

Edgar Filing: SPIRE CORP - Form 10-K

SPIRE CORP
Form 10-K
March 31, 2008

=====

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

- Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 For the fiscal year ended December 31, 2007 or
- Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 For the transition period from _____ to _____

Commission file number: 0-12742

SPIRE CORPORATION
(Exact name of registrant as specified in its charter)

MASSACHUSETTS -----	04-2457335 -----
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

ONE PATRIOTS PARK
BEDFORD, MASSACHUSETTS 01730-2396
(Address of principal executive offices)

(781) 275-6000
(Registrant's telephone number,
including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class -----	Name of Each Exchange on Which Registered -----
COMMON STOCK, \$0.01 PAR VALUE PER SHARE	THE NASDAQ GLOBAL MARKET

Securities registered pursuant to Section 12(g) of the Act: NONE

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 Section 15(d) of the 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 Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements

Edgar Filing: SPIRE CORP - Form 10-K

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. (Check one):

Large accelerated filer Accelerated filer Non-accelerated filer (Do not check if a smaller reporting company) 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

Aggregate market value of the voting stock held by non-affiliates of the registrant based on the last sale price of such stock as reported by The Nasdaq Global Market on June 29, 2007: \$41,581,000

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive proxy statement for the Special Meeting in Lieu of 2008 Annual Meeting of Stockholders to be held on May 22, 2008, are incorporated by reference in Part III of this Form 10-K.

=====

SPIRE CORPORATION
FORM 10-K
FOR THE YEAR ENDED DECEMBER 31, 2007

TABLE OF CONTENTS

PART I

Item 1.	Business	1
Item 1A.	Risk Factors	8
Item 1B.	Unresolved Staff Comments	15
Item 2.	Properties	15
Item 3.	Legal Proceedings	15
Item 4.	Submission of Matters to a Vote of Security Holders	16

PART II

Item 5.	Market for Registrants Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	16
Item 6.	Selected Financial Data	17
Item 7.	Management's Discussion and Analysis of Financial Condition and Results of Operations	17
Item 7A.	Quantitative and Qualitative Disclosures About Market Risk ...	28
Item 8.	Financial Statements	29
Item 9.	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	53
Item 9A(T)	Controls and Procedures	53
Item 9B.	Other Information	55

PART III

Item 10.	Directors, Executive Officers and Corporate Governance	55
Item 11.	Executive Compensation	56
Item 12.	Security Ownership of Certain Beneficial Owners and	

Edgar Filing: SPIRE CORP - Form 10-K

	Management and Related Stockholder Matters	56
Item 13.	Certain Relationships and Related Transactions, and Director Independence	56
Item 14.	Principal Accounting Fees and Services	56
PART IV		
Item 15.	Exhibits, Financial Statements	57
	Signatures	

FORWARD-LOOKING STATEMENTS

THIS REPORT CONTAINS FORWARD-LOOKING STATEMENTS WITHIN THE MEANING OF SECTION 27A OF THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND SECTION 21E OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED (THE "EXCHANGE ACT"), WHICH STATEMENTS INVOLVE RISKS AND UNCERTAINTIES. THESE STATEMENTS RELATE TO OUR FUTURE PLANS, OBJECTIVES, EXPECTATIONS AND INTENTIONS. THESE STATEMENTS MAY BE IDENTIFIED BY THE USE OF WORDS SUCH AS "MAY", "COULD", "WOULD", "SHOULD", "WILL", "EXPECTS", "ANTICIPATES", "INTENDS", "PLANS", "BELIEVES", "ESTIMATES" AND SIMILAR EXPRESSIONS. OUR ACTUAL RESULTS AND TIMING OF CERTAIN EVENTS COULD DIFFER MATERIALLY FROM THOSE DISCUSSED IN THESE STATEMENTS. FACTORS THAT COULD CONTRIBUTE TO THESE DIFFERENCES INCLUDE BUT ARE NOT LIMITED TO, THOSE DISCUSSED UNDER "ITEM 1A. RISK FACTORS", "MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS" AND ELSEWHERE IN THIS REPORT. READERS ARE ENCOURAGED TO CAREFULLY REVIEW THESE RISK FACTORS. THE CAUTIONARY STATEMENTS MADE IN THIS REPORT SHOULD BE READ AS BEING APPLICABLE TO ALL FORWARD-LOOKING STATEMENTS WHEREVER THEY APPEAR IN THIS REPORT. WE UNDERTAKE NO OBLIGATION TO UPDATE ANY FORWARD LOOKING STATEMENTS.

PART I

ITEM 1. BUSINESS

Spire Corporation ("Spire" or the "Company") is a Massachusetts corporation incorporated in 1969. Our principal offices are located at One Patriots Park, Bedford, Massachusetts, and our phone number is (781) 275-6000. Our SEC filings are available through our website, www.spirecorp.com. Our common stock trades on the Nasdaq Global Market under the symbol "SPIR".

PRINCIPAL PRODUCTS AND SERVICES

Overview

We principally develop, manufacture and market customized turnkey solutions for the solar industry, including manufacturing equipment and full turnkey lines for cell and module production and testing. We also offer through our subsidiary Spire Semiconductor concentrator cell and light-emitting diode ("LED") fabrication services and through our joint venture Gloria Spire Solar photovoltaic ("PV") system integration services. We also operate a line of business associated with advanced biomedical applications. The foundation for our business is our industry-leading expertise in materials technologies and surface treatments; this proprietary knowledge enables us to further develop our offerings in solar equipment, optoelectronics, and biomedical products and services.

Edgar Filing: SPIRE CORP - Form 10-K

Our initial focus on high-energy physics led to the development of our first product, the SPI-PULSE electron beam generator, to support research in radiation effects testing. The company moved into the space solar cell business after signing a contract to develop solar cell coverslip for radiation hardening. In addition, we began to develop a new technology based on ion implantation and pulsed electron beam annealing of silicon solar cells. As a result of the energy crisis in the early 1980s, which forced the United States to consider photovoltaics for terrestrial applications, we received our first terrestrial solar cell contract for low cost production using our ion implantation technology. We leveraged this knowledge to develop our state-of-the-art manufacturing equipment, in addition to our offerings in the optoelectronics and biomaterials industries.

As photovoltaic cell and module manufacturers ramp production to meet increasing demand, they will first need to acquire greater quantities of turnkey equipment in order to produce more photovoltaic cells and modules. We believe that we are one of the world's leading suppliers of the manufacturing equipment and technology needed to produce solar photovoltaic power systems. Our individual manufacturing equipment products and our SPI-LINETM integrated turnkey cell and module production lines can be highly scaled, customized, and automated with high throughput. These systems are designed to meet the needs of a broad range of customers ranging from manufacturers relying on mostly manual processes, to some of the largest photovoltaic manufacturing companies in the world.

In addition to our cell and module manufacturing solutions, we have a device fabrication facility where we produce, under contract with our customers, gallium arsenide (GaAs) concentrator cells. The state-of-the-art semiconductor fabrication and foundry facility is the foundation of our solar cell process technology for silicon, polysilicon, thin film and GaAs concentrator cells. Under the name Spire Semiconductor, this division produces GaAs concentrator cells, high performance LEDs, and other custom semiconductor foundry services for our customers.

1

In July 2007, we entered into a joint venture with Gloria Solar Co., Ltd., a leading cell and module manufacturer in Taiwan, which designs, sells and manages installations of photovoltaic systems. Our 45% ownership stake in the joint venture, Gloria Spire Solar, LLC, was obtained through the contribution of our building integrated photovoltaic business to Gloria Solar. This transaction has allowed us to focus more of our attention on our core solar business, while continuing to expand the Spire brand name in the marketplace.

Capitalizing on our expertise in surface treatments, we also have a biomedical division which manufactures medical devices and provides advanced medical device surface treatment processes to our customers. Our medical device business develops, manufactures and sells premium products for vascular access in chronic kidney disease patients. Our surface treatment business modifies the surfaces of medical devices to improve their performance.

We have been in the solar business for over 30 years and have been active in research and development in the space, with over \$100 million of research and development conducted and 50 patents granted to date, as well as cell and module production, having been a pioneer in the early development of solar technology. This expertise has provided the platform and expertise for our manufacturing equipment. In 2007, we nearly doubled 2006 annual revenues and we believe it is possible to grow revenues significantly again in 2008 based upon current orders as of December 31, 2007. We have equipment deployed in approximately 50 countries and have enjoyed the patronage of some of the world's leading solar manufacturers including First Solar, BP Solar, Kyocera, Sharp, Hitachi, Evergreen and Solaria Energia.

Edgar Filing: SPIRE CORP - Form 10-K

INDUSTRY OVERVIEW

Over the last few years, solar power has become one of the fastest growing sources of renewable energy. Key factors which have driven the demand for solar power include rising fossil fuel prices, security concerns over the dependence of fossil fuel imports from areas of volatility, environmental concerns over the hazards associated with fossil fuel use, government incentive programs making solar power more cost competitive, and overall changes in consumer preference. As a result, businesses, governments, and consumers alike have become increasingly supportive of the development of alternative sources of energy, such as solar power. The largest markets for PV systems are in Europe and Japan with manufacturing located primarily in Europe and Asia.

According to Solarbuzz, an international solar energy research and consulting company, the global solar power market, measured by photovoltaic installations, increased from 427 megawatts ("MW") in 2002, to 1,744MW in 2006 representing a compound annual growth rate ("CAGR") of 42.2%; photovoltaic installations are estimated to grow to 7,630MW in 2011, representing a CAGR of 134.3%. Meanwhile, solar industry revenues grew to \$10.6 billion in 2006, and are expected to grow to \$31.5 billion in 2011 representing a CAGR of 124.6%, as projected by Solarbuzz.

[Mountain Chart]

Global Annual Solar Power Installed Capacities (MW)

2006A	1,744
2007E	2,308
2008E	3,071
2009E	4,029
2010E	5,587
2011E	7,630

Global Solar Industry Revenues (\$MM)

2006A	10,580
2007E	13,832
2008E	16,333
2009E	18,068
2010E	24,223
2011E	31,463

* Source: Solarbuzz, 2007.

PHOTOVOLTAIC MODULE MANUFACTURING OVERVIEW

Several technologies have been developed to harness the sun's energy. Most prolific is the direct conversion of photons of light into electricity through the use of photovoltaic cells. Though various thin film photovoltaic materials are growing in popularity due the low production costs, the vast majority, roughly 93%, of the photovoltaic market is composed of crystalline silicon. The popularity of silicon is largely based on its technology legacy, abundant raw material (silicate), and high conversion efficiency.

Crystalline solar cells and modules are produced in five basic stages: (i) polysilicon production; (ii) ingot growth; (iii) ingot wafering; (iv) cell

Edgar Filing: SPIRE CORP - Form 10-K

production; and (v) module assembly. The value chain begins with the processing of quartz sand to produce silicon. The resulting silicon is purified to solar grade polysilicon, which is then processed into ingots. The ingots are sliced into wafers which are manufactured into solar cells through an etching, doping and coating process. The solar cells are combined into modules through another series of steps which include testing, sorting and stringing the cells, transferring the strings onto glass, laminating and framing the module for final assembly. Not all solar cell and module manufacturers participate in each stage of the production process. Some manufacturers are integrated across multiple stages while others specialize in one stage of the process.

The rapid growth of the photovoltaic industry has led to increased investments across the entire value chain, including turnkey equipment manufacturing. The solar industry has raised several billion in new equity and debt to fund expansion of the industry. According to Solarbuzz, in 2005, 2006 and 2007, the industry raised a total of \$2 billion, \$4 billion and \$10 billion, respectively. In 2006, Solarbuzz reports that the total capital expenditures of manufacturing equipment for crystalline silicon photovoltaic products reached \$2.4 billion.

Currently, the bottleneck in the industry lies in polysilicon supply. The large growth in the solar space has resulted in greater demand for polysilicon than available, resulting in considerable increases in price for both long-term contract prices and spot market prices. Polysilicon consumption increased from 5,100 metric tons ("MT") to 20,700MT from 2001 to 2006 respectively, with the top seven polysilicon producers accounting for nearly 96% of the industry's total production capacity, according to Solarbuzz. While the dominant players in the industry have enjoyed increasingly higher margins, the huge demand for polysilicon has attracted numerous new entrants into the market to capitalize on the opportunity. In addition, the dominant players have significantly scaled their production to also meet this demand. As a result, a large influx of polysilicon is forecasted to enter the market in 2009-2010 with incremental capacity being added in 2007 and 2008. With demand met by this time, the next bottleneck in the industry will occur with the turnkey equipment manufacturing needed in the latter stages of the value chain.

[PIE CHART]

Crystalline Silicon	93%
Thin Film	7%

Technology	MW Produced
A-Si	100
Cd-Te	70
CIS/CIGS	5
Monocrystalline Flat Plate	955
Multicrystalline Flat Plate	1170
Ribbon (Silicon)	70
Other Crystalline	150
Total	2520

Edgar Filing: SPIRE CORP - Form 10-K

*Source: Prometheus Institute, November 2007

PRODUCTS AND SERVICES

Applying our expertise in ion implantation has allowed us to develop solar, semiconductor and biomedical products, all of which have evolved from a single technology. Our core business is in solar, though profitable applications in the biomedical and semiconductor industries have enabled us to continue developing these operations. Currently we operate our business in three segments: Spire Solar, Spire Semiconductor and Spire Biomedical.

SPIRE SOLAR

We believe that we are one of the world's leading suppliers of manufacturing equipment and technology needed to manufacture solar photovoltaic power systems. Our individual items of manufacturing equipment products and our SPI-LINETM module production lines span the full photovoltaic module fabrication process, which currently include:

- o Sorting solar cells into performance groups;
 - o Assembling and soldering strings of cells interconnected with metal ribbons or "tabs";
 - o Completing the module circuit by soldering bus ribbons to connect the strings together;
- 3
- o Cutting polymer, fiberglass and back cover to length and assembling them with the glass and module circuit in preparation for encapsulation;
 - o Laminating the module assembly and curing the encapsulating polymer;
 - o Final assembly, including edge trimming, installing an edge gasket and frame, and attaching a junction box;
 - o Performing a high voltage isolation test to guarantee safe voltage isolation between the cell circuit and the module frame; and
 - o Electrically testing the module performance by measuring a current-voltage curve under simulated sunlight.

The fabrication of photovoltaic modules uses solar cells and module materials as input and produces functional photovoltaic modules, ready for use. We provide the necessary equipment and training for implementing these process steps as individual equipment items and as fully integrated production lines.

Our primary customers have been new entrants that wish to enter the solar PV market. These entrants are primarily local manufacturers that are encouraged to produce PV modules by governmental incentive programs. We offer a turnkey solution with enabling technology to allow these entrants to quickly enter into the market, or to expand existing capacity, within one year of their initial investment decision. We also sell individual equipment to existing silicon module manufacturers as well as certain pieces of our module equipment to "thin film" manufacturers specifically lamination and testing equipment. We also provide full turnkey solar cell and wafer lines to customers to vertically integrate their manufacturing lines (for these production lines). We purchase rather than manufacture equipment while offering proprietary technology and

Edgar Filing: SPIRE CORP - Form 10-K

integration services to enable customers. We currently have two customers under contract to deliver 50MW of cell line production.

On July 31, 2007, we entered into a contractual relationship with Gloria Solar Co., Ltd. ("Gloria Solar"), a leading cell and module manufacturer in Taiwan organized under the laws of the Republic of China (Taiwan). Under the agreement, we agreed to sell Gloria Solar certain assets pertaining to our solar systems business for \$4,000,000. In addition, we agreed to form a joint venture for the purpose of pursuing the solar photovoltaic systems market within the United States. The joint venture will design, sell and manage the installations of solar systems for the generation of electrical power by solar photovoltaic means in primarily commercial/industrial and utility segments of such market (the "JV Systems Business"). Gloria Solar owns 55% of the joint venture and we own 45% of the joint venture. In connection with the formation of the joint venture, we contributed our solar photovoltaic system assets related to the JV Systems Business, including certain intellectual property and know-how, access to information technology assets and relationships, relationships with current and previous customers, contract backlog and project leads, certain registered trademarks, and employment relationships with staff members; Gloria Solar contributed \$5,000,000 in cash.

SPIRE SEMICONDUCTOR

Spire Semiconductor operates a state-of-the-art semiconductor foundry and fabrication facility in Hudson, New Hampshire equipped with advanced and sophisticated metal-organic chemical vapor deposition ("MOCVD") reactors and fabrication equipment. Our fabrication facility has been designed to have the flexibility to engage in quick-turn research and prototyping, as well as for economical full-rate volume production services in three primary areas: GaAs concentrator solar cells, high performance LEDs and other device foundry services. Bandwidth Semiconductor LLC ("Bandwidth") changed its name to Spire Semiconductor in 2007.

Our MOCVD reactors have the capacity to include a wide range of compound semiconductor (chiefly GaAs and indium phosphide-based compounds) epitaxial structures fabricated to our customers' designs or in some cases to our own designs. GaAs concentrator cells represent a significant market opportunity and, as one of the first pioneers in GaAs fabrication, we have the expertise to provide customers with turnkey cell products. We offer double and triple-junction cells and have recently filed a patent application for a 40%+ conversion efficiency solar cell design. We currently have capacity for 25 MW of high efficiency solar cell production with opportunities to expand.

Our foundry services can take compound semiconductor wafers up to 4 inches in diameter through processing, on-wafer test, and die separation. We can use customer-supplied photomasks or develop a new set of masks for an entire process sequence. We design the process steps and conditions to meet the desired device characteristics and implement the process in our fabrication facility, saving our customers development time and providing a source of proprietary devices without the expense of a dedicated internal fabrication. Typical OEM devices we have fabricated include thermo-photovoltaic ("TPV") cells and communications-quality LEDs as well as a host of other optoelectronics including single-element photodetectors, photodetector arrays, vertical cavity surface emitting lasers ("VCSELs"), and edge-emitting lasers.

4

SPIRE BIOMEDICAL

We also provide advanced medical device surface treatment processes for the performance improvement of orthopedic and cardiovascular devices, enhancing

Edgar Filing: SPIRE CORP - Form 10-K

properties such as wear resistance, infection resistance and thromboresistance. Additionally, we offer a wide range of high performance vascular access catheters for hemodialysis treatment in patients with chronic kidney disease.

Our line of long-term hemodialysis catheters combines high level performance with increased catheter placement options. Our proprietary catheter products provide higher flow at lower pressures and superior kink-resistance. Our patented separated distal tip design minimizes recirculation and provides a wider margin of functionality compared to conventional staggered tip designs. We recently introduced a line of heparin coated catheters that have shown reduced clotting in laboratory and animal studies. We believe that these key features present the renal care community with attractive value and performance for patient care.

We also offer our medical customers a family of process services utilizing ion beam technologies to enhance both the surface characteristics and the performance of medical devices. Our advanced surface modification technology services employ proprietary Ion Implantation and Ion Beam Assisted Deposition ("IBAD") techniques to improve the performance of medical components. Our customized surface treatments meet a variety of needs, including reduced friction, wear and abrasion, infection resistance, enhanced tissue and bone growth, increased thromboresistance, conductivity, improved radiopacity and the improvement of other performance characteristics. Spire-treated products currently include orthopedic prostheses (such as replacement hips, knees, elbows), catheters, guidewires, ear-nose-throat devices, vascular grafts, and other specialty medical devices.

PRINCIPAL DISTRIBUTION METHODS

Our products and services are sold primarily by our direct, internal sales staff with four notable exceptions: in certain offshore markets, we utilize independent sales representatives to aid our sales efforts to sell our solar equipment, our hemodialysis catheter products are sold via independent distributors, proposals for sponsored research and development work are prepared by our scientists and researchers, and, in certain locations, we have granted licenses to third parties to sell their product base upon our technology.

PHYSICIAN RELATIONSHIPS

We have engaged certain physicians to serve as consultants to us. These physicians enter into written contracts that specify their duties and fix their compensation for periods of one or more years. The compensation for these consultants is the result of arm's length negotiations and generally depends upon competitive factors in the local market, the physician's professional qualifications and the specific duties and responsibilities of the physician.

COMPETITIVE CONDITIONS

The markets in which we operate are highly competitive and characterized by changes due to technological improvements and developments. We compete with many other manufacturers and service providers in each of our product and service areas; many of these competitors have greater resources and sales. Additionally, our products and services compete with products and services utilizing alternative technologies. For example, our solar photovoltaic systems compete with other forms of renewable energy such as wind, solar thermal and geo-thermal. Price, service and product performance are significant elements of competition in the sale of each of our products. We believe that there are considerable barriers to entry into the markets we serve, including a significant investment in specialized capital equipment and product design and development, and the need for a staff with sophisticated scientific and technological knowledge.

Edgar Filing: SPIRE CORP - Form 10-K

SOURCES AND AVAILABILITY OF RAW MATERIALS

Principal raw materials purchased by us include polymer extrusions, molded plastic parts, silicon photovoltaic cells, compound semiconductor wafer substrates, high purity industrial gases, custom metal welded structures, fasteners, position sensors, electrical motors, electrical power conditioning inverters, and electrical controls. All of these items are available from several suppliers and we generally rely on more than one supplier for each item. There has been a multi-year shortage in semiconductor grade silicon leading to dramatic price increases over the past 2 years. The shortage in semiconductor grade silicon did have an adverse effect on the ordering patterns of our solar equipment customers in the early part of 2006 and could have an adverse effect on solar ordering patterns in the future.

5

SOURCES AND AVAILABILITY OF MANUFACTURING SERVICES

We employ an outsourcing-model supply chain in our biomedical products business by which certain manufacturing services, such as polymer extrusion, assembly, packaging and sterilization, are obtained from third party contractors. We have identified multiple potential sources for the services it requires; however, certain elements of the supply chain currently involve only one qualified contractor. As sales volume expands, we plan to reassess our supply chain to eliminate potential "bottlenecks" and reduce dependence on sole-source, single site contract services.

DEPENDENCE ON MAJOR CUSTOMERS

One customer accounted for more than 10% of our consolidated net sales and revenues during the year ended December 31, 2007 (approximately 15%), and one customer accounted for more than 10% of our consolidated net sales and revenues in 2006 (approximately 12%).

KEY LICENSES AND PATENTS, GOVERNMENT RIGHTS TO INTELLECTUAL PROPERTY

On May 26, 2005, we entered into a global consortium agreement (the "Agreement") with Nisshinbo Industries, Inc. ("Nisshinbo") for the development, manufacturing, and sales of solar photovoltaic module manufacturing equipment. Nisshinbo's prior relationship with Spire was as a sub-licensee of Marubeni Corporation with whom we had a license arrangement that was originally signed in 1997, extended in 2003, and terminated in May 2005. Nisshinbo's role as sub-licensee was to manufacture equipment for Marubeni to sell to the Japanese market based upon our proprietary technology. Under the terms of the Agreement, Nisshinbo purchased a license to manufacture and sell our module manufacturing equipment on a semi-exclusive basis for an upfront fee plus additional royalties based on ongoing equipment sales over a ten-year period. In addition, we and Nisshinbo agreed, but are not obligated, to pursue joint research and development, product improvement activities and sales and marketing efforts. The companies may share market costs such as product collateral and trade show expenses. Each company may also collaborate on sales leads and have the other company manufacture and service its equipment in the field. Both companies have reciprocal rights to participate in the other company's R&D efforts on a going-forward basis. Nisshinbo can request us to further develop a technology but Nisshinbo must (a) share in the costs of these development efforts equally with us (and thereafter have joint ownership) otherwise we will own the technology under a partial contribute or no participation by Nisshinbo with us receiving a royalty from Nisshinbo if it utilizes the technology. At the end of the license all non-jointly owned technology developed under the Agreement will revert back to the owner, with the other party being required to purchase a new license based upon the fair market value of that technology in order to continue

Edgar Filing: SPIRE CORP - Form 10-K

to utilize the technology.

On June 27, 2005, we received JPY 400,000,000 from the sale of this permanent license. We determined that the Nisshinbo Agreement contains multiple elements consisting of (1) the granting of a license to utilize our technology and (2) the semi-exclusive right to utilize the technology for a period of 10 years. We believe the granting of the license meets the criteria of Emerging Issues Task Force ("EITF") 00-21, "Accounting for Revenue Arrangements with Multiple Elements", paragraph 9(a), as the license to utilize the technology has value to Nisshinbo on a stand-alone basis. Further, Question 1 to Securities and Exchange Commission ("SEC") Staff Accounting Bulletin Topic 13A-3f "Nonrefundable Up-Front Fees", was directly considered as guidance for determining if the upfront fee under the Nisshinbo Agreement should be recognized upon the signing of contract or recognized over the term of the license. It is our belief that a separate earnings process was complete as Nisshinbo was purchasing access to utilize technology it already had in its possession; therefore, recognition of the gain on the sale was appropriate. We have determined the fair value of the license and royalty based on an appraisal. As a result, a \$3,319,600 gain was recognized as a gain on sale of license in the consolidated statements of operations for the year ended December 31, 2005. The balance of \$350,000 was determined to represent an advanced royalty payment and was recorded as an advance on contracts in progress. This amount is being credited as royalty income over the ten-year license period on a straight-line basis.

