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

FORM 10-K

[X] Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934
For the fiscal year ended March 31, 2004.

[ ] 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 0-16106

APA OPTICS, INC.
(Exact Name of Registrant as Specified in its Charter)

MINNESOTA	41-1347235
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

2950 N.E. 84TH LANE
BLAINE, MINNESOTA 55449
(763) 784-4995
(Address, including ZIP code and telephone number, including area code, of registrant's principal executive office)

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

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

COMMON STOCK, PAR VALUE $.01 PER SHARE
(TITLE OF CLASS)

SERIES B PREFERRED SHARE PURCHASE RIGHTS
(TITLE OF CLASS)

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Exchange Act during the preceding 12 months and (2) has been subject to the filing requirements for the past 90 days. [X] YES [ ] NO

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

[ ] YES [X] NO

Indicate by check mark whether the registrant is an accelerated filer (as defined in Rule 12b-2 of the Act).

[ ] YES [X] NO

The aggregate market value of the voting and non-voting equity held by non-affiliates of the registrant, as of the last business day of the registrant's most recently completed second fiscal quarter computed by reference to the price at which the common equity was last sold was approximately $26,539,734.

The number of shares of common stock outstanding as of June 29, 2004 was 11,872,331.

DOCUMENTS INCORPORATED BY REFERENCE:

Portions of our proxy statement for the annual shareholders meeting to be held in August 2004 are incorporated by reference into Part III.

<TABLE>
<CAPTION>

APA OPTICS, INC.
ANNUAL REPORT ON FORM 10K
TABLE OF CONTENTS

PART I

PART I

ITEM 1. BUSINESS.

GENERAL DEVELOPMENT OF BUSINESS.

APA Optics, Inc. ("APA Optics, Inc. or the "Company") is a Minnesota corporation which was founded in 1979. Our corporate headquarters is located at 2950 N.E. 84th Lane, Blaine, MN and our corporate website is www.apaoptics.com.

Since the founding of the Company, we have focused on leading edge research in gallium nitride (GaN), sophisticated optoelectronics, and optical systems, with the primary goal of developing advanced products for subsequent fabrication and marketing. Based on this research we have developed multiple products including fiber optic components for metro and access communications networks, a range of GaN based devices, and precision optical products. We believe that gallium nitride based devices have significant potential markets and we have developed specific expertise and/or patent positions relevant to them. During fiscal year 2004 we ceased the design and manufacturing of precision optical components due to intense competition from Asian manufacturers primarily based on lower labor rates.

In addition to manufacturing and marketing products, we are actively seeking to license certain portions of our intellectual property portfolio related to GaN to other companies. While we have had discussions with multiple companies, we have not entered into any license arrangements as of the date of this Report. We consider the market for products which could be produced under such licenses to be just now emerging, including applications for GaN based transistors for cell phone base stations.

Almost all telecommunications service providers and network equipment suppliers are experiencing severely reduced demand for several applications, particularly related to long-haul communications, which in turn has reduced demand for fiber optic components. We have redirected our efforts to metro and access networks applications, which are most likely to see growth. These networks place value on lower cost components, ease of installation, and remote configurability. The Company has chosen to avoid costly product development and capital expansion activity by teaming with highly qualified, cost efficient partners with limited market presence. As a result, we have introduced a line of arrayed waveguide grating (AWG) modules based on planar lightwave circuits, and thin film filter (TFF) WDM products for these markets.

Our wholly owned subsidiary, APA Cables and Networks, Inc. ("APACN"), focuses on custom-engineered products for telecommunications customers, primarily related to cabling management requirements of the Fiber-to-the-Home (FTTH) marketplace. In June 2003, APACN purchased the assets of Americable, Inc. These assets have been integrated with assets and operations acquired in March 2003 from Computer System Products, Inc. ("CSP"). The Americable acquisition allowed APACN to add its own brand of fiber distribution equipment to its full-line of standard and custom copper and fiber optic cable assemblies for broadband service providers and original equipment manufacturers ("OEM's"). The Americable acquisition diversifies our product offerings, expands our opportunities for cross-selling our products to former CSP and Americable customers, and enables us to offer a more complete technology solution to all of our customers.

APACN streamlined operations during 2004 by consolidating the operations of the former CSP and Americable employees in a single location, resulting in the elimination of duplicate costs within the organization and reducing property rental by more than 50%.

INFORMATION ABOUT INDUSTRY SEGMENTS

The Company divides its businesses into two segments: APA, which manufactures and markets advanced products for the fiber optic communications and optoelectronic and laser industries; and APACN, which designs and manufactures standard and custom fiber and copper cable assemblies, fiber optic distribution panels and other telecommunications equipment for the telecommunications and enterprise markets.

Additional information regarding operations in the segments is set forth in Note N in the Notes to the Consolidated Financial Statements under Item 8 herein.

DESCRIPTION OF BUSINESS - APA

APA develops, manufactures and markets advanced products for the fiber optic, telecommunications, optoelectronics and laser industries, including Dense Wavelength Division Multiplexers (DWDM's), products for UV (ultra violet) detection, nitride epitaxial layers and wide band-gap transistors. These operations began with the inception of the Company in 1979 and are located principally in our facilities in Blaine, Minnesota (which focuses upon fabrication of epitaxial layers and processing of these layers to build devices on wafers) and in our facility in Aberdeen, South Dakota (which performs packaging and inspection). Certain products are purchased from contract manufacturers.

Proprietary Products

Our current proprietary products are described below.

- - <u>Fiber Optic Components</u> APA provides passive optical components for FTTP networking based on the Passive Optical Network (PON) architecture. The product line includes planar lightwave circuit (wavelength independent) optical splitters for PON FTTP networks, and fiber optic enclosures for locating passive splitters in the field.

  APA's WDM (Wavelength Division Muliplexer) offerings include thin film filter (TFF) WDM components for use in low channel count access and metro WDM systems for data, voice and CATV. TFF components can also be deployed in field enclosures. APA also offers an arrayed waveguide grating (AWG) module for cost effective, high channel count applications. In early 2004, we had our first AWG sale to a previous bulk grating customer. These products were introduced at the 2003 Optical Fiber Conference.

- - <u>Passive Optical Splitters (wavelength independent)</u> Our passive Optical splitter is used in applications in optical access networking, including Fiber-to-the-Premise and FTTH. Newly adopted standards for optical access networking have been adopted by an increasing number of networking equipment companies and telecommunications service providers. Network upgrades which push fiber closer to the end-user are being implemented successfully by independent telephone companies in rural settings and also in green field (new) housing developments. APA is also marketing optical fiber closures for packaging optical splitters in the outside network environment. The products are offered together as a value-added, turnkey solution, making passive splitters ready for deployment into the outside network. Both new products are being sourced through offshore manufacturing partners and contracts have been put in place to supply APA with these products.

- - <u>Thin Film Filter WDM Components and AWG DWDM Components</u> APA has several low channel count thin film filter product lines. These products are used in CATV systems and metro telecom systems. APACN is already supplying cable products to many of the target CATV and

metro telecom systems operators. Again using the value added model, we plan to provide customized products to systems operators at a competitive price.

APA has also introduced a line of arrayed waveguide grating WDM modules. AWG products are manufactured using cost effective silicon semiconductor processing techniques. During the second half of fiscal 2003, we identified a technically strong partner. A relationship was formalized early in fiscal 2004. The first products will be a 40 channel, 100 GHz channel spacing module followed by a 50 channel 50GHz module. APA has joined the international multi-source agreement for thermally stabilized AWG modules that included NEL, Hitachi, Alcatel, NEC, JDSU and others. The finalized versions of 40 channel AWG modules will be released in 2004. AWG technology is especially attractive because multiple functions can be integrated into a single chip. These advanced functions are attractive for systems with remote configuration abilities and may be the topic of future joint development.

We have discontinued bulk grating modules due to the significantly higher manufacturing costs, as compared to TFF or AWG based modules, and intense competition, principally based on low-cost off shore labor. We hold three patents in this field, the earliest of which was issued in September 1995.

Our fiber optics product set continues to include planar lightwave circuit optical splitters for FTTH networks; thin film filter WDM components for use in CATV, telecommunication, and free space optics systems; and arrayed waveguide WDM components for higher channel count systems with advanced functions. We market and sell these products mainly through the sales channels of APACN.

- <u>Ultraviolet (UV) Detector-Based Products</u> We currently manufacture value-added products built around UV detectors fabricated by APA and procured externally. These products are:

    - <u>SunUV(R) Personal UV Monitor</u> The SunUV(R) Personal UV Monitor (formerly, SunUVWatch(R)) is a personal ultraviolet radiation (UV) monitor that also incorporates a time/day/date function. It detects UV radiation that is hazardous to human health. It keeps track of the total UV exposure of the user and estimates a maximum exposure time according to government guidelines based on skin type and widely-accepted research on UV exposure limits. The product has been introduced and is being sold through retail channels, catalogs and Internet sites. We are committing significant resources to the continuing rollout of this product line and, based on consumer response, may commit significant resources to expand our product offering in this area.

    - <u>Industrial UV Meters</u> This product family goes under the general trade name of TrUVMeterTM. We are currently developing of the Profiler M model, which specifically targets printing presses using UV-cured inks and UV "tunnel" curing equipment. These printing processes are sensitive to the overall exposure provided by UV sources (mercury or its derivative lamps) and therefore require periodic monitoring. The Profiler M senses the exposure using four detectors and stores, analyzes and displays a limited amount of data. The data can later be downloaded to a computer for detailed analysis and charting. We believe that the Profiler M, if the development is successful, will be introduced to the market during fiscal 2005.

APA's research and development efforts are currently focused on the products described below.

- <u>Compound Semiconductor Electronic Devices</u> We have been a pioneer in the research oftransistors based on GaN/AlGaN (gallium nitride/aluminum gallium nitride) heterojunctions and are maintaining a research and development capability in this technology while assessing commercialization opportunities. We purchased a multiwafer (6 wafers, 2 inches in diameter) Metal Organic Chemical Vapor Deposition System (MOCVD) during the later part of fiscal 2004 to enhance our capabilities in this technology area. Once this MOCVD system is fully operational, it will be sufficient to take care of all our MOCVD growth requirements. In June 2004 we signed a lease with Veeco Compound Semiconductor, Inc. ("Veeco"), a large semiconductor equipment manufacturing company, to locate and operate our MOCVD system in its Process Integration Facility in White Bear Lake, Minnesota (which is near APA's Blaine office). Operating the MOCVD machine at Veeco's facility will give us central access to significant electrical, optical, and structural characterization tools, currently rented from various suppliers, that are used to optimize and control the growth of our transistors. Once installed, we will initiate our MOCVD growth in Veeco's facilities using the new machine while phasing out the growth occurring in the Blaine facilities. These steps will also eliminate expenses for significant leasehold improvements that would have been required to locate the machine in our Blaine facility. The machine will be operated by our employees. Our lease with Veeco protects our intellectual property while providing improved access to potential customers and state of the art crystal growth resources. We believe that this system will be operational during the second quarter of fiscal 2005. There are significant markets emerging for these materials and devices with the rapid growth of cellular phone use and its associated infrastructure, military remote sensing and communication, and in other high power/frequency/temperature applications. Two of our seven awarded patents in this technology are fundamental to the transistor structure and we are continuing to develop our intellectual property portfolio in this area. A provisional patent application was converted to a full application in November 2003, and an additional provisional application was filed in June 2004. Significant resources would be required should we choose to internally develop a full product line in this area. Our approach to developing products in this area will be to fully utilize our internal capabilities while seeking partners with complementary capabilities. We worked with several partners during fiscal 2004 to complement our device fabrication capabilities and we are continuing discussions with several other potential industrial partners for manufacturing and marketing. Our ability to capture contracts and develop additional industry partners will depend critically on our ability to grow epitaxial material on larger diameter substrates using our newly procured MOCVD system. During fiscal 2004, we made significant progress in these areas. Industrial acceptance of GaN based transistor products and our ability to license our intellectual property will critically depend on proven device reliability in addition to well documented initial performance. As such, we have focused our development efforts toward characterization and reliability investigation.

Marketing and Distribution

APA markets DWDM products through our APACN sales channels. Additionally, we use manufacturer's representatives and distributors domestically and in various countries (including Japan, Germany, Italy and France). We do not currently maintain a large internal sales force. We have one sales person dedicated to the SunUV(R) Personal UV Monitor and we also maintain product information on our website.

Competition

The optoelectronics and compound semiconductor electronic device markets are evolving rapidly and, therefore, the competitive landscape changes continually. The opportunities presented by these

markets have fostered a highly competitive environment. This competition has resulted in price reductions and lower profit margins for the companies serving this market. Many of the companies engaged in these businesses are well financed and have significantly greater research, development, production, and marketing resources than we do. Some of these companies have long operating histories, well-established distribution channels, broad product offerings and extensive customer bases. Our ability to compete with these companies will depend largely on the performance of our devices, our ability to innovate and develop solutions for our customers, our intellectual property, our ability to convince customers to adopt our technology early in their design cycle, and our ability to control costs.

Competitors for our DWDM products include Scientific Atlanta, C-Cor, Harmonic, and Motorola.

We are not aware of any companies currently marketing a personal UV monitor with a combination of features, style and packaging equivalent to ours, although there are other manufacturers of this type of product in the United States, Japan and Korea.

EIT, Apprise Technologies and International Light offer UV curing control instruments that perform similar functions to the Profiler M, although we believe that our product will offer a superior combination of features and price. Newport, Melles-Griot and Oriel offer scientific UV meters, some offering GaN detectors as an option. A number of firms offer lower-performance, lower-cost UV meters for industrial applications.

Competitors for GaN/AlGaN transistors, which are currently in the R&D phase at APA Optics, would include Cree, Inc., Nitronex Corporation, Emcore Corporation, RFMD Corporation, and some Japanese and European firms.

DESCRIPTION OF BUSINESS - APACN

APACN offers a broad range of telecommunications equipment and products developed from over 20 years of product expertise acquired in the CSP and Americable acquisitions. Its broad range of product offerings include the design and manufacture of standard and custom connectivity products such as fiber distribution systems, optical components, and fiber and copper cable assemblies that serve the communication service provider including Fiber-to-the-Home, large enterprise, and OEM markets. Most products are produced at the Company's plant in Plymouth, MN with support from APA's facility in Aberdeen, South Dakota. Certain products are purchased from contract manufacturers or other sources.

Products

- Fiber Distribution Systems Americable fiber distribution systems are high density, easy access fiber distribution panels and cable management systems that are designed to reduce installation time, guarantee bend radius protection and improve traceability. The product line fully supports a wide range of panel configurations, densities, connectors, and adapters that can be utilized on a stand-alone basis or integrated into the panel system. The unique interchangeable building block design delivers feature rich solutions which are able to meet the needs of a broad range of network deployments.

- Optical components APACN packages optical components for signal coupling, splitting, termination, multiplexing, demultiplexing and attenuation to seamlessly integrate with the Americable Fiber Distribution System. This value-added packaging allows the customer to source from a Single

supplier and reduces space requirements. The products are built and tested to meet GR-326 and GR-1209 standards for trouble-free performance in extreme outside plant environments.

- Cable Assemblies APACN manufactures high quality fiber and copper assemblies with an industry-standard or customer-specified configuration. Assemblies built include but are not limited to: single mode fiber, multimode fiber, multi-fiber, CATV node assembly, DS1 Telco, DS 3 (734/735) coax, Category 5e and 6, SCSI, Token Ring, and V.35.

