonqualified stock options (“NSOs”) to non-employee directors, consultants, customers, vendors or providers of significant services. The Option Plan expired on January 30, 2011. The exercise price of any ISO may not be less than the fair market value of the common stock on the date of grant and the term shall not exceed ten years. The amount reserved under the Option Plan equals 15% of the outstanding shares of the Company totaling 16,199,179 at December 31, 2010. At December 31, 2010, we had option grants outstanding for 14,695,000 common shares under the Plan, with 1,504,179 available for future issuance.

The Company’s Option Plan provides that the number of shares of common stock available for issuance under the plan shall always equal 15% of the number of shares of common stock of the Company issued and outstanding.

## OWNERSHIP OF COMMON STOCK

The following table shows as of March 25, 2011, the stock ownership of (i) all persons known by us to be beneficial owners of more than five percent of our outstanding shares of Common Stock, (ii) each director and each nominee for election as a director, (iii) the Named Executive Officers (as defined above in the section titled “Executive Compensation”), and (iv) all current directors and executive officers as a group:

Beneficial ownership of the Common Stock is determined in accordance with the rules of the SEC and includes any shares of Common Stock over which a person exercises shared or sole voting or investment powers, or of which a person has a right to acquire ownership at any time within 60 days of March 25, 2011. Except as otherwise indicated, and subject to applicable community property laws, the persons named in this table have sole voting and investment power with respect to all shares of Common Stock held by them. Applicable percentage ownership in the following table is based on 108,041,095 shares of Common Stock outstanding as of March 25, 2011, plus for each individual, any securities that individual has the right to acquire within 60 days of March 25, 2011.

Unless otherwise indicated below, the address of each principal shareholder is c/o SpectraScience, Inc., 11568-11 Sorrento Valley Road, San Diego, California 92121.

Beneficial Owner	Amount and Nature of Beneficial Ownership <sup>(1)</sup>	Percent of Class
EuclidSR Partners, LP <sup>(2)</sup>	8,776,371	8 %
Jim Hitchin <sup>(3)</sup>	6,912,230	6 %
Sheldon L. Miller <sup>(5)(6)</sup>	4,925,716	4 %
Mark McWilliams <sup>(5)(7)</sup>	562,222	*
Stanley Pappelbaum M.D. <sup>(5)(8)</sup>	450,000	*
Chester E. Sievert <sup>(5)(9)</sup>	405,000	*
Jim Dorst <sup>(4)(10)</sup>	133,333	*
Michael P. Oliver <sup>(4)(5)</sup>	-	*
F. Duwane Townsen <sup>(5)</sup>	-	*
Directors and executive officers, as a group (seven persons) <sup>(11)</sup>	6,476,272	6 %

\* Less than 1%

- (1) Beneficial ownership is determined in accordance with Rule 13d-3(a) of the Securities Exchange Act of 1934 and generally includes voting or investment power with respect to securities. Except as indicated by footnotes and subject to community property laws, where applicable, the person named above has sole voting and investment power with respect to all shares of the Common Stock shown as beneficially owned by him or her.
- (2) EuclidSR Partners, LP (“Euclid”) owns 6,143,404 shares of Common Stock and is affiliated by common control with EuclidSR Biotechnology Partners, which together own 8,776,371 shares. Based on current information obtained from Euclid, their ownership is held between EuclidSR Partners, LP and EuclidSR Biotechnology Partners. The business address for all Euclid affiliated entities is 45 Rockefeller Plaza, Suite 3240, New York, New York 10111.
- (3) Mr. Hitchin resigned as President and CEO on October 20, 2010. The address for Mr. Hitchin is 14820 de la Valle Place, Del Mar, California 92014.
- (4) Executive Officer
- (5) Director
- (6) Includes 133,333 shares which may be acquired upon exercise of options which are currently exercisable or which become exercisable within 60 days of March 25, 2011. Also includes warrants to purchase 1,558,078 shares of Common Stock which are currently exercisable or which become exercisable within 60 days of March 25, 2011. Also includes 75,000 shares held indirectly as custodian for grandchildren, and 1,046,155 shares held indirectly by SM Company, LLC, over which Mr. Miller has sole voting and investment power.
- (7) Includes 400,000 shares which may be acquired upon exercise of options which are currently exercisable or which become exercisable within 60 days of March 25, 2011.
- (8) Includes 450,000 shares held indirectly by Professional Health Technologies, Inc. Dr. Pappelbaum is the Chief Executive Officer of the company and disclaims beneficial ownership of the shares held by the company.
- (9) Includes 300,000 shares which may be acquired upon exercise of options which are currently exercisable or which become exercisable within 60 days of March 25, 2011.
- (10) Includes 133,333 shares which may be acquired upon exercise of options which are currently exercisable or which become exercisable within 60 days of March 25, 2011.
- (11) Includes warrants to purchase 1,558,078 shares of Common Stock which are currently exercisable or which become exercisable within 60 days of March 25, 2011. Also includes 966,667 shares which may be acquired upon exercise of options which are currently exercisable or which become exercisable within 60 days of March 25, 2011.



### ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE.

#### *Related Party Transactions*

There have been no transactions during the last two fiscal years to which we have been a party in which the amount involved exceeded \$75,777 (or 1% of the Company's average total assets for the last two fiscal years) and in which any of our executive officers, directors or beneficial holders of more than 5% of our capital stock had or will have a direct or indirect material interest.

#### *Director Independence*

Although the Company is not listed on a national securities exchange, the Company has chosen to evaluate independence based upon the NASDAQ listed company rules. The Company has determined that Messrs. Miller, Pappelbaum, Sievert, and Townsen are independent under NASDAQ Rule 5605(a)(2). Messrs. Oliver and McWilliams are not independent under NASDAQ Rule 5605(a)(2) because each either has an employment relationship with the Company, or has had an employment relationship with the Company during the past three years. Other than Mr. Oliver and Mr. McWilliams, the remaining directors of the Company are independent in that they have no relationship to the corporation that may interfere with the exercise of their independence from management and the Company. No independent director has a business or family relationship with another director to the best of management's knowledge.

### ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES.

#### *Policy on Audit Committee Pre-Approval of Audit and Permissible Non-Audit Services of Independent Registered Public Accounting Firm*

Our audit committee of the Board of Directors is responsible for pre-approving all audits and permitted non-audit services to be performed for us by our Independent Registered Public Accounting Firm.

Our Audit Committee must pre-approve all audit services, engagement fees and terms, and all permitted non-audit engagements, subject to the de minimus exceptions permitted pursuant to the Securities Exchange Act of 1934. All audit-related fees were approved by our Audit Committee in fiscal 2010.

**Independent Registered Public Accounting Firms' Fees.** The firm of McGladrey & Pullen LLP, Independent Registered Public Accounting Firm, audited our consolidated financial statements for the years ended December 31, 2010 and 2009.

The following table presents fees for professional services rendered for the two most recent fiscal years.

	Year Ended December 31, 2010	Year Ended December 31, 2009
Audit fees (1)	\$ 74,000	\$ 122,050
Audit-related fees (2)	23,110	—
Tax fees	—	—
All other fees	—	—
Other	—	—
	<u>\$ 97,110</u>	<u>\$ 122,050</u>

(1) Audit fees include fees billed and expected to be billed for the fiscal year ended December 31, 2010 and fees billed and expected to be billed for professional services rendered for the audit of our annual consolidated financial statements for that period, the review of our consolidated financial statements included in our reports on Form 10-Q, and accounting consultations necessary for the rendering of an opinion on our consolidated financial statements.

(2) Audit-related fees include fees billed for the fiscal year ended December 31, 2010 for professional services rendered primarily for consultation and review of securities registration filings and related consents.

## PART IV

### ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) Documents filed as part of this report.

(1) Financial Statements. The following financial statements are included in Part II, Item 8 of this Annual Report on Form 10-K:

Report of Independent Registered Public Accounting Firm

Consolidated Balance Sheets as of December 31, 2010 and 2009

Consolidated Statements of Operations for the years ended December 31, 2010 and 2009

Consolidated Statements of Shareholders' Equity for the years ended December 31, 2010 and 2009

Consolidated Statements of Cash Flows for the years ended December 31, 2010 and 2009

Notes to Consolidated Financial Statements

(2) Financial Statement Schedules. Not applicable.