Through over 30 years of research and development, we have accumulated extensive scientific and technological expertise. We protect our technological advances as trade secrets, in part through confidentiality agreements with employees, consultants and third parties. We also seek and enforce patents as appropriate. We currently has 35 issued United States patents, one of which is jointly owned, 33 patents pending in the United States, and five foreign patents pending, all of which cover elements of our materials and processing technologies.

The United States government retains the right to obtain a patent on any invention developed under government contracts as to which we do not seek and obtain a patent, and may require us to grant a third party license of such invention if

6

steps to achieving practical application of the invention have not been taken. The United States government also retains a non-exclusive, royalty-free, non-transferable license to all technology developed under government contracts, whether or not patented, for government use, including use by other parties to United States government contracts. Furthermore, our United States government contracts prohibit us from granting exclusive rights to use or sell any inventions unless the grantee agrees that any product using the invention will be manufactured substantially in the United States.

GOVERNMENT REGULATION OF MEDICAL PRODUCTS

Our hemodialysis catheters and accessory products require the approval of the United States Food & Drug Administration ("FDA") prior to sale within the United States. Sales within the European Union ("EU") require the CE Mark certification and sales within Canada require a medical device license issued by Health Canada.

Within the United States, the process requires that a pre-market notification (the "510(k) Submission") be made to the FDA to demonstrate that the device is as safe and effective, substantially equivalent to a legally

Edgar Filing: SPIRE CORP - Form 10-K

marketed device that is not subject to pre-market approval. FDA guidance documents are used to prepare the 510(k) Submission. Applicants must compare this device to one or more similar devices commercially available in the United States, known as the "predicate" device(s), and make and support their substantial equivalency claims. Applicants must submit descriptive data and performance data to establish that the device is substantially equivalent to a predicate device. In some instances, data from human clinical trials must also be submitted in support of a 510(k) Submission. If so, the data must be collected in a manner that conforms to specific requirements in accordance with federal regulations. The FDA must issue a 510(k) letter order finding substantial equivalence before commercial distribution can occur. Upon receipt of the 510(k) application by the FDA, up to a 90-day response period is allowed before the FDA must respond.

We currently hold all required approvals and certifications to market our Heparin coated and uncoated hemodialysis catheters and accessory products in the USA, and our uncoated catheters in the EU, Canada, Australia and Hong Kong. We are committed to maintaining these critical approvals and certifications and the stringent quality requirements applicable to the development, testing, manufacturing, labeling, marketing and distribution of these products.

Recent actions by the FDA to improve the quality of the supply chains of medical device manufacturers has had an indirect effect on our biomedical processing services. However, our current quality control systems have been more than adequate to meet the increased demands of our customers.

GOVERNMENT REGULATION OF CONTRACTS

Our United States government contracts are subject to a large number of federal regulations and oversight requirements. Compliance with the array of government regulations requires extensive record keeping and the maintenance of complex policies and procedures relating to all aspects of our business, as well as to work performed for us by any subcontractors. We believe that we have put in place systems and personnel to ensure compliance with all such federal regulations and oversight requirements. All contracts with United States government agencies have been audited by the government through December 2005. We have not incurred substantial losses as a result of these incurred cost audits.

RESEARCH AND DEVELOPMENT

Our policy is to support as much of our research and development as possible through government contract funding, which we recognize as revenue. Revenues from our research and development contracts and Natural Renewable Energy Laboratory ("NREL") funded by the United States government, and their percent of consolidated net sales and revenues were \$1,303,000, or 3%, and \$2,261,000, or 11%, for the years ended December 31, 2007 and 2006, respectively.

Our contracts with the United States government grant to us proprietary rights in any technology developed pursuant to such contracts and grant to the United States government a non-exclusive license to utilize the technology for its benefit. The United States government retains the right to pursue patent protection on any inventions made under these contracts as to which patent protection is not sought and obtained by us. To date, the Government has not exercised its rights to patent nor indicated it has or it will do so. We still have the ability to sell our rights to develop technology and has successfully sold the rights in the past. Our rights to technology developed under contracts with private companies vary, depending upon negotiated terms.

Our internally funded research and development expenditures were \$313,000 and \$734,000 for the years ended December 31, 2007 and 2006, respectively.

Edgar Filing: SPIRE CORP - Form 10-K

CUSTOMERS AND MARKETS

One customer accounted for more than 10% of our consolidated net sales and revenues during the year ended December 31, 2007 (approximately 15%), and one customer accounted for more than 10% of our consolidated net sales and revenues in 2006 (approximately 12%).

Our export sales, which amounted to 45% and 33% of net sales and revenues for 2007 and 2006, respectively, continue to constitute a significant portion of our net sales and revenues. Over 90% of export sales in 2007 and 2006 were to solar equipment customers with the remainder to biomedical and optoelectronic related customers.

The following table shows net sales and revenues by geographic area (based on customer location) for the years ended December 31:

	2007	%	2006	%
	-----	-----	-----	-----
United States	\$21,069,000	55%	\$13,454,000	67%
Europe/Africa	9,129,000	24%	3,389,000	17%
Asia	7,643,000	20%	2,771,000	13%
Rest of the world	582,000	1%	511,000	3%
	-----	-----	-----	-----
	\$38,423,000	100%	\$20,125,000	100%
	=====	=====	=====	=====

ENVIRONMENTAL QUALITY

Compliance with federal, state and local provisions regulating the discharge of materials into the environment has not materially affected our capital expenditures, earnings or its competitive position. Currently there are no lawsuits related to the environment or material administrative proceedings pending against us.

EMPLOYEES

At December 31, 2007, we had approximately 188 employees, of whom 179 worked full time. Our year end head count included 134 employees in manufacturing operations, 10 employees in research and development, and 44 employees in sales, general and administrative. We also employ part-time employees and hire independent contractors. Our employees are not represented by any collective bargaining agreement, and we have never experienced a work stoppage. We believe that our employee relations are good.

ITEM 1A. RISK FACTORS

In addition to the other information in this Form 10-K, the following risk factors inherent in and affecting our business should be considered. The descriptions in this Form 10-K contain forward-looking statements that involve risks and uncertainties. Our actual results and the timing of certain events may differ materially from the results and timing described in the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those described below and in "Management's Discussion and Analysis of Financial Condition and Results of Operations" and above in "Business."

RISKS RELATING TO OUR BUSINESS

Edgar Filing: SPIRE CORP - Form 10-K

OUR SUCCESS WILL DEPEND UPON OUR ABILITY TO EFFECTIVELY IMPLEMENT OUR BUSINESS MODEL OF CREATING OR ACQUIRING SCIENTIFICALLY ADVANCED TECHNOLOGY, DEVELOPING AND MANUFACTURING COMMERCIALY VIABLE PRODUCTS FROM SUCH TECHNOLOGY AND SUCCESSFULLY MARKETING AND DISTRIBUTING SUCH PRODUCTS. THE FAILURE TO SUCCESSFULLY EXECUTE ANY STAGE OF THIS PROCESS COULD HAVE A MATERIALLY NEGATIVE IMPACT ON OUR BUSINESS AND RESULTS OF OPERATIONS.

We believe that our continued success will depend upon our ability to create or acquire scientifically advanced technology, apply our technology cost-effectively across product lines and markets, develop or acquire proprietary products, attract and retain skilled development personnel, obtain patent or other protection for our products, obtain required regulatory approvals, manufacture and successfully market our products either directly or through outside distributors and sales representatives and supply sufficient inventory to meet customer demand. There can be no assurance that we will realize financial benefit from our technology development and application efforts, that we will continue to be successful in

8

identifying, developing and marketing new products or enhancing our existing products, or that products or technologies developed by others will not render our products or technologies non-competitive or obsolete.

WE HAVE EXPERIENCED LOSSES FROM OPERATIONS, BEFORE THE SALE OF CERTAIN TECHNOLOGY LICENSES, AND WE EXPECT THAT OUR OPERATING RESULTS WILL FLUCTUATE IN THE FUTURE.

We have experienced losses from operations in each of the past two fiscal years. These losses have contributed to an accumulated deficit of approximately \$11.4 million as of December 31, 2007. Our revenues have not been sufficient to cover our operating expenses, and we anticipate that we may sustain future losses from operations if revenues do not increase. Future fluctuations in operating results may also be caused by a number of factors, many of which are outside our control. Additional factors that could affect our future operating results include the following:

- o Availability of raw materials processed by the capital equipment we provide to our buyers, particularly the polysilicon used in the manufacture of the silicon wafers and solar cells;
- o Delays, postponements or cancellations of orders and shipments of our products, particularly in our solar equipment and solar systems businesses where individual order sizes may be large and thus may represent a significant portion of annual revenue;
- o Changes in our receipt of license fees, milestone payments and royalty payments relating to our intellectual property;
- o Loss of major customers, particularly as a result of customers changing their own product designs in such ways as reduce or eliminate the need for the manufacturing services we provide;
- o Reductions in the selling prices of our products and services as a result of competitive pressures;
- o Variation in capacity, capacity utilization and manufacturing yields within the third party medical contract manufacturing service providers that constitute the supply chain for our biomedical products

Edgar Filing: SPIRE CORP - Form 10-K

that, in turn, cause variation in our ability to timely ship our products;

- o Increased competition from current and future competitors, including competition resulting from services and products utilizing competing technologies;
- o Variation in the timing of customer orders and inventory levels at our customers, particularly within our biomedical manufacturing services business;
- o Termination of existing grants with government agencies or delays in funding of grants awarded;
- o Delays in introducing and gaining physician acceptance for new products and product improvements, particularly in our biomedical products business; and
- o Disruption in the distributor sales channels by which we bring our biomedical products to market.

If we are unable to reach and sustain profitability from our operations, we risk depleting our working capital balances and our business may not continue as a going concern. Even if we are profitable, we may require additional working capital to meet expected growth. Although future sales of technology licenses may be pursued, such sales cannot be assured. In addition, we may need to raise additional capital, or arrange other sources of funds, in order to sustain our operations. There can be no assurance that we will be able to raise such funds if they are required. Even if new financing were available, it may not be on commercially reasonable terms or terms that are acceptable to us.

OUR ABILITY TO EXPAND REVENUE AND SUSTAIN PROFITABILITY DEPENDS SUBSTANTIALLY ON THE STABILITY AND GROWTH OF THE VARIOUS MARKETS FOR OUR PRODUCTS AND SERVICES. SHOULD WE BE UNABLE TO EXPAND OUR REVENUE, OUR ABILITY TO REACH AND SUSTAIN PROFITABILITY WOULD BE IMPAIRED.

- o The world demand for photovoltaic manufacturing equipment depends on sustained expansion in the demand for decentralized power sources, especially in developing countries, and on domestic and foreign government funding of initiatives to invest in solar energy as an alternative to the burning of fossil fuels and other energy production methods. There can be no assurance that government funding for such initiatives will be available, or that solar energy will prove to be a cost-effective alternative to other energy sources and thus gain acceptance where traditional energy sources continue to be available. Should demand for solar photovoltaic power sources not increase, demand for new photovoltaic manufacturing equipment would not materialize and our business would be adversely affected.
- o Most of our research and development revenues are generated by contracts with the United States government. There can be no assurance that the United States government will fund our research and development projects at the same level as it has in the past. Should federal research funding priorities change,

9

and should we be unable to adjust our research focus to reflect the shift, our business could be adversely affected.

- o The growth of our biomedical products business depends on increased

Edgar Filing: SPIRE CORP - Form 10-K

physician acceptance of our hemodialysis catheter products, our ability to manage the production of higher unit volumes of catheter products and our ability to effectively distribute those products. Should our hemodialysis catheters not gain market acceptance or should we not be able to meet demand for our products, our biomedical products business could be adversely affected.

- o The growth of our biomedical services business depends upon our customers' ability to serve demand for the end-use items, such as orthopedic prostheses, on which our services are performed and thus is substantially beyond our control.
- o Our ability to expand our biomedical business depends upon our ability to introduce new products and services. The marketing of new biomedical products requires pre-approval of government regulatory authorities, the completion of which can be lengthy and more costly than originally planned.
- o The growth of our optoelectronics business depends upon growth in demand for compound semiconductor wafers from manufacturers of microwave and optoelectronic circuits and sensors that, in turn, are used in diverse biomedical, telecommunications and aerospace products. Should these end-use markets not experience anticipated levels of growth and, in the case of telecommunications uses, experience a recovery from currently depressed business levels, our optoelectronics business could be adversely affected.
- o We have made a substantial investment in equipment at Spire Semiconductor in anticipation of future revenues under its agreement with Principia Lightworks. If these anticipated revenues are not achieved, we will have significant unutilized capacity and may not recover our investment in the equipment.

WE HAVE NOT CONSISTENTLY COMPLIED WITH NASDAQ'S MARKETPLACE RULES FOR CONTINUED LISTING, WHICH EXPOSES US TO THE RISK OF DELISTING FROM THE NASDAQ GLOBAL MARKET.

Our stock is currently listed on the Nasdaq Global Market. In August 2003, we received notice from Nasdaq that we were not in compliance with Nasdaq's Marketplace Rules as a result of filing our second quarter Form 10-QSB prior to the completion of the review by our independent auditors and, accordingly, were subject to possible delisting. We subsequently filed all reports and were able to maintain its continued listing on the Nasdaq Global Market.

In April 2005, we received notice from Nasdaq that we were not in compliance with the minimum stockholders' equity level of \$10,000,000 required for continued listing on the Nasdaq Global Market. Following the submission of a plan of compliance and making later filings showing this deficiency no longer existed, Nasdaq subsequently notified us that we had achieved compliance with the \$10,000,000 stockholders' equity threshold during 2005 and the matter was closed. However, as of December 31, 2007, we were not in compliance with the minimum stockholders' equity threshold. As a result, we do not meet Standard No. 1 for continued listing on the Nasdaq Global Market. However, we believe that we do meet Standard No. 2 for continued listing on the Nasdaq Global Market as the market value of our listed securities currently exceeds \$50,000,000 and we meets all of the other requirements of Standard No. 2. In order to remain in compliance with Standard No. 2, our market value of listed securities cannot fall below \$50,000,000 for ten consecutive trading days at any point. If we fail to maintain compliance with these rules and our common stock is delisted from the Nasdaq Global Market, there could be a number of negative implications, including reduced liquidity in the common stock as a result of the loss of market efficiencies associated with the Nasdaq Global Market, the loss of

Edgar Filing: SPIRE CORP - Form 10-K

federal preemption of state securities laws, the potential loss of confidence by suppliers, customers and employees, as well as the loss of analyst coverage and institutional investor interest, fewer business development opportunities and greater difficulty in obtaining financing.

OUR BUSINESS RELIES IN PART ON A LIMITED NUMBER OF CUSTOMERS, AND UNFAVORABLE DEVELOPMENTS IN RELATION TO A MAJOR CUSTOMER MAY ADVERSELY AFFECT OUR REVENUES, OPERATING RESULTS AND CASH FLOWS.

We had one customer that accounted for more than 10% of consolidated net sales and revenues during the year ended December 31, 2007 (approximately 15%), and one customer that accounted for more than 10% consolidated net sales and revenues in 2006 (approximately 12%). In addition, we have had such customers in other years and may have them again in the future. If an unfavorable development were to occur with respect to any significant customer it would likely have a material adverse affect on our business, financial condition, operating results, cash flows and future prospects.

10

WE SELL OUR PRODUCTS AND SERVICES AGAINST ESTABLISHED COMPETITORS, AND ENTITIES NOW OPERATING IN RELATED MARKETS MAY ENTER OUR MARKETS. SOME OF OUR CURRENT AND POTENTIAL COMPETITORS HAVE GREATER FINANCIAL AND TECHNICAL RESOURCES THAN WE DO. SHOULD WE BE UNABLE TO OFFER OUR CUSTOMERS PRODUCTS AND SERVICES THAT REPRESENT ATTRACTIVE PRICE VERSUS VALUE, OUR BUSINESS WOULD SUFFER.

Although we believe that there are considerable barriers to entry into the markets we serve, including a significant investment in specialized capital equipment, product design and development, and the need for a staff with sophisticated scientific and technological knowledge, there can be no assurance that new or existing entities would not seek to enter our markets or that we would be able to compete effectively against such entities.

- o In our biomedical products business, our hemodialysis catheter products directly compete against the already established product offerings of larger competitors. Although we believe that our catheter products offer significant advantages, widespread physician acceptance of these products in preference to the more established products of competitors cannot be assured.
- o In our optoelectronics business, our manufacturing services may compete against the internal manufacturing capabilities of our customers. Although we believe that we offer significant advantages in terms of timely response, reduced total cost and reduced capital investment over the captive fabrication facilities of our customers, customers may elect to maintain their internal capabilities despite economic incentives to outsource these services from us.

IF WE ARE UNABLE TO DEVELOP AND INTRODUCE NEW PRODUCTS SUCCESSFULLY OR TO ACHIEVE MARKET ACCEPTANCE OF OUR NEW PRODUCTS, OUR OPERATING RESULTS WOULD BE ADVERSELY AFFECTED.

We compete in markets characterized by technological advances and improvements in manufacturing efficiencies. Our ability to operate profitably depends in large part on our timely access to, or development of, technological advances, and on our ability to use those advances to improve existing products, develop new products and manufacture those products efficiently. There can be no assurance that we will realize financial benefit from our development programs, will continue to be successful in identifying, developing and marketing new products or enhancing our existing products, or that products or technologies developed by others will not render our products or technologies non-competitive

Edgar Filing: SPIRE CORP - Form 10-K

or obsolete. The failure to introduce new or enhanced products on a timely and cost competitive basis, or to attain market acceptance for commercial products, could have a material adverse effect on our business, results of operations or financial condition.

IF WE ARE NOT SUCCESSFUL IN PROTECTING OUR INTELLECTUAL PROPERTY RIGHTS, OUR ABILITY TO COMPETE MAY BE HARMED.

We rely on a combination of patent, copyright, trademark and trade secret protections as well as confidentiality agreements and other methods, to protect our proprietary technologies and processes. For example, we enter into confidentiality agreements with our employees, consultants and business partners, and control access to and distribution of our proprietary information. We have been issued 35 United States patents, one of which is jointly owned, and have a number of pending patent applications. However, despite our efforts to protect our intellectual property, we cannot assure that:

- o The steps we take to prevent misappropriation or infringement of our intellectual property will be successful;
- o Any existing or future patents will not be challenged, invalidated or circumvented;
- o Any pending patent applications or future applications will be approved;
- o Others will not independently develop similar products or processes to ours or design around our patents; or
- o Any of the measures described above would provide meaningful protection.

A failure by us to meaningfully protect our intellectual property could have a material adverse effect on our business, financial condition, operating results and ability to compete. In addition, effective patent, copyright, trademark and trade secret protection may be unavailable or limited in certain countries.

From time to time we may be subject to lawsuits by other parties seeking to enforce their intellectual property rights.

WE DEPEND ON OTHERS, PARTICULARLY ON AGENCIES OF THE UNITED STATES GOVERNMENT, FOR FUNDING OUR RESEARCH AND DEVELOPMENT EFFORT.

Substantially most of our research and development work is funded by agencies of the United States government either directly or via their contractors. Loss of outside funding may materially adversely affect our ability to further develop our proprietary technologies and to apply these technologies to our current products and products under development. If we are

11

unable to maintain our current level of such funding for any reason, we would need to generate funds for such research from other sources, reduce our research and development effort or increase our internal funding for research and development. An increase in internally funded research and development would have a negative impact on our profitability.

Additionally, the process of bidding for, obtaining, retaining and performing United States government contracts is subject to a large number of United States government regulations and oversight requirements. Compliance with

Edgar Filing: SPIRE CORP - Form 10-K

these government regulations requires extensive record keeping and the maintenance of complex policies and procedures relating to all aspects of our business, as well as to work performed for us by any subcontractors. Any failure to comply with applicable regulations, or to require our subcontractors so to comply, could result in a variety of adverse consequences, ranging from remedial requirements to termination of contracts, reimbursement of fees, reduction of fees on a going forward basis and prohibition from obtaining future United States government contracts. While we believe that we have in place systems and personnel to ensure compliance with all United States government regulations relating to contracting, we cannot assure that we will at all times be in compliance or that any failure to comply will not have a material adverse effect on our business, results of operations or financial condition.

THE U.S. GOVERNMENT HAS CERTAIN RIGHTS RELATING TO OUR INTELLECTUAL PROPERTY.

The United States government retains the right to obtain a patent on any invention developed under government contracts as to which we do not seek and obtain a patent, and may require us to grant a third party license of such invention if steps to achieving practical application of the invention have not been taken. The United States government also retains a non-exclusive, royalty-free, non-transferable license to all technology developed under government contracts, whether or not patented, for government use, including use by other parties to United States government contracts. Furthermore, our United States government contracts prohibit us from granting exclusive rights to use or sell any inventions unless the grantee agrees that any product using the invention will be manufactured substantially in the United States.

WE DEPEND ON THIRD-PARTY CONTRACTORS TO MANUFACTURE SUBSTANTIALLY ALL OF OUR CURRENT BIOMEDICAL PRODUCTS.

We depend on third-party subcontractors in the U.S. for the manufacturing, assembly and packaging of our biomedical products. Any difficulty in obtaining parts or services from these subcontractors could affect our ability to meet scheduled product deliveries to customers, which could in turn have a material adverse effect on our customer relationships, business and financial results. Several significant risks are associated with reliance on third-party subcontractors, including:

- o The lack of assured product supply and the potential for product shortages;
- o Reduced control over inventory located at contractors' premises;
- o Limited control over delivery schedules, manufacturing yields and production costs;
- o Direct control over product quality;
- o The temporary or permanent unavailability of, or delays in obtaining, access to key process technologies; and
- o Dependence on single source contractors to provide critical services.

OUR SUCCESS DEPENDS ON OUR ABILITY TO HIRE AND RETAIN QUALIFIED TECHNICAL PERSONNEL, AND IF WE ARE UNABLE TO DO SO, OUR PRODUCT DEVELOPMENT EFFORTS AND CUSTOMER RELATIONS WILL SUFFER.

Our products require sophisticated manufacturing, research and development, marketing and sales, and technical support. Our success depends on our ability to attract, train and retain qualified technical personnel in each of these areas. Competition for personnel in all of these areas is intense and we may not be able to hire or retain sufficient personnel to achieve our goals or support

Edgar Filing: SPIRE CORP - Form 10-K

the anticipated growth in our business. The market for the highly trained personnel we require is very competitive, due to the limited number of people available with the necessary technical skills and understanding of our products and technology. If we fail to hire and retain qualified personnel, our product development efforts and customer relations will suffer.

WE ARE SUBJECT TO ENVIRONMENTAL LAWS AND OTHER LEGAL REQUIREMENTS THAT HAVE THE POTENTIAL TO SUBJECT US TO SUBSTANTIAL LIABILITY AND INCREASE OUR COSTS OF DOING BUSINESS.

Our properties and business operations are subject to a wide variety of federal, state, and local environmental, health and safety laws and other legal requirements, including those relating to the storage, use, discharge and disposal of toxic, volatile or otherwise hazardous substances used in our manufacturing processes. We cannot assure that these legal requirements will not impose on us the need for additional capital expenditures or other requirements. If we fail to obtain required permits or otherwise fail to operate within these or future legal requirements, we may be required to pay substantial

12

penalties, suspend our operations or make costly changes to our manufacturing processes or facilities. Although we believe that we are in compliance and have complied with all applicable legal requirements, we may also be required to incur additional costs to comply with current or future legal requirements.

OUR INTERNATIONAL SALES SUBJECT US TO RISKS THAT COULD ADVERSELY AFFECT OUR REVENUE AND OPERATING RESULTS.

Sales to customers located outside the U.S. have historically accounted for a significant percentage of our revenue (approximately 45% in 2007) and we anticipate that such sales will continue to be a significant percentage of our revenue. International sales involve a variety of risks and uncertainties, including risks related to:

- o Reliance on strategic alliance partners such as representatives and licensees;
- o Compliance with changing foreign regulatory requirements and tax laws;
- o Reduced protection for intellectual property rights in some countries;
- o Longer payment cycles to collect accounts receivable in some countries;
- o Increased costs or reduced revenues as a result of movements in foreign currency exchange rates;
- o Political instability;
- o Economic downturns in international markets; and
- o Changing restrictions imposed by United States export laws.

Failure to successfully address these risks and uncertainties could adversely affect our international sales, which could in turn have a material and adverse effect on our results of operations and financial condition.