Marketing and Distribution

APACN markets its products in the United States through a network of manufacturer representative organizations and an internal sales team. APACN works closely with its target customers to adapt the company's product platform to the client's unique requirements. APACN offers a high level of customer service and principally brings new products to markets based upon the specific requests of its customers.

Competition

Competitors for the Americable Fiber Distribution system include but are not limited to ADC Telecommunications, Inc., Corning Cabling Systems, Inc., OFS (Furukawa Electric North America, Inc.), Telect Inc., Alcatel, Inc., and Tyco Electronics, Inc. These firms are substantially larger than APACN and as a result may be able to procure pricing for necessary components at much lower prices. Competition for the custom fiber and copper termination services for cable assemblies is intense. Competitors range from small, family-run businesses to very large contract manufacturing facilities.

SOURCES OF RAW MATERIALS AND OUTSOURCED LABOR

Numerous purchased materials and components, and labor, are used in the manufacturing of the Company's products. Most of these are readily available from multiple suppliers. Some critical components and outsourced labor are purchased from a single or a limited number of suppliers. The loss of access to some components and outsourced labor would have a material adverse effect on our ability to deliver products on a timely basis and on our financial performance.

PATENTS AND INTELLECTUAL PROPERTY

As of March 31, 2004, APA had 12 patents issued in the United States and seven pending patent applications inside and outside the United States. We believe our success heavily depends upon technology we develop internally. We have made significant progress toward improving the active, strategic management of our intellectual property portfolio. The markets for our products are characterized by rapid change and continual innovation that could render our technology and patents obsolete before their statutory protection expires. Several of the companies we compete with have greater research and development resources than we do and could develop technologies and products that are similar or even superior to ours without infringing on our intellectual property.

ENVIRONMENTAL COMPLIANCE

Because we handle a number of chemicals in our operations, we must comply with federal, state and local laws and regulations regarding the handling and disposal of such chemicals. To date the cost of such compliance has not been material.

MAJOR CUSTOMERS

No single customer accounted for more than 10% of the Company's sales in fiscal 2004. Two major customers accounted for 21% and 15% of the Company's sales for the year ended March 31, 2003. Three major customers accounted for 28%, 23% and 14% of the Company's sales for the year ended March 31, 2002. These customers also accounted for approximately 6% of the outstanding trade receivable balance at March 31, 2003.

BACKLOG

APA had $6,490 in backlog of orders at March 31, 2004, and had no backlog as of March 31, 2003. APACN has a backlog of $856,700 as of March 31, 2004 compared to $389,000 as of March 31, 2003.

RESEARCH AND DEVELOPMENT

During the fiscal years ended March 31, 2004, 2003, and 2002, APA spent approximately $949,000, $1,212,000 and $1,114,000, respectively, on research and development, all of which was related to the DWDM, compound semiconductor electronic devices, UV detector and related products. APA had no research activities sponsored by customers in fiscal years 2004, 2003 and 2002. We operate in highly competitive and rapidly evolving markets and plan to commit significant resources for research and development for the foreseeable future. We could locate research and development facilities in locations other than our current facilities in Minnesota and South Dakota based on several factors, including accessibility to qualified personnel and facility costs. APACN made no significant expenditures for research and development form its inception through March 31, 2004.

EMPLOYEES

As of March 31, 2004, APA had 52 full-time employees (including executive officers). As of March 31, 2004, APACN had 95 full-time employees. Our future performance is dependent on our ability to attract, train, and retain highly qualified personnel. We have no employment agreements with our employees. The loss of one or more key employees could negatively impact the Company.

FACTORS THAT MAY AFFECT FUTURE RESULTS

The statements contained in this report on Form 10-K that are not purely historical are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, including, without limitations, statements regarding the Company's expectations, hopes, beliefs, anticipations, commitments, intentions and strategies regarding the future. Forward-looking statements include, but are

not limited to, statements contained in "Item 1. Business" and "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations." Actual results could differ from those projected in any forward-looking statements for the reasons, among others, detailed below. We believe that many of the risks detailed here are part of doing business in the industry in which we compete and will likely be present in all periods reported. The fact that certain risks are characteristic to the industry does not lessen the significance of the risk. The forward-looking statements are made as of the date of this Form 10-K and we assume no obligation to update the forward-looking statements or to update the reasons why actual results could differ from those projected in the forward-looking statements.

Unless we generate significant revenue growth, our expenses and negative cash flow will significantly harm our financial position.

We have not been profitable since fiscal 1990. As of March 31, 2004, we had an accumulated deficit of $29.7 million. We may incur operating losses for the foreseeable future, and these losses may be substantial. Further, we may continue to incur negative operating cash flow in the future. We have funded our operations primarily through the sale of equity securities and borrowings. We have significant fixed expenses and we expect to continue to incur significant and increasing manufacturing, sales and marketing, product development and administrative expenses. As a result, we will need to generate significantly higher revenues while containing costs and operating expenses if we are to achieve profitability.

Declining average selling prices for our fiber optic products will require us to reduce production costs to effectively compete and market these products.

Since the time we first introduced our fiber optic components to the marketplace we have seen the average selling price of fiber optic components decline. We expect this trend to continue. To achieve profitability in this environment we must continually decrease our costs of production. In order to reduce our production costs, we will continue to pursue one or more of the following:

- Seek lower cost suppliers of raw materials or components.

- Work to further automate our assembly process.

- Develop value-added components based on integrated optics.

- Seek offshore sources for assembly services.

We will also seek to form strategic alliances with companies that can supply these services. Decreases in average selling prices also require that we increase unit sales to maintain or increase our revenue. There can be no guarantee that we will achieve these objectives. Our inability to decrease production costs or increase our unit sales could seriously harm our business, financial condition and results of operations.

Demand for our products is subject to significant fluctuation. Adverse market conditions in the communications equipment industry and any slowdown in the United States economy may harm our financial condition.

Demand for our products is dependent on several factors, including capital expenditures in the communications industry. Capital expenditures can be cyclical in nature and result in protracted periods of reduced demand for component parts. Similarly, periods of slow economic expansion or recession can result in periods of reduced demand for our products. The current U.S. economic slowdown has been more profound in the telecommunications market, resulting in a significant reduction in capital expenditures for the Company's products. It is impossible to predict how long the slowdown will last. Such periods of reduced demand will harm our business, financial condition and results of operations. Changes to the regulatory requirements of the telecommunications industry could also affect market

conditions, which could also reduce demand for our products. Moreover, some of our customers have experienced serious financial difficulties, which in certain cases have resulted in bankruptcy filings or cessation of operations.

Our industry is highly competitive and subject to pricing pressure.

Competition in the communications equipment market is intense. We have experienced and anticipate experiencing increasing pricing pressures from current and future competitors as well as general pricing pressure from our customers as part of their cost containment efforts. Many of our competitors have more extensive engineering, manufacturing, marketing, financial and personnel resources than we do. As a result, these competitors may be able to respond more quickly to new or emerging technologies and changes in customer requirements or to offer more aggressive price reductions.

Our sales could be negatively impacted if one or more of our key customers substantially reduce orders for our products.

If we lose a significant customer, our sales and gross margins would be negatively impacted. In addition, the loss of sales may require us to record impairment, restructuring charges or exit a particular business or product line.

We may be required to rapidly increase our manufacturing capacity to deliver our products to our customers in a timely manner.

Manufacturing of our products is a complex and precise process. We have limited experience in rapidly increasing our manufacturing capacity or in manufacturing products at high volumes. If demand for our products increases, we will be required to hire, train and manage additional manufacturing personnel and improve our production processes in order to increase our production capacity. There are numerous risks associated with rapidly increasing capacity, including:

- Difficulties in achieving adequate yields from new manufacturing lines,

- Difficulty maintaining the precise manufacturing processes required by our products while increasing capacity,

- The inability to timely procure and install the necessary equipment, and

- Lack of availability of qualified manufacturing personnel.

If we apply our capital resources to expanding our manufacturing capacity in anticipation of increased customer orders, we run the risk that the projected increase in orders will not be realized. If anticipated levels of customer orders are not received, we will not be able to generate positive gross margins and profitability.

Our dependence on outside manufacturers may result in product delivery delays.

We purchase components and labor that are incorporated into our products from outside vendors. In the case of the SunUV(R) Personal UV Monitor, we supply components to an outside assembler who delivers the completed product. If these vendors fail to supply us with components or completed assemblies on a timely basis, or if the quality of the supplied components or completed assemblies is not acceptable, we could experience significant delays in shipping our products. Any significant interruption in the supply or support of any components or completed assemblies could seriously harm our sales and our relationships with our customers. In addition, we have increased our reliance on the use of contract manufacturers to make our products. If these contract

manufacturers do not fulfill their obligations, or if we do not properly manage these relationships, our existing customer relationships may suffer.

Our products may have defects that are not detected before delivery to our customers.

Some of the Company's products are designed to be deployed in large and complex networks and must be compatible with other components of the system, both current and future. Our customers may discover errors or defects in our products only after they have been fully deployed. In addition, our products may not operate as expected over long periods of time. In the case of the SunUV(R) Personal UV Monitor, a consumer product, customers could encounter a latent defect not detected in the quality inspection. If we are unable to fix errors or other problems, we could lose customers, lose revenues, suffer damage to our brand and reputation, and lose our ability to attract new customers or achieve market acceptance. Each of these factors would negatively impact cash flow and would seriously harm our business, financial condition and results of operations.

Consolidation among our customers could result in our losing a customer or experiencing a slowdown as integration takes place.

It is likely that there will be increased consolidation among our customers in order for them to increase market share and achieve greater economies of scale. Consolidation is likely to impact our business as our customers focus on integrating their operations and choosing their equipment vendors. After a consolidation occurs, there can be no assurance that we will continue to supply the surviving entity.

We must introduce new products and product enhancements to increase revenue.

The successful operation of our business depends on our ability to anticipate market needs and develop and introduce new products and product enhancements that respond to technological changes or evolving industry standards on a timely and cost-effective basis. Our products are complex, and new products may take longer to develop than originally anticipated. These products may contain defects or have unacceptable manufacturing yields when first introduced or as new versions are released. Our products could quickly become obsolete as new technologies are introduced or as other firms introduce lower cost alternatives. We must continue to develop leading-edge products and introduce them to the commercial market quickly in order to be successful. Our failure to produce technologically competitive products in a cost-effective manner and on a timely basis will seriously harm our business, financial condition and results of operations.

Our markets are characterized by rapid technological changes and evolving standards.

The markets we serve are characterized by rapid technological change, frequent new product introductions, changes in customer requirements and evolving industry standards. In developing our products, we have made, and will continue to make, assumptions with respect to which standards will be adopted within our industry. If the standards that are actually adopted are different from those that we have chosen to support, our products may not achieve significant market acceptance.

Customer payment defaults could have an adverse effect on our financial condition and results of operations.

As a result of adverse conditions in the telecommunications market, some of our customers have and may continue to experience financial difficulties. In the future, if customers experiencing financial problems default and fail to pay amounts owed to the Company, we may not be able to collect these amounts or recognize expected revenue. In the current environment in the telecommunications industry

and in the United States and global economies, it is possible that customers from whom we expect to derive substantial revenue will default or that the level of defaults will increase. Any material payment defaults by our customers would have an adverse effect on our results of operations and financial condition.

Our products may infringe on the intellectual property rights of others.

Our products are sophisticated and rely on complicated manufacturing processes. We have received multiple patents on aspects of our design and manufacturing processes and we have applied for several more. Third parties may still assert claims that our products or processes infringe upon their intellectual property. Defending our interests against these claims, even if they lack merit, may be time consuming, result in expensive litigation and divert management attention from operational matters. If such a claim were successful, we could be prevented from manufacturing or selling our current products, be forced to redesign our products, or be forced to license the relevant intellectual property at a significant cost. Any of these actions could harm our business, financial condition or results of operations.

Acquisitions or investments could have an adverse affect on our business.

In March 2003, we completed the acquisition of the assets of CSP as part of our strategy to expand our product offerings, develop internal sources of components and materials, and acquire new technologies. We acquired the assets of Americable, Inc. in June 2003 and integrated them with the assets of CSP. We intend to continue reviewing acquisition and investment prospects. There are inherent risks associated with making acquisitions and investments including but not limited to:

- Challenges associated with integrating the operations, personnel, etc., of an acquired company;
- Potentially dilutive issuances of equity securities;
- Reduced cash balances and or increased debt and debt service costs;
- Large one-time write-offs of intangible assets;
- Risks associated with geographic or business markets different than those we are familiar with; and
- Diversion of management attention from current responsibilities.

EXECUTIVE OFFICERS

The following is a list of our executive officers, their ages, positions and offices as of March 31, 2004.

<TABLE>
<CAPTION>

NAME	AGE	POSITION
<S>	<C>	<C>
Dr. Anil K. Jain	58	Chief Executive Officer/President/Chief Financial Officer of APA Optics, Inc.
Cheri Beranek Podzimek	41	President, APACN

</TABLE>

DR. ANIL K. JAIN has been a Director, Chief Executive Officer and President since March 1979. He also currently serves as Chief Financial Officer. From 1973 until October 15, 1983, when Dr. Jain commenced full time employment with the Company, he was employed at the Systems and Research Center at Honeywell Inc. as a Senior Research Fellow, coordinating optics-related development.

CHERI BERANEK PODZIMEK joined APACN in July 2003 as President. Ms. Podzimek was previously President of Americable, which was acquired by APACN in June 2003. She served as President of Americable from 2002 to 2003. From 2001 to 2002 Ms. Podzimek was Chief Operating

Officer of Americable. Previously, Ms. Podzimek held a variety of lead marketing positions with emerging high-growth technology companies. She served as Vice

President of Marketing from 1996-2001 at Transition Networks, a manufacturer of network connectivity products, Director of Marketing from 1992 to 1996 at Tricord Systems, an early stage multi-processor based super server manufacturer, and Director of Marketing from 1988 to 1992 at Digi International, a designer and manufacturer of connectivity products. Earlier in her career Ms. Podzimek held marketing positions for non-profit organizations, including the City of Fargo, the Metropolitan Planning Commission of Fargo/Moorhead and North Dakota State University.

ITEM 2. PROPERTIES.

We have corporate offices, manufacturing facilities, and laboratories located in an industrial building at 2950 N.E. 84th Lane, Blaine, Minnesota. We currently lease 23,500 square feet of space under a lease from Jain-Olsen Properties, a partnership consisting of Anil K. Jain and Kenneth A. Olsen, officers and directors of the Company. See Note K of Notes to Financial Statements included under Item 8 hereof. We own land directly west of the Blaine facility that may be used for future expansion.

We own a 24,000 square foot production facility in Aberdeen, South Dakota, which is used mainly for assembly of products for APACN customers and to a lesser extent for assembly of our DWDM components and UV detectors. The land upon which this facility is located was granted to us as part of a financing package from the city of Aberdeen. See Note E of Notes to Financial Statements included under Item 8 in this Report for further information regarding the financing of this facility.

APA has signed a lease agreement in June of 2004 with Veeco Compound Semiconductor, Inc. to locate APA's multi-wafer MOCVD unit purchased in fiscal 2004 in Veeco's facilities in White Bear Lake, Minnesota, which is near APA's Blaine facility. The facility will have all the necessary installation requirements in place for the operation of the unit. The lease agreement is for three years and officially begins when Veeco's required leasehold improvements are completed. We expect this to occur in the second quarter of fiscal 2005.

APACN subleases a 37,000 square foot facility in Plymouth, MN consisting of office, manufacturing and warehouse space. This lease runs through June, 2006. See Note K of the Notes to the Financial Statements included under Item 8 hereof.