(3) Exhibits. See "Exhibit Index to Form 10-K" immediately following the signature page of this Form 10-K for a description of the documents that are filed as Exhibits to this report or incorporated by reference herein.

SIGNATURES

Pursuant to the requirements of Sections 13 and 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

**SpectraScience, Inc.**  
**(Registrant)**

Date: March 31, 2011

By: /s/ Michael P. Oliver  
Michael P. Oliver - President and  
Chief Executive Officer

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

/s/ Michael P. Oliver  
Michael P. Oliver  
President and Chief Executive Officer  
(Principal Executive Officer) Date: March 31, 2011

/s/ James Dorst  
James Dorst  
Chief Financial Officer and Chief Operating Officer  
(Principal Financial and Accounting Officer) Date: March 31, 2011

/s/ Mark D. McWilliams  
Mark D. McWilliams  
Director Date: March 31, 2011

/s/ Stanley J. Pappelbaum  
Stanley J. Pappelbaum  
Director Date: March 31, 2011

/s/ Chester E. Sievert  
Chester E. Sievert, Jr.  
Director Date: March 31, 2011

/s/ Duwaine Townsen  
Duwaine Townsen  
Director Date: March 31, 2011

/s/ Sheldon L. Miller  
Sheldon L. Miller  
Director Date: March 31, 2011

SPECTRASCIENCE, INC.  
EXHIBIT INDEX  
FORM 10-K FOR FISCAL YEAR 2010

<b>Exhibit No.</b>	<b>Description</b>
2.1	Stock Purchase Agreement by and among the Company, Euclid Partners IV, L.P., EuclidSR Partners, L.P., EuclidSR Biotechnology Partners IV, L.P., Stephen L. Watson and Ross Flewelling (Incorporated by reference to exhibit 2.1 to the Company's Report on Form 8-K filed on November 13, 2007)
3.1	Certificate of Amendment to Articles of Incorporation (Incorporated by reference to exhibit 3.3 to the Company's Report on Form 10-Q for the quarter ended September 30, 2009, filed on November 16, 2009)
3.2	Amended and Restated Articles of Incorporation (Incorporated by reference to exhibit 3.1 to the Company Report on Form 8-K filed August 6, 2004)
3.3	Amended Bylaws (Incorporated by reference to exhibit 3.2 to the Company's Registration Statement on Form S-1 filed on April 30, 2009)
4.1	Certificate of Designation of the Relative Rights and Preferences of the Series A Preferred Stock (Incorporated by reference to exhibit 4.1 to the Company's Report on Form 10-QSB for the quarter ended June 30, 2007, filed on August 14, 2007)
4.2	Warrant to Purchase Series A Preferred Stock of SpectraScience, Inc. (Incorporated by reference to exhibit 4.2 to the Company's Report on Form 10-QSB for the quarter ended June 30, 2007, filed on August 14, 2007)
4.3	Common Stock Purchase Warrant issued to Placement Agent (Incorporated by reference to exhibit 4.3 to the Company's Report on Form 10-KSB for the fiscal year ended December 31, 2005, filed on March 31, 2008)
4.4	Certificate of Designation of Rights and Preferences of Series B Preferred stock of SpectraScience, Inc. (Incorporated by reference to exhibit 4.6 to the Company's Report on Form 8-K filed on November 6, 2009)
4.5	Form of Warrant to Purchase Common Stock of SpectraScience, Inc. issued to Holders of Series B Preferred Stock (Incorporated by reference to exhibit 4.5 to the Company's Report on Form 8-K filed on November 6, 2009)
4.6	Form of Warrant to Purchase Common Stock of SpectraScience, Inc. issued to Holders of Series C Preferred Stock (Incorporated by reference to exhibit 4.5 to the Company Report on Form 8-K filed June 24, 2010)
4.7	Certificate of Designation of Rights and Preferences of Series C Preferred Stock of SpectraScience, Inc. (Incorporated by reference to exhibit 4.6 to the Company Report on Form 8-K filed June 24, 2010)
4.8	Form of Agent Warrant for Series C Preferred Stock offering (Incorporated by reference to exhibit 4.6 to the Company's Registration Statement on Form S-1/A filed on August 26, 2010)
10.1	Common Stock Purchase Agreement dated as of January 30, 2009, by and between SpectraScience, Inc. and Fusion Capital Fund II, LLC (Incorporated by reference to exhibit 10.1 to the Company's Report on Form 8-K filed on February 4, 2009)
10.2	Registration Rights Agreement dated as of January 30, 2009, by and between SpectraScience, Inc. and Fusion Capital Fund II, LLC. (Incorporated by reference to exhibit 10.2 to the Company's Report on Form 8-K filed on February 4, 2009)
10.3*	Amended 2001 Stock Plan (Incorporated by reference to exhibit 10.27 to the Company's Report on Form 8-K filed on August 6, 2004)
10.4*	Form of Directors' Option Agreement (Incorporated by reference to exhibit 10.1 to the Company's Report on Form S-1 filed April 30, 2009)
10.5*	2011 Equity Incentive Plan (Incorporated by reference to exhibit 10.1 to the Company's Report on Form 8-K filed on March 1, 2011)
10.6*	Form of Nonqualified Stock Option Award Agreement (Incorporated by reference to exhibit 10.2 to the Company's Report on Form 8-K filed on March 1, 2011)
10.7*+	Offer Letter to Michael P. Oliver
10.8	Dealer Agreement dated April 6, 2010 by and between the Company and Felix Investments, LLC (Incorporated by reference to exhibit 10.6 to the Company's Registration Statement on Form S-1/A filed on August 26, 2010)
10.9	Dealer Agreement dated July 2, 2009 by and between the Company and Felix Investments, LLC (Incorporated by reference to exhibit 10.5 to the Company's Registration Statement on Form S-1/A filed on August 26, 2010)
21+	Subsidiaries of the registrant – Luma Imaging Corporation
23.1+	Consent of Independent Registered Public Accounting Firm – McGladrey & Pullen LLP
31.1+	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2+	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1+	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2+	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