THE USE OF OUR CATHETER AND OTHER MEDICAL RELATED PRODUCTS ENTAILS A RISK OF PHYSICAL INJURY; THE DEFENSE OF CLAIMS ARISING FROM SUCH RISK MAY EXCEED OUR INSURANCE COVERAGE AND DISTRACT OUR MANAGEMENT.

Edgar Filing: SPIRE CORP - Form 10-K

The use of orthopedic and other medical devices may entail a risk of physical injury to patients. To the extent we have been involved in the design and manufacturing of these products, we may be exposed to potential product liability and other damage claims. Furthermore, the use of our photovoltaic module manufacturing equipment could result in operator injury. We have had cases brought against us in which it was alleged that we have been a party to the manufacture and sale of defective heart valves with other defendants. We recently settled a case alleging that our catheter contributed to a patient's death in Ohio. No other claims of product liability or other damages have been initiated against us. We maintain product liability and umbrella insurance coverage; however, there can be no assurance that any product liability claim assessed against us would not exceed our insurance coverage, or that insurance coverage would continue to be available. While we typically obtain agreements of indemnity from manufacturers of biomedical products for which we provide manufacturing services, there can be no assurance that any such indemnity agreements will be enforceable or that such manufacturers will have adequate funds to meet their obligations under such agreements. The cost of defending a product liability, negligence or other action, and/or assessment of damages in excess of insurance coverage, could have a material adverse effect on our business, results of operations, or financial condition.

RISKS RELATED TO OUR COMPANY

OUR COMPANY IS SUBJECT TO CONTROL BY PRINCIPAL STOCKHOLDER.

Roger G. Little, our founder, Chairman of the Board, Chief Executive Officer and President, controls approximately 26% of our outstanding common stock. As a result, Mr. Little is in a position to exert significant influence over actions which require stockholder approval and generally to direct our affairs, including the election of directors, potential acquisitions and sales or otherwise preventing or delaying changes in control of our Company that may be otherwise viewed as beneficial by shareholders other than Mr. Little.

WE DO NOT PAY DIVIDENDS AND WE MAY NOT PAY DIVIDENDS IN THE FUTURE.

We have paid no cash dividends since our inception. We anticipate retaining any future earnings for reinvestment in operations and do not anticipate that dividends will be paid in the foreseeable future. Accordingly, the return on investment should be expected to depend on changes in the market price of our common stock.

THE MARKET PRICE FOR OUR COMMON STOCK HAS BEEN VOLATILE AND FUTURE VOLATILITY COULD CAUSE THE VALUE OF INVESTMENTS IN OUR COMPANY TO FLUCTUATE.

13

Our stock price has experienced significant volatility. While our revenues have increased since 2000, we expect that uncertainty regarding demand for our products will cause our stock price to continue to be volatile. In addition, the value of your investment could decline due to the impact of any of the following factors, among others, upon the market price of our common stock:

- o Additional changes in investment analysts' estimates of our revenues and operating results;
- o Our failure to meet investment analysts' performance expectations; and
- o Changes in market valuations of other companies in the biomedical, alternative energy or semiconductor industries.

Edgar Filing: SPIRE CORP - Form 10-K

In addition, many of the risks described elsewhere in this section could materially and adversely affect our stock price, as discussed in those risk factors. U.S. financial markets have recently experienced substantial price and volume volatility. Fluctuations such as these have affected and are likely to continue to affect the market price of our common stock.

OUR JOINT VENTURE TRANSACTION WITH GLORIA SOLAR MAY NOT REALIZE ALL OF ITS INTENDED BENEFITS

On September 4, 2007, we closed a contractual relationship with Gloria Solar. Pursuant to this transaction, among other things, we formed a joint venture, owned 55% by Gloria Solar and 45% by us, for the purpose of pursuing the solar photovoltaic systems market within the United States. The joint venture will design, market, sell and manage the installation of systems for the generation of electrical power by solar photovoltaic means in primarily commercial/industrial and utility segments of such market (the "JV Systems Business"). In connection with the formation of the joint venture, (i) we contributed to the joint venture our assets primarily relating to the JV Systems Business, including certain intellectual property and know-how, access to information technology assets and relationships, relationships with current and previous customers, contract backlog and project opportunities, certain registered trademarks, and employment relationships with staff members and (ii) Gloria Solar contributed \$5,000,000 in cash. In connection with the establishment of the joint venture, we may experience:

- o difficulties in integrating our and Gloria Solar's respective corporate cultures and business objectives into the new joint venture;
- o diversion of our management's time and attention from other business concerns;
- o higher than anticipated costs of integration at the joint venture;
- o difficulties in retaining key employees who are necessary to manage the joint venture; or
- o difficulties in working with an entity based in Taiwan and thus remote or inconvenient to our Bedford, Massachusetts headquarters.

For any of these reasons or as a result of other factors, we may not realize the anticipated benefits of the joint venture, and cash flow or profits derived from our ownership interest in the joint venture may be less than the cash flow or profits that could have been derived had we retained the transferred assets and continued to operate the JV Systems Business ourselves. Either party has the right, at any time upon certain material breaches by the other party of obligations under the joint venture documents, to acquire all of the breaching party's interest in the joint venture at 90% fair market value. In addition, in the event of a "change in control" of a member, the other members may purchase such member's interest in the joint venture at fair market value. Furthermore, our further participation in the business of the joint venture is restricted; for a period of three (3) years, we may not mass manufacture, market or sell solar cell modules with less than 575 watt capacity, and may do so thereafter only outside the United States.

SOME OF THE REQUIREMENTS OF SARBANES-OXLEY AFFECT US AS A SMALL COMPANY DISPROPORTIONATELY, AND WE MAY NOT BE ABLE TO COMPLY IN A TIMELY MANNER DESPITE SUBSTANTIAL EFFORT AND EXPENSE.

The Sarbanes-Oxley Act of 2002 imposed many new requirements on public companies, the most significant of which involves the documentation, testing and reporting of the effectiveness of our internal control over financial reporting.

Edgar Filing: SPIRE CORP - Form 10-K

We are required to report on our assessment of the effectiveness of our internal control over financial reporting to be in compliance with Section 404 of Sarbanes-Oxley, in our annual report for the year ended December 31, 2007. We have documented and tested our internal controls in 2007 and this effort involved substantial time and expense. We have identified

14

material weaknesses, as discussed below, from our internal review and our registered public accounting firm has also identified items in its annual audit of our financial statements.

Based on this evaluation, management concluded that the following material weaknesses in internal control over financial reporting existed as of December 31, 2007: we did not have a sufficient level of staffing with the necessary knowledge, experience and training to ensure the completeness and accuracy of our financial statements. Additionally, our internal policies and procedures related to internal control over financial reporting were not effective. As a result of this material weakness, issues related to accounting for inventory, accruals, reserves, income taxes and revenues existed in our internal preliminary 2007 fiscal year consolidated financial statements. These items were corrected prior to the finalization of those financial statements. For more detailed information see "Item 9A(T). Controls and Procedures."

We are working to address the issues raised by this material weakness, but we may not be successful in remediating them in a timely manner.

OUR CREDIT AGREEMENTS WITH SILICON VALLEY BANK SUBJECTS US TO VARIOUS RESTRICTIONS, WHICH MAY LIMIT OUR ABILITY TO PURSUE BUSINESS OPPORTUNITIES.

Our credit agreements with Silicon Valley Bank subjects us to various restrictions on our ability to engage in certain activities without the prior written consent of the bank, including, among other things, our ability to:

- o dispose of or encumber assets, other than in the ordinary course of business,
- o incur additional indebtedness,
- o merge or consolidate with other entities, or acquire other businesses, and
- o make investments

The agreements also subject us to various financial and other covenants with which we must comply on an ongoing or periodic basis. For example under our equipment line, as long as any commitment remains outstanding under the facility, we must comply with an adjusted quick ratio covenant and a rolling six month average minimum net income covenant. If we violate these or any other covenant, any outstanding debt under these agreements could become immediately due and payable, the bank could proceed against any collateral securing indebtedness and our ability to borrow funds in the future may be restricted or eliminated. These restrictions may also limit our ability to pursue business opportunities or strategies that we would otherwise consider to be in the best interests of the company.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

Edgar Filing: SPIRE CORP - Form 10-K

ITEM 2. PROPERTIES

Our corporate headquarters are located at One Patriots Park, Bedford, Massachusetts. This 144,230 square foot facility is leased and contains our administrative offices, sales and marketing offices, research and development facilities and the manufacturing facilities of our biomedical and solar equipment and systems businesses. The lease expires in November 2012. We lease an approximately 90,000 square foot facility located at 25 Sagamore Park Road, Hudson, New Hampshire that contains a semiconductor wafer growth and fabrication facility and administrative offices used primarily by our optoelectronics business unit including Spire Semiconductor. The lease expires in May 2008. We believe that our facilities are suitable for their present intended purposes and adequate for our current level of operations.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we are subject to legal proceedings and claims arising from the conduct of our business operations. We do not expect the outcome of these proceedings, either individually or in the aggregate, to have a material adverse effect on our financial position, results of operations, or cash flows.

During the second quarter of 2005 a suit was filed by Arrow International, Inc. against Spire Biomedical, Inc., our wholly owned subsidiary, alleging patent infringement by us. The complaint claims one of our catheter products induces and

15

contributes to infringement when medical professionals insert it. We have responded to the complaint denying all allegations and have filed certain counterclaims. The discovery process in this case has continued and is nearly complete. We filed a motion for summary judgment, asserting patent invalidity resulting from plaintiff's failure to follow the administrative procedures of the U.S. Patent and Trademark Office ("USPTO") which failure has remained uncorrected. On August 4, 2006, the Court granted our motion and dismissed this lawsuit without prejudice. Plaintiffs applied to revive the applicable patent, which application was granted by the USPTO in August 2006. Plaintiffs refiled their lawsuit against us in September 2006. We have filed our answer and resumed our defense. The parties have been working to conclude discovery. Based on information presently available to us, we believe that we do not infringe any valid claim of the plaintiff's patent and that, consequently, we have meritorious legal defenses with respect to this action in the event it were to be reinstated. The parties have agreed to limit any potential damages to us to a pre-specified royalty rate.

In an amended complaint filed on December 28, 2006, in the Eastern Division of the U.S. District Court for the Southern District of Ohio, the wife and executor of the estate of Darrell Adams, deceased, alleged that the failure of a hemodialysis catheter manufactured by us contributed to his death. Subsequent to the end of fiscal 2007, the case was settled between the parties. Our product liability insurance covered the settlement and all legal expenses, less our deductible, which has been partially accrued.

In a complaint filed July 11, 2007 in the U.S. District Court for the Eastern District of Pennsylvania, Medical Components, Inc. (the "Plaintiff") alleges that we and our wholly-owned subsidiary, Spire Biomedical, Inc., through the manufacture and sale of its multilumen catheter products infringes upon one of Plaintiff's patents. The Plaintiff seeks unspecified damages, including enhanced damages and attorneys fees and costs, and an injunction against certain

Edgar Filing: SPIRE CORP - Form 10-K

manufacturing techniques. We have negotiated a settlement with the Plaintiff which allows us to sell our remaining multilumen catheter inventory in exchange for a lump sum payment which has been fully accrued in the recent quarter. Further, we have altered our manufacturing methods such that there is no question of potential infringement of plaintiff's patent.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

No matters were submitted to a vote of our security holders in the fourth quarter of 2007.

PART II

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

MARKET INFORMATION

Our common stock is traded on the Nasdaq Global Market under the symbol "SPIR." The following chart sets forth the high and low bid prices for the common stock for the periods shown:

	High Bid	Low Bid
	-----	-----
2007		
First Quarter	\$11.84	\$ 7.63
Second Quarter	11.19	8.61
Third Quarter	14.95	8.39
Fourth Quarter	26.78	11.33
2006		
First Quarter	\$10.61	\$ 7.49
Second Quarter	10.25	6.98
Third Quarter	7.45	6.67
Fourth Quarter	8.69	6.50

These prices do not reflect retail mark-ups, markdowns or commissions and may not reflect actual transactions. The closing price of the common stock on March 28, 2008 was \$16.04, and on that date, there were 179 stockholders of record. The number of holders does not include individuals or entities who beneficially own shares but whose shares are held of record by a broker or clearing agency, but does include each such broker or clearing agency as one record holder.

DIVIDENDS

We did not pay any cash dividends during 2007 or 2006 and currently do not intend to pay dividends in the foreseeable future so that we may reinvest our earnings in the development of our business. The payment of dividends in the future will be at the discretion of the Board of Directors. In addition, under our credit agreements with Silicon Valley Bank, we may not pay dividends on our common stock without the consent of the bank.

ITEM 6. SELECTED FINANCIAL DATA

Not required as we are a smaller reporting company.

Edgar Filing: SPIRE CORP - Form 10-K

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

THIS MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS SECTION AND OTHER PARTS OF THIS REPORT CONTAIN FORWARD-LOOKING STATEMENTS WITHIN THE MEANING OF SECTION 27A OF THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND SECTION 21E OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED (THE "EXCHANGE ACT"), WHICH STATEMENTS INVOLVE RISKS AND UNCERTAINTIES. THESE STATEMENTS RELATE TO OUR FUTURE PLANS, OBJECTIVES, EXPECTATIONS AND INTENTIONS. THESE STATEMENTS MAY BE IDENTIFIED BY THE USE OF WORDS SUCH AS "MAY", "COULD", "WOULD", "SHOULD", "WILL", "EXPECTS", "ANTICIPATES", "INTENDS", "PLANS", "BELIEVES", "ESTIMATES", AND SIMILAR EXPRESSIONS. OUR ACTUAL RESULTS AND THE TIMING OF CERTAIN EVENTS MAY DIFFER SIGNIFICANTLY FROM THE RESULTS AND TIMING DESCRIBED IN THE FORWARD-LOOKING STATEMENTS. FACTORS THAT COULD CAUSE OR CONTRIBUTE TO SUCH DIFFERENCES INCLUDE, BUT ARE NOT LIMITED TO, THOSE FACTORS DESCRIBED BELOW AND ABOVE UNDER "ITEM 1A. RISK FACTORS" AND "ITEM 1. BUSINESS." READERS ARE ENCOURAGED TO CAREFULLY REVIEW THOSE RISK FACTORS. THE FOLLOWING DISCUSSION AND ANALYSIS OF OUR FINANCIAL CONDITION AND RESULTS OF OPERATIONS SHOULD BE READ IN LIGHT OF THOSE FACTORS AND IN CONJUNCTION WITH, OUR ACCOMPANYING CONSOLIDATED FINANCIAL STATEMENTS, INCLUDING THE NOTES THERETO.

OVERVIEW

We develop, manufacture and market highly-engineered products and services in three principal business areas: (i) capital equipment for the PV solar industry, (ii) biomedical and (iii) optoelectronics, generally bringing to bear expertise in materials technologies, surface science and thin films across all three business areas, discussed below.

In the PV solar area, we develop, manufacture and market specialized equipment for the production of terrestrial photovoltaic modules from solar cells. Our equipment has been installed in approximately 190 factories in 50 countries.

In the biomedical area, we provides value-added surface treatments to manufacturers of orthopedic and other medical devices that enhance the durability, antimicrobial characteristics or other material characteristics of their products; develops and markets coated and uncoated hemodialysis catheters and related devices for the treatment of chronic kidney disease; and performs sponsored research programs into practical applications of advanced biomedical and biophotonic technologies.

In the optoelectronics area, we provide custom compound semiconductor foundry and fabrication services on a merchant basis to customers involved in biomedical/biophotonic instruments, telecommunications and defense applications. Services include compound semiconductor wafer growth, other thin film processes and related device processing and fabrication services. We also provide materials testing services and perform services in support of sponsored research into practical applications of optoelectronic technologies.

Operating results will depend upon revenue growth and product mix, as well as the timing of shipments of higher priced products from our solar equipment line and delivery of solar systems. Export sales, which amounted to 45% of net sales and revenues for 2007, continue to constitute a significant portion of our net sales and revenues.

RESULTS OF OPERATIONS

Edgar Filing: SPIRE CORP - Form 10-K

The following table sets forth certain items as a percentage of net sales and revenues for the periods presented:

	Year Ended December 31,	
	2007	2006
Net sales and revenues	100%	100%
Cost of sales and revenues	(81)	(89)
Gross profit	19	11
Selling, general and administrative expenses	(35)	(48)
Internal research and development expenses	(1)	(4)
Gain on sales of trademark	7	--
Loss from operations	(10)	(41)
Other expense, net	(1)	--
Loss before income taxes	(9)	(41)
Income tax benefit	2	--
Loss before extraordinary gain	(7)	(41)
Extraordinary gain, net of taxes	3	--
Net loss	(4)%	(41)%

OVERALL

Our total net sales and revenues for the year ended December 31, 2007 ("2007") increased 91% to \$38,423,000 as compared to \$20,125,000 for the year ended December 31, 2006 ("2006"). The increase came primarily from our solar business unit, while our optoelectronics business unit achieved a small increase.

SOLAR BUSINESS UNIT

Sales in our solar business unit increased 230% to \$23,103,000 in 2007 as compared to \$6,992,000 in 2006, primarily due to a 375% increase in solar equipment sales resulting from higher volume offset by a 41% decrease in solar systems sales.

BIOMEDICAL BUSINESS UNIT

Revenues of our biomedical business unit increased 6% to \$11,106,000 in 2007 as compared to \$10,517,000 in 2006, as a result of a 20% increase in revenue from our line of hemodialysis catheters and 12% increase in biomedical services offset by a 30% decrease in revenue from our research and development activities.

OPTOELECTRONICS BUSINESS UNIT

Sales in our optoelectronics business unit increased 61% in 2007 to \$4,214,000 as compared to \$2,616,000 in 2006.

Year Ended December 31, 2007 Compared to Year Ended December 31, 2006

Net Sales and Revenues

Edgar Filing: SPIRE CORP - Form 10-K

The following table categorizes our net sales and revenues for the periods presented:

	Year Ended December 31,		Increase	
	2007	2006	\$	%
Sales of goods	26,078,000	9,562,000	16,516,000	173%
Contract research, service and license revenues	\$12,345,000	\$10,563,000	\$ 1,782,000	17%
Net sales and revenues	\$38,423,000	\$20,125,000	\$18,298,000	91%

18

The 173% increase in sales of goods for the year ended December 31, 2007 as compared to the year ended December 31, 2006 was primarily due to a 269% increase in solar equipment and solar systems revenues, with higher volume being the primary contributor to the increase. Biomedical product sales increased 20% in 2007 as compared to 2006 as a result of increased demand for our expanded line of hemodialysis catheters. We introduced a new heparin coated catheter late in the fourth quarter of 2006.

The 17% increase in contract research, service and license revenues in 2007 is primarily attributable to an increase in our optoelectronics business unit. Revenues from optoelectronic services increased 61% in 2007 as compared to 2006 primarily due to an increase in semiconductor foundry and fabrication services. The increase was partially offset by a decrease in R&D and NREL service revenue.

Cost of Sales and Revenues

The following table categorizes our cost of sales and revenues for the periods presented, stated in dollars and as a percentage of related sales and revenues:

	Years Ended December 31,				Increase
	2007	%	2006	%	\$
Cost of goods sold	21,934,000	84%	9,029,000	94%	12,905,000
Cost of contract research, service and license revenues	\$ 9,360,000	76%	\$ 8,819,000	83%	\$ 541,000
Net cost of sales and revenues	\$31,294,000	81%	\$17,848,000	89%	\$13,446,000

Cost of goods sold increased 143% in 2007 as compared to 2006, primarily as a result of the 91% increase in related revenues. As a percentage of sales, cost of goods sold was 84% of sales of goods in 2007 as compared to 94% of sales in 2006. This change is due to increased costs in 2007 associated with higher levels of revenue along with better utilization of solar manufacturing overhead.

The overall cost of contract research, services and licenses in 2007 is up slightly as increased costs at our optoelectronics facility (Spire Semiconductor) were somewhat offset by a decrease in costs of our contract research activities due to lower volumes. Spire Semiconductor's costs increased primarily due to fixed costs associated with new capital equipment that were

Edgar Filing: SPIRE CORP - Form 10-K

brought into service in 2007. Cost of contract research, services and licenses as a percentage of revenue increased to 76% of revenues in 2007 from 83% in 2006, primarily due to the increase in Spire Semiconductor costs.

Cost of sales and revenues also includes approximately \$93,000 and \$47,000 of stock-based compensation in 2007 and 2006, respectively, due to the adoption of SFAS 123(R) in 2006.

OPERATING EXPENSES

The following table categorizes our operating expenses for the periods presented, stated in dollars and as a percentage of net sales and revenues:

	Years Ended December 31,				Increase
	2007	%	2006	%	\$
Selling, general and administrative	\$13,226,000	34%	\$ 9,794,000	48%	\$ 3,432,000
Internal research and development	313,000	1%	734,000	4%	(421,000)
	-----	---	-----	---	-----
Operating expenses	\$13,539,000	35%	\$10,528,000	52%	\$ 3,011,000

SELLING, GENERAL AND ADMINISTRATIVE EXPENSES

The 35% increase in selling, general and administrative expenses was primarily due to increased costs associated with sales and marketing efforts in our solar business unit, ongoing litigation matters, increased facility related costs, sales commissions and stock-based compensation costs. Selling, general and administrative expense includes approximately \$486,000 of stock-based compensation in 2007 versus \$209,000 in 2006.

19

INTERNAL RESEARCH AND DEVELOPMENT EXPENSES

The 57% decrease in internal research and development expense in 2007 versus 2006 was primarily due to decreased development efforts within the solar equipment and biomedical services group and an allocation of certain internal research and development costs at Spire Semiconductor to cost of sales in 2006. In 2006, we completed most of our three year contract with NREL to develop new solar module equipment. The decrease in internal research and development expenses as a percentage of sales and revenues was due to the decrease in costs.

GAIN ON SALE OF TRADEMARK

We sold Gloria Solar a PV module line operated by the our solar system business along with the transfer of technology and rights to mark the modules with our trademark to build, design and sell specialty BIPV and PV modules, in exchange for \$4,000,000 in cash. This transaction closed on September 4, 2007. As of December 31, 2007 we still had outstanding obligations to refurbish the module line and provide some additional PV module design work. We believe the sale of the trademark and the other goods and services meets the criteria of Emerging Issues Task Force ("EITF") 00-21, "ACCOUNTING FOR REVENUE ARRANGEMENTS WITH MULTIPLE ELEMENTS," paragraph 9(a), as each element has utility on a stand-alone basis. Further, Question 1 to SAB Topic 13A-3f was considered as guidance for determining if the trademark fee under the agreement should be recognized as a sale. As the trademark agreement has no term and is permanent in

Edgar Filing: SPIRE CORP - Form 10-K

nature, the earnings process was complete; accordingly, we recognized a gain on the sale. We have determined the fair value of the trademark sale, the PV module line and services based on a third party appraisal. As a result, a \$2,735,000 gain was recognized on the sale of the trademark for the year ended December 31, 2007. We also recognized \$715,000 in service revenue reflecting the delivery of PV technology designs to build PV modules. We have sold and will continue to sell this technology to other customers as part of our equipment business. As of December 31, 2007, the fair value of the undelivered goods and services was \$550,000, which is in advance on contracts in progress. Gloria Solar has further contracted with us to purchase additional PV module equipment lines at market prices. We also provide Gloria Solar general and administrative services and provide space in our facility on a pass through basis.

OTHER INCOME (EXPENSE), NET

We earned \$74,000 and \$268,000 of interest income for the years ended December 31, 2007 and 2006, respectively. We incurred interest expense of \$225,000 and \$154,000 for the years ended December 31, 2007 and 2006, respectively. The decreased interest income is due to lower cash balances held by us during 2007 compared with 2006. The increase interest expense is due to higher interest payments associated with the \$3.5 million term loan outstanding with Silicon Valley Bank compared with 2006 interest expenses primarily associated with interest incurred on capital leases associated with the semiconductor foundry.

We recorded a \$24,000 loss on equity investment in joint venture with Gloria Solar for the year ended December 31, 2007.

We recorded \$14,000 currency transaction loss related to the conversion of a Japanese Yen account into U.S. dollars for each of the years ended December 31, 2007 and 2006.

INCOME TAXES

We recorded a benefit for income taxes of \$877,000 related to income from continuing operations for year ended December 31, 2007, representing the tax benefit of the continuing operation loss that is offset by the extraordinary gain. We did not record an income tax benefit for the year ended December 31, 2006. A full valuation allowance has been provided against the deferred tax assets due to uncertainty regarding the realization of the net operating loss in the future. A valuation allowance was provided against the deferred tax assets generated in 2007 and 2006 due to uncertainty regarding the realization of the net operating loss in the future. At December 31, 2007, we had gross deferred tax assets of \$6,781,000, against which a valuation allowance of \$6,781,000 had been applied.