ITEM 3. LEGAL PROCEEDINGS.

We are not currently involved in any material legal proceedings.

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

No matter was submitted to a vote of security holders during the fourth quarter of the fiscal year covered by this Report.

PART II

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

Our common stock is traded on The Nasdaq National Market under the symbol "APAT." The following table sets forth the quarterly high and low sales prices for our common stock for each quarter of the past two fiscal years as reported by Nasdaq.

FISCAL 2004	HIGH	LOW
Quarter ended June 30, 2003	$2.70	$1.23
Quarter ended September 30, 2003	3.04	2.07
Quarter ended December 31, 2003	2.99	2.00
Quarter ended March 31, 2004	3.27	2.19

FISCAL 2003	HIGH	LOW
Quarter ended June 30, 2002	$2.83	$1.75
Quarter ended September 30, 2002	2.50	1.44
Quarter ended December 31, 2002	1.87	1.27
Quarter ended March 31, 2003	1.30	1.78

There were approximately 351 holders of record of our common stock as of March 31, 2004.

We have never paid cash dividends on our common stock. The loan agreement relating to certain bonds issued by the South Dakota Economic Development Finance Authority restricts our ability to pay dividends.

ITEM 6. SELECTED FINANCIAL DATA.

	2004	2003	2002	2001	2000
Statements of Operations Data:					
Revenues	$11,909,465	$ 436,157	$ 595,955	$ 885,740	$ 420,809
Net loss	(6,535,147)	(5,009,434)	(4,738,199)	(3,261,446)	(3,796,296)
Net loss per share, basic and diluted	(.55)	(.42)	(.40)	(.29)	(.43)
Weighted average number of shares, basic and diluted	11,872,331	11,873,914	11,896,976	11,180,165	8,744,125
Balance Sheet Data:					
Total assets	$25,844,991	$31,884,526	$36,396,410	$41,914,451	$ 9,610,391
Long-term obligations, including current portion	1,811,759	2,173,682	2,461,363	2,836,831	3,049,258
Shareholders' equity	22,363,061	28,918,943	33,504,917	38,280,299	6,306,049

The above selected financial data should be read in conjunction with the financial statements and related notes included under Item 8 of this Report and "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing in Item 7 of this Report.

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

GENERAL

APA is engaged in designing, manufacturing, and marketing of various optoelectronic products, ultraviolet (UV) detectors and related products and optical components. For the last several years our goal has been to manufacture and market products/components based on our technology developments. We have focused on DWDM components for fiber optic communications and GaN based ultraviolet (UV) detectors (both components and integrated detector/electronic/display packages) because we believe that these two product areas have significant potential markets and because we have expertise and/or patent positions related to them.

APACN, which is a wholly owned subsidiary of APA Optics, Inc., is engaged in the design, manufacture, distribution, and marketing of a variety of fiber optics and copper components to the data communication and telecommunication industries. APACN's primary manufactured products include standard and custom fiber optic cable assemblies, copper cable assemblies, value-added fiber optics frames, panels and modules. APACN acquired certain assets of CSP on March 14, 2003 and certain assets of Americable on June 27, 2003. Several items discussed under the "Results of Operations" show significant changes from the comparable periods in the preceding fiscal year as a result of the acquisitions of CSP and Americable.

APPLICATION OF CRITICAL ACCOUNTING POLICIES

In preparing our consolidated financial statements, we make estimates, assumptions and judgments that can have a significant impact on our revenues, loss from operations and net loss, as well as on the value of certain assets and liabilities on our consolidated balance sheet. We believe that there are several accounting policies that are critical to an understanding of our historical and future performance, as these policies affect the reported amounts of revenues, expenses and significant estimates and judgments applied by management. While there are a number of accounting policies, methods and estimates affecting our consolidated financial statements, areas that are particularly significant include:

- Revenue recognition;
- Accounting for income taxes; and
- Valuation and evaluating impairment of long-lived assets and goodwill

Revenue Recognition

Revenue is recognized when the product has been shipped, acceptance by the customer is reasonably certain and collection is probable.

Accounting for Income Taxes
- ------------------------------

As part of the process of preparing our consolidated financial statements, we are required to estimate our income tax liability in each of the jurisdictions in which we do business. This process involves estimating our actual current tax expense together with assessing temporary differences resulting from differing treatment of items for tax and accounting purposes. These differences result in deferred tax assets and liabilities. We must then assess the likelihood that these deferred tax assets will be recovered from future taxable income and, to the extent we believe that recovery is not more likely than not or unknown, we must establish a valuation allowance.

Significant management judgment is required in determining our provision for income taxes, our deferred tax assets and liabilities and any valuation allowance recorded against our deferred tax assets. At March 31, 2004, we have recorded a full valuation allowance of $11,075,084 against our deferred tax assets, due to uncertainties related to our ability to utilize our deferred tax assets, consisting principally of certain net operating losses carried forward. The valuation allowance is based on our estimates of taxable income by jurisdiction and the period over which our deferred tax assets will be recoverable. The Company had U.S. net operating loss (NOL) carry forwards of approximately $27,899,000 which expire in fiscal years 2004 to 2024.

Realization of the NOL carry forwards and other deferred tax temporary differences are contingent on future taxable earnings. The deferred tax asset was reviewed for expected utilization using

a "more likely than not" approach as required by SFAS No. 109, "Accounting for Income Taxes," by assessing the available positive and negative evidence surrounding its recoverability.

We will continue to assess and evaluate strategies that will enable the deferred tax asset, or portion thereof, to be utilized, and will reduce the valuation allowance appropriately at such time when it is determined that the "more likely than not" approach is satisfied.

Valuation and evaluating impairment of long-lived assets and goodwill
- --

Goodwill represents the excess of the purchase price over the fair value of net assets acquired. Effective April 1, 2002, we adopted Statement of Financial Accounting Standards (SFAS) 142, Goodwill and Other Intangible Assets, which provides that goodwill should not be amortized but reviewed for impairment annually or whenever conditions exist that indicate an impairment could exist. The Company performed the annual impairment test in fiscal years 2004 and 2003 and concluded that no impairment had occurred.

The Company evaluates the recoverability of its long-lived assets in accordance with SFAS 144, "Accounting for the Impairment or Disposal of Long-Lived Assets." SFAS 144 requires recognition of impairment of long-lived assets in the event that events or circumstances indicate an impairment may have occurred and when the net book value of such assets exceeds the future undiscounted cash flows attributed to such assets. We assess the impairment of long-lived assets whenever events or changes in circumstances indicate that the carrying value may not be recoverable. No impairment of long-lived assets has occurred through the year ended March 31, 2004.

In Note A of the Notes to the Financial Statements, the effect of recent promulgations of the Financial Accounting Standards Board (FASB) on the Company is described. Management believes the adoption of Interpretation 46 (FIN 46) will not have a material effect on our financial position or results of operations.

CONTRACTUAL OBLIGATIONS

Our contractual obligations and commitments are summarized in the table below (in 000's):

<TABLE>
<CAPTION>

	Total	Less than 1 Year	1-3 years	4-5 years	After 5 years
<S>	<C>	<C>	<C>	<C>	<C>
Long-term debt	$1,812	$ 1,638	$ 94	$ 40	$ 40
Operating leases	670	359	311	-	-

Total Contractual Cash Obligations	$2,482	$ 1,997	$ 405	$ 40	$ 40

</TABLE>

RESULTS OF OPERATIONS

2004 COMPARED TO 2003

REVENUES

Consolidated revenues for the year ended 2004 increased 27-fold to $11,909,465 from sales of $436,157 in 2003. Consolidated cost of sales increased to $11,914,050 in 2004 from $2,802,597 in 2003. Consolidated operating losses increased to $6,558,499 in 2004 compared to $5,329,466 in 2003.

Consolidated net losses increased to $6,535,147 in 2004 or $.55 per diluted share compared to $5,009,434 or $.42 in 2003.

APA's revenues for the year ended 2004 were $218,187 as compared to $202,137 in 2003. Sales of its optics products were $91,778 versus $102,592 in 2003. This product line was discontinued in January 2004 and subsequently sold in April 2004. Sales of fiber optics products were $85,341 in 2004 compared to $77,028 in 2003. Sales of GaN related products were $23,519 in 2004 versus $12,742 in 2003. The majority of the GaN sales were to one customer for the SunUV(R) Personal UV Monitor. Other revenue was $17,549 in 2004 compared to $9,775 in 2003. APA's revenue growth is dependent upon our ability to successfully complete its manufacturing reliability with its GaN products and sell into its targeted market segments.

APACN's revenues for the year ended 2004 were $11,691,278 versus $234,020 in the year ended 2003. Sales from the preceding year consisted only of revenue generated by the CSP acquisition from March 14, 2003 until March 31, 2003. Sales for fiscal 2004 reflect a full year of revenue from the CSP acquisition and three quarters of revenue from the Americable acquisition which was completed June 27, 2003. For the year ended March 31, 2004, sales to broadband service provider and commercial data networks, which include APACN custom fiber distribution systems, associated cable assemblies and optical components, were $7,023,700, or 60% of total sales. Sales to OEM's, consisting primarily of fiber optic and copper cable assemblies produced to customer design specifications, were $4,667,600, or 40% of total sales. APACN's revenue growth is dependent upon capital expenditures in the communications equipment industry, our ability to develop and introduce new products, and our ability to acquire and retain business in a competitive industry. We expect sales at APACN in fiscal 2005 to increase slightly over the next year.

COST OF SALES AND GROSS PROFIT

APA's cost of sales for the year ended 2004 were $2,883,054 as compared to $2,626,685 in 2003. Product development and materials cost increased approximately $280,000, while amortization expenses decreased approximately $181,000, mainly due to additional patent amortization taken in 2003.

APACN's gross profit for the year ended 2004 was $2,660,282 as compared to $58,109 in 2003. Gross profit from the preceding year consisted of only gross profit generated by the CSP acquisition from March 14, 2003 until March 31, 2003. Gross profit for fiscal 2004 reflects a full year of gross profit from the CSP acquisition and three quarters of gross profit from the Americable acquisition which was completed June 27, 2003. Gross profit percent for APACN for the period ending March 31, 2004 was 22.8%. Gross profit was negatively affected by production variances resulting from combining the two acquired companies into one operation. We expect gross margins for APACN to gradually improve in fiscal 2005.

RESEARCH AND DEVELOPMENT EXPENSES

Research and development expenses consist of the research and development expense at APA (there have been no research and development expenses at APACN). Expenses decreased by $263,482, to $948,737 for the year ended 2004 as compared to $1,212,219 for the year ended 2003. This represents a decrease of 22% from 2003. The decrease is primarily due to decreased research activity related to fiber optics products. The majority of the decreases are due to the reduction in salaries and other related

personnel expenses. We expect fiscal 2005 research and development expenses at APA to remain constant with 2004.

SELLING, GENERAL AND ADMINISTRATIVE EXPENSES

Selling, general and administration (S, G & A) expenses at APA increased approximately $357,635 to $1,989,969 in 2004 from $1,632,334 in 2003. The increase is due primarily to higher depreciation and amortization as well as higher professional fees related to the acquisition costs for CSP and Americable. We expect S, G &A to decrease slightly over the balance of the 2005 fiscal year as a result of cost reductions implemented throughout fiscal 2004.

Selling, general and administration expenses at APACN were $3,615,208 for the year ending March 31, 2004 as compared to $118,473 in 2003. S, G & A from the preceding year consisted of expenses generated by the CSP acquisition from March 14, 2003 until March 31, 2003. S, G & A for fiscal 2004 reflects a full year of S, G & A from the CSP acquisition and three quarters worth of S, G & A from the Americable acquisition which was completed June 27, 2003. S, G & A for fiscal 2004 was negatively affected by duplicate expenses related to the consolidation of operations and facilities. We expect S, G & A to decrease slightly in fiscal 2005 from fiscal 2004 in relation to current sales levels.

OTHER INCOME AND EXPENSE

Other income at APA decreased $231,035 to $202,837 in fiscal 2004 from $433,872 in 2003. The decrease is due mainly to lower interest income resulting from a combination of a decline in the rate of interest earned on investments and a lower average cash balance. Other expenses increased $1,829 to $115,010 from $113,181 in 2003.

Other income at APACN increased $19,829 to $22,882 in fiscal 2004 as compared to $3,053 in fiscal 2003. The increase was due to management fee income for the first quarter of 2004 for personnel related to the CSP acquisition. Other expense at APACN increased $82,592 to $85,304 for the year ending 2004. The increase is due primarily to the disposal of assets related to the consolidation of CSP and Americable into a single facility.

NET LOSS

Consolidated net loss for the Company increased $1,525,713 to $6,535,147, or $.55 cents per share, as compared to a net loss of $5,009,434, or $.42 cents per share, in fiscal 2003. The increase in losses is due primarily to the additional net losses as APACN.

Net loss for APA for the year ending 2004 was $5,537,390, an increase of $587,980, or 12%, from $4,949,410 in 2003. The increased losses are primarily the result of a combination of higher cost of sales and S. G, & A expenses.

Net loss for APACN for the year ending 2004 was $997,757 versus $60,024 in fiscal 2003. The increase is due mainly to 2003 expenses only representing several days of expense from the CSP acquisition in March, 2003. The increase in net loss was partly attributable to the expenses related to integrate the two acquisitions.

2003 COMPARED TO 2002

REVENUES

APA recognized operating revenues of $436,157 and $595,955 for the fiscal years ended March 31, 2003 and 2002, respectively. The decrease of $159,798 or 27% from fiscal 2002 to 2003 was primarily the result of lower sales of DWDM components. A reduction in capital spending in the telecommunications industry in addition to the United States recession significantly reduced demand for these components. APA Optics had no backlog of orders at the end of fiscal 2003 or 2002.

COST OF SALES AND GROSS PROFIT

Costs of sales were $2,802,597 and $3,545,519 for fiscal 2003 and 2002, respectively. The decrease of $742,922 or 21% in the cost of sales from fiscal 2002 to 2003 was primarily due to the decrease in sales volume. Gross margin for product sales was negative in both fiscal years, reflecting continued increased personnel and manufacturing costs and relatively low sales. The negative gross margins are influenced by low unit production and sales levels relative to the capital equipment and personnel committed to production.

RESEARCH AND DEVELOPMENT EXPENSES

Research and development expenses were $1,212,219 and $1,114,051 for fiscal years 2003 and 2002, respectively. The increase of $98,168 or 9% from fiscal 2002 to 2003 is due primarily to an increase in personnel and equipment costs for development of GaN based transistor products.

SELLING, GENERAL AND ADMINISTRATIVE EXPENSES

Selling, general and administrative expenses were $1,750,807 and $1,733,846 for fiscal years 2003 and 2002, respectively. The decrease of $16,961 or 1% from fiscal 2002 to 2003 reflects our efforts to reduce expenses in response to the slow economy, including a reduction in staff in the third quarter of fiscal 2002.

OTHER INCOME AND EXPENSE

We realized $436,925 and $1,193,525 in interest income in fiscal years 2003 and 2002, respectively. The decrease in interest income of $756,600 or 63% from fiscal 2002 to 2003 reflects the steep decline in short-term interest rates over the fiscal year and declining cash investments. We consumed a total of $5.2 million and $9.3 million in cash in fiscal 2002 and 2003, respectively, to fund operations, purchase equipment, retire debt and acquire CSP.

NET LOSS

Our net losses for fiscal 2003 and 2002 were $5,009,434 and $4,738,199, respectively.