+ Filed herewith.

\* Denotes management compensatory plan or contract.



November 24, 2010

Michael P. Oliver  
San Diego, California 92127

Dear Michael:

I am pleased to offer you a position with SpectraScience, Inc. (the “**Company**”), as its Chief Executive Officer. If you decide to join us, you will receive an annual salary of \$225,000, which will be paid weekly in accordance with the Company’s normal payroll procedures. In addition you will be paid cash bonuses of \$25,000 upon the signing of a distribution agreement between the Company and [a distribution agreement with a large strategic partner], and an additional \$50,000 upon the signing of a distribution agreement between the Company and [a distribution agreement with a large strategic partner] for the EMEA market. As an employee, you will also be eligible to receive certain employee benefits as described in the SpectraScience, Inc. Employee Handbook. As an additional benefit, the Company will pay your family’s health insurance premiums. You should note that the Company may modify job titles, salaries and benefits from time to time as it deems necessary.

In addition, if you decide to join the Company, it will be recommended at the first meeting of the Company’s Board of Directors following your start date that the Company grant you an option to purchase 3,300,000 shares of the Company’s Common Stock at a price per share equal to the fair market value per share of the Common Stock on the date of grant, as determined by the Company’s Board of Directors. 25% of the shares subject to the option shall vest 12 months after the date your vesting begins subject to your continuing employment with the Company, and no shares shall vest before such date. The remaining shares shall vest monthly over the next 36 months in equal monthly amounts subject to your continuing employment with the Company. This option grant shall be subject to the terms and conditions of the SpectraScience, Inc. Amended 2001 Stock Plan, including vesting requirements. This is subject to approval by the Board of Directors. No right to any stock is earned or accrued until such time that vesting occurs, nor does the grant confer any right to continue vesting or employment.

The Company is excited about your joining and looks forward to a beneficial and productive relationship. Nevertheless, you should be aware that your employment with the Company is for no specified period and constitutes at-will employment. As a result, you are free to resign at any time, for any reason or for no reason. Similarly, the Company is free to conclude its employment relationship with you at any time, with or without cause, and with or without notice. We request that, in the event of resignation, you give the Company at least two weeks notice.

The Company reserves the right to conduct background investigations and/or reference checks on all of its potential employees. Your job offer, therefore, is contingent upon a clearance of such a background investigation and/or reference check, if any.