NET EARNINGS (LOSS)

We reported a net losses of \$1,686,000 and \$8,151,000 for the years ended December 31, 2007 and 2006, respectively. In 2007, we recorded a gain of \$2,735,000 from the sale of trademark and an extraordinary gain, net of taxes of \$1,301,000 compared to no gains from trademarks and extraordinary gains in 2006. We are likely to continue to report losses unless we can increase revenues or sell additional technology licenses. If additional sources of revenue are not identified we can take measures to reduce costs but it is unclear whether cost reductions alone can eliminate all of the potential future losses.

EQUITY INVESTMENT IN JOINT VENTURE

Edgar Filing: SPIRE CORP - Form 10-K

On July 31, 2007, we entered into contractual relationship with Gloria Solar Co., Ltd. ("Gloria Solar") pursuant to which (i) we sold Gloria Solar certain assets belonging to our solar systems business for \$4,000,000 and (ii) we and Gloria Solar formed a joint venture named Gloria Spire Solar, LLC, for the purpose of pursuing the solar photovoltaic systems market within the United States. The joint venture will design, market, sell and manage the installation of systems for the generation of electrical power by solar photovoltaic means in primarily commercial/industrial and utility segments of such market (the "JV Systems Business"). Gloria Solar owns 55% of the joint venture and we own 45% of the joint venture. In connection with the formation of the joint venture, (i) we contributed to the joint venture assets primarily relating to the JV Systems Business, including certain intellectual property and know-how, access to information technology assets and relationships, relationships with current and previous customers, contract backlog and project opportunities, certain registered trademarks, and employment relationships with staff members and (ii) Gloria Solar contributed \$5,000,000 in cash. This transaction closed on September 4, 2007. Our initial investment was recorded at \$2,288,000. We are accounting for our investment in the joint venture under the equity method, as we have significant influence over the investee; however, we lack significant control. We will be reporting the ongoing financial results of the joint venture one quarter in arrears. We recorded a \$24,000 loss on equity investment in joint venture for the year ended December 31, 2007. As a result of applying the provisions of Accounting Principles Board ("APB") Opinion No. 18 "THE EQUITY METHOD OF ACCOUNTING FOR INVESTMENTS IN COMMON STOCK" to the differences between the fair value of the assets contributed and the cost basis on our books, we recorded an extraordinary gain of \$1,301,000, net of tax provision of \$877,000. Additional recognition of the deferential will be recorded over time to offset our ownership percentage of the amortization of the contributed intangibles assets as recorded on the joint venture's books. If the managing board of the joint venture determines that additional capital is required to support the operations of the joint venture, the joint venture shall make a call for additional funds. Within ten (10) days after the members have received written notice of the call, the members shall make additional capital contributions to the joint venture in proportion to each member's interest in the joint venture. If a member fails to fund its pro rata portion of any capital call, the non-defaulting member may purchase the defaulting member's shortfall; however, in no event may either member's interest in the joint venture be reduced to below 10%.

LIQUIDITY AND CAPITAL RESOURCES

	December 31, 2007	December 31, 2006	Increase (Decrease)	
	-----	-----	\$	%
Cash and cash equivalents	\$2,372,000	\$1,536,000	\$ 836,000	54%
Working capital	\$2,834,000	\$3,938,000	\$(1,104,000)	(28%)

Included in working capital at December 31, 2006, was \$5,000,000 of certificates of deposit with a bank, classified on the balance sheet as short-term investments. \$1,969,000 of this short-term investment was restricted as security for a letter of credit.

On April 26, 2006, we entered into Stock Purchase Agreements with two accredited institutional investors in connection with the private placement of 941,176 shares of our common stock at a purchase price of \$8.50 per share. On April 28, 2006, we completed the private placement. The net proceeds of the sale were approximately \$7.7 million after deducting placement fees and other closing costs. The proceeds were used to fund additions to property plant and equipment, short-term investments and operating losses.

Edgar Filing: SPIRE CORP - Form 10-K

Under the terms of the Stock Purchase Agreements, we were obligated to file a registration statement on Form S-3 with the Securities and Exchange Commission (the "SEC") registering the resale of the shares of common stock sold. We filed the Form S-3 on May 3, 2006 and the SEC declared it effective on May 12, 2006. In the event that this registration statement ceases to be effective and available to the investors for an aggregate period of 30 days in any 12 month period, we must pay liquidated damages starting on the 61st day (in the aggregate) of any suspensions in any 12 month period, and each 30th day thereafter until the suspension is terminated an amount equal to 1% of the aggregate purchase price paid by the investors. However, we are not obligated to pay liquidation damages on shares not owned by the investors at the time of the suspension or shares that are tradable without restriction under Rule 144. We reviewed Emerging Issues Task Force ("EITF") 00-19: ACCOUNTING FOR DERIVATIVE FINANCIAL INSTRUMENTS INDEXED TO, AND POTENTIALLY SETTLED IN, A COMPANY'S OWN STOCK, and EITF 05-04: THE EFFECT OF A LIQUIDATED DAMAGES CLAUSE ON A FREESTANDING FINANCIAL INSTRUMENT SUBJECT TO EITF ISSUE NO. 00-19, to determine if these liquidation damages provisions require a portion of the equity raised needs to be accounted under Financial Accounting Standards ("FAS") No. 133: ACCOUNTING FOR DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES. We determined that the liquidated damages provisions did not require treatment under FAS No. 133 and therefore will treat all of the funds raised under these agreements as additions to permanent equity.

21

We had a \$2,000,000 Loan Agreement with Citizens Bank of Massachusetts which expired on June 26, 2007. On May 25, 2007, we and our wholly-owned subsidiary, Spire Semiconductor, LLC, entered into a Loan and Security Agreement (the "Equipment Credit Facility") with Silicon Valley Bank (the "Bank"). Under the Equipment Credit Facility, for a one-year period, we and Spire Semiconductor could borrow up to \$3,500,000 in the aggregate to finance certain equipment purchases (including reimbursement of certain previously-made purchases). Each advance made under the Equipment Credit Facility would be due thirty-six (36) months from the date the advance is made. Advances made under the Equipment Credit Facility would bear interest at the Bank's prime rate, as determined, plus 0.5% (7.25% at December 31, 2007) and payable in thirty-six (36) consecutive monthly payments following the funding date of that advance. At December 31, 2007, our outstanding borrowings from the equipment line of credit amounted to \$2,917,000.

On March 31, 2008, we entered into a second Loan and Security Agreement (the "Revolving Credit Facility") with the Bank. Under the terms of the Revolving Credit Facility, the Bank agreed to provide us with a credit line up to \$5,000,000. Our obligations under the Revolving Credit Facility are secured by substantially all of our assets and advances under the Revolving Credit Facility are limited to 80% of eligible receivables and the lesser of 25% of the value of our eligible inventory, as defined, or \$2,500,000 if the inventory is backed by a customer letter of credit. Interest on outstanding borrowings accrues at a rate per annum equal to the greater of Prime Rate plus one percent (1.0%) or seven percent (7%). In addition, we agreed to pay to the Bank a collateral monitoring fee of \$750 per month in the event the we are in default of our covenants and agreed to the following additional terms: (i) \$50,000 commitment fee; (ii) an unused line fee in the amount of 0.75% per annum of the average unused portion of the revolving line; and (iii) an early termination fee of 0.5% of the total credit line if we terminate the Revolving Credit Facility prior to 12 months from the Revolving Credit Facility's effective date. The Revolving Credit Facility, if not sooner terminated in accordance with its terms, expires on March 30, 2009. In addition our existing Equipment Credit Facility was amended whereby the Bank granted a waiver for our defaults for not meeting our December 31, 2007 quarter liquidity and profit covenants and for not meeting our January and February 2008 liquidity covenants. Further the covenants

Edgar Filing: SPIRE CORP - Form 10-K

were amended to match the new covenants contained in the Revolving Credit Facility. Our interest rate under the Equipment Credit Facility was also modified from Bank Prime plus one half percent to the greater of Bank Prime plus one percent (1.0%) or seven percent (7%).

Under the terms of the Equipment Credit Facility, as long as any commitment remains outstanding under the facility, we must comply with an adjusted quick ratio covenant and a minimum quarterly net income covenant. In addition, until all amounts under the credit facilities with the bank are repaid, covenants under the credit facilities impose restrictions on our ability to, among other things, incur additional indebtedness, create or permit liens on our assets, merge, consolidate or dispose of assets (other than in the ordinary course of business), make dividend and other restricted payments, make certain debt or equity investments, make certain acquisitions, engage in certain transactions with affiliates or change the business conducted by us and our subsidiaries. Any failure by us to comply with the covenants and obligations under the credit facilities could result in an event of default, in which case the Bank may be entitled to declare all amounts owed to be due and payable immediately. Our obligations under the credit facilities are secured by substantially all of our assets.

We maintain allowances for doubtful accounts for estimated losses resulting from the inability of our customers to pay amounts due. We actively pursue collection of past due receivables as the circumstances warrant. Customers are contacted to determine the status of payment and senior accounting and operations management are included in these efforts as deemed necessary. A specific reserve is established for past due accounts over 60 days and over a specified amount, when it is probable that a loss has been incurred and we can reasonably estimate the amount of the loss. We do not record an allowance for government receivables and invoices backed by letters of credit as realizability is reasonably assured. Bad debts are written off against the allowance when identified. There is no dollar threshold for account balance write-offs. While rare, a write-off is only recorded when all efforts to collect the receivable have been exhausted and only in consultation with the appropriate business line manager.

At December 31, 2007, our accumulated deficit was approximately \$11,442,000 compared to accumulated deficit of approximately \$9,756,000 as of December 31, 2006.

We have incurred significant operating losses in 2007 and 2006. Loss from operations, before gain on sales of trademarks, were \$6.4 million and \$8.3 million in 2007 and 2006, respectively. These losses from operations have resulted in cash losses (loss from operations excluding gain on sales of trademark plus or minus non-cash adjustments) of approximately \$5.9 million and \$5.4 million in 2007 and 2006, respectively. We have funded these cash losses from cash receipts of \$4.0 million from the sale of a solar PV module line along with the transfer of technology and rights to mark the modules with our trademark in 2007 and \$7.7 million from the sale of equity in 2006. As of December 31, 2007, we had unrestricted cash and cash equivalents of \$2.4 million compared to unrestricted cash and cash equivalents of \$1.5 million and unrestricted short-

term investments of \$3.0 million as of December 31, 2006. While we believe we have inherent assets and technology that we could sell or license in the near term, there is no guarantee that we would be able to sell or license those assets on a timely basis and at appropriate values that would allow us to continue to fund our operating losses. We have developed several plans to mitigate cash losses primarily from increased revenues and, if required,

Edgar Filing: SPIRE CORP - Form 10-K

potential cost reduction efforts and outside financing. As a result, we believe we have sufficient resources to continue as a going concern at least through December 31, 2008. The table below details our cash loss from operations which excludes changes in working capital during the respective periods.

	Years Ended Dec 2007	
	-----	-----
Loss from operations	\$ (3,675,000)	\$ (
Gain on sale of trademark	(2,735,000)	
	-----	-----
Adjusted loss from operations	(6,410,000)	(
Depreciation and amortization	2,213,000	
Loss on impairment of capital equipment	78,000	
Loss on buyout of capital lease	--	
Loss on equity investment in joint venture	24,000	
Deferred tax benefit	(877,000)	
Deferred compensation	2,000	
Deferred rent	18,000	
Extraordinary gain in equity investment in joint venture, net of tax	(1,301,000)	
Stock-based compensation	579,000	
	-----	-----
Increase (decrease) to reserves	(223,000)	
	-----	-----
Cash loss from operations	\$ (5,897,000)	\$ (
	=====	=====

CONTRACTUAL OBLIGATIONS, COMMERCIAL COMMITMENTS AND OFF-BALANCE SHEET ARRANGEMENTS.

The following table summarizes our gross contractual obligations at December 31, 2007 and the maturity periods and the effect that such obligations are expected to have on its liquidity and cash flows in future periods:

	Payments Due by Period				
	Total	Less than 1 Year	2 - 3 Years	4 - 5 Years	Mo 5
PURCHASE OBLIGATIONS	\$2,669,000	\$2,620,000	\$49,000	--	5
CAPITAL LEASES:					
Related party capital lease	\$495,000	\$495,000	--	--	
OPERATING LEASES:					
Unrelated party operating leases	\$ 338,000	\$ 124,000	\$200,000	\$14,000	
Related party operating lease	\$9,946,000	\$1,812,000	\$3,948,000	\$4,186,000	

Purchase obligations include all open purchase orders outstanding regardless of whether they are cancelable or not. Included in purchase obligations are raw material and equipment needed to fulfill customer orders.

Capital lease obligations outlined above include both the principal and interest components of these contractual obligations.

On May 26, 2005, we entered into a global consortium agreement (the "Agreement") with Nisshinbo Industries, Inc. ("Nisshinbo") for the development,

Edgar Filing: SPIRE CORP - Form 10-K

manufacturing, and sales of solar photovoltaic module manufacturing equipment. Nisshinbo's prior relationship with Spire was as a sub-licensee of Marubeni Corporation with whom we had a license arrangement that was originally signed in 1997, extended in 2003, and terminated in May 2005. Nisshinbo's role as sub-licensee was to manufacture equipment for Marubeni to sell to the Japanese market based upon our proprietary technology. Under the terms of the Agreement, Nisshinbo purchased a license to manufacture and sell our module manufacturing equipment on a semi-exclusive basis for an upfront fee plus additional royalties based on ongoing equipment sales over a ten-year period. In addition, we and Nisshinbo agreed, but are not obligated, to pursue joint research and development, product

23

improvement activities and sales and marketing efforts. The companies may share market costs such as product collateral and trade show expenses. Each company may also collaborate on sales leads and have the other company manufacture and service its equipment in the field. Both companies have reciprocal rights to participate in the other company's R&D efforts on a going-forward basis. Nisshinbo can request us to further develop a technology but Nisshinbo must (a) share in the costs of these development efforts equally with us (and thereafter have joint ownership) otherwise we will own the technology under a partial contribute or no participation by Nisshinbo with us receiving a royalty from Nisshinbo if it utilizes the technology. At the end of the license all non-jointly owned technology developed under the Agreement will revert back to the owner, with the other party being required to purchase a new license based upon the fair market value of that technology in order to continue to utilize the technology.

On June 27, 2005, we received JPY 400,000,000 from the sale of this permanent license. We determined that the Nisshinbo Agreement contains multiple elements consisting of (1) the granting of a license to utilize our technology and (2) the semi-exclusive right to utilize the technology for a period of 10 years. We believe the granting of the license meets the criteria of Emerging Issues Task Force ("EITF") 00-21, "Accounting for Revenue Arrangements with Multiple Elements", paragraph 9(a), as the license to utilize the technology has value to Nisshinbo on a stand-alone basis. Further, Question 1 to Securities and Exchange Commission ("SEC") Staff Accounting Bulletin Topic 13A-3f "Nonrefundable Up-Front Fees", was directly considered as guidance for determining if the upfront fee under the Nisshinbo Agreement should be recognized upon the signing of contract or recognized over the term of the license. It is our belief that a separate earnings process was complete as Nisshinbo was purchasing access to utilize technology it already had in its possession; therefore, recognition of the gain on the sale was appropriate. We have determined the fair value of the license and royalty based on an appraisal. As a result, a \$3,319,600 gain was recognized as a gain on sale of license in the consolidated statements of operations for the year ended December 31, 2005. The balance of \$350,000 was determined to represent an advanced royalty payment and was recorded as an advance on contracts in progress. This amount is being credited as royalty income over the ten-year license period on a straight-line basis.

We maintain a Japanese yen account (approximately JPY 90,000 as of December 31, 2007). As of December 31, 2007, approximately \$1,000 has been reflected in cash and cash equivalents in the accompanying consolidated balance sheet utilizing the closing yen/dollar exchange rate as of December 31, 2007. Total currency translation loss of \$14,000 for each of the years ended December 31, 2007 and 2006, is reflected in other expense, net in the accompanying consolidated statement of operations.

Outstanding letters of credit totaled \$261,000 at December 31, 2007. The

Edgar Filing: SPIRE CORP - Form 10-K

letters of credit secure performance obligations and purchase commitments, and allow holders to draw funds up to the face amount of the letter of credit if we do not perform as contractually required. These letters of credit expire through 2008 and are 100% secured by cash and short term-investments.

RECENT ACCOUNTING PRONOUNCEMENTS

In September 2006, the Financial Accounting Standards Board ("FASB") issued SFAS No. 157, Fair Value Measurements ("FAS 157"). This Statement is effective for financial statements issued for fiscal years beginning after November 15, 2007. On February 6, 2008, the FASB announced it will issue a FASB Staff Position ("FSP") to allow a one-year deferral of adoption of FAS 157 for nonfinancial assets and nonfinancial liabilities that are recognized at fair value on a nonrecurring basis. FAS 157 provides a common fair value hierarchy for companies to follow in determining fair value measurements in the preparation of financial statements and expands disclosure requirements relating to how such fair value measurements were developed. FAS 157 clarifies the principle that fair value should be based on the assumptions that the marketplace would use when pricing an asset or liability, rather than company specific data. We are currently assessing the impact that FAS 157 will have on our financial position, results of operations and cash flow.

In February 2007, the FASB issued SFAS No. 159 ("FAS 159"), The Fair Value Option for Financial Assets and Financial Liabilities - Including an Amendment of FASB Statement No. 115. FAS 159 allows companies to report selected financial assets and liabilities at fair value. The changes in fair value are recognized in earnings and the assets and liabilities measured under this methodology are required to be displayed separately in the balance sheet. The main intent of the Statement is to mitigate the difficulty in determining the reported earnings caused by a "mixed-attribute" model" (or reporting some assets are fair value and others using a different valuation attribute such as amortized cost). The project is separated into two phases. This first phase addressed the creation of a fair value option for financial assets and liabilities. A second phase will address creating a fair value option for selected non-financial items. FAS 159 is effective for all financial statements issued for fiscal years beginning after November 15, 2007. We are evaluating the impact that this issuance will have on our financial position, results of operation and cash flow.

24

In December 2007, the FASB issued SFAS No. 141R ("FAS 141R"), Business Combinations, which revises FAS 141 and changes multiple aspects of the accounting for business combinations. Under the guidance in FAS 141R, the acquisition method must be used, which requires the acquirer to recognize most identifiable assets acquired, liabilities assumed, and non-controlling interests in the acquiree at their full fair value on the acquisition date. Goodwill is to be recognized as the excess of the consideration transferred plus the fair value of the non-controlling interest over the fair values of the identifiable net assets acquired. Subsequent changes in the fair value of contingent consideration classified as a liability are to be recognized in earnings, while contingent consideration classified as equity is not to be re-measured. Costs such as transaction costs are to be excluded from acquisition accounting, generally leading to recognizing expense, and, additionally, restructuring costs that do not meet certain criteria at acquisition date are to be subsequently recognized as post-acquisition costs. FAS 141R is effective for business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after December 15, 2008. We are evaluating the impact that this issuance will have on our financial position, results of operation and cash flow.

In December 2007, the FASB issued SFAS No. 160 ("FAS 160"), Non-controlling

Edgar Filing: SPIRE CORP - Form 10-K

Interest in Consolidated Financial Statements - an Amendment of ARB No. 151. FAS 160 requires that a non-controlling interest in a subsidiary (i.e. minority interest) be reported in the equity section of the balance sheet instead of being reported as a liability or in the mezzanine section between debt and equity. It also requires that the consolidated income statement include consolidated net income attributable to both the parent and non-controlling interest of a consolidated subsidiary. A disclosure must be made on the face of the consolidated income statement of the net income attributable to the parent and to the non-controlling interest. Also, regardless of whether the parent purchases additional ownership interest, sells a portion of its ownership interest in a subsidiary or the subsidiary participates in a transaction that changes the parent's ownership interest, as long as the parent retains controlling interest, the transaction is considered an equity transaction. FAS 160 is effective for annual periods beginning after December 15, 2008. We are evaluating the impact that this issuance will have on our financial position, results of operation and cash flow.

IMPACT OF INFLATION AND CHANGING PRICES

Historically, our business has not been materially impacted by inflation. Manufacturing equipment and solar systems are generally quoted, manufactured and shipped within a cycle of approximately nine months, allowing for orderly pricing adjustments to the cost of labor and purchased parts. We have not experienced any negative effects from the impact of inflation on long-term contracts. Our service business is not expected to be seriously affected by inflation because its procurement-production cycle typically ranges from two weeks to several months, and prices generally are not fixed for more than one year. Research and development contracts usually include cost escalation provisions.

FOREIGN CURRENCY FLUCTUATION

We sell only in U.S. dollars, generally against an irrevocable confirmed letter of credit through a major United States bank. Accordingly, we are not directly affected by foreign exchange fluctuations on our current orders. However, fluctuations in foreign exchange rates do have an effect on our customers' access to U.S. dollars and on the pricing competition on certain pieces of equipment that we sell in selected markets. We received Japanese yen in exchange for the sale of a license to our solar technology. In addition, purchases made and royalties received under our Consortium Agreement with our Japanese partner will be in Japanese yen. We have committed to purchase certain pieces of equipment from European vendors; these commitments are denominated in Euros. We bear the risk of any currency fluctuations that may be associated with these commitments. We do not believe that foreign exchange fluctuations will materially affect our operations.

RELATED PARTY TRANSACTIONS

We subleased 77,000 square-feet in a building leased by Mykrolis Corporation, who in turn leased the building from SPI-Trust, a Trust of which Roger Little, our Chairman of the Board, Chief Executive Officer and President, is the sole trustee and principal beneficiary. The 1985 sublease, originally for a period of ten years, was extended for a five-year period expiring on November 30, 2000 and was further extended for a five-year period expiring on November 30, 2005. The sublease agreement provided for minimum rental payments plus annual increases linked to the consumer price index. Effective December 1, 2005, we entered into a two-year Extension of Lease Agreement (the "Lease Extension") directly with SPI-Trust.

We assumed certain responsibilities of Mykrolis, the tenant under the former lease, as a result of the Lease Extension including payment of all building and real estate related expenses associated with the ongoing operations

Edgar Filing: SPIRE CORP - Form 10-K

of the property. We have allocated a portion of these expenses to SPI-Trust based on pre-established formulas utilizing square footage and actual usage where applicable. These allocated expenses were invoiced monthly and be paid utilizing a SPI-Trust escrow account of

25

which we have sole withdrawal authority. SPI-Trust is required to maintain three (3) months of its anticipated operating costs within this escrow account. On December 1, 2006, we and SPI-Trust amended the Lease Extension to include the lease of an additional 15,000 square feet from SPI-Trust for a one-year term. The additional space was leased at a rate of \$8.06 per square foot on annual basis. The additional space was used to expand our solar operations.

On November 30, 2007, we entered into a new Lease Agreement (the "New Lease") with SPI-Trust, with respect to 144,230 square feet of space comprising the entire building in which we have occupied space since December 1, 1985. The term of the New Lease commenced on December 1, 2007 and continues for five (5) years until November 30, 2012. We have the right to extend the term of the New Lease for an additional five (5) year period. The annual rental rate for the first year of the New Lease is \$12.50 per square foot on a triple net basis, whereby the tenant is responsible for operating expenses, taxes and maintenance of the building. The annual rental rate increases on each anniversary by \$0.75 per square foot. If we exercise our right to extend the term of the New Lease, the annual rental rate for the first year of the extended term will be the greater of (a) the rental rate in effect immediately preceding the commencement of the extended term or (b) the market rate at such time, and on each anniversary of the commencement of the extended term the rental rate will increase by \$0.75 per square foot. We believe that the terms of the New Lease are commercially reasonable.

Rent expense under the New Lease and the Lease Extension, as amended, for the year ended December 31, 2007 and 2006 was \$1,415,000 and \$1,262,000, respectively. In connection with the Lease Extension, as amended, we were invoiced and paid certain SPI-Trust related expenses, including building maintenance and insurance. We invoiced SPI-Trust on a monthly basis and SPI-Trust reimbursed us for all such costs. Approximately \$14,000 was due from SPI-Trust as of December 31, 2006 for building related costs and no amounts due as of December 31, 2007.