LIQUIDITY AND CAPITAL RESOURCES

As of March 31, 2004, our principal source of liquidity was our cash, cash equivalents and short-term investments, which totaled $13,544,910 compared to $22,235,686 at March 31, 2003.

We used $5,595,781 to fund operating activities during fiscal 2004 compared to $4,659,154 in fiscal 2003, and $3,753,553 in fiscal 2002. In all three years the largest use of cash in operating activities was the funding of the net losses. The net loss for fiscal 2004 expanded to $6,535,147 from $5,009,434 in fiscal 2003. The primary factors contributing to the increased loss from fiscal 2003 to 2004 were the

increased losses at APACN. The significant factors contributing to the increased loss from fiscal 2002 to 2003 were the decline in sales, the increase in research and development costs and the decline in interest income.

In fiscal 2004 we used $2,753,246 in investing activities including $1,960,000 used to purchase the assets of Americable. We also invested $785,870 to purchase property and equipment, mainly for the purchase of the MOCVD. In fiscal 2003 we used $3,828,000 in investing activities to purchase CSP. We invested $359,474 in property and equipment and $84,131 in patents, for a net decrease in cash from investment activities of $4,271,605. In fiscal 2002 we generated $15,759,000 through the sale of short-term investments, and we invested $1,050,274 in property and equipment and $113,698 in patents, for a net increase in cash from investment activities of $14,595,028.

In fiscal 2004, we used $341,749 in financing activities primarily to pay down long-term debt relating to our facility in Aberdeen, South Dakota. In fiscal 2003, we used $439,958 in financing activities primarily to pay down long-term debt also related to the Aberdeen facility. We used $460,564 in financing activities in fiscal 2002. Primary uses of cash in 2002 included the repurchase of common stock for $92,638 and the scheduled retirement of debt in the amount of $375,468.

Construction of our manufacturing facility in Aberdeen utilized certain economic incentive programs offered by the State of South Dakota and the City of Aberdeen. At March 31, 2004, the total principal outstanding under bonds issued by the State of South Dakota was $1,485,000. Interest on the bonds ranges from 5% to 6.75%, and the bonds are due in various installments between 2004 and 2016. These bonds require compliance with certain financial covenants. We were out of compliance with these covenants during all of fiscal 2002, 2003 and 2004. For further information regarding these bonds, see Note E of Notes to Financial Statements included under Item 8 of this Report. On April 14, 2004 the Company sold its Optics manufacturing operations discussed in Note M to the Financial Statements included under Item 8 of this report, to PNE, Inc. dba IRD. The terms of the sale required the Company to prepay $89,000 of a loan with the City of Aberdeen, South Dakota and to accelerate the loan payment schedule over the next several years, ending in 2010.

Our capital requirements are dependent upon several factors including market acceptance of our products, the timing and extent of new product introductions and delivery, and the costs of marketing and supporting our products on a worldwide basis. See "Item 1. Business." Although we believe that our current cash, cash equivalents, and short-term investments will be sufficient to fund our operations for more than the next 12 months, we cannot assure you that we will not seek additional funds through public or private equity or debt financing or from other sources within this time frame, or that additional funding, if needed, will be available on terms acceptable to us, or at all. We may also consider the acquisition of, or evaluate investments in, products and businesses complementary to our business. Any acquisition or investment may require additional capital.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Our exposure to market risk for changes in interest rates relates primarily to our investment portfolio. We invest in short-term securities of high credit issuers with maturities ranging from overnight up to 24 months. The average maturity of the portfolio does not exceed 12 months. The portfolio includes only marketable securities with active secondary or resale markets to ensure liquidity. We have no investments denominated in foreign country currencies and, therefore, our investments are not subject to

foreign exchange risk. See "Cash and Equivalents" under Note A of the Consolidated Financial Statements.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

Quarterly Results of Operations. The following tables present our unaudited quarterly operating results for the eight quarters ended March 31, 2004:

<TABLE>
<CAPTION>

	Quarter Ended			
	June 30, 2002	September 30, 2002	December 31, 2002	March 31, 2003
<S>	<C>	<C>	<C>	<C>
Statement of Operations Data				
Net revenue	$ 72,451	$ 38,900	$ 40,674	$ 284,132
Gross profit (loss)	(681,269)	(680,044)	(513,379)	(491,748)
Net loss.	(1,252,994)	(1,318,737)	(1,151,494)	(1,286,209)
Net loss per share.	$ (0.11)	$ (0.11)	$ (0.10)	$ (0.11)

	Quarter Ended			
	June 30, 2003	September 30, 2003	December 31, 2003	March 31, 2004
Statement of Operations Data				
Net revenue	$ 1,566,992	$ 3,557,586	$ 3,301,955	3,482,932
Gross profit (loss)	(300,889)	218,329	(12,513)	90,488
Net loss.	(1,545,399)	(1,667,488)	(1,642,436)	(1,679,824)
Net loss per share.	$ (0.13)	$ (0.14)	$ (0.14)	$ (0.14)

</TABLE>

REPORT OF INDEPENDENTREGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders

APA Optics, Inc.

We have audited the accompanying consolidated balance sheets of APA Optics, Inc. (the Company) as of March 31, 2004 and 2003, and the related consolidated statements of operations, shareholders' equity, and cash flows for each of the three years in the period ended March 31, 2004. 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). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our 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 consolidated financial position of APA Optics, Inc. as of March 31, 2004 and 2003 and the consolidated results of its operations and its cash flows for each of the three years in the period ended March 31, 2004, in conformity with accounting principles generally accepted in the United States of America.

As discussed in Note A to the consolidated financial statements, the Company adopted Statement of Financial Accounting Standards No. 142, "Goodwill and Other Intangible Assets, on April 1, 2002.

/s/ Grant Thornton LLP

Minneapolis, Minnesota
June 15, 2004

<TABLE>
<CAPTION>

APA OPTICS, INC.
CONSOLIDATED BALANCE SHEETS
MARCH 31,

ASSETS	2004	2003
<S>	<C>	<C>
CURRENT ASSETS		
Cash and cash equivalents	$13,544,910	$22,235,686
Accounts receivable, net of allowance for uncollectible accounts of $49,038 and $20,644 at March 31, 2004 and 2003	1,549,016	468,576
Inventories	1,574,188	1,398,203
Prepaid expenses	174,503	134,045
Bond reserve funds	133,865	125,830
Total current assets	16,976,482	24,362,340
PROPERTY, PLANT AND EQUIPMENT, net	4,550,956	3,989,344
OTHER ASSETS		
Bond reserve funds	332,433	340,629
Goodwill	3,422,511	2,500,296
Other	562,609	691,917
	4,317,553	3,532,842
	$25,844,991	$31,884,526

</TABLE>

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

<TABLE>
<CAPTION>

LIABILITIES AND SHAREHOLDERS' EQUITY	2004	2003
<S>	<C>	<C>
CURRENT LIABILITIES		
Current maturities of long-term debt	$ 1,637,923	$ 1,846,922
Accounts payable	812,165	454,804
Accrued compensation	645,293	255,403
Accrued expenses	212,713	81,694
Total current liabilities	3,308,094	2,638,823
LONG-TERM DEBT, net of current maturities	173,836	326,760
COMMITMENTS AND CONTINGENCIES	-	-
SHAREHOLDERS' EQUITY		
Undesignated shares, 4,999,500 authorized shares; no shares issued and outstanding	-	-
Preferred stock, $.01 par value; 500 authorized shares; no shares issued and outstanding	-	-
Common stock, $.01 par value; 50,000,000 authorized shares; 11,872,331 shares issued and outstanding at March 31, 2004 and 2003	118,723	118,723

Additional paid-in capital	51,980,946	52,001,681
Accumulated deficit	(29,736,608)	(23,201,461)
	22,363,061	28,918,943
	$ 25,844,991	$ 31,884,526

</TABLE>

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

<TABLE>
<CAPTION>

APA OPTICS, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

YEARS ENDED MARCH 31,

<S>	2004 <C>	2003 <C>	2002 <C>
Revenues	$11,909,465	$ 436,157	$ 595,955
Costs and expenses			
Cost of sales	11,914,050	2,802,597	3,545,519
Research and development	948,737	1,212,219	1,114,051
Selling, general and administrative	5,605,177	1,750,807	1,733,846
	18,467,964	5,765,623	6,393,416
Loss from operations	(6,558,499)	(5,329,466)	(5,797,461)
Other income	225,719	436,925	1,193,525
Other expense	(200,314)	(115,893)	(132,263)
	25,405	321,032	1,061,262
Loss before income taxes	(6,533,094)	(5,008,434)	(4,736,199)
Income taxes	2,053	1,000	2,000
Net loss	$(6,535,147)	$(5,009,434)	$(4,738,199)
Net loss per share			
Basic and diluted	$ (0.55)	$ (0.42)	$ (0.40)
Weighted average shares outstanding			
Basic and diluted	11,872,331	11,873,914	11,896,976

</TABLE>

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

<TABLE>
<CAPTION>

APA OPTICS, INC.

CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

YEARS ENDED MARCH 31,

	Undesignated shares	Preferred stock		Common stock		Additional	Accumulated	Total
		Shares	Amount	Shares	Amount	paid-in capital	deficit	shareholders' equity

<S> <C> <C> <C> <C> <C> <C> <C> <C>

Balance at March 31, 2001	-	-	$ -	11,915,456	$119,155	$51,614,972	$(13,453,828)	$ 38,280,299
Options exercised	-	-	-	5,125	51	25,245	-	25,296
Common stock repurchased	-	-	-	(43,200)	(432)	(92,206)	-	(92,638)
Options issued as compensation	-	-	-	-	-	45,414	-	45,414
Other	-	-	-	(1,500)	(15)	(15,240)	-	(15,255)
Net loss	-	-	-	-	-	-	(4,738,199)	(4,738,199)
Balance at March 31, 2002	-	-	-	11,875,881	118,759	51,578,185	(18,192,027)	33,504,917
Common stock repurchased	-	-	-	(3,550)	(36)	(5,955)	-	(5,991)
Aberdeen land grant	-	-	-	-	-	67,760	-	67,760
Options issued as compensation	-	-	-	-	-	(9,309)	-	(9,309)
Warrants issued	-	-	-	-	-	371,000	-	371,000
Net loss	-	-	-	-	-	-	(5,009,434)	(5,009,434)
Balance at March 31, 2003	-	-	-	11,872,331	118,723	52,001,681	(23,201,461)	28,918,943
Options issued as compensation	-	-	-	-	-	(20,735)	-	(20,735)
Net loss	-	-	-	-	-	-	(6,535,147)	(6,535,147)
Balance at March 31, 2004	-	-	$ -	11,872,331	$118,723	$51,980,946	$(29,736,608)	$ 22,363,061

</TABLE>

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

<TABLE>
<CAPTION>

APA OPTICS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

YEARS ENDED MARCH 31,

<S>	2004 <C>	2003 <C>	2002 <C>
Cash flows from operating activities:			
Net loss	$(6,535,147)	$(5,009,434)	$(4,738,199)
Adjustments to reconcile net loss to net cash used in operating activities, net of acquisitions:			
Depreciation and amortization	971,194	810,505	654,460
Deferred compensation expense	(20,735)	(9,309)	45,414
Changes in operating assets and liabilities, net of acquisitions:			
Accounts receivable	(440,161)	(63,392)	350,246
Inventories	(179,293)	(130,889)	375,241
Prepaid expenses and other assets	(44,909)	(30,457)	(73,524)
Accounts payable and accrued expenses	653,270	(226,178)	(367,191)
Net cash used in operating activities	(5,595,781)	(4,659,154)	(3,753,553)
Cash flows from investing activities:			
Purchases of property and equipment	(785,870)	(359,474)	(1,050,274)
Sale of short-term investments	-	-	15,759,000
Cash paid for business acquisition	(1,960,000)	(3,828,000)	-
Other	(7,376)	(84,131)	(113,698)
Net cash provided by (used in) investing			

activities	(2,753,246)	(4,271,605)	14,595,028
Cash flows from financing activities:			
Repurchase of common stock	-	(5,991)	(92,638)
Proceeds from exercise of warrants and options	-	-	10,041
Payment of long-term debt	(361,923)	(437,467)	(375,468)
Bond reserve funds	20,174	3,500	(2,499)
Net cash used in financing activities	(341,749)	(439,958)	(460,564)
Increase (decrease) in cash and cash equivalents	(8,690,776)	(9,370,717)	10,380,911
Cash and cash equivalents at beginning of year	22,235,686	31,606,403	21,225,492
Cash and cash equivalents at end of year	$13,544,910	$22,235,686	$31,606,403
Supplemental cash flow information:			
Cash paid during the year for:			
Interest	$ 109,251	$ 115,893	$ 132,263
Income taxes	2,053	1,000	2,000
Noncash investing and financing transactions:			
Contributed land	$ -	$ 67,760	$ -
Issuance of warrants	$ -	$ 371,000	$ -
Capital expenditure included in accounts payable	$ 225,000	$ -	$ -

</TABLE>

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

APA OPTICS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

MARCH 31, 2004, 2003 AND 2002

NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Nature of Business

APA Optics, Inc. (the Company) is a manufacturer of custom cable assemblies and supplier of premise cabling components and networking products to customers throughout the United States with a concentration in Minnesota. The Company also manufactures and markets dense wavelength division multiplexer (DWDM) optical components and offers a range of gallium nitride-based devices.

Principles of Consolidation

The consolidated financial statements include the accounts of APA Optics, Inc. and its wholly-owned subsidiary. All significant inter-company accounts and transactions have been eliminated in consolidation.

Revenue Recognition

Revenue is recognized when the product has been shipped, acceptance by the customer is reasonably certain and collection is probable.

Cash and Cash Equivalents

The Company considers all highly liquid investments with original maturities of three months or less to be cash equivalents. Investments classified as cash equivalents at March 31, 2004 and 2003 consist entirely of short-term money market accounts. Cash equivalents are stated at cost, which approximates fair value.

Accounts Receivable

Accounts receivable are presented net of allowances. Credit is extended based on the evaluation of a customer's financial condition and, generally, collateral is not required. Accounts outstanding longer than the contractual payment terms are considered past due. The Company determines its allowance by considering a number of factors, including the length of time trade receivables are past due, the Company's previous loss history, the customer's current ability to pay its obligation to the Company, and the condition of the general economy and the industry as whole. The Company writes off accounts receivable when they become uncollectible; payments subsequently received on such receivables are credited to the allowance for doubtful accounts.

Inventories
- -----------

Inventories consist of finished goods, raw materials and work in process and are stated at the lower of average cost (which approximates the first-in, first-out method) or market. Cost is determined using material costs, internal and external labor charges, and allocated factory overhead charges.

Property, Plant and Equipment
- -------------------------------

Property, plant and equipment are stated at cost, less accumulated depreciation and amortization. Depreciation and amortization are provided on the straight-line method for book and tax purposes over the following estimated useful lives of the assets:

	Years
Building	20
Equipment	3 - 10
Leasehold improvements	7 - 10

Goodwill and Long Lived Assets
- ---------------------------------

Goodwill represents the excess of the purchase price over net assets acquired. Effective April 1, 2002, the Company adopted Statement of Financial Accounting Standards (SFAS) 142, Goodwill and other Intangible Assets, which provides that goodwill should not be amortized but reviewed for impairment annually or whenever conditions exist that indicate an impairment could exist. The Company performed the annual impairment test in fiscal years 2004 and 2003 and concluded that no impairment had occurred.