For purposes of federal immigration law, you will be required to provide to the Company documentary evidence of your identity and eligibility for employment in the United States. Such documentation must be provided to us within three (3) business days of your date of hire, or our employment relationship with you may be terminated.

We also ask that, if you have not already done so, you disclose to the Company any and all agreements relating to your prior employment that may affect your eligibility to be employed by the Company or limit the manner in which you may be employed. It is the Company’s understanding that any such agreements will not prevent you from performing the duties of your position and you represent that such is the case. Moreover, you agree that, during the term of your employment with the Company, you will not engage in any other employment, occupation, consulting or other business activity directly related to the business in which the Company is now involved or becomes involved during the term of your employment, nor will you engage in any other activities that conflict with your obligations to the Company. Similarly, you agree not to bring any third party confidential information to the Company, including that of your former employer, and that in performing your duties for the Company you will not in any way utilize any such information.

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As a Company employee, you will be expected to abide by the Company's rules and standards. Specifically, you will be required to sign an acknowledgment that you have read and that you understand the Company's rules of conduct, which are included in the Employee Handbook, a copy of which is included with this offer letter.

To accept the Company's offer, please sign and date this letter in the space provided below. A duplicate original is enclosed for your records. If you accept our offer, your first day of employment will be November 29, 2010 . This letter, along with any agreements relating to proprietary rights between you and the Company, set forth the terms of your employment with the Company and supersede any prior representations or agreements including, but not limited to, any representations made during your recruitment, interviews or pre-employment negotiations, whether written or oral. This letter, including, but not limited to, its at-will employment provision, may not be modified or amended except by a written agreement signed by the Chairman of the Company and you. This offer of employment will terminate if it is not accepted, signed and returned by November 29, 2010.

We look forward to your favorable reply and to working with you at SpectraScience, Inc.

Sincerely,

/s/ Mark McWilliams  
Mark McWilliams  
Chairman

Agreed to and accepted:

Signature: /s/ Michael P. Oliver .

Printed Name: Michael P. Oliver

Date: November 24, 2010

Consent of the Independent Registered Public Accounting Firm

We consent to the incorporation by reference in Registration Statement (No. 333-128227) on Form S-8 of SpectraScience, Inc. of our report dated March 31, 2011, relating to our audit of the consolidated financial statements, which appear in this Annual Report on Form 10-K of SpectraScience, Inc. for the year ended December 31, 2010.

/s/ McGladrey & Pullen, LLP

Des Moines, Iowa  
March 31, 2011

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## CERTIFICATION

## PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Michael P. Oliver, certify that:

1. I have reviewed this annual report on Form 10-K of SpectraScience, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
  - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

March 31, 2011

Signature: /s/ Michael P. Oliver  
Name: Michael P. Oliver  
Title: President and Chief Executive Officer

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## CERTIFICATION

## PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, James Dorst, certify that:

1. I have reviewed this annual report on Form 10-K of SpectraScience, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
  - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

March 31, 2011

Signature: /s/ James Dorst  
Name: James Dorst  
Title: Chief Financial Officer and Chief Operating  
Officer

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CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350 AS ADOPTED

PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of SpectraScience, Inc. (the "Company") on Form 10-K for the year ended December 31, 2010 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned Chief Executive Officer of the Company hereby certifies, pursuant to 18 U.S.C. Sec.1350, as adopted pursuant to Sec.906 of the Sarbanes-Oxley Act of 2002 that based on his knowledge:

- 1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and
- 2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of and for the periods covered in the Report.

/s/ Michael P. Oliver

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Michael P. Oliver  
President and Chief Executive Officer

Dated: March 31, 2011

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CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350 AS ADOPTED

PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of SpectraScience, Inc. (the "Company") on Form 10-K for the year ended December 31, 2010 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned Chief Financial Officer of the Company hereby certifies, pursuant to 18 U.S.C. Sec.1350, as adopted pursuant to Sec.906 of the Sarbanes-Oxley Act of 2002 that based on his knowledge:

- 1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and
- 2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of and for the periods covered in the Report.

/s/ James Dorst

James Dorst  
Chief Financial Officer and Chief Operating Officer

Dated: March 31, 2011

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