In conjunction with our acquisition of Bandwidth (now known as Spire Semiconductor) in May 2003, SPI-Trust purchased from Stratos Lightwave, Inc. (Spire Semiconductor's former owner) the building that Spire Semiconductor occupies in Hudson, New Hampshire for \$3.7 million. Subsequently, we entered into a lease for the building (90,000 square feet) with SPI-Trust whereby we agreed to pay \$4.1 million to the SPI-Trust over an initial five-year term expiring in 2008 with our option to extend for five years. In addition to the rent payments, the lease obligates us to keep on deposit with SPI-Trust the equivalent of three months rent (\$304,000 as of December 31, 2007). The lease agreement does not provide for a transfer of ownership at any point. Interest costs were assumed at 7%. Interest expense was approximately \$76,000 and \$136,000 for the years ended December 31, 2007 and 2006, respectively. This lease has been classified as a related party capital lease and a summary of payments (including interest) follows:

Year	Rate Per Square Foot	Annual Rent	Monthly Rent	Security Deposit
June 1, 2003 - May 31, 2004	\$6.00	\$ 540,000	\$45,000	\$135,000
June 1, 2004 - May 31, 2005	7.50	675,000	56,250	168,750

Edgar Filing: SPIRE CORP - Form 10-K

June 1, 2005 - May 31, 2006	8.50	765,000	63,750	191,250
June 1, 2006 - May 31, 2007	10.50	945,000	78,750	236,250
June 1, 2007 - May 31, 2008	13.50	1,215,000	101,250	303,750

		\$4,140,000		
		=====		

At December 31, 2007, \$486,000 reflected the current portion of capital lease obligation - related party, with no long-term portion, in the consolidated balance sheet.

26

CRITICAL ACCOUNTING POLICIES

The preparation of financial statements in accordance with accounting principles generally accepted in the United States requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Among the significant estimates affecting our consolidated financial statements are those relating to revenue recognition, reserves for doubtful accounts and sales returns and allowances, reserve for excess and obsolete inventory, impairment of long-lived assets, income taxes, and warranty reserves. We regularly evaluate our estimates and assumptions based upon historical experience and various other factors that we believe 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. To the extent actual results differ from those estimates, our future results of operations may be affected. We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our consolidated financial statements. Refer to Footnote 2 of our notes to consolidated financial statements for a description of our significant accounting policies.

REVENUE RECOGNITION

We derive our revenues from three primary sources: (1) commercial products including, but not limited to, solar energy manufacturing equipment, solar energy systems and hemodialysis catheters; (2) biomedical and semiconductor processing services; and (3) United States government funded research and development contracts.

We generally recognize product revenue upon shipment of products provided there are no uncertainties regarding customer acceptance, persuasive evidence of an arrangement exists, the sales price is fixed or determinable, and collectibility is reasonably assured. These criteria are generally met at the time of shipment when the risk of loss and title passes to the customer or distributor, unless a consignment arrangement exists. Revenue from consignment arrangements is recognized based on product usage indicating sales are complete.

We utilize a distributor network to market and sell its hemodialysis catheters domestically. We generally recognize revenue when the catheters are shipped to our distributors. Gross sales reflect reductions attributable to customer returns and various customer incentive programs including pricing discounts and rebates. Product returns are permitted in certain sales contracts and an allowance is recorded for returns based on our history of actual returns. Certain customer incentive programs require management to estimate the cost of those programs. The allowance for these programs is determined through an analysis of programs offered, historical trends, expectations regarding customer and consumer participation, sales and payment trends, and experience with

Edgar Filing: SPIRE CORP - Form 10-K

payment patterns associated with similar programs that had been previously offered. An analysis of the sales return and rebate activity for the years ended December 31, 2007 and 2006, is as follows:

	Rebates	Returns	Total
	-----	-----	-----
Balance - December 31, 2005	\$ 92,000	\$ 19,000	\$ 111,000
Provision	387,000	60,000	447,000
Utilization	(341,000)	(62,000)	(403,000)
	-----	-----	-----
Balance - December 31, 2006	138,000	17,000	155,000
Provision	224,000	32,000	256,000
Utilization	(285,000)	(39,000)	(324,000)
	-----	-----	-----
Balance - December 31, 2007	\$ 77,000	\$ 10,000	\$ 87,000
	=====	=====	=====

- o Credits for rebates are recorded in the month of the actual sale.
- o Credits for returns are processed when the actual merchandise is received by us.
- o Substantially all rebates and returns are processed no later than three months after original shipment by us.

The reserve percentage of inventory held by distributors over the last two years has decreased to approximately 8% in 2007, when compared to 13% in 2006. We perform various sensitivity analyses to determine the appropriate reserve percentage to use. To date, actual quarterly reserve utilization has approximated the amount provided. The total inventory held by distributors was approximately \$1,039,000 at December 31, 2007.

If sufficient history to make reasonable and reliable estimates of returns or rebates does not exist, revenue associated with such practices is deferred until the return period lapses or a reasonable estimate can be made. This deferred revenue will be recognized as revenue when the distributor reports to us that it has either shipped or disposed of the units (indicating that the possibility of return is remote).

27

Our OEM capital equipment solar energy business builds complex customized machines to order for specific customers. Substantially all of these orders are sold on a FOB Bedford, Massachusetts (or EX-Works Factory) basis. It is our policy to recognize revenues for this equipment as the product is shipped to the customer, as customer acceptance is obtained prior to shipment and the equipment is expected to operate the same in the customer's environment as it does in our environment. When an arrangement with the customer includes future obligations or customer acceptance, revenue is recognized when those obligations are met or customer acceptance has been achieved. Our solar energy systems business installs solar energy systems on customer-owned properties on a contractual basis. Generally, revenue is recognized once the systems have been installed and the title is passed to the customer. For arrangements with multiple elements, we allocate fair value to each element in the contract and revenue is recognized upon delivery of each element. If we are not able to establish fair value of undelivered elements, all revenue is deferred.

We recognize revenues and estimated profits on long-term government contracts on the accrual basis where the circumstances are such that total profit can be estimated with reasonable accuracy and ultimate realization is

Edgar Filing: SPIRE CORP - Form 10-K

reasonably assured. We accrue revenue and profit utilizing the percentage of completion method using a cost-to-cost methodology. A percentage of the contract revenues and estimated profits is determined utilizing the ratio of costs incurred to date to total estimated cost to complete on a contract by contract basis. Profit estimates are revised periodically based upon changes and facts, and any losses on contracts are recognized immediately. Some of the contracts include provisions to withhold a portion of the contract value as retainage until such time as the United States government performs an audit of the cost incurred under the contract. Our policy is to take into revenue the full value of the contract, including any retainage, as we perform against the contract because we have not experienced any substantial losses as a result of audits performed by the United States government.

IMPAIRMENT OF LONG-LIVED ASSETS

Long-lived assets, including fixed assets and intangible assets, are continually monitored and are evaluated at least annually for impairment. The determination of recoverability is based on an estimate of undiscounted cash flows expected to result from the use of an asset and its eventual disposition. The estimate of cash flows is based upon, among other things, certain assumptions about expected future operating performance. Our estimates of undiscounted cash flows may differ from actual cash flows due to, among other things, technological changes, economic conditions, changes to our business model or changes in our operating performance. If the sum of the undiscounted cash flows (excluding interest) is less than the carrying value, we recognize an impairment loss, measured as the amount by which the carrying value exceeds the fair value of the asset.

STOCK-BASED COMPENSATION

On January 1, 2006, we adopted the fair value recognition provisions of Financial Accounting Standards Board ("FASB") Statement No. 123(R), Share-Based Payment ("Statement 123(R)") using the modified prospective method. In accordance with the modified prospective method, we have not restated its consolidated financial statements for prior periods. Under this transition method, stock-based compensation expense for 2006 includes stock-based compensation expense for all of our stock-based compensation awards granted prior to, but not yet vested as of, January 1, 2006, based on the grant-date fair value estimated in accordance with the provisions of FASB Statement No. 123, Accounting for Stock-Based Compensation ("Statement 123"). Stock-based compensation expense for all stock-based compensation awards granted on or after January 1, 2006 will be based on the grant-date fair value estimated in accordance with the provisions of Statement 123(R). The impact of Statement 123(R) on our results of operations resulted in recognition of stock-based compensation expense of approximately \$579,000 and \$256,000 for the years ended December 31, 2007 and 2006, respectively.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Not required as we are a smaller reporting company.

28

ITEM 8. FINANCIAL STATEMENTS

CONSOLIDATED FINANCIAL STATEMENTS

TABLE OF CONTENTS

Edgar Filing: SPIRE CORP - Form 10-K

Report of Independent Registered Public Accounting Firm 30

Consolidated Financial Statements:

Consolidated Balance Sheets as of December 31, 2007 and 2006..... 31

Consolidated Statements of Operations for the Years Ended
December 31, 2007 and 2006..... 32

Consolidated Statements of Stockholders' Equity and
Comprehensive Loss for the Years Ended December 31,
2007 and 2006..... 33

Consolidated Statements of Cash Flows for the Years
Ended December 31, 2007 and 2006..... 34

Notes to Consolidated Financial Statements..... 35

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders
of Spire Corporation:

We have audited the consolidated balance sheets of Spire Corporation and subsidiaries as of December 31, 2007 and 2006 and the related consolidated statements of operations, stockholders' equity and comprehensive loss, and cash flows for the years then ended. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States of America). 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. An audit includes 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 includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our 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 Spire Corporation and subsidiaries as of December 31, 2007 and 2006, and the results of their operations and their cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

/s/ Vitale, Caturano & Company, Ltd.

VITALE, CATURANO & COMPANY, LTD.

Edgar Filing: SPIRE CORP - Form 10-K

March 31, 2008
Boston, Massachusetts

30

SPIRE CORPORATION AND SUBSIDIARIES CONSOLIDATED BALANCE SHEETS

	December 31, 2007 -----
ASSETS	
Current assets	

Cash and cash equivalents	\$ 2,372,000
Restricted cash - current portion	391,000

	2,763,000
Short-term investments	--
Restricted short-term investments	--
Accounts receivable - trade, net	12,766,000
Inventories, net	18,506,000
Deposits on equipment for inventory	2,475,000
Prepaid expenses and other current assets	542,000

Total current assets	37,052,000
Property and equipment, net	6,209,000
Intangible and other assets, net	851,000
Available-for-sale investments, at quoted market value (cost of \$1,696,000 and \$1,361,000 at 12/31/07 and 12/31/06, respectively)	1,800,000
Equity investment in joint venture	2,264,000
Restricted cash - long-term	--
Deposit - related party	304,000

Total other assets	5,219,000

Total assets	\$ 48,480,000 =====
LIABILITIES AND STOCKHOLDERS' EQUITY	
Current liabilities	

Current portion of capital lease obligation - related party	\$ 486,000
Current portion of equipment line of credit	1,167,000
Accounts payable	2,909,000
Accrued liabilities	6,057,000
Current portion of advances on contracts in progress	23,599,000

Total current liabilities	34,218,000
Long-term portion of capital lease obligation - related party	--
Long-term portion of equipment line of credit	1,750,000
Long-term portion of advances on contracts in progress	1,950,000

Edgar Filing: SPIRE CORP - Form 10-K

Deferred compensation	1,800,000
Other long-term liabilities	60,000

Total long-term liabilities	5,560,000

Total liabilities	39,778,000

Stockholders' equity	

Common stock, \$0.01 par value; 20,000,000 shares authorized; 8,321,188 shares issued and outstanding on December 31, 2007 and 8,236,663 shares issued and outstanding on December 31, 2006	83,000
Additional paid-in capital	19,999,000
Accumulated deficit	(11,442,000)
Accumulated other comprehensive income, net	62,000

Total stockholders' equity	8,702,000

Total liabilities and stockholders' equity	\$ 48,480,000
	=====

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

31

SPIRE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended

	2007

Net sales and revenues	

Sales of goods	\$ 26,078,000
Contract research, service and license revenues	12,345,000

Total net sales and revenues	38,423,000
Cost of sales and revenues	

Cost of goods sold	21,934,000
Cost of contract research, services and licenses	9,360,000

Total cost of sales and revenues	31,294,000

Gross margin	7,129,000
Operating expenses	

Selling, general and administrative expenses	13,226,000
Internal research and development expenses	313,000

Total operating expenses	13,539,000

Edgar Filing: SPIRE CORP - Form 10-K

Gain on sale of trademark	2,735,000
<hr/>	
Loss from operations	(3,675,000)
<hr/>	
Interest income (expense), net	(151,000)
Loss on equity investment in joint venture	(24,000)
Other income (expense)	(14,000)
<hr/>	
Total other (expense), net	(189,000)
<hr/>	
Loss before income taxes and extraordinary gain	(3,864,000)
Income tax benefit	877,000
<hr/>	
Net loss before extraordinary gain	(2,987,000)
<hr/>	
Extraordinary gain, net of taxes	1,301,000
<hr/>	
Net loss	\$ (1,686,000)
<hr/>	
Basic and diluted income (loss) per share:	
From continuing operations after income taxes	\$ (0.36)
From extraordinary gain, net of tax	0.16
<hr/>	
Basic and diluted income (loss) per share	\$ (0.20)
<hr/>	
Weighted average number of common and common equivalent shares outstanding - basic and diluted	8,272,123
<hr/>	

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

32

SPIRE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY AND COMPREHENSIVE LOSS

	Common Stock		Additional Paid-in Capital	(Accumulated Deficit)	A Co
	Shares	Amount			
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Balance, December 31, 2005	7,222,987	\$ 72,000	\$ 10,763,000	\$ (1,605,000)	\$
Exercise of stock options	72,500	1,000	337,000	--	
Proceeds from issuance of common stock, net of offering costs	941,176	9,000	7,721,000	--	
Stock-based compensation	--	--	256,000	--	
Net unrealized gain on available for sale					

Edgar Filing: SPIRE CORP - Form 10-K

marketable securities, net of tax	--	--	--	--	
Net loss	--	--	--	(8,151,000)	
	-----	-----	-----	-----	-----
Balance, December 31, 2006	8,236,663	82,000	19,077,000	(9,756,000)	
Exercise of stock options	84,525	1,000	343,000	--	
Stock-based compensation	--	--	579,000	--	
Net unrealized gain on available for sale marketable securities, net of tax	--	--	--	--	
Net loss	--	--	--	(1,686,000)	
	-----	-----	-----	-----	-----
Balance, December 31, 2007	8,321,188	\$ 83,000	\$ 19,999,000	\$ (11,442,000)	\$
	=====	=====	=====	=====	=====

Comprehensive income/(loss) is calculated as follows:

Net loss	\$
Other comprehensive gain on available for sale marketable securities	--
Comprehensive loss	\$

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

33

SPIRE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended
	2007

Cash flows from operating activities:	

Net loss	\$ (1,686,000)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:	
Depreciation and amortization	2,213,000
Loss on impairment of capital equipment	78,000
Loss on buy-out of capital lease	--
Gain on sale of trademark	(2,735,000)
Loss on equity investment in joint venture	24,000
Deferred tax benefit	(877,000)
Deferred compensation	2,000
Extraordinary gain in equity investment in joint venture, net of tax	(1,301,000)
Stock-based compensation	579,000
Increase (decrease) in accounts receivable reserves	(43,000)

Edgar Filing: SPIRE CORP - Form 10-K

Increase (decrease) in inventory reserves	(180,000)
Changes in assets and liabilities:	
Restricted cash	(1,000)
Accounts receivable	(8,713,000)
Interest receivable	--
Inventories	(14,244,000)
Deposits, prepaid expenses and other current assets	299,000
Accounts payable, accrued liabilities and other liabilities	1,998,000
Deposit - related party	(68,000)
Advances on contracts in progress	17,382,000

Net cash provided by (used in) operating activities	(7,273,000)

 Cash flows from investing activities:	

Purchase of short-term investments	--
Proceeds from maturity of short-term investments	5,000,000
Proceeds from sale of trademark	2,735,000
Purchase of property and equipment	(1,730,000)
Increase in intangible and other assets	(130,000)

Net cash provided by (used in) investing activities	5,875,000

 Cash flows from financing activities:	

Proceeds from issuance of common stock, net of offering costs	--
Principal payments on capital lease obligations - related parties	(1,027,000)
Borrowings from equipment line of credit, net	2,917,000
Principal payments and buy-out of capital lease obligations	--
Proceeds from exercise of stock options	344,000

Net cash provided by financing activities	2,234,000

Net increase (decrease) in cash and cash equivalents	836,000
Cash and cash equivalents, beginning of year	1,536,000

Cash and cash equivalents, end of year	\$ 2,372,000
	=====
 Supplemental disclosures of cash flow information:	

Interest paid	\$ 149,000
	=====
Interest received	\$ 74,000
	=====
Interest paid - related party	\$ 76,000
	=====
Income taxes paid (refunded)	\$ 18,000
	=====

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

Edgar Filing: SPIRE CORP - Form 10-K

SPIRE CORPORATION AND SUBSIDIARIES NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

DECEMBER 31, 2007 AND 2006

1. DESCRIPTION OF THE BUSINESS

Spire Corporation ("Spire" or the "Company") develops, manufactures and markets highly-engineered products and services in three principal business areas: (i) capital equipment for the PV solar industry, (ii) biomedical and (iii) optoelectronics, generally bringing to bear expertise in materials technologies, surface science and thin films across all three business areas, discussed below.

In the PV solar area, the Company develops, manufactures and markets specialized equipment for the production of terrestrial photovoltaic modules from solar cells. The Company's equipment has been installed in approximately 190 factories in 50 countries.

In the biomedical area, the Company provides value-added surface treatments to manufacturers of orthopedic and other medical devices that enhance the durability, antimicrobial characteristics or other material characteristics of their products; develops and markets coated and uncoated hemodialysis catheters and related devices for the treatment of chronic kidney disease; and performs sponsored research programs into practical applications of advanced biomedical and biophotonic technologies.

In the optoelectronics area, the Company provides custom compound semiconductor foundry and fabrication services on a merchant basis to customers involved in biomedical/biophotonic instruments, telecommunications and defense applications. Services include compound semiconductor wafer growth, other thin film processes and related device processing and fabrication services. The Company also provides materials testing services and performs services in support of sponsored research into practical applications of optoelectronic technologies.

Operating results will depend upon revenue growth and product mix, as well as the timing of shipments of higher priced products from the Company's solar equipment line and delivery of solar systems. Export sales, which amounted to 43% of net sales and revenues for 2007, continue to constitute a significant portion of the Company's net sales and revenues.

The Company has incurred significant operating losses in 2007 and 2006. Loss from operations, before gain on sales of trademarks, were \$6.4 million and \$8.3 million in 2007 and 2006, respectively. These losses from operations have resulted in cash losses (loss from operations excluding gain on sales of trademark plus or minus non-cash adjustments) of approximately \$5.9 million and \$5.4 million in 2007 and 2006, respectively. The Company has funded these cash losses from cash receipts of \$4.0 million from the sale of a solar PV module line along with the transfer of technology and rights to mark the modules with the Company's trademark in 2007 and \$7.7 million from the sale of equity in 2006. As of December 31, 2007, the Company had unrestricted cash and cash equivalents of \$2.4 million compared to unrestricted cash and cash equivalents of \$1.5 million and unrestricted short-term investments of \$3.0 million as of December 31, 2006. While the Company believes it has inherent assets and technology that it could sell or license in the near term, there is no guarantee that the Company would be able to sell or license those assets on a timely basis and at appropriate values that would allow the Company to continue to fund its operating losses. The Company has developed several plans to mitigate cash losses primarily from increased revenues and, if required, potential cost reduction efforts and outside financing. As a result, the Company believes it has sufficient resources to continue as a going concern at least through

Edgar Filing: SPIRE CORP - Form 10-K

December 31, 2008.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(A) PRINCIPLES OF CONSOLIDATION

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All significant intercompany balances and transactions have been eliminated in consolidation. The Company's joint venture with Gloria Solar is not consolidated but recognized using the equity method of accounting. We report results one quarter in arrears. There were no significant balances or transactions during the current reporting period.

(B) REVENUE RECOGNITION

The Company derives its revenues from three primary sources: (1) commercial products including, but not limited to, solar energy manufacturing equipment, solar energy systems and hemodialysis catheters; (2) biomedical and semiconductor processing services; and (3) United States government funded research and development contracts.

35

The Company generally recognizes product revenue upon shipment of products provided there are no uncertainties regarding customer acceptance, persuasive evidence of an arrangement exists, the sales price is fixed or determinable, and collectibility is reasonably assured. These criteria are generally met at the time of shipment when the risk of loss and title passes to the customer or distributor, unless a consignment arrangement exists. Revenue from consignment arrangements is recognized based on product usage indicating sales are complete.

The Company utilizes a distributor network to market and sell its hemodialysis catheters domestically. The Company generally recognizes revenue when the catheters are shipped to its distributors. Gross sales reflect reductions attributable to customer returns and various customer incentive programs including pricing discounts and rebates. Product returns are permitted in certain sales contracts and an allowance is recorded for returns based on the Company's history of actual returns. Certain customer incentive programs require management to estimate the cost of those programs. The allowance for these programs is determined through an analysis of programs offered, historical trends, expectations regarding customer and consumer participation, sales and payment trends, and experience with payment patterns associated with similar programs that had been previously offered. An analysis of the sales return and rebate activity for the years ended December 31, 2007 and 2006, is as follows:

	Rebates	Returns	Total
	-----	-----	-----
Balance - December 31, 2005	\$ 92,000	\$ 19,000	\$ 111,000
Provision	387,000	60,000	447,000
Utilization	(341,000)	(62,000)	(403,000)
	-----	-----	-----
Balance - December 31, 2006	138,000	17,000	155,000
Provision	224,000	32,000	256,000
Utilization	(285,000)	(39,000)	(324,000)
	-----	-----	-----
Balance - December 31, 2007	\$ 77,000	\$ 10,000	\$ 87,000
	=====	=====	=====

- o Credits for rebates are recorded in the month of the actual sale.
- o Credits for returns are processed when the actual merchandise is

Edgar Filing: SPIRE CORP - Form 10-K

received by the Company.

- o Substantially all rebates and returns are processed no later than three months after original shipment by the Company.

The reserve percentage of inventory held by distributors over the last two years has decreased to approximately 8% in 2007, when compared to 13% in 2006. The Company performs various sensitivity analyses to determine the appropriate reserve percentage to use. To date, actual quarterly reserve utilization has approximated the amount provided. The total inventory held by distributors was approximately \$1,039,000 at December 31, 2007 and \$1,210,000 at December 31, 2006.

If sufficient history to make reasonable and reliable estimates of returns or rebates does not exist, revenue associated with such practices is deferred until the return period lapses or a reasonable estimate can be made. This deferred revenue will be recognized as revenue when the distributor reports to the Company that it has either shipped or disposed of the units (indicating that the possibility of return is remote).

The Company's OEM capital equipment solar energy business builds complex customized machines to order for specific customers. Substantially all of these orders are sold on a FOB Bedford, Massachusetts (or EX-Works Factory) basis. It is the Company's policy to recognize revenues for this equipment as the product is shipped to the customer, as customer acceptance is obtained prior to shipment and the equipment is expected to operate the same in the customer's environment as it does in the Company's environment. When an arrangement with the customer includes future obligations or customer acceptance, revenue is recognized when those obligations are met or customer acceptance has been achieved. For arrangements with multiple elements, the Company allocates total fees under contract to each element using the relative fair value method and revenue is recognized upon delivery of each element. If the Company is not able to establish fair value of undelivered elements, all revenue is deferred.

The Company recognizes revenues and estimated profits on long-term government contracts on the accrual basis where the circumstances are such that total profit can be estimated with reasonable accuracy and ultimate realization is reasonably assured. The Company accrues revenue and profit utilizing the percentage of completion method using a cost-to-cost methodology. A percentage of the contract revenues and estimated profits is determined utilizing the ratio of costs incurred to date to total estimated cost to complete on a contract by contract basis. Profit estimates are revised periodically based upon changes and facts, and any losses on contracts are recognized immediately. Some of the contracts include provisions to withhold a portion of the contract value as retainage until such time as the United States government performs an audit of the cost incurred under the contract. The Company's policy is to take into revenue the full value of the contract, including any retainage, as it performs against the

36

contract since the Company has not experienced any substantial losses as a result of audits performed by the United States government.

(C) CASH AND CASH EQUIVALENTS

Cash and cash equivalents include cash, time deposits and all highly liquid debt instruments with original maturities of three months or less. These investments are carried at cost, which approximates market value. Cash and cash equivalents are deposited at various area banks, and at times may exceed federally insured limits.

Edgar Filing: SPIRE CORP - Form 10-K

(D) SHORT TERM INVESTMENTS

Short term investments at December 31, 2006 include highly liquid debt instruments with original maturities of more than three months and less than one year. These investments are carried at cost, which approximates market value.

(E) AVAILABLE-FOR-SALE INVESTMENTS

Available-for-sale securities consist of the following assets held as part of the Spire Corporation Non-Qualified Deferred Compensation Plan for the years ended December 31, :

	2007	2006
	-----	-----
Equity investments	\$1,411,000	\$1,160,000
Government bonds	303,000	262,000
Cash and money market funds	86,000	39,000
	-----	-----
	\$1,800,000	\$1,461,000
	=====	=====

These investments have been classified as long-term available-for-sale and are reported at fair value, with unrealized gains and losses included in accumulated other comprehensive income, net of related tax effect. As of December 31, 2007, the pre-tax unrealized gain on these marketable securities was approximately \$104,000.