Stock-Based Compensation
- ------------------------

The Company has various incentive and non-qualified stock option plans which are used as an incentive for directors, officers, and other employees, as described more fully in Note J. The Company uses the intrinsic value method to value stock options issued to employees. Under this method, compensation expense is recognized for the amount by which the market price of the common stock on the date of grant exceeds the exercise price. The Company's stock based compensation expense also reflects the benefit of the cancellation of previously expensed options. The Company recognized compensation expense (income) of $(20,735), $(9,309) and $45,414 for the years ended March 31, 2004, 2003 and 2002. For those stock options granted where the exercise price was equal to the market value of the underlying common stock on the date of grant, no stock-based employee compensation cost is reflected in the net loss. Had the fair value method been applied, our compensation expense would have been different. The following table illustrates the effect on net loss and net loss per share if the Company had

applied the fair value method, to stock-based employee compensation for the following fiscal years:

<TABLE>
<CAPTION>

	March 31, 2004	March 31, 2003	March 31, 2002
<S>	<C>	<C>	<C>
Net loss to common shareholders - as reported	$ 6,535,147	$5,009,434	$4,738,199
Less: Total stock-based employee compensation expense determined under fair value method for all awards, net of related tax effects	158,936	153,266	273,516
Net loss - pro forma	$ 6,694,083	$5,162,700	$5,011,715
Basic and diluted net loss per common share - - as reported	$ (.55)	$ (.42)	$ (.40)

Basic and diluted net loss per common share - - pro forma	$ (.55)	$ (.43)	$ (.42)

</TABLE>

The weighted average fair value of options granted in 2004, 2003 and 2002 was $2.62, $1.20, and $9.30. The fair value of each option grant is estimated on the date of grant using the Black-Scholes option pricing model with the following weighted average assumptions used for grants in 2004, 2003 and 2002; zero dividend yield, risk-free interest rate of 3.3%, 3.2% and 4.5%; volatility of 75%, 77% and 132%, and a weighted-average expected term of the options of five years.

Fair Value of Financial Instruments
- --------------------------------------

Due to their short-term nature, the carrying value of current financial assets and liabilities approximates their fair values. The fair value of long-term obligations, if recalculated based on current interest rates, would not significantly differ from the recorded amounts.

Net Loss Per Share
- ---------------------

Basic net loss per share is computed by dividing net loss by the weighted average number of common shares outstanding. Diluted net loss per share is computed by dividing net loss by the weighted average number of common shares outstanding and common share equivalents related to stock options and warrants, when dilutive.

Common stock options and warrants to purchase 975,937, 999,197 and 655,872 shares of common stock with a weighted average exercise price of $6.35, $6.50 and $10.15 were outstanding during the years ended March 31, 2004, 2003 and 2002, but were excluded because they were antidilutive. Had we not incurred a net loss during the year ended March 31, 2004, we would have assumed conversion of stock options into 18,031 common shares. We would not have assumed any conversions of stock options for fiscal year 2003 and 2002.

Use of Estimates
- ------------------

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

Impairment of Long-Lived Assets
- ---------------------------------

The Company evaluates the recoverability of its long-lived assets and requires recognition of impairment of long-lived assets if events or circumstances indicate an impairment may have occurred and when the net book value of such assets exceeds the future undiscounted cash flows attributed to such assets. The Company assesses the impairment of long-lived assets whenever events or changes in circumstances indicate that the carrying value may not be recoverable. No impairment of long-lived assets has occurred through the year ended March 31, 2004.

Reclassifications
- -----------------

Certain reclassifications have been made to the 2003 financial statements to conform with the presentation used in 2004. These reclassifications had no effect on net loss or shareholders' equity as previously reported.

Newly Adopted Accounting Standards
- ------------------------------------

The Financial Accounting Standards Board issued FIN 46 (R), Consolidation of Variable Interest Entities, in December 2003 to provide guidance on when an investor should consolidate another entity from which they receive benefits or are exposed to risks when those other entities are not controlled based on traditional voting interest or they are thinly capitalized. FIN 46 (R) refers to those entities as variable interest entities (VIEs). A variable interest is a contractual, ownership, guarantee of debt, or other financial interest in an entity that changes with changes in the entity's asset value. An entity would be considered a VIE if the amount of equity at risk in the entity is not sufficient to allow it to finance its activities without additional subordinated financial support from the Company. The provisions of FIN 46 (R) were effective at the end of the first reporting period after March 15, 2004. The adoption of FIN 46 (R) will not have a material effect on the Company's consolidated financial position or results of operations.

On July 30, 2002, President Bush signed into law the Sarbanes-Oxley Act of 2002 (the "Act"), which immediately impacts Securities and Exchange Commission registrants, public accounting firms, lawyers and securities analysts. This legislation is the most comprehensive since the passage of the Securities Act of 1933 and Securities Exchange Act of 1934. It has far reaching effects on the standards of integrity for corporate management, board of directors, and executive management. Additional disclosures, certifications and procedures will be required of the Company. The Company does not expect any material adverse effect as a result of the passage of this legislation; however, the full scope of the Act has not yet been determined.

NOTE B - ACQUISITIONS

On March 14, 2003, the Company acquired certain assets and assumed certain liabilities of CSP. The acquisition was accounted for as a purchase and, accordingly, results of operations relating to the purchased assets were included in the statement of operations from the date of acquisition. The impact on operations for year ended March 31, 2003 was not material. There were no contingent payments related to the acquisition.

NOTE B - ACQUISITIONS - CONTINUED

In accordance with SFAS 141, the Company reclassified certain balances from the original CSP purchase price allocation as part of an asset valuation adjustment. The adjustment was made after determining the fair value of the assets purchased. The result of the change was a decrease in inventory and an increase in goodwill recorded. This did not change the purchase price of the transaction. The purchase price, assets acquired and liabilities assumed with purchase price adjustments are as follows:

<TABLE>
<CAPTION>

	Original Purchase Price Allocation	Purchase Price Adjustment	Net Purchase Price Allocation
<S>	<C>	<C>	<C>
Accounts receivable	$ 384,571	$ -	$ 384,571
Inventory	1,227,239	(627,364)	599,875
Property, plant and equipment	402,799	-	402,799
Assets purchased	2,014,609	(627,364)	1,387,245
Trade accounts payable	239,187	-	239,187
Capitalized leases	149,786	-	149,786
Vendor restructuring payable	263,818	-	263,818
Accrued expenses	34,114	-	34,114
Less: Liabilities assumed	686,905	-	686,905
Net assets	1,327,704	(627,364)	700,340
Goodwill	2,500,296	627,364	3,127,660
Purchase price	$ 3,828,000	$ -	$ 3,828,000

</TABLE>

On June 27, 2003, the Company acquired certain assets of Americable, Inc. The acquisition was accounted for as a purchase and, accordingly, results of operations relating to the purchased assets have been included in the statement of operations from the date of acquisition. There are no contingent payments related to the acquisition.

In accordance with SFAS 141, the Company reclassified certain balances from the original Americable purchase price allocation as part of an asset valuation adjustment. The adjustment was made after determining the fair value of the assets purchased. The result of the change was a decrease in inventory and property, an increase in accounts receivable, and an increase in goodwill recorded. This did not change the purchase price of the transaction. The purchase price and assets acquired with purchase price adjustments are as follows:

<TABLE>
<CAPTION>

	Original Purchase Price	Purchase Price	Net Purchase Price

	Allocation	Adjustment	Allocation
<S>	<C>	<C>	<C>
Accounts receivable	$ 594,000	$ 46,279	$ 640,279
Inventory	638,000	(13,944)	624,056
Property, plant and equipment	450,000	(49,186)	400,814
Assets purchased	1,682,000	(16,851)	1,665,149
Goodwill	278,000	16,851	294,851
Purchase price	$ 1,960,000	$ -	$ 1,960,000

</TABLE>

Goodwill for both acquisitions is expected to be fully deductible for tax purposes.

NOTE C - INVENTORIES

Inventories consist of the following at March 31:

<TABLE>
<CAPTION>

	2004	2003
<S>	<C>	<C>
Raw materials	$ 371,536	$ 702,233
Work-in-process	46,222	155,138
Finished goods	1,156,430	540,832
	$1,574,188	$1,398,203

</TABLE>

NOTE D - PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment consist of the following at March 31:

<TABLE>
<CAPTION>

	2004	2003
<S>	<C>	<C>
Land	$ 127,760	$ 127,760
Buildings	1,679,424	1,679,424
Manufacturing equipment	6,037,670	5,731,507
Office equipment	619,026	507,872
Leasehold improvements	1,119,616	1,082,538
	9,583,496	9,129,101
Less accumulated depreciation and amortization	5,032,540	5,139,757
	$4,550,956	$3,989,344

</TABLE>

NOTE E - LONG-TERM DEBT

The following is a summary of the outstanding debt at March 31:

<TABLE>
<CAPTION>

	2004	2003
<S>	<C>	<C>
South Dakota Governor's Office of Economic Development and the Aberdeen Development Corporation Bond, 5% to 6.75%, due in various installments through 2016	$ 1,485,000	$ 1,560,000
Low interest economic development loans, 0%, due in various Installments through 2010	229,305	246,944
Forgivable economic development loans, 3%, paid in full in fiscal 2004	-	216,951
Capital lease obligations	97,454	149,787
	1,811,759	2,173,682

Less current maturities	1,637,923	1,846,922
	$ 173,836	$ 326,760

</TABLE>

The forgivable economic development loans are contingent upon employment levels at the facility meeting preset criteria. As partial consideration for any loans forgiven, the Company will grant warrants to purchase

common stock of the Company based on the number of job credits earned by the Company in the preceding 12 months divided by the exercise price. The exercise price of the warrants was set at $4.00 for year one of the debt and the yearly grant exercise price increases one dollar each year until the debt matured in fiscal 2004. As of March 31, 2004, 36,511 warrants have been issued for loans forgiven totaling $187,289.

At March 31, 2004 and 2003, the Company had on deposit with trustees $466,298 and $415,629 in reserve funds for current bond maturities, of which $133,865 and $125,830 are for current bond maturities. These funds are included in bond reserve funds in the accompanying balance sheets. The loan agreement requires the Company to maintain compliance with certain covenants. The Company was out of compliance with certain of these covenants in fiscal 2004. All debt, except for the long-term portion of the low interest loans, and the capital lease obligations, to which the covenant violation does not apply, has been classified as current due to the Company's covenant violation.

As part of the Company's plan to construct a production facility, the city of Aberdeen, South Dakota gave the Company land, contingent upon the Company staying in the new building through June 23, 2002. The Company satisfied this requirement in fiscal 2003 and recorded the contributed land with an assessed value of $67,760 on the books as of March 31, 2003.

All of the above debt is secured by land, buildings, and certain equipment of the Company. In April 2004, the Company was required to restructure one of its loans with the City of Aberdeen in conjunction with the sale of its Optics manufacturing operations to include an advance payment and an accelerated payment stream. The restructuring had no effect on the amount or classification of the overall loan balance at March 31, 2004.

Scheduled maturities of the Company's long-term debt are as follows:

<TABLE>
<CAPTION>

Years ending March 31,	
<S>	<C>
2005	$1,637,923
2006	65,873
2007	27,963
2008	20,000
2009	20,000
Thereafter	40,000
	$1,811,759

</TABLE>

NOTE F - EMPLOYEE BENEFIT PLAN

The Company maintains a contributory 401(k) profit sharing benefit plan covering all employees. The Company matches 50% of employee contributions up to 6% of a participant's compensation. The Company's contributions under this plan were $72,000, $51,000, and $53,000 for the years ended March 31, 2004, 2003 and 2002.

NOTE G - INCOME TAXES

Deferred taxes recognize the impact of temporary differences between the amounts of the assets and liabilities recorded for financial statement purposes and such amount measured in accordance with tax laws. Realization of net operating loss carry forward and other deferred tax temporary differences are contingent upon future taxable earnings. The Company's deferred tax asset was reviewed for expected utilization using a "more likely than not" approach as required by SFAS 109 by assessing the available positive and negative factors

NOTE G - INCOME TAXES - CONTINUED

surrounding its recoverability. Accordingly, the Company has recorded a full valuation allowance at March 31, 2004 and 2003.

Significant components of deferred income tax assets and liabilities are as follows at March 31, 2004:

<TABLE>
<CAPTION>

	2004	2003
Current deferred income tax assets:		
Inventories	$ 64,350	$ 73,710
Accrued expenses	33,930	-
	98,280	73,710
Long-term deferred income tax assets:		
Property and equipment depreciation	172,770	-
Intangibles	17,940	-
Net operating loss carryforward	10,880,432	8,679,276
	11,071,142	8,679,276
Total deferred income tax assets	11,169,422	8,752,986
Long-term deferred income tax liabilities:		
Goodwill	94,338	5,418
Total net deferred income taxes	11,075,084	8,747,568
Valuation allowance	(11,075,084)	(8,747,568)
Total	$ -	$ -

</TABLE>

As of March 31, 2004, the Company has net operating loss carry forwards for federal income tax purposes of approximately $27,899,000 which expire in fiscal years 2005 to 2024.

Income tax expense consists entirely of state taxes in 2004, 2003, 2002.

NOTE H - SHAREHOLDERS' EQUITY

The Board of Directors may, by resolution, establish from the undesignated shares different classes or series of shares and may fix the relative rights and preferences of shares in any class or series.

In fiscal year 2003, the Board of Directors authorized the repurchase of up to the greater of $2,000,000 or 500,000 shares of common stock. There were no purchases in fiscal 2004. As of March 31, 2004 and 2003, a total of 46,750 shares for $98,629 at an average price of $2.11 per share had been repurchased and retired.

NOTE I - SHAREHOLDER RIGHTS PLAN

Pursuant to the Shareholder Rights Plan each share of common stock has attached to it a right, and each share of common stock issued in the future will have a right attached until the rights expire or are redeemed. Upon the occurrence of certain change in control events, each right entitles the holder to purchase one one-hundredth of a share of Series B Junior Preferred Participating Share, at an exercise price of $80 per share, subject to adjustment. The rights expire on November 10, 2010 and may be redeemed by the Company at a price of $.001 per right prior to the time they become exercisable.

NOTE J - STOCK OPTIONS AND WARRANTS

Stock Options
- --------------

The Company has various incentive and non-qualified stock option plans which are used as an incentive for directors, officers, and other employees. Options are generally granted at fair market values determined on the date of grant and vesting normally occurs over a six-year period. The plans had 1,089,148 shares of common stock available for issue at March 31, 2004.

Option transactions under these plans during the three years ended March 31, 2004 are summarized as follows:

<TABLE>
<CAPTION>

<S>	Number of shares <C>	Weighted average exercise price <C>
Outstanding at March 31, 2001	397,175	$ 6.81
Granted	90,000	10.33
Canceled	(112,500)	7.79
Exercised	(5,125)	4.94
Outstanding at March 31, 2002	369,550	7.40
Granted	167,500	1.88
Canceled	(128,675)	8.16
Outstanding at March 31, 2003	408,375	4.27
Granted	140,000	2.62
Canceled	(163,260)	5.65
Outstanding at March 31, 2004	385,115	3.74

</TABLE>

The number of shares exercisable at March 31, 2004, 2003 and 2002 was 176,815, 165,325 and 108,674, respectively, at a weighted average exercise price of $4.21, $5.42 and $4.68 per share, respectively.

The following table summarizes information concerning currently outstanding and exercisable stock options at March 31, 2004:

<TABLE>
<CAPTION>

	OPTIONS OUTSTANDING			OPTIONS EXERCISABLE	
Range of exercise prices <S>	Number outstanding <C>	Weighted average remaining contractual life <C>	Weighted average exercise price <C>	Number outstanding <C>	Weighted Average exercise price <C>
1.48-$2.91	194,740	4.32 years	$ 2.31	29,940	$ 1.91
3.77-5.53	140,375	.67 years	4.31	128,250	4.24
5.73-7.22	25,000	2.33 years	6.65	9,500	6.62
8.50-11.90	25,000	3.05 years	8.82	9,125	8.83
	385,115	2.84 years	3.74	176,815	4.21

</TABLE>

NOTE J - STOCK OPTIONS AND WARRANTS - CONTINUED

Stock Warrants

The following is a table of the warrants to purchase shares of the Company's common stock:

<TABLE>
<CAPTION>

<S>	Warrants outstanding <C>	Exercise price per share <C>	Expiration date <C>
Balance at March 31, 2001	318,197	$ 4.00 - $17.84	2002 - 2006
Expired	(31,875)	4.00	2002
Balance at March 31, 2002	286,322	4.79 - 17.84	2002 - 2006
Issued	350,000	3.00	2008
Expired	(45,500)	3.75 - 5.00	2002
Balance at March 31, 2003	590,822	3.00 - 17.84	2005 - 2008
Issued	-	-	-
Expired	-	-	-
Balance at March 31, 2004	590,822	3.00 - $17.84	2005 - 2008

</TABLE>

All warrants are exercisable upon date of grant.

There were no warrants issued in fiscal year 2004.

In fiscal year 2003, 350,000 warrants at a value of $371,000 were issued in connection with the acquisition of the assets of Computer System Products, Inc. These warrants were valued by an independent firm and are exercisable at $3.00.

NOTE K - COMMITMENTS

The Company leases office and manufacturing facilities from a partnership whose two partners are major shareholders and officers of the Company. The lease agreement, classified as an operating lease, expires November 30, 2004 and provides for periodic increases of the rental rate based on increases in the consumer price index. As of the date of this report, the Company intends to extend that lease. The Company leases other office and manufacturing facilities space that expires June 30, 2006.

The Company leases certain equipment under capital lease arrangements with interest ranging from 10% to 10.62% and terms through July 2006. The equipment has a net book value of $104,561 at March 31, 2004.

NOTE K - COMMITMENTS - CONTINUED

The following is a schedule of approximate minimum payments required under the capital and operating leases:

<TABLE>
<CAPTION>

Year ending March 31	Capital leases	Operating leases
<S>	<C>	<C>
2005	$ 51,633	$ 359,011
2006	49,321	251,850
2007	7,963	59,164
2008	-	240
Total minimum lease payments	108,917	$ 670,265
Less: Amounts representing interest	11,463	
Present value of future minimum lease payments	97,454	
Less: Current portion	52,332	
Capital lease obligations, net of current portion	$ 45,122	

</TABLE>

Rental expense was $485,000, $149,000 and $138,000 for the years ended March 31, 2004, 2003 and 2002, of which $149,000, $139,000 and $138,000 was paid to the partnership, respectively.

NOTE L - CONCENTRATIONS

Major Customers

No single customer accounted for more than 10% of the Company's sales in fiscal 2004. Two major customers accounted for 21% and 15% of the Company's sales for the year ended March 31, 2003. Three major customers accounted for 28%, 23% and 14% of the Company's sales for the year ended March 31, 2002. These customers also accounted for approximately 6% of the outstanding trade receivable balance at March 31, 2003.

Suppliers

The Company purchases raw materials, component parts and outsourced labor from many suppliers. Although many of these items are single-sourced, the Company has experienced no significant difficulties to date in obtaining adequate quantities. These circumstances could change, however, and the Company cannot guarantee that sufficient quantities or quality of raw materials, component parts and outsourced labor will be as readily available in the future or, if available, that we will be able to obtain them at favorable prices. There were no suppliers that provided more than 10% of the Company's total purchases in the years ended March 31, 2004, 2003 or 2002.

NOTE M - SUBSEQUENT EVENT (UNAUDITED)

The Company sold its Optics manufacturing operations on April 14, 2004 for $220,000. The terms of the sale required the Company to restructure a loan with the City of Aberdeen which amounted to an upfront payment

and an acceleration of the loan balance over the next several years. Results of these manufacturing operations were not material to the consolidated financial statements for fiscal years 2004, 2003 and 2002.

NOTE N - SEGMENTS OF BUSINESS

The March 2003 and June 2003 acquisitions of Computer System Products, Inc. and Americable, Inc prompted the Company's management to adjust how it evaluates its business. As a result the Company established segments under FASB 131 "Disclosures about Segments of an Enterprise and Related Information." This evaluation is based on the way segments are organized within the Company for making operating decisions and assessing performance. The Company has identified two reportable segments based on its internal organizational structure, management of operations, and performance evaluation. These segments are APA Optics (APA) and APA Cables and Networks (APACN). APA's revenue is generated in the design, manufacture and marketing of ultraviolet (UV) detection and measurement devices and optical components. APACN's revenue is derived primarily from standard and custom fiber optic cable assemblies, copper cable assemblies, value added fiber optics frames, panels and modules. Expenses are allocated between the companies based on detailed information contained in invoices. In addition, corporate overhead costs for management's time and other expenses absorbed at APA are allocated to APACN on an ongoing basis. Such allocated expenses were $152,452 for the twelve months ended March 31, 2004. There were no allocated expenses in fiscal 2003. Segment detail is summarized as follows (unaudited, in thousands):

<TABLE>
<CAPTION>

	APA Optics	APACN	Eliminations	Consolidated
<S>	<C>	<C>	<C>	<C>
TWELVE MONTHS ENDED MARCH 31, 2004				
External sales	$ 409	$11,691	$ (191)	$ 11,909
Cost of sales	3,074	9,031	(191)	11,914
Operating loss	(5,604)	(955)	-	(6,559)
Depreciation and amortization	797	174	-	971
Capital expenditures, net	695	91	-	786
Assets	26,187	7,310	(7,652)	25,845
TWELVE MONTHS ENDED MARCH 31, 2003				
External sales	$ 202	234	-	$ 436
Cost of sales	2,627	176	-	2,803
Operating loss	(5,269)	(60)	-	(5,329)
Depreciation and amortization	811	-	-	811
Capital expenditures	309	50	-	359
Assets	31,406	5,275	(4,848)	31,885

</TABLE>

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

None.

ITEM 9A. CONTROLS AND PROCEDURES.

The Company's chief executive officer and chief financial officer (the same) has concluded that the Company's disclosure controls and procedures (as defined in Exchange Act Rule 13a-15(e) are sufficiently effective to ensure that the information required to be disclosed by the Company in the reports it files under the Exchange Act is gathered, analyzed and disclosed with adequate timeliness, accuracy and completeness, based on an evaluation of such controls and procedures as of the end of the period covered by this Report.

There were no significant changes in the Company's internal controls over financial reporting or in other factors that could significantly affect these during the fiscal quarter ended March 31, 2004.

ITEM 9B. OTHER INFORMATION

There were no events during the quarter ended March 31, 2004 required to be disclosed on Form 8-K which were not so disclosed.

PART III

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT.

Information regarding executive officers is included in Part I of this Report and is incorporated in this Item 10 by reference.

Information regarding directors and the information required by Items 11, and 13, below, is incorporated in this Report by reference to the proxy statement for our annual meeting of shareholders to be held in August 2004.

ITEM 11. EXECUTIVE COMPENSATION.

Information required by Item 11 is incorporated in this Report by reference to the proxy statement for our annual meeting of shareholders to be held in August 2004.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT.

Certain information required by Item 12 is incorporated in this Report by reference to the proxy statement for annual meeting of shareholders to be held in August 2004.

<TABLE>
<CAPTION>

	(a)	(b)	(c)
Plan category	Number of securities to be issued upon exercise of options, warrants or rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
<S>	<C>	<C>	<C>
Equity compensation plans approved by security holders	385,115	$ 3.74	1,042,628
Equity compensation plans not approved by security holders	590,822	$ 8.05	Not applicable*
Total	975,937	$ 6.35	1,042,628

<FN>
* These securities are comprised solely of warrants that were not issued pursuant to any formal plan with an authorized number of securities available for issuance.
</TABLE>

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS.

Information required by Item 13 is incorporated in this Report by reference to the proxy statement for our annual meeting of shareholders to be held in August 2004.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Information required by Item 14 is incorporated in this Report by reference to the proxy statement for our annual meeting of shareholders to be held in August 2004.

<TABLE>
<CAPTION>

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES, AND REPORTS ON FORM 8-K.

(a) (1) The following financial statements are filed herewith under Item 8.

(2) Financial Statement Schedules: None
</TABLE>

(b) Reports filed on Form 8-K:

In the last quarter of our fiscal year ended March 31, 2004, we filed the following reports on Form 8-K

<TABLE>
<CAPTION>

Date of Report	Date of Filing	Event Reported	Financial Statements Filed
<S>	<C>	<C>	<C>
January 15	January 15	Press release announcing organizational changes	None

</TABLE>

(c) Exhibits. See Exhibit Index.

SIGNATURES

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

APA Optics, Inc.

Date: June 29, 2004 By /s/ Anil K. Jain

Anil K. Jain
President and Chief Executive Officer

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

<TABLE>
<CAPTION>

SIGNATURE	TITLE	DATE
<S>	<C>	<C>
/s/ Anil K. Jain ----------------------------	President, Chief Executive Officer, Chief Financial Officer and Director (principal	June 29, 2004

Anil K. Jain	executive officer and principal financial officer)	
/s/ Kenneth A. Olsen - --------------------------- Kenneth A. Olsen	Secretary, Vice President, and Director	June 29, 2004
/s/Daniel Herzog - --------------------------- Daniel Herzog	Comptroller (principal accounting officer)	June 29, 2004
/s/ John G. Reddan - --------------------------- John G. Reddan	Director	June 29, 2004
/s/ Ronald G. Roth - --------------------------- Ronald G. Roth	Director	June 29, 2004
/s/ Stephen A. Zuckerman MD - --------------------------- Stephen Zuckerman	Director	June 29, 2004

</TABLE>

<TABLE>
<CAPTION>

EXHIBIT INDEX

NUMBER	DESCRIPTION	PAGE NUMBER OR INCORPORATED BY REFERENCE TO
<C>	<S>	<C>
2.1	Asset Purchase Agreement between APACN and CSP, Inc.	Exhibit 2.1 to Form 8-K filed March 31, 2003
2.1	Asset Purchase Agreement between APACN and Americable, Inc.	Exhibit 2.1 to Form 8-K filed July 2, 2003
2.2	Agreement Not to Compete with Peter Lee as part of CSP asset purchase	Exhibit 2.2 to Form 8-K filed March 31, 2003
3.1	Restated Articles of Incorporation, as amended to date	Exhibit 3.1 to Registrant's Report on Form 10-Q for the quarter ended September 30, 2000
3.2	Bylaws, as amended and restated to date	Exhibit 3.2 to Registrant's Report on Form 10-KSB for the fiscal year ended March 31, 1999
4.1(a)	State of South Dakota Board of Economic Development $300,000 Promissory Note, REDI Loan: 95-13-A	Exhibit 4.1(a) to the Report on 10-QSB for the quarter ended June 30, 1996 (the "June 1996 10-QSB")
4.1(b)	State of South Dakota Board of Economic Development Security Agreement REDI Loan No: 95-13-A dated May 28, 1996	Exhibit 4.1(b) to the June 1996 10-QSB
4.2(a)	700,000 Loan Agreement dated June 24, 1996 by and between Aberdeen Development Corporation and APA Optics, Inc.	Exhibit 4.2(a) to the June 1996 10-QSB
4.2(b)	300,000 Loan Agreement dated June 24, 1996 between Aberdeen Development Corporation and APA Optics, Inc.	Exhibit 4.2(b) to the June 1996 10-QSB
4.2(c)	250,000 Loan Agreement dated June 24, 1996 by and between Aberdeen Development Corporation and APA Optics, Inc.	Exhibit 4.2(c) to the June 1996 10-QSB
4.2(d)	300,000 Loan Agreement dated June 24, 1996 by and between Aberdeen Development Corporation and APA Optics, Inc.	Exhibit 4.2(d) to the June 1996 10-QSB
4.2(e)	Amended Loan Agreement with Aberdeen Development Corporation and APA Optics, Inc.	Exhibit 4.2(e) to Registrants Report on Form 10-K for fiscal year ended March 31, 2004
4.3(a)	Loan Agreement between South Dakota Economic Development Finance and APA Optics, Inc.	Exhibit 4.3(a) to the June 1996 10-QSB

NUMBER	DESCRIPTION	PAGE NUMBER OR INCORPORATED BY REFERENCE TO
4.3(b)	Mortgage and Security Agreement - One Hundred Day Redemption from APA Optics, Inc. to South Dakota Economic Development Finance Authority dated as of June 24, 1996	Exhibit 4.3(b) to the June 1996 10-QSB
4.4(a)	Subscription and Investment Representation Agreement of NE Venture, Inc.	Exhibit 4.4(a) to the June 1996 10-QSB
4.4(b)	Form of Common Stock Purchase Warrant for NE Venture, Inc.	Exhibit 4.4(b) to the June 1996 10-QSB
4.5(a)	Certificate of Designation for 2% Series A Convertible Preferred Stock	Exhibit 4.5(a) filed as a part of Registration Statement on Form S-3 (Commission File No. 333-33968)
4.5(b)	Form of common stock warrant issued in connection with 2% Series A Convertible Preferred Stock	Exhibit 4.5(b) filed as a part of Registration Statement on Form S-3 (Commission File No. 333-33968)
4.6	Common Stock Purchase Warrant issued to Ladenburg Thalmann & Co. Inc. to purchase 84,083 Shares	Exhibit 4.6 to Registrant's Report on Form 10-K for fiscal year ended March 31, 2000 ("2000 10-K")
4.7	Share Rights Agreement dated October 23, 2000 by and between the Registrant and Wells Fargo Bank Minnesota NA as Rights Agent	Exhibit 1 to the Registration Statement on Form 8-A filed November 8, 2000
4.8	Common Stock Warrant Purchase Agreement with Peter Lee as part of CSP asset purchase	Exhibit 4.8 to Form 8-K filed March 31, 2003
10.1(a)	Sublease Agreement between the Registrant and Jain-Olsen Properties and Sublease Agreement and Option Agreement between the Registrant and Jain-Olsen Properties	Exhibit 10.1 to the Registration Statement on Form S-18 filed with the Chicago Regional Office of the Securities and Exchange Commission on June 26, 1986
10.1(b)	Amendment and Extension of Sublease Agreement dated August 31, 1999	Exhibit 10.1(b) to 2000 10-K
*10.2(a)	Stock Option Plan for Nonemployee Directors	Exhibit 10.3a to Registrant's Report on Form 10-KSB for the fiscal year ended March 31, 1994 (the "1994 10-KSB")
*10.2(b)	Form of option agreement issued under the plan	Exhibit 10.3b to 1994 10-KSB
*10.3	1997 Stock Compensation Plan	Exhibit 10.3 to Registrant's Report on Form 10-KSB for the fiscal year ended March 31, 1997