(F) INVENTORIES

Inventories are stated at the lower of cost or market, cost being determined on a first-in, first-out (FIFO) basis. Judgments and estimates are used in determining the likelihood that goods on hand can be sold to customers. The Company expensed approximately \$77,000 and \$208,000 in 2007 and 2006, respectively, to cost of goods sold, for work in process inventory that was determined to be valued in excess of market value. Historical inventory usage and current revenue trends are considered in estimating both excess and obsolete inventory. If actual product demand and market conditions are less favorable than those projected by management, additional inventory write-downs may be required.

(G) PROPERTY AND EQUIPMENT

Property and equipment is stated at cost. Depreciation and amortization are provided using the straight-line method over the estimated useful lives of the respective assets, as follows:

Building and equipment under capital lease	Lesser of 5 years or remaining life of lease term
Machinery and equipment	5 and 7 years
Furniture and fixtures	5 years
Leasehold improvements	Lesser of 10 years or remaining life of facility lease term

Maintenance and repairs are charged to expense as incurred. Major renewals and betterments are added to property and equipment accounts at cost.

(H) INTANGIBLE AND OTHER ASSETS

Patents amounted to \$143,000, net of accumulated amortization of \$687,000, at December 31, 2007. Licenses amounted to \$109,000 net of accumulated amortization of \$216,000, at December 31, 2007. Patent cost is primarily

Edgar Filing: SPIRE CORP - Form 10-K

composed of cost associated with securing and registering patents that the Company has been awarded or that have been submitted to, and the Company believes will be approved by, the government. License cost is composed of the cost to acquire rights to the underlying technology or know-how. These costs are capitalized and amortized over their useful lives

37

or terms, ordinarily five years, using the straight-line method. There are no expected residual values related to these patents. Amortization expense, relating to patents and licenses, was approximately \$117,000 and \$94,000, for the years ended 2007 and 2006, respectively.

For disclosure purposes, the table below includes future amortization expense for patents and licenses owned by the Company as well as estimated amortization expense related to patents that remain pending at December 31, 2007 of \$578,000. This estimated expense for patents pending assumes that the patents are issued immediately, and therefore are being amortized over five years on a straight-line basis. Estimated amortization expense for the periods ending December 31, is as follows:

Year	Amortization Expense
2008	\$207,000
2009	166,000
2010	161,000
2011	154,000
2012	134,000
Thereafter	8,000

	\$830,000
	=====

Also included in other assets are approximately \$21,000 of refundable deposits made by the Company at December 31, 2007.

(I) LONG-LIVED ASSETS

The Company accounts for long-lived assets in accordance with the provisions of SFAS No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets". SFAS No. 144 requires that long-lived assets and certain identifiable intangibles be reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. The Company measures recoverability of assets to be held and used by a comparison of the carrying amount of an asset to future net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceed the fair value of the assets. The Company reports assets to be disposed of at the lower of the carrying amount or fair value less costs to sell.

(J) INCOME TAXES

In accordance with SFAS No. 109, "Accounting for Income Taxes", the Company recognizes deferred income taxes based on the expected future tax consequences of differences between the financial statement basis and the tax basis of assets and liabilities, calculated using enacted tax rates in effect for the year in which the differences are expected to be reflected in the tax return. Valuation allowances are provided if, based on the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

Edgar Filing: SPIRE CORP - Form 10-K

In June 2006, the Financial Accounting Standards Board ("FASB") issued Interpretation No. 48, "Accounting for Uncertainty in Income Taxes, an interpretation of FASB Statement 109" ("FIN 48"). This statement clarifies the criteria that an individual tax position must satisfy for some or all of the benefits of that position to be recognized in a company's financial statements. FIN 48 prescribes a recognition threshold of more likely-than-not, and a measurement attribute for all tax positions taken or expected to be taken on a tax return, in order for those tax positions to be recognized in the financial statements. Effective January 1, 2007, the Company adopted the provisions of FIN 48. The Company has determined that no liability exists for interest and penalties related to uncertain tax positions as of January 1, 2007 and December 31, 2007. The Company accounts for interest and penalties related to uncertain tax positions as part of its provision for federal and state income taxes. The Company does not expect that the amounts of unrecognized tax benefits will change significantly within the next 12 months.

The Company is currently subject to audit by the Internal Revenue Service for the calendar years ended 2003, 2004, 2005, 2006 and 2007. The Company and its subsidiaries state income tax returns are subject to audit for the calendar years ended 2003, 2004, 2005, 2006 and 2007.

38

(K) WARRANTY

The Company provides warranties on certain of its products and services. The Company's warranty programs are described below:

Spire Solar Equipment warrants solar energy module manufacturing equipment sold for a total of 360 days, the first 90 days of which include the replacement of defective component parts and the labor to correct the defect and the next 270 days of which include only the cost of defective component parts.

Spire Solar Systems warrants photovoltaic electric power systems sold against defective components for 360 days to include the replacement of defective component parts and the labor to correct the defect. Spire Solar Systems also warrants that its photovoltaic electric power systems will achieve a minimum of 80% of rated electrical power output for 20 years.

Spire Biomedical warrants that any of its catheter products found to be defective will be replaced. No warranty is made that the failure of the product will not occur, and Spire disclaims any responsibility for any medical complications. Spire Biomedical warrants that its services only will meet the agreed upon specifications.

Spire Semiconductor, LLC warrants that its products will meet the agreed upon specifications.

The Company provides for the estimated cost of product warranties, determined primarily from historical information, at the time product revenue is recognized. Should actual product failure warranties differ from the Company's estimates, revisions to the estimated warranty liability would be required. The Company incurred a high level of warranty expense attributed to one customer in 2006 and does not expect the problem to have a significant impact on earnings in future periods. The changes in the product warranties for the years ended December 31, 2007 and 2006, are as follows:

Balance at December 31, 2005	\$ 50,000
Provision charged to income	250,000

Edgar Filing: SPIRE CORP - Form 10-K

Usage	(185,000)

Balance at December 31, 2006	115,000
Provision charged to income	207,000
Usage	(187,000)

Balance at December 31, 2007	\$ 135,000
	=====

(L) INTERNAL RESEARCH AND DEVELOPMENT COSTS

Internal research and development costs are charged to operations as incurred. During the years ended December 31, 2007 and 2006, Company funded research and development costs were approximately \$313,000 and \$734,000, respectively.

(M) EARNINGS (LOSS) PER SHARE

Basic earnings (loss) per share is computed by dividing income available to common stockholders by the weighted average number of common shares outstanding during the period. Diluted earnings (loss) per share gives effect to all potential dilutive common shares outstanding during the period. The computation of diluted earnings (loss) per share does not assume conversion, exercise or contingent exercise of securities that would have an anti-dilutive effect on earnings (loss) per share. The Company did not pay any dividends in 2007 and 2006.

(N) COMPREHENSIVE INCOME (LOSS)

Comprehensive income (loss) is comprised of net income (loss) and other comprehensive income. Other comprehensive income includes certain changes in equity that are excluded from net income (loss). At December 31, 2007, accumulated other comprehensive income was comprised of unrealized gain of available-for-sale investments of approximately \$62,000, net of tax.

(O) STOCK-BASED COMPENSATION

On January 1, 2006, the Company adopted the fair value recognition provisions of SFAS No. 123(R) Share-Based Payment ("Statement 123(R)") using the modified prospective method. In accordance with the modified prospective method, the Company has not restated its consolidated financial statements for prior periods. Under this transition method, stock-based compensation expense for

39

the year ended December 31, 2006 includes stock-based compensation expense for all of the Company's stock-based compensation awards granted prior to, but not yet vested as of January 1, 2006, based on the grant-date fair value estimated in accordance with the provisions of FASB Statement No. 123, "Accounting for Stock-Based Compensation" ("Statement 123"). Stock-based compensation expense for all stock-based compensation awards granted on or after January 1, 2006 will be based on the grant-date fair value estimated in accordance with the provisions of Statement 123(R). The impact of Statement 123(R) on the Company's results of operations resulted in recognition of stock-based compensation expense of approximately \$579,000 and \$256,000 for the years ended December 31, 2007 and 2006, respectively.

(P) USE OF ESTIMATES

The preparation of financial statements in conformity with accounting

Edgar Filing: SPIRE CORP - Form 10-K

principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Significant estimates include revenue recognition, valuation of income tax assets, warranty reserves, inventory reserves, and intangible assets. Actual results could differ from those estimates.

(Q) FINANCIAL INSTRUMENTS

Financial instruments of the Company consist of cash and cash equivalents, short-term investments, accounts receivable, available for sale marketable securities, accounts payable, equipment line of credit and capital leases. The carrying amounts of these financial instruments approximate their fair value.

(R) SHIPPING AND HANDLING COSTS

Shipping and handling costs are included in cost of goods sold.

(S) FOREIGN CURRENCY

The Company sells only in U.S. dollars, generally against an irrevocable confirmed letter of credit through a major United States bank. Accordingly, the Company is not directly affected by foreign exchange fluctuations on its current orders. However, fluctuations in foreign exchange rates have an effect on the Company's customers' access to U.S. dollars and on the pricing competition on certain pieces of equipment that the Company sells in selected markets. The Company received Japanese yen in exchange for the sale of a license to its solar technology. In addition, purchases made and royalties received under the Company's Consortium Agreement with its Japanese partner will be in Japanese yen. The Company does purchase pieces of equipment from European vendors; these commitments can be denominated in Euros. The Company bears the risk of any currency fluctuations that may be associated with these commitments. The Company books gains and losses when they are incurred.

(T) NEW ACCOUNTING STANDARDS

In September 2006, the FASB issued SFAS No. 157, Fair Value Measurements ("FAS 157"). This Statement is effective for financial statements issued for fiscal years beginning after November 15, 2007. On February 6, 2008, the FASB announced it will issue a FASB Staff Position ("FSP") to allow a one-year deferral of adoption of FAS 157 for nonfinancial assets and nonfinancial liabilities that are recognized at fair value on a nonrecurring basis. FAS 157 provides a common fair value hierarchy for companies to follow in determining fair value measurements in the preparation of financial statements and expands disclosure requirements relating to how such fair value measurements were developed. FAS 157 clarifies the principle that fair value should be based on the assumptions that the marketplace would use when pricing an asset or liability, rather than company specific data. The Company is currently assessing the impact that FAS 157 will have on its financial position, results of operations and cash flow.

In February 2007, the FASB issued SFAS No. 159 ("FAS 159"), THE FAIR VALUE OPTION FOR FINANCIAL ASSETS AND FINANCIAL LIABILITIES - INCLUDING AN AMENDMENT OF FASB STATEMENT NO. 115. FAS 159 allows companies to report selected financial assets and liabilities at fair value. The changes in fair value are recognized in earnings and the assets and liabilities measured under this methodology are required to be displayed separately in the balance sheet. The main intent of the Statement is to mitigate the difficulty in determining the reported earnings caused by a "mixed-attribute" model" (or reporting some assets at fair value and others using a different valuation attribute such as amortized cost). The

Edgar Filing: SPIRE CORP - Form 10-K

project is separated into two phases. This first phase addressed the creation of a fair value option for financial assets and liabilities. A second phase will address creating a fair value option for selected non-financial items. FAS 159 is effective for all financial

40

statements issued for fiscal years beginning after November 15, 2007. The Company is currently evaluating the impact that this issuance will have on its financial position and results of operation.

In December 2007, the FASB issued SFAS No. 141R ("FAS 141R"), BUSINESS COMBINATIONS, which revises FAS 141 and changes multiple aspects of the accounting for business combinations. Under the guidance in FAS 141R, the acquisition method must be used, which requires the acquirer to recognize most identifiable assets acquired, liabilities assumed, and non-controlling interests in the acquiree at their full fair value on the acquisition date. Goodwill is to be recognized as the excess of the consideration transferred plus the fair value of the non-controlling interest over the fair values of the identifiable net assets acquired. Subsequent changes in the fair value of contingent consideration classified as a liability are to be recognized in earnings, while contingent consideration classified as equity is not to be re-measured. Costs such as transaction costs are to be excluded from acquisition accounting, generally leading to recognizing expense, and, additionally, restructuring costs that do not meet certain criteria at acquisition date are to be subsequently recognized as post-acquisition costs. FAS 141R is effective for business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after December 15, 2008. The Company is currently evaluating the impact that this issuance will have on its financial position and results of operation.

In December 2007, the FASB issued SFAS No. 160 ("FAS 160"), NON-CONTROLLING INTEREST IN CONSOLIDATED FINANCIAL STATEMENTS - AN AMENDMENT OF ARB NO. 151. FAS 160 requires that a non-controlling interest in a subsidiary (i.e. minority interest) be reported in the equity section of the balance sheet instead of being reported as a liability or in the mezzanine section between debt and equity. It also requires that the consolidated income statement include consolidated net income attributable to both the parent and non-controlling interest of a consolidated subsidiary. A disclosure must be made on the face of the consolidated income statement of the net income attributable to the parent and to the non-controlling interest. Also, regardless of whether the parent purchases additional ownership interest, sells a portion of its ownership interest in a subsidiary or the subsidiary participates in a transaction that changes the parent's ownership interest, as long as the parent retains controlling interest, the transaction is considered an equity transaction. FAS 160 is effective for annual periods beginning after December 15, 2008. The Company is currently evaluating the impact, if any, that this standard will have on its financial position and results of operations.

3. ACCOUNTS RECEIVABLE/ADVANCES ON CONTRACTS IN PROGRESS

Net accounts receivable, trade consists of the following at December 31, :

	2007	2006
Amounts billed	\$11,142,000	\$3,876,000
Retainage	8,000	8,000
Accrued revenue	1,846,000	399,000
	-----	-----
	12,996,000	4,283,000
Less: Allowance for sales returns and		

Edgar Filing: SPIRE CORP - Form 10-K

doubtful accounts	(230,000)	(273,000)
	-----	-----
Net accounts receivable - trade	\$12,766,000	\$4,010,000
	=====	=====
Advances on contracts in progress	\$25,549,000	\$8,219,000
	=====	=====

Accrued revenue represents revenues recognized on contracts for which billings have not been presented to customers as of the balance sheet date. These amounts are billed and generally collected within one year.

Retainage represents revenues on certain United States government sponsored research and development contracts. These amounts, which usually represent 15% of the Company's research fee on each applicable contract, are not collectible until a final cost review has been performed by government auditors. Included in retainage are amounts expected to be collected after one year, which totaled approximately \$8,000 at December 31, 2007. The government's most recent audit was as of December 31, 2005, with no adverse impact. All other accounts receivable are expected to be collected within one year.

The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to pay amounts due. The Company actively pursues collection of past due receivables as the circumstances warrant. Customers are contacted to determine the status of payment and senior accounting and operations management are included in these efforts as is deemed necessary. A specific reserve will be established for past due accounts over 60 days and over a specified amount, when it is probable that a loss has been incurred and the Company can reasonably estimate the amount of the loss. The Company does not record an allowance for government receivables and invoices backed by letters of credit as realizeability is reasonably assured. Bad debts are written off against the allowance when identified. There is no

41

dollar threshold for account balance write-offs. While rare, a write-off is only recorded when all efforts to collect the receivable have been exhausted and only in consultation with the appropriate business line manager.

In addition, the Company maintains an allowance for potential future product returns and rebates related to current period revenues. The Company analyzes the rate of historical returns when evaluating the adequacy of the allowance for sales returns and allowances. Returns and rebates are charged against the allowance when incurred.

Advances on contracts in progress represent contracts for which billings have been presented to the customer, either as deposits or progress payments against future shipments, but revenue has not been recognized.

4. SHORT-TERM INVESTMENTS

There were no short-term investments at December 31, 2007. Short-term investments at December 31, 2006 consisted of \$5,000,000 of certificates of deposit which matured on March 31, 2007. Interest receivable on these short-term investments amounted to approximately \$158,000 at December 31, 2006, and is classified with other current assets. Approximately \$1,969,000 of the short-term investment were restricted to back a letter of credit with a bank.

5. INVENTORIES

Inventories, net of \$354,000 and \$534,000 of reserves at December 31, 2007

Edgar Filing: SPIRE CORP - Form 10-K

and 2006, respectively, consist of the following at December 31, :

	2007	2006
	-----	-----
Raw materials	\$ 4,989,000	\$ 1,519,000
Work in process	12,951,000	2,310,000
Finished goods	566,000	388,000
	-----	-----
	\$18,506,000	\$ 4,217,000
	=====	=====

6. PROPERTY AND EQUIPMENT

Property and equipment consists of the following at December 31, :

	2007	2006
	-----	-----
Building under capital lease	\$ 3,390,000	\$ 3,390,000
Machinery and equipment	17,508,000	13,448,000
Furniture fixtures and computer equipment	4,060,000	3,760,000
Leasehold improvements	2,167,000	2,078,000
Construction in progress	830,000	3,889,000
	-----	-----
	27,955,000	26,565,000
Accumulated depreciation and amortization	(21,746,000)	(19,892,000)
	-----	-----
	\$ 6,209,000	\$ 6,673,000
	=====	=====

Depreciation and amortization expense relating to property and equipment was approximately \$2,096,000 and \$1,933,000 for the years ended December 31, 2007 and 2006, respectively.

42

7. ACCRUED LIABILITIES

Accrued liabilities include the following at December 31, :

	2007	2006
	-----	-----
Accrued payroll and payroll taxes	\$ 972,000	\$ 689,000
Accrued legal and audit fees	319,000	214,000
Accrued liability for equipment purchases	--	2,506,000
Accrued accounts payable	3,398,000	812,000
Accrued other	1,368,000	785,000
	-----	-----
	\$6,057,000	\$5,006,000
	=====	=====

8. NOTES PAYABLE AND CREDIT ARRANGEMENTS

The Company had a \$2,000,000 Loan Agreement with Citizens Bank of Massachusetts which expired on June 26, 2007. On May 25, 2007, the Company and its wholly-owned subsidiary, Spire Semiconductor, LLC, entered into a Loan and Security Agreement (the "Equipment Credit Facility") with Silicon Valley Bank (the "Bank"). Under the Equipment Credit Facility, for a one-year period, the Company and Spire Semiconductor could borrow up to \$3,500,000 in the aggregate to finance certain equipment purchases (including reimbursement of certain previously-made purchases). Each advance made under the Equipment Credit Facility would be due thirty-six (36) months from the date the advance is made.

Edgar Filing: SPIRE CORP - Form 10-K

Advances made under the Equipment Credit Facility would bear interest at the Bank's prime rate, as determined, plus 0.5% (7.25% at December 31, 2007) and payable in thirty-six (36) consecutive monthly payments following the funding date of that advance. At December 31, 2007, the Company's outstanding borrowings from the equipment line of credit amounted to \$2,917,000. The Company was not in compliance with its covenants as of December 31, 2007, but not in default because a Bank waiver has been received.

On March 31, 2008, the Company entered into a second Loan and Security Agreement (the "Revolving Credit Facility") with the Bank. Under the terms of the Revolving Credit Facility, the Bank agreed to provide the Company with a credit line up to \$5,000,000. The Company's obligations under the Equipment Credit Facility are secured by substantially of its assets and advances under the Revolving Credit Facility are limited to 80% of eligible receivables and the lesser of 25% of the value of its eligible inventory, as defined, or \$2,500,000 if the inventory is backed by a customer letter of credit. Interest on outstanding borrowings accrues at a rate per annum equal to the greater of Prime Rate plus one percent (1.0%) or seven percent (7%). In addition, the Company agreed to pay to the Bank a collateral monitoring fee of \$750 per month in the event the Company is in default of its covenants and agreed to the following additional terms: (i) \$50,000 commitment fee; (ii) an unused line fee in the amount of 0.75% per annum of the average unused portion of the revolving line; and (iii) an early termination fee of 0.5% of the total credit line if the Company terminates the Revolving Credit Facility prior to 12 months from the Revolving Credit Facility's effective date. The Revolving Credit Facility, if not sooner terminated in accordance with its terms, expires on March 30, 2009. In addition the Company's existing Equipment Credit Facility was amended whereby the Bank granted a waiver for the Company's defaults for not meeting its December 31, 2007 quarter liquidity and profit covenants and for not meeting its January and February 2008 liquidity covenants. Further the covenants were amended to match the new covenants contained in the Revolving Credit Facility. The Company's interest rate under the Equipment Credit Facility was also modified from Bank Prime plus one half percent to the greater of Bank Prime plus one percent (1.0%) or seven percent (7%).

Under the terms of the Equipment Credit Facility, as long as any commitment remains outstanding under the facility, the Company must comply with an adjusted quick ratio covenant and a minimum quarterly net income covenant. In addition, until all amounts under the credit facilities with the Bank are repaid, covenants under the credit facilities impose restrictions on the Company's ability to, among other things, incur additional indebtedness, create or permit liens on the Company's assets, merge, consolidate or dispose of assets (other than in the ordinary course of business), make dividend and other restricted payments, make certain debt or equity investments, make certain acquisitions, engage in certain transactions with affiliates or change the business conducted by the Company and its subsidiaries. Any failure by the Company to comply with the covenants and obligations under the credit facilities could result in an event of default, in which case the Bank may be entitled to declare all amounts owed to be due and payable immediately. The Company's obligations under the credit facilities are secured by substantially all of its assets.

9. STOCK-BASED COMPENSATION

At December 31, 2007, the Company had outstanding options under two stock option plans: the 1996 Equity Incentive Plan (the "1996 Plan") and the 2007 Stock Equity Plan (the "2007 Plan"). Both plans were approved by stockholders and provided that the Board of Directors may grant options to purchase the Company's common stock to key

Edgar Filing: SPIRE CORP - Form 10-K

employees and directors of the Company. Incentive and non-qualified options must be granted at least at the fair market value of the common stock or, in the case of certain optionees, at 110% of such fair market value at the time of grant. The options may be exercised, subject to certain vesting requirements, for periods up to ten years from the date of issue. The 1996 Plan expired with respect to the issuance of new grants as of December 10, 2006. Accordingly, future grants may be made only under the 2007 Plan.

At December 31, 2007, the Company has outstanding under its 1996 Plan and 2007 Plan, an aggregate 91,246 non-qualified stock options held by the unaffiliated directors of the Company for the purchase of common stock at an average exercise price of \$7.88 per share.

A summary of the activity of this plan follows:

	Number of Shares	Weighted Average Exercise Price
	-----	-----
Options Outstanding at December 31, 2006	416,002	\$ 5.21
Granted	175,700	\$10.17
Exercised	(84,525)	\$ 4.07
Forfeited	(12,000)	\$ 7.81
	-----	-----
Options Outstanding at December 31, 2007	495,177	\$ 7.10
	-----	-----
Options Exercisable at December 31, 2007	217,867	\$ 5.47
	-----	-----
Options Available for Future Grant at December 31, 2007	824,300	
	=====	

On January 1, 2006, the Company adopted the fair value recognition provisions of Statement 123(R) using the modified prospective method. In accordance with the modified prospective method, the Company has not restated its consolidated financial statements for prior periods. Under this transition method, stock-based compensation expense for the year ended December 31, 2006 includes stock-based compensation expense for all of the Company's stock-based compensation awards granted prior to, but not yet vested as of, January 1, 2006, based on the grant-date fair value estimated in accordance with the provisions of Statement No. 123. Stock-based compensation expense for all stock-based compensation awards granted on or after January 1, 2006 will be based on the grant-date fair value estimated in accordance with the provisions of Statement 123(R). The impact of Statement 123(R) on the Company's results of operations resulted in recognition of stock-based compensation expense of approximately \$579,000 and \$256,000 for the year ended December 31, 2007 and 2006, respectively. Approximately \$486,000 and \$209,000 of stock-based compensation expense was charged to selling, general and administrative expenses for the years ended December 31, 2007 and 2006, respectively and approximately \$93,000 and \$47,000 of stock-based compensation expense was charged to cost of sales for the years ended December 31, 2007 and 2006, respectively.

This expense represents an incremental charge of \$0.07 and \$0.03 per basic and diluted share for the years ended December 31, 2007 and 2006, respectively. The adoption had no impact on cash used in operating activities or cash provided by financing activities. No stock-based compensation expense was capitalized during 2007 and 2006. Compensation expense related to stock options to be

Edgar Filing: SPIRE CORP - Form 10-K

charged in future periods amount to approximately \$1,331,000 at December 31, 2007, which the Company expects to recognize as follows:

For the years ended December 31, -----	Expected Compensation Expense -----
2008	\$ 500,000
2009	396,000
2010	318,000
2011	117,000

	\$1,331,000
	=====

The Company uses the Black-Scholes option pricing model as its method for determining fair value of stock option grants, which was also used by the Company for its pro forma information disclosures of stock-based compensation expense prior to the adoption of Statement 123(R). The Company uses the straight-line method of attributing the value of stock-based compensation expense for all stock option grants. Stock compensation expense for all stock-based grants and awards is recognized over the service or vesting period of each grant or award.