NUMBER	DESCRIPTION	PAGE NUMBER OR INCORPORATED BY REFERENCE TO
*10.4	Insurance agreement by and between the Registrant and Anil K. Jain	Exhibit 10.5 to Registrant's Report on Form 10-K for the fiscal year ended March 31, 1990
*10.5	Form of Agreement regarding Repurchase of Stock upon Change in Control Event with Anil K. Jain and Kenneth A. Olsen	Exhibit 10.1 to Registrant's Report on Form 10-QSB for the quarter ended September 30, 1997 ("September 1997 10-QSB")
*10.6	Form of Agreement regarding Employment/Compensation upon Change in Control with Messrs. Jain and Olsen	Exhibit 10.2 to the September 1997 10-QSB
10.7	Form of Agreement regarding Indemnification of Directors and Officers with Messrs. Jain, Olsen, Ringstad, Roth, Von Wald and Zuckerman	Exhibit 10.7 to Registrant's Report on From 10-K for the fiscal year ended March 31, 2002.
10.8	Sublease agreement between Newport and APACN	Exhibit 10.8 to Registrant's Report of Form 10-QSB for the quarter ended June 30, 2003

10.9	Sublease agreement between Veeco Compound Semiconductor and APA Optics, Inc.	Exhibit 10.9 to Registrant's Report of Form 10-K for the fiscal year ended March 31, 2004
10.10	Ken Olsen Separation Agreement	Exhibit 10.10 to Registrant's Report on Form 10-K for the fiscal year ended March 31, 2004
14	Code of Ethics	Exhibit 14 to Registrant's Report on Form 10-K for the fiscal year ended March 31, 2004
21	List of Subsidiaries	
23.1	Consent of Grant Thornton LLP Certification of Chief Executive Officer Pursuant to	
31.1	Section 302 of the Sarbanes-Oxley Act of 2002 Certification of Chief Executive Officer and Principal Financial Officer Pursuant to Section 906 of the	
32.1	Sarbanes-Oxley Act of 2002	

<FN>
*Indicates management contract or compensation plan or arrangements required to be filed as an exhibit to this form.
</TABLE>

Exhibit 4.2(e)

April 13, 2004

Dr. Anil Jain
APA Optics, Inc.
2950 NE 84th Lane
Blaine, MN 55449

Dear Dr. Jain,

The Aberdeen Development Corporation and APA Optics, Inc. acknowledge and agree to the following terms and conditions regarding the outstanding loans between the two parties:

- Aberdeen Development Corporation acknowledges receipt of $89,305.00 from APA Optics, Inc. to ADC's Wells Fargo bank account
- Aberdeen Development Corporation agrees to the release of the UCC Filing in the State of Minnesota #1859487 dated June 24, 1996 on the equipment located in Blaine, Minnesota which was renewed August 20, 2001 (UCC Filing #20013130900028)
- Aberdeen Development Corporation will retain the UCC Filing in the State of South Dakota #20013130900028 dated November 9, 2001 on the equipment located in Aberdeen, SD
- APA Optics, Inc. will pay the Aberdeen Development Corporation $140,000 payable in seven equal payments of $20,000 starting June 30, 2004
- The interest rate on the loan will remain at 0% interest
- All other terms and conditions of the loan will remain in affect.

The above is correct and accurate and we consent to these terms and conditions.

APA Optics, Inc.

By: -----------------------------

Dr. Anil K. Jain
Its: Chairman and President

Aberdeen Development Corporation

By: -----------------------------

Larry Frost
Its: President

By: ------------------------------

James C. Barringer
Its: Executive Vice-President

Exhibit 10.9

LEASE

ENTERED INTO AS OF JUNE __, 2004

BETWEEN

VEECO COMPOUND SEMICONDUCTOR INC., Landlord

AND

APA OPTICS, INC., Tenant

LEASE

1. PARTIES. THIS LEASE is entered into as of this _____ day of June, 2004, by and between Veeco Compound Semiconductor Inc., a Minnesota corporation (hereinafter "Landlord"), and APA Optics, Inc. a Minnesota corporation (hereinafter "Tenant"). For good and valuable consideration, the parties agree to these terms as evidenced by their signatures below. From time to time this agreement is referred to below as the "Lease."

2. EXHIBITS. Attached to and made a part of this Lease are the following exhibits:

Exhibit A. Site Plan showing the Building, the Leased Premises and the Common Areas.

Exhibit B. List of Hazardous Materials to be used by Tenant in the Leased Premises.

Exhibit C List of all waste materials to be generated by Tenant on the Leased Premises.

3. DEFINITIONS. The following terms as used in this Lease shall have the meanings set forth below:

(a) "BUILDING": The structure located at 4900 Constellation Drive, St. Paul, Minnesota 55127, known as the Process Integration Center (PIC) and shown on Exhibit A attached hereto, in which the Leased Premises are located.

(b) "COMMON AREAS": The space marked as such on Exhibit A attached hereto and located in the PIC and available for the common or joint use and benefit of the occupants of the Building.

(c) "HAZARDOUS MATERIALS": All substances, materials and wastes that are or become regulated or classified as hazardous, toxic or solid waste under any Applicable Environmental Law, including without limitation, oil, flammable explosives, asbestos, area formaldehyde, radioactive materials or waste, or other hazardous, toxic, contaminated or polluting materials, substances or wastes.

(d) "APPLICABLE ENVIRONMENTAL LAW": Any applicable law, statute, ordinance, order, rule or regulation relating to or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance or materials pertaining to health or the environment, including without limitation, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, and the Resource Conservation and Recovery Act of 1976, as amended.

(e) "LEASED PREMISES": The space marked as such on Exhibit A attached hereto and located in the PIC. The Leased Premises include four undesignated parking spaces in the Landlord's parking lot.

(f) "LANDLORD PREMISES": That portion of the Building which is not a portion of the Leased Premises or the Common Areas.

4. TERM. Landlord hereby leases to Tenant and Tenant hereby leases from Landlord the Leased Premises for a term of three (3) years commencing on the Rent Commencement Date (as defined in Section 5(a) below). This Lease may be terminated by either party upon 90 days' prior written notice. The Tenant agrees that prior to, or upon, the effective date of the termination of this Lease, the Tenant will remove all equipment associated with it's business, at the Tenant's expense, and without disruption to the Landlord's business. Tenant agrees to the leave the Leased Premises in clean and working order, ordinary wear and tear excepted, and free of any and all Hazardous Materials (other than those which Tenant can prove were present when Tenant took possession).

5. RENT; SECURITY DEPOSIT.

(a) Tenant shall pay no rent, and the term shall not commence, until the improvements described in Section 5(d) of this Lease are completed and the Tenant Machine, as defined in Section 5(d) below, is ready for initial tool startup as provided in the agreement between Landlord and Tenant for Tenant's purchase of the Tenant Machine (the "Rent Commencement Date"). If the Rent Commencement Date falls on a day other than the first day of a calendar month, the rent for that month shall be prorated based on the actual number of days in that month.

(b) Prior to commencement of Tenant's occupancy, Tenant shall pay $28,200 as a security deposit and shall pay the first month's rent ($9,400) in advance. Thereafter, Tenant shall pay the monthly rent of $9,400 on or prior to the first of every month for the term of this Lease.

(c) Any rent payment due hereunder that is not received by Landlord within 5 business days after its due date shall be subject to a 1% late fee for each 5 business day period (or fraction thereof) this it is late.

(d) The Landlord agrees to make the necessary lease hold improvements to the clean room area necessary to house the Tenant owned, Veeco D180 MOCVD equipment ("Tenant Machine"). Landlord shall complete the leasehold improvements in accordance with the requirements of applicable building codes and shall be responsible for building code compliance for real property that houses the Tenant Machine.

6. USE. Tenant shall use the Leased Premises only for the growth and characterization of GaN epitaxial wafers using a MOCVD reactor, and other activities directly related thereto. The Tenant is specifically prohibited from using arsine (AsH_3) or phosphine (PH_3) gas within the Landlord's building.

7. RENOVATIONS. Landlord shall retain a contractor (at Landlord's expense) to undertake any renovations Landlord deems necessary or appropriate in order to separate the Leased Premises from the Landlord Premises and Common Areas, including without limitation firewalls, dividing walls, cranes/winches, card-key readers, etc., as well as a separate fan and stack for exhausting any air emissions, and for removing all of the foregoing at the end of the term of the Lease.

8. PEACEFUL POSSESSION. So long as Tenant is not in default under this Lease and subject to the remainder of this Section 8, Tenant shall have quiet and peaceful possession of the Leased Premises, subject to all of the terms and conditions set forth in this Lease. Tenant shall designate not more than four (4) employees who shall have access to the Leased Premises at all times and shall provide Landlord with written notice of the names of such employees. Tenant shall perform suitable background, export clearance and other checks of such employees to ensure their suitability to work in a sensitive area like the Leased Premises. The four designated employees of Tenant will have 24-hour access, 7 days per week, to the building, but only the Tenant owned equipment, common areas, and characterization area and equipment. Any other employees or other persons associated with Tenant may enter the Leased Premises only with the prior written permission of Landlord. Tenant shall ensure that employees of Tenant and other persons associated with Tenant at the Leased Premises will communicate with Landlord personnel subject to the conditions of Section 20 of this Lease.

9. COMMON AREAS. Subject to Section 8 of this Lease, Landlord hereby grants to Tenant and its representatives, agents, invitees and employees the non-exclusive right of use of the Common Areas, subject to reasonable rules and

regulations for the use thereof as may be prescribed from time to time by Landlord.

10. SIGNS. Other than those approved in writing by Landlord in its sole discretion, Tenant shall place no signs (portable, mobile or fixed), flags, posters, or other advertising or promotional materials anywhere within or around the exterior of the Building without first having obtained Landlord's prior written approval of same.

11. REPAIRS; CLEANING; DISPOSAL OF HAZARDOUS MATERIALS WASTE.

(a) Tenant shall, at its own cost and expense, take good care of and make necessary repairs to the interior of the Leased Premises, upon notification and approval of Landlord. Landlord is responsible for janitorial services in the office and Common Areas. Tenant shall be responsible for janitorial services or self-cleaning in the clean room housing the Tenant's MOCVD reactor (the "Tenant Machine"). Tenant shall maintain the Leased Premises at a level of cleanliness and good repair as required by Landlord, ordinary wear and tear excepted.

(b) Tenant shall store and dispose of all of Tenant's waste containing Hazardous Materials at its own expense and in accordance with applicable laws. Without limiting the foregoing, whenever such waste is transported through the Building for disposal, it shall be properly packaged, and an authorized employee of Landlord shall accompany Tenant's personnel throughout the process. No Hazardous Materials shall be disposed of in

any sink, drain, toilet or otherwise on the Leased Premises or other premises of Landlord.

12. MECHANICS' LIENS. Should any mechanics' or other liens be filed against the Leased Premises or any part thereof by reason of Tenant's acts or omissions or because of a claim against Tenant, Tenant shall cause the same to be cancelled and discharged of record by bond or otherwise within ten (10) days following notice from Landlord of the filing of such lien. However, in the event Tenant believes such lien has been wrongfully filed, Tenant shall have the right to defend itself against any such lien so long as Tenant notifies and indemnifies Landlord.

13. UTILITY CHARGES. The rent shall include all utility charges, included water, CDA, sewer and septic, electrical, HVAC, and reasonable amounts of pure H2 and N2 as determined necessary, by Landlord, to run a Veeco D180 MOCVD reactor in a 24/7 production mode. Unreasonable amount of utilities, as determined by Landlord, will be charged to Tenant in addition to the monthly rent. In addition, Landlord will supply two office phone lines to be used by Tenant for business purposes only. Unreasonable charges to these phone lines will be charged separately to Tenant in addition to the rent. Tenant will not have access to Landlord's computer network. Landlord will, at Tenant's request and expense, install two analog phone lines for modem access or two DSL phone lines (if available), one in each office, to be used by Tenant for internet access, of which the billing of these lines will be direct to Tenant.

14. INDEMNITY AND RELATED PROVISIONS. Tenant will indemnify Landlord and save it harmless from and against any and all claims, actions, damages, liability, expenses and attorneys' fees in connection with loss of life, personal injury, and/or damage to property arising from or out of any occurrence in, upon, or at the Leased Premises, or the occupancy or use by Tenant of the Leased Premises, or any part thereof, or occasioned wholly or in part by any act or omission of Tenant, its agents, contractors, employees, servants, lessees, concessionaires, or invitees, including, without limitation, any and all claims, actions, damages, liability, penalties, assessments, natural resource damages, response costs (such as the cost of any testing, medical or other monitoring, cleanup, or other required response action) expenses and consultants and attorneys' fees resulting from or in any way connected with the presence, release, threatened release, or disposal by Tenant, in on, or under the Leased Premises of any hazardous substances (as defined in CERCLA), hazardous wastes (as defined in RCRA), oils, radioactive materials, asbestos in any form or condition, any pollutant or contaminant or hazardous, dangerous or toxic chemicals, materials or substances within the meaning of any Applicable Environmental Law, provided that in the event that both Landlord and Tenant are at fault in any respect of any such claim, Tenant shall have no liability to Landlord hereunder, except to the extent of the gross negligence or willful misconduct of Landlord. In case Landlord shall be made a party to any litigation commenced by or against Tenant, then Tenant shall protect and hold Landlord harmless and shall pay all costs, expenses, and reasonable attorneys'

fees incurred or paid by Landlord in connection with such litigation. except to the extent of the gross negligence or willful misconduct of Landlord, or Tenant action against Landlord for any default hereunder or breach of this Lease by Landlord.

Landlord will indemnify Tenant and save it harmless from and against any and all claims, actions, damages, liability, expenses and attorneys' fees in connection with loss of life, personal injury, and/or damage to property arising from or out of any occurrence in, upon, or at the

Landlord Premises, or the occupancy or use by Landlord of the Landlord Premises, or any part thereof, or occasioned wholly or in part by any act or omission of Landlord, its agents, contractors, employees, servants, lessees, concessionaires, or invitees, including, without limitation, any and all claims, actions, damages, liability, expenses and attorneys' fees resulting from or in any way connected with the presence, release or disposal, in or under the Landlord Premises of any hazardous substances (as defined in CERCLA), hazardous wastes (as defined in RCRA), oils, radioactive materials, asbestos in any form or condition, any pollutant or contaminant or hazardous, dangerous or toxic chemicals, materials or substances within the meaning of any Applicable Environmental Law; provided, that in the event that both Landlord and Tenant are at fault in respect of any such claim, Landlord shall have no liability to Tenant hereunder, except to the extent of the gross negligence or willful misconduct of Tenant. In case Tenant shall be made a party to any litigation commenced by or against Landlord , then Landlord shall protect and hold Tenant harmless and shall pay all costs, expenses, and reasonable attorneys' fees incurred or paid by Tenant in connection with such litigation. except to the extent of the gross negligence or willful misconduct of Tenant, or any action by Landlord against Tenant for any default hereunder or breach of this Lease by Tenant.

15. <u>INSURANCE.</u>

(a) Landlord shall maintain insurance against fire, vandalism and malicious mischief and other perils as are from time to time commonly included in the type of insurance known as "special form coverage" (or its equivalent), insuring the building structure for its full insurable value.