44

Statement 123(R) requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates in order to derive the Company's best estimate of awards ultimately expected to vest. Forfeitures represent only the unvested portion of a surrendered option and are typically estimated based on historical experience. Based on an analysis of the Company's historical data, the Company applied 10% and 14% forfeiture rates for the years ended December 31, 2007 and 2006, respectively, to stock options granted in determining its Statement 123(R) stock-based compensation expense which it believes is a reasonable forfeiture estimate for the periods.

The options outstanding and exercisable at December 31, 2007 were in the following exercise price ranges:

Options Outstanding						
Range of Exercise Price	Number of Shares Outstanding	Weighted Average Remaining Contractual Life (Years)	Weighted- Average Exercise Price	Aggregate Intrinsic Value	Number of Shares Exercisable	Weighted Average Remaining Contractual Life (Y
\$1.78 to \$3.90	97,411	3.86	\$3.60	\$1,953,000	97,411	3.86
\$3.91 to \$4.90	108,819	6.42	\$4.32	2,103,000	58,074	5.77
\$4.91 to \$8.40	107,622	8.58	\$7.89	1,696,000	29,882	8.39
\$8.41 to \$9.60	151,200	9.48	\$9.40	2,154,000	20,000	9.50
\$9.61 to \$14.88	30,125	9.48	\$14.11	287,000	12,500	9.45
	-----			-----	-----	
	495,177	7.51	\$7.10	\$8,193,000	217,867	5.83
	=====			=====	=====	

The aggregate intrinsic value in the table above represents the total

Edgar Filing: SPIRE CORP - Form 10-K

intrinsic value, based on the Company's closing stock price of \$23.65 as of December 31, 2007, which would have been received by the option holders had all option holders exercised their options as of that date. The total intrinsic value of options exercised was approximately \$854,000 and \$289,000, for the years ended December 31, 2007 and 2006, respectively.

The per-share weighted-average fair value of stock options granted was \$6.09 and \$5.41 for the years ended December 31, 2007 and 2006, respectively, on the date of grant using the Black-Scholes option-pricing model with the following weighted-average assumptions:

Year	Expected Dividend Yield	Risk-Free Interest Rate	Expected Option Life	Expected Volatility Factor
2006	--	4.71%	4.5 years	83.3%
2007	--	4.39%	4.5 years	72.3%

The risk free interest rate reflects treasury yields rates over a term that approximates the expected option life. The expected option life is calculated based on historical lives of all options issued under the plan. The expected volatility factor is determined by measuring the actual stock price volatility over a term equal to the expected useful life of the options granted.

On November 10, 2005, the FASB issued FASB Staff Position SFAS 123R-3 "Transition Election Related to Accounting for Tax Effects of Share-Based Payment Awards." The Company has elected to adopt the alternative transition method provided by the FASB Staff Position for calculating the tax effects (if any) of stock-based compensation expense pursuant to Statement 123(R). The alternative transition method includes simplified methods to establish the beginning balance of the additional paid-in capital pool related to the tax effects of employee stock-based compensation, and to determine the subsequent impact to the additional paid-in capital pool and the consolidated statements of operations and cash flows of the tax effects of employee stock-based compensation awards that are outstanding upon adoption of Statement 123(R).

10. NASDAQ LISTING

At December 31, 2007, the Company's stockholder's equity was \$8.7 million. As a result, the Company did not meet the \$10 million minimum stockholder's equity requirement under Standard No. 1 for continued listing on the Nasdaq Global Market. However, the Company believes that it meets Standard No. 2 for continued listing on the Nasdaq Global Market as

45

the market value of its listed securities currently exceeds \$50 million and it meets all other requirements under Standard No. 2. In order to remain in compliance with Standard No. 2, the Company's market value of listed securities cannot fall below \$50 million for ten consecutive trading days at any point.

11. INCOME TAXES

There was no income tax provision (benefit) required for 2007 and 2006.

The reconciliation between the amount computed by applying the United States federal statutory tax rate of 34% to pretax income (loss) and the actual provision for income taxes follows:

2007	2006
------	------

Edgar Filing: SPIRE CORP - Form 10-K

	-----	-----
Income tax expense (benefit) at statutory rate	\$ (565,000)	\$ (2,763,000)
Increase (decrease) in valuation allowance related to income tax expense	384,000	2,674,000
Permanent differences	181,000	89,000
	-----	-----
Total	\$ --	\$ --
	=====	=====

The tax effects of temporary differences that give rise to significant portions of deferred tax assets and deferred tax liabilities are as follows:

	2007	2006
	-----	-----
Deferred tax assets:		
Accounts receivable	\$ 93,000	\$ 110,000
Accruals	1,028,000	1,159,000
Inventories	1,002,000	752,000
Net operating loss carryforwards	4,228,000	4,096,000
General business credit carryforwards	26,000	22,000
Alternative minimum tax credit carryforwards	268,000	268,000
Foreign tax credit	38,000	38,000
	-----	-----
Total gross deferred tax assets	6,683,000	\$6,445,000
	-----	-----
Depreciation	98,000	(45,000)
	-----	-----
Total gross deferred tax liabilities	98,000	(45,000)
	-----	-----
Valuation allowance	6,781,000	6,400,000
	-----	-----
Net deferred tax assets	\$ --	\$ --
	-----	-----

The net change in the total valuation allowance for the period ended December 31, 2007 was an increase of \$381,000. Gross net operating loss carryforwards were approximately \$11.6 million as of December 31, 2007. Included in this amount was approximately \$3.4 million attributable to equity based compensation transactions. Approximately \$1 million of the valuation allowance will be relieved through equity if these deductions for equity based transactions are realized.

12. COMMITMENTS

Letters of Credit

Outstanding letters of credit totaled \$261,000 at December 31, 2007. The letters of credit principally secure performance obligations, and allow holders to draw funds up to the face amount of the letter of credit if the Company does not perform as contractually required. These letters of credit expire through 2008 and are 100% secured by cash and short-term investments.

Property Under Capital Leases and Lease Commitments

Edgar Filing: SPIRE CORP - Form 10-K

At December 31, 2007 and 2006, the Company had capital leases in effect for a building. The Company also had operating leases for office space and other miscellaneous items.

46

The components of capitalized costs and carrying value of the property under capital leases were as follows at December 31,:

	2007	2006
	-----	-----
Related party capital lease:		
Hudson, New Hampshire building	\$3,390,000	\$3,390,000
Less: Accumulated depreciation	(3,108,000)	(2,430,000)
	-----	-----
	\$ 282,000	\$ 960,000
	=====	=====

At December 31, 2007, future minimum lease payments for the period ended are as follows:

	Related Party Capital Lease	Unrelated Party Operating Leases	Relat Operat
	-----	-----	-----
2008	\$ 495,000	\$124,000	\$ 1,
2009	--	110,000	1,
2010	--	90,000	2,
2011		14,000	2,
2012			2,
	-----	-----	-----
Total minimum lease payments	495,000	\$338,000	\$ 9,
		=====	=====
Less amount representing interest	(9,000)		

Present value of minimum lease payments	486,000		
Less current portion	(486,000)		

Long-term portion of capital lease obligation	\$ --		
	=====		

Unrelated Party Capital Lease

In September 2001, Spire Semiconductor entered into an agreement with GE Capital Leasing Corp, for the lease of a reactor for its wafer production line. The lease was originally accounted for as a capital lease. Under the lease agreement, the Company was making monthly payments of approximately \$36,000. After the initial three-year period ending in September 2004, the lease allowed for an additional two-year extension. In September 2004, the Company extended the lease term for the additional two years to September 2006. In September 2006 the Company purchased the equipment from the leasing company for \$275,000 resulting in a loss on buyout of capital lease of \$105,000. The expense is included in selling, general and administrative expense for the optoelectronics business unit.

Related Party Capital Lease

Edgar Filing: SPIRE CORP - Form 10-K

In conjunction with the acquisition of Spire Semiconductor by the Company in May 2003, SPI-Trust, a Trust of which Roger G. Little, Chairman of the Board, Chief Executive Officer and President of the Company, is sole trustee and principal beneficiary, purchased from Stratos Lightwave, Inc. (Spire Semiconductor's former owner) the building that Spire Semiconductor occupies in Hudson, New Hampshire for \$3.7 million. Subsequently, the Company entered into a lease for the building (90,000 square feet) with SPI-Trust whereby the Company agreed to pay \$4.1 million to the SPI-Trust over an initial five-year term expiring in 2008 with a Company option to extend for five years. In addition to the rent payments, the lease obligates the Company to keep on deposit with SPI-Trust the equivalent of three months rent (\$304,000 as of December 31, 2007.) The lease agreement does not provide for a transfer of ownership at any point. Interest costs were assumed at 7%. Interest expense was approximately \$76,000 and \$136,000 for the years ended December 31, 2007 and 2006, respectively. This lease has been classified as a related party capital lease and a summary of payments (including interest) follows:

47

Year	Rate Per Square Foot	Annual Rent	Monthly Rent	Security Deposit
-----	-----	-----	-----	-----
June 1, 2003 - May 31, 2004	\$6.00	\$ 540,000	\$45,000	\$135,000
June 1, 2004 - May 31, 2005	7.50	675,000	56,250	168,750
June 1, 2005 - May 31, 2006	8.50	765,000	63,750	191,250
June 1, 2006 - May 31, 2007	10.50	945,000	78,750	236,250
June 1, 2007 - May 31, 2008	13.50	1,215,000	101,250	303,750

		\$4,140,000		
		=====		

At December 31, 2007, \$486,000 reflected the current portion of capital lease obligation - related party, with no long-term portion, in the consolidated balance sheet.

Unrelated Party Operating Leases

Unrelated party operating leases primarily consist of leases for copiers and the telephone system.

Related Party Operating Lease

The Company subleased 77,000 square-feet in a building leased by Mykrolis Corporation, who in turn leased the building from SPI-Trust, a Trust of which Roger Little, Chairman of the Board, Chief Executive Officer and President of the Company, is the sole trustee and principal beneficiary. The 1985 sublease, originally was for a period of ten years, was extended for a five-year period expiring on November 30, 2000 and was further extended for a five-year period expiring on November 30, 2005. The sublease agreement provided for minimum rental payments plus annual increases linked to the consumer price index. Effective December 1, 2005, the Company entered into a two-year Extension of Lease Agreement (the "Lease Extension") directly with SPI-Trust.

The Company assumed certain responsibilities of Mykrolis, the tenant under the former lease, as a result of the Lease Extension including payment of all building and real estate related expenses associated with the ongoing operations of the property. The Company will allocate a portion of these expenses to SPI-Trust based on pre-established formulas utilizing square footage and actual

Edgar Filing: SPIRE CORP - Form 10-K

usage where applicable. These allocated expenses will be invoiced monthly and be paid utilizing a SPI-Trust escrow account of which the Company has sole withdrawal authority. SPI-Trust is required to maintain three (3) months of its anticipated operating costs within this escrow account. On December 1, 2006, the Company and SPI-Trust amended the Lease Extension to include the lease of an additional 15,000 square feet from SPI-Trust for a one-year term. The additional space was leased at a rate of \$8.06 per square foot on annual basis. The additional space was used to expand the Company's solar operations.

On November 30, 2007, the Company entered into a new Lease Agreement (the "New Lease") with SPI-Trust, with respect to 144,230 square feet of space comprising the entire building in which the Company has occupied space since December 1, 1985. The term of the New Lease commenced on December 1, 2007 and continues for five (5) years until November 30, 2012. The Company has the right to extend the term of the New Lease for an additional five (5) year period. The annual rental rate for the first year of the Lease is \$12.50 per square foot on a triple net basis, whereby the tenant is responsible for operating expenses, taxes and maintenance of the building. The annual rental rate increases on each anniversary by \$0.75 per square foot. If the Company exercises its right to extend the term of the New Lease, the annual rental rate for the first year of the extended term will be the greater of (a) the rental rate in effect immediately preceding the commencement of the extended term or (b) the market rate at such time, and on each anniversary of the commencement of the extended term the rental rate will increase by \$0.75 per square foot. The Company believes that the terms of the New Lease are commercially reasonable.

Rent expense under the New Lease and the Lease Extension, as amended, for the year ended December 31, 2007 and 2006 was \$1,415,000 and \$1,262,000, respectively. In connection with the Lease Extension, as amended, the Company was invoiced and paid certain SPI-Trust related expenses, including building maintenance and insurance. The Company invoiced SPI-Trust on a monthly basis and SPI-Trust reimbursed the Company for all such costs. Approximately \$14,000 was due from SPI-Trust as of December 31, 2006 for building related costs and no amounts were due as of December 31, 2007.

13. EMPLOYEE BENEFIT PLANS

Profit Sharing Plan

In 1985, the Company adopted a profit sharing plan under Section 401(k) of the Internal Revenue Code. This plan allows employees to defer up to 17.5% of their income up to certain dollar limits on a pretax basis through contributions to the plan. No matching contributions have been made to the plan for the years ended December 31, 2007 and 2006, respectively.

Deferred Compensation Plan

Effective January 1, 2002, the Company adopted the Spire Corporation Non-Qualified Deferred Compensation Plan (the "Plan") for Roger Little, Chairman of the Board, Chief Executive Officer and President of the Company (the "Participant"). Under this Plan, the Company makes equal monthly contributions to the Spire Corporation Non-Qualified Deferred Compensation Trust (the "Trust") up to the annually required amount of \$250,000. The Company records these contributions as selling, general and administrative expense when made. The Trustee makes all investment decisions for the Trust on behalf of the Participant. The Company has not guaranteed a return on investment for the Participant, however, all earnings and losses on the Plan assets are borne by the Participant. All contributions and earnings are fully vested to the Participant when made but are subject to the Company's creditors in the event of bankruptcy. As a result, the assets held in the Plan have been recorded as available-for-sale investments in the consolidated balance sheet with a

Edgar Filing: SPIRE CORP - Form 10-K

corresponding liability being recorded as deferred compensation. Unrealized gains and losses on the available-for-sale investments are recorded as accumulated other comprehensive income within the equity section of the consolidated balance sheet. A corresponding entry to deferred compensation is made to increase (decrease) the amounts due the Participant resulting from the changes in the asset value with an offsetting charge or credit to selling, general and administrative expense. Compensation expense was approximately \$250,000 in each of the years ended December 31, 2007 and 2006.

14. EARNINGS (LOSS) PER SHARE

The following table provides a reconciliation of the denominators of the Company's reported basic and diluted earnings (loss) per share computations for the years ended December 31:

	2007	2006
	-----	-----
Weighted average number of common and common equivalent shares outstanding - basic	8,272,123	7,898,320
Add: Net additional common shares upon assumed exercise of common stock options	--	--
	-----	-----
Weighted average number of common and common equivalent shares - diluted	8,272,123	7,898,320
	=====	=====

For the years ended December 31, 2007 and 2006, 495,177 and 416,002 shares of common stock, respectively, issuable relative to stock options were excluded from the calculation of diluted shares since their inclusion would have been anti-dilutive.

15. LEGAL MATTERS

From time to time, the Company is subject to legal proceedings and claims arising from the conduct of its business operations. The Company does not expect the outcome of these proceedings, either individually or in the aggregate, to have a material adverse effect on its financial position, results of operations, or cash flows.

During the second quarter of 2005 a suit was filed by Arrow International, Inc. against Spire Biomedical, Inc., a wholly owned subsidiary of the Company, alleging patent infringement by the Company. The complaint claims one of the Company's catheter products induces and contributes to infringement when medical professionals insert it. The Company has responded to the complaint denying all allegations and has filed certain counterclaims. The discovery process in this case has continued and is nearly complete. The Company filed a motion for summary judgment, asserting patent invalidity resulting from plaintiff's failure to follow the administrative procedures of the U.S. Patent and Trademark Office ("USPTO") which failure has remained uncorrected. On August 4, 2006, the Court granted the Company's motion and dismissed this lawsuit without prejudice. Plaintiffs applied to revive the applicable patent, which application was granted by the USPTO in August 2006. Plaintiffs refiled their lawsuit against the Company in September 2006. The Company has filed its answer and resumed its defense. The parties have been working to conclude discovery. Based on information presently available to the Company, the Company believes that it does not infringe any valid claim of the plaintiff's patent and that,

consequently, it has meritorious legal defenses with respect to this action in

Edgar Filing: SPIRE CORP - Form 10-K

the event it were to be reinstated. The parties have agreed to limit any potential damages to the Company to a pre-specified royalty rate.

In an amended complaint filed on December 28, 2006, in the Eastern Division of the U.S. District Court for the Southern District of Ohio, the wife and executor of the estate of Darrell Adams, deceased, alleged that the failure of a hemodialysis catheter manufactured by the Company contributed to his death. Subsequent to the end of fiscal 2007, the case was settled between the parties. The Company's product liability insurance covered the settlement and all legal expenses, less our deductible.

In a complaint filed July 11, 2007 in the U.S. District Court for the Eastern District of Pennsylvania, Medical Components, Inc. (the "Plaintiff") alleges that the Company and its wholly-owned subsidiary, Spire Biomedical, Inc., through the manufacture and sale of its multilumen catheter products infringes upon one of Plaintiff's patents. The Plaintiff seeks unspecified damages, including enhanced damages and attorneys fees and costs, and an injunction against certain manufacturing techniques. The Company has negotiated a settlement with the Plaintiff which allows the Company to sell its remaining multilumen catheter inventory in exchange for a lump sum payment which has been fully accrued in the recent quarter. Further, we have altered our manufacturing methods such that there is no question of potential infringement of plaintiff's patent.

16. OPERATING SEGMENTS AND RELATED INFORMATION

The following table presents certain operating division information in accordance with the provisions of SFAS No. 131, "Disclosure about Segments of an Enterprise and Related Information".

	Spire Solar	Spire Biomedical	Optoelectronics	Other	C
December 31, 2007					
Net sales and revenues	\$23,103,000	\$11,106,000	\$4,214,000	\$ --	\$ 38
Earnings (loss) from operations	762,000	(1,506,000)	(2,931,000)	--	(3
Identifiable assets	30,776,000	4,932,000	5,630,000	7,142,000	48
Capital expenditures	977,000	198,000	265,000	290,000	1
Depreciation and amortization	107,000	299,000	1,641,000	166,000	2
Stock-based compensation	115,000	84,000	87,000	293,000	
December 31, 2006					
Net sales and revenues	\$ 6,992,000	\$10,517,000	\$2,616,000	\$ --	\$ 20
Loss from operations	(4,011,000)	(1,241,000)	(2,999,000)	--	(8
Identifiable assets	7,516,000	4,819,000	6,615,000	8,734,000	27
Capital expenditures	14,000	309,000	3,618,000	144,000	4
Depreciation and amortization	88,000	374,000	1,421,000	144,000	2
Stock-based compensation	40,000	66,000	34,000	116,000	

The following table shows net sales and revenues by geographic area (based on customer location) for the years ended December 31:

	2007	%	2006	%
United States	\$21,069,000	55%	\$13,454,000	67%
Europe/Africa	9,129,000	24%	3,389,000	17%
Asia	7,643,000	20%	2,771,000	13%
Rest of the world	582,000	1%	511,000	3%

Edgar Filing: SPIRE CORP - Form 10-K

\$38,423,000	100%	\$20,125,000	100%
=====	=====	=====	=====

The Company's operations are focused on three primary business areas: Spire Solar (comprised of solar equipment and solar systems), Spire Biomedical (comprised of biomedical and biophotonics research) and optoelectronics (comprised primarily of Spire Semiconductor). Spire Solar and Spire Biomedical operate out of the Company's facility in Bedford, Massachusetts. Spire Semiconductor operates out of the Company's facility in Hudson, New Hampshire. Each business area is independently managed and has separate financial results that are reviewed by the Board of Directors and Chief Executive Officer and the chief executive officers of each operating division.

50

Earnings (loss) from operations is net sales less cost of sales, selling, general and administrative expenses and gain on sales of licenses, but is not affected either by non-operating income or by income taxes. In calculating earnings from operations for individual business units, substantial administrative expenses incurred at the operating level that are common to more than one segment are allocated on a net sales basis. Certain corporate expenses of an operational nature are also allocated to the divisions based on factors including occupancy, employment, and purchasing volume. All intercompany transactions have been eliminated.

Revenues from contracts with United States government agencies for 2007 and 2006 were approximately \$1,303,000 and \$2,261,000, or 3% and 11% of consolidated net sales and revenues, respectively.

One customer accounted for approximately 15% of consolidated net sales and revenues in 2007, and one customer accounted for approximately 12% of consolidated net sales and revenues during 2006. Two customers represented approximately 31% and 15% of net accounts receivable, trade at December 31, 2007 and two customers represented approximately 14% and 10% of net accounts receivable, trade at December 31, 2006.

Spain and Taiwan were the only foreign country that accounted for more than 10% of sales in 2007 and Germany was the only foreign country that accounted for more than 10% of sales in 2006. Net sales to customers in Spain and Taiwan accounted for \$7,331,000 and \$5,208,000, respectively in 2007 and net sales to customers in Germany accounted for \$2,568,000 in 2006.

17. SALE OF LICENSES

On May 26, 2005, the Company entered into a global consortium agreement (the "Agreement") with Nisshinbo Industries, Inc. ("Nisshinbo") for the development, manufacturing, and sales of solar photovoltaic module manufacturing equipment. Nisshinbo's prior relationship with Spire was as a sub-licensee of Marubeni Corporation with whom the Company had a license arrangement that was originally signed in 1997, extended in 2003, and terminated in May 2005. Nisshinbo's role as sub-licensee was to manufacture equipment for Marubeni to sell to the Japanese market based upon the Company's proprietary technology. Under the terms of the Agreement, Nisshinbo purchased a license to manufacture and sell the Company's module manufacturing equipment on a semi-exclusive basis for an upfront fee plus additional royalties based on ongoing equipment sales over a ten-year period. In addition, the Company and Nisshinbo agreed, but are not obligated, to pursue joint research and development, product improvement activities and sales and marketing efforts. The companies may share market costs such as product collateral and trade show expenses. Each company may also collaborate on sales leads and have the other company manufacture and service

Edgar Filing: SPIRE CORP - Form 10-K

its equipment in the field. Both companies have reciprocal rights to participate in the other company's R&D efforts on a going-forward basis. Nisshinbo can request the Company to further develop a technology but Nisshinbo must (a) share in the costs of these development efforts equally with the Company (and thereafter have joint ownership); otherwise the Company will own the technology under a partial contribute or no participation by Nisshinbo with the Company receiving a royalty from Nisshinbo if it utilizes the technology. At the end of the license all non-jointly owned technology developed under the Agreement will revert back to the owner, with the other party being required to purchase a new license based upon the fair market value of that technology in order to continue to utilize the technology.

On June 27, 2005, the Company received JPY 400,000,000 from the sale of this permanent license. The Company determined that the Nisshinbo Agreement contains multiple elements consisting of (1) the granting of a license to utilize the Company's technology and (2) the semi-exclusive right to utilize the technology for a period of 10 years. The Company believes the granting of the license meets the criteria of Emerging Issues Task Force ("EITF") 00-21, "Accounting for Revenue Arrangements with Multiple Elements", paragraph 9(a), as the license to utilize the technology has value to Nisshinbo on a stand-alone basis. Further, Question 1 to Securities and Exchange Commission ("SEC") Staff Accounting Bulletin Topic 13A-3f "Nonrefundable Up-Front Fees", was directly considered as guidance for determining if the upfront fee under the Nisshinbo Agreement should be recognized upon the signing of contract or recognized over the term of the license. It is the Company's belief that a separate earnings process was complete as Nisshinbo was purchasing access to utilize technology it already had in its possession; therefore, recognition of the gain on the sale was appropriate. The Company has determined the fair value of the license and royalty based on an appraisal. As a result, a \$3,320,000 gain was recognized as a gain on sale of license in the consolidated statements of operations for the year ended December 31, 2005. The balance of \$350,000 was determined to represent an advanced royalty payment and was recorded as an advance on contracts in progress. This amount is being credited as royalty income over the ten year license period on a straight-line basis. The Company recognized \$35,000 and \$35,000 of royalty income associated with this license in 2007 and 2006, respectively.

51

18. PRIVATE PLACEMENT OF EQUITY

On April 26, 2006, the Company entered into Stock Purchase Agreements with two accredited institutional investors in connection with the private placement of 941,176 shares of the Company's common stock at a purchase price of \$8.50 per share. On April 28, 2006, the Company completed the private placement. The net proceeds of the sale were approximately \$7.7 million after deducting placement fees and other closing costs.

Under the terms of the Stock Purchase Agreements, the Company was obligated to file a registration statement on Form S-3 with the SEC, registering the resale of the shares of common stock sold. The Company filed the Form S-3 on May 3, 2006 and the SEC declared it effective on May 12, 2006. In the event that this registration statement ceases to be effective and available to the investors for an aggregate period of 30 days in any 12 month period, the Company must pay liquidated damages starting on the 61st day (in the aggregate) of any suspensions in any 12 month period, and each 30th day thereafter until the suspension is terminated an amount equal to 1% of the aggregate purchase price paid by the investors. However, the Company is not obligated to pay liquidation damages on shares not owned by the investors at the time of the suspension or shares that are tradable without restriction under Rule 144. The Company reviewed EITF 00-19, "Accounting for Derivative Financial Instruments Indexed

Edgar Filing: SPIRE CORP - Form 10-K

to, and Potentially Settled in, a Company's Own Stock," and EITF 05-04, "The Effect of a Liquidated Damages Clause on a Freestanding Financial Instrument Subject to EITF Issue No. 00-19," to determine if these liquidation damages provisions require a portion of the equity raised needs to be accounted under FASB Statement No. 133, "Accounting for Derivative Instruments and Hedging Activities" ("Statement 133"). It determined that the liquidated damages provisions did not require separate treatment under Statement 133 and therefore will treat all of the funds raised under these agreements as additions to permanent equity.

19. MANUFACTURING AGREEMENTS

On August 29, 2006, the Company's wholly owned subsidiary, Spire Semiconductor, entered into a five-year manufacturing agreement in which it will be the exclusive supplier to Principia Lightworks, Inc. ("Principia"), of semiconductor wafers, enabling Principia, a Woodland Hills, California firm, to begin high volume production of its patented device, an electron beam pumped vertical cavity surface emitting laser ("eVCSEL") as a light source for production display applications, including rear-projection consumer televisions. Spire Semiconductor will manufacture epitaxial wafers which will be further processed by Principia to produce red, blue, and green colored lasers.

Under the terms of this agreement, Spire Semiconductor will be producing III/V and II/VI wafers for Principia with full production expected to start in mid 2008. Spire Semiconductor will begin the scale-up of its existing metalorganic chemical vapor deposition ("MOCVD") and related processing facilities to satisfy Principia's requirements. Principia made an up-front payment for nonrecurring engineering and facility access costs and, in addition, will make monthly facility availability payments throughout the term of the agreement. The first eighteen months of the facility availability payments have been secured by a pledge of Principia common equity which shall be returned after eighteen months upon receipt of the monthly payments. The Company reviewed FASB Statement No. 140, "Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Debt", and determined that the Company shall not recognize the pledged shares and only will recognize if Principia defaults under the terms of the agreement. Principia has no right of repayment with respect to these payments. Spire Semiconductor has an obligation to purchase and qualify MOCVD equipment to manufacture the wafers and make available the facility for Principia's manufacturing needs for a period of 5 years. Upon qualification, Principia has an obligation to purchase a minimum quantity of wafers for the first two years of the Agreement. A fixed price has been established for each wafer produced with some discounting contingent upon Principia committing to certain volume commitments. During the fourth quarter, the two companies modified their agreement such that it was agreed that Spire Semiconductor had qualified the new equipment. The Company began revenue recognition of the advance payments related to the facility preparation and availability on a straight line basis. In 2007, this amounted to \$357,000 in revenue. Spire Semiconductor shall have full ownership of the equipment and may utilize any excess capacity for other customers. In September 2006, the Company entered into a purchase order with a manufacturer of MOCVD equipment. Although the Company will be committing resources to complete the scale-up, it anticipates the up-front payment plus the monthly payments will be sufficient to meet its capital requirements under the agreement. Providing the parties meet their respective obligations over the term of the agreement, no net outlay of capital will be needed.

On March 16, 2006, the Company entered into a Turn-Key Project Agreement to provide a privately owned solar firm located in Europe (the "Purchaser"), a commercially sized multi-megawatt turn-key Photovoltaic Cell Manufacturing Line (the "Cell Line") for \$6.75 million (to be paid over the course of two years upon the achievement of certain milestones). The agreement was subsequently amended to include automation equipment bringing the total value of the

contract to \$9 million. The Cell Line has been shipped to the customer and we expect to begin installation during the second quarter of 2008. The Company is subject to certain penalty provisions if the Cell Line does not meet agreed-upon performance criteria within a set period of time. Under this agreement, the Company also agreed to supply the Purchaser up to 1,500,000 mono-crystalline wafers or multi-crystalline wafers (meeting certain electrical capacity and efficiency standards) prior to the starting date of production of cells by the Cell Line or within 60 days after shipment of the Cell Line. The actual amount of wafers ordered and the price of such wafers is subject to the mutual agreement of the parties, and the Purchaser may cancel this non-exclusive arrangement at any time. The price for such wafer supply is in addition to the purchase price for the Cell Line. At December 31, 2007, the criteria for revenue recognition under Staff Accounting Bulletin No. 104, "Revenue Recognition in Financial Statements", have not been met therefore no revenue has been recognized.

20. SUBSEQUENT EVENTS

On March 31, 2008, the Company entered into a second Loan and Security Agreement (the "Revolving Credit Facility") with the Bank. Under the terms of the Revolving Credit Facility, the Bank agreed to provide the Company with a credit line up to \$5,000,000. The Company's obligations under the Equipment Credit Facility are secured by substantially of its assets and advances under the Revolving Credit Facility are limited to 80% of eligible receivables and the lesser of 25% of the value of its eligible inventory, as defined, or \$2,500,000 if the inventory is backed by a customer letter of credit. Interest on outstanding borrowings accrues at a rate per annum equal to the greater of Prime Rate plus one percent (1.0%) or seven percent (7%). In addition, the Company agreed to pay to the Bank a collateral monitoring fee of \$750 per month in the event the Company is in default of its covenants and agreed to the following additional terms: (i) \$50,000 commitment fee; (ii) an unused line fee in the amount of 0.75% per annum of the average unused portion of the revolving line; and (iii) an early termination fee of 0.5% of the total credit line if the Company terminates the Revolving Credit Facility prior to 12 months from the Revolving Credit Facility's effective date. The Revolving Credit Facility, if not sooner terminated in accordance with its terms, expires on March 30, 2009. In addition the Company's existing Equipment Credit Facility was amended whereby the Bank granted a waiver for the Company's defaults for not meeting its December 31, 2007 quarter liquidity and profit covenants and for not meeting its January and February 2008 liquidity covenants. Further the covenants were amended to match the new covenants contained in the Revolving Credit Facility. The Company's interest rate under the Equipment Credit Facility was also modified from Bank Prime plus one half percent to the greater of Bank Prime plus one percent (1.0%) or seven percent (7%).

Under the terms of the Equipment Credit Facility, as long as any commitment remains outstanding under the facility, the Company must comply with an adjusted quick ratio covenant and a minimum quarterly net income covenant. In addition, until all amounts under the credit facilities with the Bank are repaid, covenants under the credit facilities impose restrictions on the Company's ability to, among other things, incur additional indebtedness, create or permit liens on the Company's assets, merge, consolidate or dispose of assets (other than in the ordinary course of business), make dividend and other restricted payments, make certain debt or equity investments, make certain acquisitions, engage in certain transactions with affiliates or change the business conducted by the Company and its subsidiaries. Any failure by the Company to comply with the covenants and obligations under the credit facilities could result in an event of default, in which case the Bank may be entitled to declare all amounts

Edgar Filing: SPIRE CORP - Form 10-K

owed to be due and payable immediately. The Company's obligations under the credit facilities are secured by substantially all of its assets.

In an amended complaint filed on December 28, 2006, in the Eastern Division of the U.S. District Court for the Southern District of Ohio, the wife and executor of the estate of Darrell Adams, deceased, alleged that the failure of a hemodialysis catheter manufactured by the Company contributed to his death. Subsequent to the end of fiscal 2007, the case was settled between the parties. The Company's product liability insurance covered the settlement and all legal expenses, less our deductible, which has been fully accrued as of March 31, 2008.

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

None.

ITEM 9A (T). CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, under the supervision of and with the participation of the Chief Executive Officer and Chief Financial Officer, performed an evaluation of the effectiveness of our disclosure controls and procedures (as defined in

53

Rules 13a-15(e) under the Securities Exchange Act of 1934 (the "Exchange Act")) as of the end of the period covered by this report, December 31, 2007.

A material weakness is defined in Public Company Accounting Oversight Board Auditing Standard No. 5 as a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis. In connection with our overall assessment of internal control over financial reporting, as discussed below, we have evaluated the effectiveness of our internal control over financial reporting as of December 31, 2007 and have concluded that we have several material weaknesses. Accordingly, our Chief Executive Officer and Chief Financial Officer concluded that due to the material weaknesses in our internal control over financial reporting described below, our disclosure controls and procedures were not effective as of December 31, 2007.

Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of our consolidated financial statements for external purposes in accordance with United States Generally Accepted Accounting Principles ("US GAAP"). Under the supervision of, and with the participation of our Chief Executive Officer and Chief Financial Officer, management assessed the effectiveness of our internal control over financial reporting as of December 31, 2007. Management based its assessment on criteria established in "Internal Control Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO").

This annual report does not include an attestation report of our registered public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by our registered public

Edgar Filing: SPIRE CORP - Form 10-K

accounting firm pursuant to the temporary rules of the Security and Exchange Commission that permit us to provide only management's report in this annual report.

Based on this evaluation, management concluded that the following material weaknesses in internal control over financial reporting existed as of December 31, 2007:

We had an ineffective control environment. This has been previously disclosed in prior filings. Efforts to remediate deficiencies were impeded by an evolving control environment brought on by the rapid expansion in our business over the past twelve months. We did not maintain an effective financial reporting process, ensure timely and accurate completion of financial statements and we did not maintain effective monitoring controls including reconciliations and analysis of key accounts. We did not have a sufficient level of staffing with the necessary knowledge, experience and training to ensure the completeness and accuracy of our financial statements. Specifically, the financial reporting organization structure was not adequate to support the size, complexity or activities of our Company. In addition, certain finance positions were staffed with individuals who did not possess the level of accounting knowledge, experience and training in the application of US GAAP commensurate with our financial reporting requirements. During the second quarter, our recently hired Chief Accounting Officer resigned to pursue other opportunities. We had not replaced this position as of December 31, 2007 and during the year have used consultants to fill this role.

This affected our ability to maintain effective monitoring controls and related segregation of duties over automated and manual transactions processes. Specifically, inadequate segregation of duties led to untimely identification and resolution of accounting and disclosure matters and failure to perform timely and effective supervision and reviews. We did not maintain effective controls over our IT environment. Specifically, we did not perform a review of restricted user access in our application software system and file server critical worksheet directories. We lacked sufficient business continuity and back up policies and procedures.

The material weaknesses noted above contributed to the existence of the following control deficiencies, each of which resulted in audit adjustments and is considered to be a material weakness.

We did not maintain effective controls over our financial closing process to ensure the complete, accurate and timely preparation and review of our consolidated financial statements. Accounts were not properly reconciled and account analysis was not performed. Deposits, WIP, accrued PO receipts, were not properly reconciled. Patents and patents pending were not properly reviewed to reflect current status of patents. We did not perform a timely analysis of warranty reserves for year end. Deferred compensation accounts were not properly reconciled.

54

We did not maintain effective controls to ensure proper existence and valuation of inventory. We lacked sufficient formal inventory policies and procedures, reconciliations of WIP, physical inventory count procedures and physical count omissions. We also identified areas where we did not have timely posting of sub ledger activity and adjustments, improper cut-off/capitalization and monitoring of standard costs to ensure the company is carrying inventory at lower of cost or market.

We did not maintain effective controls to ensure existence and valuation of revenue. Specifically, we lacked formal policies and procedures to monitor revenue contracts to identify contracts with negative margins.

Edgar Filing: SPIRE CORP - Form 10-K

Each one of these control deficiencies could result in a misstatement to our interim or annual consolidated financial statements that would not be prevented or detected. As a result of these material weaknesses, audit adjustments were noted by our auditors. Additional analysis was performed and correcting entries were recorded to ensure the accuracy and completeness of our December 31, 2007 consolidated financial results. These items were addressed prior to the finalization of the consolidated financial statements.

As a result of the foregoing, management has concluded that our internal control over financial reporting was not effective as of December 31, 2007.

Our management has undertaken the following actions to remediate the material weakness identified. Management has addressed the need for additional experienced staff with the addition of a Director of Financial Reporting (February 2008). This position will help us address the identified weakness in the knowledge and experience required for completeness and accuracy of our financial statements and also helps improve our overall financial close and reporting process. Management is actively addressing operational and internal control remediation efforts. New policies and procedures have been created and existing policies and procedures have been reviewed and modified as part of our documentation of internal control over financial reporting. Implementation of these new controls policies and procedures, training of key personnel, testing of these key controls and quarterly reporting to our Audit Committee of the status of the remediation effort is underway.

Changes in Internal Control Over Financial Reporting

There have been no changes during our fiscal quarter ended December 31, 2007 in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Information concerning our directors, executive officers and corporate governance is set forth in the Proxy Statement for the Special Meeting in Lieu of 2008 Annual Meeting of Stockholders ("Proxy Statement") and is incorporated herein by reference. Information concerning compliance with Section 16(a) of the Exchange Act is set forth under "Compliance with Section 16(a) of the Securities Exchange Act of 1934" in the Proxy Statement and is incorporated herein by reference.

We have adopted a Code of Business Conduct and Ethics (the "Code") that applies to our principal executive officer, principal financial officer and principal accounting officer or controller, as well as to directors, officers and employees

generally. The Code sets forth written standards that are reasonably designed to

Edgar Filing: SPIRE CORP - Form 10-K

deter wrongdoing and to promote (1) honest and ethical conduct, (2) full, fair, accurate, timely and understandable disclosure in reports and documents that we file with the SEC and in other public communications made by us, (3) compliance with applicable governmental laws, rules and regulations, (4) the prompt internal reporting of violations of the Code to an appropriate person or persons identified in the Code and (5) accountability for adherence to the Code. We will provide to any person without charge, upon request, a copy of the Code. Any person wishing a copy should write to Michael W. O'Dougherty, Clerk, Spire Corporation, One Patriots Park, Bedford, Massachusetts 01730-2396.

A copy of the Code is incorporated by reference as Exhibit 21 to our Form 10-KSB for the fiscal year ended December 31, 2003.

ITEM 11. EXECUTIVE COMPENSATION

Information concerning executive compensation is set forth in the Proxy Statement and is incorporated herein by reference.

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

Information concerning security ownership of certain beneficial owners and management, and related stockholder matters, is set forth in the Proxy Statement and is incorporated herein by reference.

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

Information concerning certain relationships and related transactions, and director independence, is set forth in the Proxy Statement and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

Information concerning principal accounting fees and services is set forth in the Proxy Statement and incorporated herein by reference.

56

PART IV

ITEM 15. EXHIBITS

The following Exhibits are either filed herewith or are incorporated by reference as may be indicated.

- 2.1 Asset Purchase Agreement, dated as of July 31, 2007, by and between the Company and Gloria Solar Co., Ltd., incorporated by reference to Exhibit 2.1 to the Company's Form 8-K filed with the Securities and Exchange Commission (the "SEC") on September 10, 2007 *+
- 2.2 Contribution Agreement, dated as of July 31, 2007, by and among the Company, Gloria Solar Co., Ltd. and Gloria Solar (Delaware) Company, Ltd., incorporated by reference to Exhibit 2.2 to the Company's Form 8-K filed with the SEC on September 10, 2007 *+

Edgar Filing: SPIRE CORP - Form 10-K

- 3(a) Articles of Organization as amended, incorporated by reference to Exhibit 3(a) to the Company's Form 10-QSB for the quarter ended June 30, 1997
- 3(b) By-Laws, as amended, incorporated by reference to Exhibit 3(b) to the Company's Form 10-K for the year ended December 31, 1989
- 10(a) Sublease Agreement with Millipore Corporation as landlord for facility at Bedford, Massachusetts dated November 25, 1985, incorporated by reference to Exhibit 10(a) to the Company's Form 10-K for the year ended December 31, 1985
- 10(b) Amendment to Sublease Agreement with Millipore Corporation as landlord for facility at Bedford, Massachusetts dated December 30, 1999, incorporated by reference to Exhibit 10(b) to the Company's Form 10-KSB for the year ended December 31, 1999 ("1999 10-KSB")
- 10(c) Sublease Agreement with Methode Electronics, Inc. as tenant for a portion of the facility at Bedford, Massachusetts dated December 29, 1999, incorporated by reference to Exhibit 10(c) to the 1999 10-KSB
- 10(d) Asset Purchase Agreement dated as of November 18, 1999 with Methode Electronics, Inc. and Methode Massachusetts, Inc., incorporated by reference to Exhibit 1 to the Company's Form 8-K dated December 29, 1999
- 10(e) Employment Agreement with Roger G. Little dated as of January 1, 2002, incorporated by reference to Exhibit 10(e) to the Company's Form 10-KSB for the year ended December 31, 2001 ("2001 10-KSB")
- 10(f) Deferred Compensation Plan with Roger G. Little dated as of January 1, 2002, incorporated by reference to Exhibit 10(f) to 2001 10-KSB
- 10(g) Spire Corporation 1985 Incentive Stock Option Plan, incorporated by reference to Exhibit 10(d) to the Company's Form 10-K for the year ended December 31, 1984
- 10(h) Spire Corporation 401(k) Profit Sharing Plan, incorporated by reference to Exhibit 10(h) to the Company's Form 10-KSB for the year ended December 31, 2003 ("2003 10-KSB")
- 10(i) Spire Corporation 1996 Equity Incentive Plan, incorporated by reference to Appendix A to the Company's Proxy Statement dated April 15, 2004
- 10(j) Purchase Agreement dated May 23, 2003 with Stratos Lightwave and Bandwidth Semiconductor, LLC, incorporated by reference to Exhibit 10(h) to the Company's Form 10-QSB for the quarter ended June 30, 2003
- 10(k) Lease Agreement dated May 23, 2003 by and between Roger G. Little, Trustee of SPI-Trust as Landlord and Spire Corporation as Tenant, incorporated by reference to Exhibit 10(i) to the Company's Form 10-QSB for the quarter ended June 30, 2003
- 10(l) Trust Agreement dated April 1, 2004 between the Company and Riggs Bank N.A. as Trustee of the Company's 401(k) Profit Sharing Plan, incorporated by reference to Exhibit 10(1) to the Company's Form

Edgar Filing: SPIRE CORP - Form 10-K

10-KSB for the year ended December 31, 2004 ("2004 10-KSB")

57

- 10 (m) Amendment No. One dated November 18, 2004 to Employment Agreement for Roger G. Little, incorporated by reference to Exhibit 10(m) to the Company's 2004 10-KSB
- 10 (n) Development, Manufacturing, and Sales Consortium Agreement between Nisshinbo Industries, Inc. and Spire Corporation, with an effective date of 16 May 2005, incorporated by reference to Exhibit 10(n) to the Company's For 10-QSB for the quarter ended June 30, 2005**
- 10 (o) Extension of Lease Agreement dated November 11, 2005 between Roger G. Little, Trustee of SPI-Trust and Spire Corporation (lease of premises, 77,037 sq. ft.), incorporated by reference to Exhibit 10(o) to the Company's 2005 10-KSB
- 10 (p) Amendment Number Four to the Spire Corporation 401(k) Profit Sharing Plan dated November 21, 2005, incorporated by reference to Exhibit 10(p) to the Company's 2005 10-KSB
- 10 (q) Turn-Key Project Agreement, dated March 16, 2006, incorporated by reference to Exhibit 10(s) to the Company's 2006 10-QSB for the quarter ended March 31, 2006 **
- 10 (r) Wafer Supply Agreement, dated March 16, 2006, incorporated by reference to Exhibit 10(r) to the Company's 2006 10-QSB for the quarter ended March 31, 2006 **
- 10 (s) Manufacturing Agreement, dated August 29, 2006, by and between Bandwidth Semiconductor, LLC, a wholly owned subsidiary of Spire ("Bandwidth"), and Principia Lightworks, Inc. ("Principia"), incorporated by reference to Exhibit 10(s) to the Company's 2006 10-QSB for the quarter ended September 30, 2006 **
- 10 (t) First Amendment to Extension of Lease Agreement dated December 1, 2006 between Roger G. Little, Trustee of SPI-Trust and Spire Corporation (lease of premises, approximately 91,701 sq. ft.), incorporated by reference to Exhibit 10(t) to the Company's 2006 10-KSB
- 10 (u) Amendment Number Five to the Spire Corporation 401(k) Profit Sharing Plan dated December 22, 2006, incorporated by reference to Exhibit 10(u) to the Company's 2006 10-KSB
- 10 (v) Spire Corporation 2007 Stock Equity Plan, incorporated by reference to Exhibit 4.1 to the Company's Form S-8 filed with the Securities and Exchange Commission on June 5, 2007
- 10 (w) Loan and Security Agreement, dated May 25, 2007, among Spire Corporation, Bandwidth Semiconductor, LLC and Silicon Valley Bank, incorporated by reference to Exhibit 10(w) to the Company's 2007 10-Q for the quarter ended June 30, 2007
- 10 (x) Operating Agreement of Gloria Spire Solar, LLC, dated July 31, 2007, by and among the Company, Gloria Solar (Delaware) Company, Ltd. and Gloria Spire Solar, LLC, incorporated by reference to Exhibit 10(x) to the Company's Form 8-K filed with the SEC on September 10, 2007 *

Edgar Filing: SPIRE CORP - Form 10-K

- 10(y) Lease Agreement, dated November 30, 2007, between Roger G. Little, Trustee of SPI-Trust, and Spire Corporation (lease of premises, approximately 144,230 sq. ft.), incorporated by reference to Exhibit 10(y) to the Company's Form 8-K filed with the SEC on December 6, 2007
- 14 Code of Business Conduct and Ethics incorporated by reference to Exhibit 14 to the 2003 10-KSB
- 21 Subsidiaries of the Registrant, incorporated by reference to Exhibit 21 to the 2003 10-KSB
- 23 Consent of Independent Registered Public Accounting Firm (filed herewith)
- 31.1 Certification of the Chairman of the Board, Chief Executive Officer and President pursuant to ss.302 of the Sarbanes-Oxley Act of 2002 (filed herewith)

58

- 31.2 Certification of the Chief Financial Officer pursuant to ss.302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
- 32.1 Certification of the Chairman of the Board, Chief Executive Officer and President pursuant to 18 U.S.C. ss.1350, as adopted pursuant to ss.906 of the Sarbanes-Oxley Act of 2002 (filed herewith)
- 32.2 Certification of the Chief Financial Officer pursuant to 18 U.S.C. ss.1350, as adopted pursuant to ss.906 of the Sarbanes-Oxley Act of 2002 (filed herewith)
- * Portions of this Exhibit have been omitted pursuant to a request for confidential treatment.
- + We agree to furnish supplementally to the SEC a copy of any omitted schedule or exhibit to this agreement upon request by the SEC.
- ** Portions of this Exhibit have been omitted pursuant to a grant of confidential treatment.

59

SIGNATURES

In accordance with Section 13 or 15(d) of the Exchange Act, the registrant caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

SPIRE CORPORATION

By: /s/ Roger G. Little

March 31, 2008

Edgar Filing: SPIRE CORP - Form 10-K

 Roger G. Little
 Chairman of the Board, Chief
 Executive Officer, and President

In accordance with the Exchange Act, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Roger G. Little ----- Roger G. Little	Chairman of the Board, Chief Executive Officer and President	March 31, 2008
/s/ Christian Dufresne ----- Christian Dufresne	Chief Financial Officer and Treasurer	March 31, 2008
/s/ Udo Henseler ----- Udo Henseler	Director	March 31, 2008
/s/ David R. Lipinski ----- David R. Lipinski	Director	March 31, 2008
/s/ Mark C. Little ----- Mark C. Little	Chief Executive Officer, Spire Biomedical and Director	March 31, 2008
/s/ Michael J. Magliochetti ----- Michael J. Magliochetti	Director	March 31, 2008
/s/ Guy L. Mayer ----- Guy L. Mayer	Director	March 31, 2008
/s/ Roger W. Redmond ----- Roger W. Redmond	Director	March 31, 2008

60

EXHIBIT INDEX

Exhibit	Description
-----	-----
23	Consent of Independent Registered Public Accounting Firm

Edgar Filing: SPIRE CORP - Form 10-K

- 31.1 Certification of the Chairman of the Board, Chief Executive Officer and President pursuant to ss.302 of the Sarbanes-Oxley Act of 2002
- 31.2 Certification of the Chief Financial Officer pursuant to ss.302 of the Sarbanes-Oxley Act of 2002
- 32.1 Certification of the Chairman of the Board, Chief Executive Officer and President pursuant to 18 U.S.C. ss.1350, as adopted pursuant to ss.906 of the Sarbanes-Oxley Act of 2002
- 32.2 Certification of the Chief Financial Officer pursuant to 18 U.S.C. ss.1350, as adopted pursuant to ss.906 of the Sarbanes-Oxley Act of 2002