(b) During the Term, at Tenant's sole cost and expense, Tenant shall maintain: (i) insurance against fire, vandalism and malicious mischief and such other perils as are from time to time commonly included in the type of insurance known as "special form coverage" (or its equivalent) and business interruption, insuring Tenant's fixtures, furniture, furnishings, floor coverings and other Tenant improvements, alterations or additions in or to the Leased Premises for 100% of the full replacement cost; (ii) commercial general liability insurance for claims for personal injury, death and property damage for risks occurring in or upon or about the Leased Premises and on any sidewalks directly adjacent to the Leased Premises with combined single limits in an amount not less than $6,000,000; (iii) in a like amount, contractual liability insurance covering Tenant's indemnity obligations hereunder; (iv) commercial automobile liability coverage; $1,000,000 combined single limit; must indicate coverage for any auto or owned, hired or borrowed, and non-owned vehicles; and (v) workers' compensation and employers liability coverage of $500,000 each accident, $500,000 disease-policy limit, $500,000 disease - each employee. All such policies shall show Landlord as an additional insured and shall be satisfactory to Landlord. All such policies shall contain express endorsements that (i) such insurance may not be cancelled or amended with respect to Landlord without ten (10) days written notice by certified mail to Landlord by the insurance company, and (ii) Tenant and insurer

waive their right of subrogation against Landlord and its affiliates. Policies should have minimum AM Best rating of A- and a financial size of VII or higher. Satisfactory evidence of such insurance shall be delivered to Landlord prior to Tenant's possession of the Leased Premises, and renewal policies or certificates shall be delivered to Landlord at least thirty (30) days prior to the expiration of any existing policies.

(c) Tenant shall give Landlord prompt written notice of any accidents, casualty, damage or other similar occurrence in or to the Leased Premises of which Tenant has knowledge.

16. <u>DAMAGE BY CASUALTY; CONDEMNATION.</u> If the Leased Premises are damaged

by fire, the elements or other casualty, Landlord, at its option, may either repair all damage and restore the Leased Premises to their condition immediately prior to the damage or terminate this Lease by notice to Tenant within sixty (60) days of such casualty. Rent shall abate during the restoration period if Tenant is precluded from doing business. If the Building is damaged or destroyed to an extent of at least 25% of the then respective replacement cost by any cause whatsoever (whether or not the Leased Premises are damaged), Landlord shall be entitled to terminate this Lease by notice to Tenant given on or before 60 days after the occurrence of such casualty. Tenant shall have the right to terminate this Lease upon 60 days' written notice to Landlord in the event of any casualty which prevents Tenant from full operation of its business for more than 60 days, or if Landlord cannot repair the Leased Premises with in 90 days.

If the whole of the Leased Premises shall be condemned or taken either permanently or temporarily for any public or quasi-public use or purpose under any statute or by right of eminent domain, or by private purchase by the government, in lieu thereof, then in that event, the term of this Lease shall cease and terminate from the date when possession is taken thereunder pursuant to such proceeding or purchase. The rent shall be adjusted as of the time of such termination and any rent prepaid for a period thereafter shall be refunded. Neither Landlord nor Tenant shall have any further liability in respect of such termination. In the event a portion of the Leased Premises or a portion of the Building shall be so taken (even though the Leased Premises may not have been affected by the taking of some other portion of the Building) Landlord may elect to terminate this Lease from the date when possession is taken thereunder pursuant to such proceeding or purchase, or Landlord may elect to repair and restore, at its own expense, the portion not taken and thereafter the rent shall be reduced proportionately to the portion of the Leased Premises taken. If the portion of the Leased Premises so taken substantially impairs the usefulness of the Leased Premises for the use as provided in Section 6 of this Lease or exceeds fifty percent (50%) of the square foot area of the Leased Premises, either party may terminate this Lease on the date when Tenant is required to yield possession. Tenant shall not be entitled to any portion of the award for the fee or leasehold or any element thereof, and the entire award shall belong to Landlord, provided, however, Tenant may apply for reimbursement from the condemning authority for moving expenses, loss of good will, movable trade fixtures, and equipment provided payment of any such reimbursement or award to Tenant shall not reduce the amount of any condemnation award that would otherwise be payable to Landlord.

17. INSURANCE HAZARDS. Except for the use as provided in Section 6 of this Lease, Tenant shall permit no use of the Leased Premises which might render void, or cause the

cancellation or rate increase of any insurance carried by Landlord or which would increase the risk of fire or other catastrophe, or which may be a health or safety hazard

18. DEFAULT BY TENANT. The occurrence of any one or more of the following events shall constitute a default and breach of this Lease by Tenant:

(a) failure to pay rent when due;

(b) failure to maintain insurance as required hereunder with Landlord listed as a named insured;

(c) failure to comply with confidentiality, non-disparagement and non-solicitation obligations hereof;

(d) the appointment of a receiver to take possession of all or substantially all of the assets of Tenant, a general assignment by Tenant for the benefit of creditors, or any action taken or suffered by Tenant under insolvency or bankruptcy laws; or

(e) failure to comply with any other provision of this Lease.

If any such default is not cured within 30 days after written notice thereof from Landlord to Tenant, Landlord may terminate this Lease and Tenant shall immediately surrender possession of the Leased Premises to Landlord. Notwithstanding the foregoing, if the default is related to a breach by Tenant of its obligations under Sections 11(b) or 27 hereof, Landlord may terminate this Lease immediately and Tenant shall have no opportunity to cure the default. In addition, notwithstanding the foregoing, no notice shall be required, no cure period shall be afforded and this Lease shall automatically and immediately terminate upon the occurrence of the events described in Section 18(d) above.

If Landlord terminates this Lease because of a default by Tenant, Tenant shall immediately pay Landlord all rent then due.

19. DEFAULT BY LANDLORD. The occurrence of any one or more of the

following events shall constitute a default and breach of this Lease by Landlord:

(a) failure to comply with confidentiality, non-disparagement and non-solicitation provisions hereof;

(b) the appointment of a receiver to take possession of all or substantially all of the assets of Landlord, a general assignment by Landlord for the benefit of creditors, or any action taken or suffered by Landlord under insolvency or bankruptcy laws; or

(c) failure to comply with any other provision of this Lease.

If any such default is not cured within 30 days after written notice thereof from Tenant to Landlord, Tenant may terminate this Lease. Notwithstanding the foregoing, if the default is

related to a breach by Landlord of its obligations under Section 27 hereof, Tenant may terminate this Lease immediately and Landlord shall have no opportunity to cure the default.

20. CONFIDENTIALITY, NON-DISPARAGEMENT AND NON-SOLICITATION. Each of Landlord and Tenant shall keep confidential any information of whatever nature it learns about the other party and the business and products of the other party ("Confidential Information") by virtue of being in the Building. Confidential Information shall not include information that is in the public domain at the time of its use or disclosure through no fault of the party receiving the information ("Receiving Party"). If the Receiving Party is requested or required to disclose any Confidential Information of the other party pursuant to a subpoena, court order, statute, rule, regulation or similar requirement ("Legal Requirement"), the Receiving Party shall provide prompt notice thereof to the other party so that the other party may seek an appropriate protective order or other remedy or waive compliance with the provisions of this Agreement. If the Receiving Party is legally compelled to disclose such Confidential Information, or if the other party waives compliance with this provision of the Lease in writing, the Receiving Party may disclose such Confidential Information in accordance with, but solely to the extent necessary to comply with the Legal Requirement.

Landlord and Tenant shall not, and shall not permit their employees to, make any negative or disparaging statements about the other party or the business or products of the other party to any third party.

During the term, Tenant shall not solicit for employment or hire any employee of Landlord or any person employed by Landlord within the previous 90 days.

During the term, Landlord shall not solicit for employment or hire any person then designated by Tenant pursuant to Section 8 of this Lease as a Tenant employee entitled to access to the Leased Premises or any person designated as such within the previous 90 days.

Tenant shall acknowledge that Landlord has on Landlord's premises United States government owned equipment and is conducting US government research on behalf of a government contracting company. Tenant is strictly prohibited from access to this equipment, the wafers it produces, any and all data associated with the contract, including, but not limited to, characterization data as a result of the contract. Tenant agrees, under penalty of Lease default, that it will not attempt to obtain any information, not matter how trivial, about this equipment, wafers, or the contract in general. Tenant also agrees not to solicit verbal information about this contract, in any form, from Landlord's employees.

21. WAFER CHARACTERIZATION. During the term of this Lease, Tenant has shared access and a reasonable right of use to all Veeco-owned wafer characterization equipment. Tenant will be held accountable for repairs to any equipment that is damaged by improper use or abuse by Tenant or its agents or employees. Tenant agrees to receive training on this equipment prior to use and determined adequate, in writing, by Landlord. Tenant and Landlord agree to work together in determining who has priority in the use of the characterization equipment, with the final determination being made by Landlord.

22. HOLDOVER. Any holdover after the expiration of the term, with or without the consent of Landlord, shall be construed to be a tenancy from month to month and shall otherwise

be on the terms and conditions herein specified so far as applicable except that the monthly rent shall be increased to 150% of the monthly rent in effect immediately prior to the holdover.

23. ESTOPPEL STATEMENTS AND LANDLORD'S SUBORDINATION. Tenant agrees to complete and return to Landlord any reasonable written statements which Tenant may truthfully make concerning the Leased Premises or this Lease as Landlord may request. Such statements are limited to declarations: (a) ratifying this Lease; (b) expressing the commencement and termination dates hereof; (c) certifying that this Lease is in full force and effect and has not been assigned, modified, supplemented or amended (except by such writings as shall be stated); (d) that all conditions under this Lease to be performed by Landlord have been satisfied, or stating those unsatisfied conditions claimed by Tenant; and (e) that there are no defenses or offsets against the enforcement of this Lease by Landlord, or stating those claimed by Tenant.

24. ASSIGNMENT AND SUBLETTING. Tenant shall not assign this Lease or sublet the Leased Premises without Landlord's prior written consent, which consent may be withheld by Landlord in its sole discretion. Landlord's consent to any assignment or subletting shall not constitute a waiver of the necessity for such consent to any subsequent assignment or subletting. This prohibition against assignment or subletting shall be construed to include a prohibition against any assignment or subletting by operation of law. Notwithstanding any consent given by Landlord, Tenant shall remain liable for all of its obligations herein unless released in writing by Landlord.

Landlord may assign this Lease on written notice to Tenant.

25. WAIVER. Failure of Landlord or Tenant to insist upon the strict performance of any provision or to exercise any option hereunder shall not be construed as a waiver of the future performance of any such provision or option. No provision of this Lease shall be deemed to have been waived unless such waiver is in writing and signed by the waiving party. No payment by Tenant or receipt by Landlord of an amount less than the full amount of rent due shall be deemed to be other than on account of the earliest rent then unpaid, nor shall any endorsement or statement on any check or any letter accompanying any check or payment of rent be deemed an accord and satisfaction, and Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such rent or pursue any other remedy provided in this Lease. Neither acceptance of the keys nor any other act or thing done by Landlord or any agent or employee of Landlord during the Term herein demised shall be deemed to be an acceptance of a surrender of the Leased Premises, excepting only an agreement in writing signed by Landlord, accepting or agreeing to accept such a surrender.

26. ACCESS TO PREMISES. Upon 24 hours' prior written notice, Landlord shall have the right to enter the Leased Premises during reasonable business hours to make repairs, alterations or improvements (to the Leased Premises or otherwise as Landlord may deem necessary or desirable, or to inspect, or to exhibit the Leased Premises to prospective purchasers or mortgagees of Building. In the event of an emergency, Landlord may enter the Leased Premises at any time without prior notice to Tenant.

27. COMPLIANCE WITH LAW; ENVIRONMENTAL MATTERS. Tenant will obtain all necessary permits and approvals for the conduct of its business within the Leased Premises and will comply with all Applicable Environmental Laws and all lawful requirements

of any governmental body, agency or department regarding the use, condition or operation of the Leased Premises.

To the extent that the Leased Premises will house petroleum or any petroleum products, asbestos, urea formaldehyde, foam insulation or any other chemical, material or substance, exposure to which may or could pose a health hazard, the possession and use of such materials will be in accordance with law, including any applicable regulations. Tenant will not store or use within the Leased Premises any hazardous material not listed on Exhibit B and will not use or store within the Leased Premises any of such materials in quantities greater than those specified on Exhibit B. In addition, Tenant shall not generate any waste products other than such waste products set forth on Exhibit C.

To the extent that the use which Tenant makes or intends to make of the Leased Premises will result in the manufacturing, treatment, refining, transportation, generation, storage, disposal or other release or presence of any hazardous substance or solid waste on the Leased Premises, such use will be in accordance with law, including any applicable regulations. For purposes of this paragraph, the terms "hazardous substance" and "release" will have the meanings specified in CERCLA, and the term "disposal" (or "disposed") will have the meaning specified in RCRA; provided, in the event either CERCLA or RCRA is amended so as to broaden the meaning of any term defined thereby, such broader meaning will apply subsequent to the effective date of such amendment, and provided, further, to the extent that the laws of the State of Minnesota establish a meaning for "hazardous substance," "release," or "disposal" which is broader than that specified in either CERCLA or RCRA, such broader meaning will apply; provided, further, that the term "hazardous substance" will also include those listed in the U.S. Department of Transportation Table (49 C.F.R. 172.101) and amendments thereto from time to time.

Tenant shall promptly notify Landlord of any violation or alleged violation of any Applicable Environmental Laws of which Tenant becomes aware.

Tenant shall appoint one of its employees to be responsible for environmental, health and safety ("EH&S") matters on the Leased Premises. Tenant shall retain liability for any damages or injuries caused by Tenant. Except as provided in Section 5(d) above, Tenant shall be responsible for maintaining compliance with Applicable Environmental Law respecting the Leased Premises and Tenant's activities therein and shall bear all associated costs to the extent they relate to Tenant's activities on the Leased Premises. Tenant shall pay its proportionate share of the cost of any environmental audits or reports required by any governmental authority to the extent they relate to Tenant's activities on the Leased Premises. In the event of an emergency situation, Landlord may have immediate access to the Leased Premises. Tenant shall be responsible for ensuring toxic material containment, and toward this end, shall develop a program for equipment maintenance that eliminates any risk of disruption of Landlord's operations.

Landlord shall be responsible for maintaining compliance with all governmental regulations with respect to the Landlord Premises to the extent necessary to permit Tenant to carry on its activities on the Leased Premises, and shall consider Tenant's operations in its EH&S planning.

28. <u>PERSONAL PROPERTY TAXES</u>. Tenant shall be responsible for any taxes levied or assessed against personal property, fixtures or furniture placed by Tenant on the Leased Premises.

29. <u>COMPLIANCE WITH APPLICABLE LAWS</u>. Tenant agrees to comply with all applicable laws concerning its operations at the Leased Premises, including, without limitation, requirements under ITAR and under U.S. export control laws relating to the technology present at the Leased Premised and in Landlord's portion of the Building. If Tenant determines that an export license is required for its personnel working at the Leased Premises or otherwise in connection with its activities at the Leased Premises, Tenant shall first obtain the written consent of Landlord prior to applying for any such license or other authority, which consent shall not be unreasonably withheld or delayed.

30 <u>MISCELLANEOUS PROVISIONS</u>.

(a) Whenever the singular number is used in this Lease and when required by the context, the same shall include the plural, and the masculine gender shall include the feminine and neuter genders, and the word "person" shall include corporation, firm, partnership, association, or any other similar entity. If Tenant constitutes more than one person, the obligations imposed under this Lease upon Tenant shall be joint and several.

(b) The marginal headings or titles to the paragraphs of this Lease are not a part of this Lease and shall have no effect upon the construction or interpretation of any part of this Lease.

(c) This instrument contains all of the agreements and conditions made between the parties to this Lease and may not be modified orally or in any other manner other than by an agreement in writing signed by all the parties to this Lease or their respective successors in interest.

(d) Time is of the essence of each term and provision of this Lease.

(e) Tenant warrants that it has not had any dealings with any realtor, broker, or agent in connection with the negotiation of this Lease and agrees to pay and to hold Landlord harmless from any cost, expense, or liability for any compensation, commission, or charges claimed by any realtor, broker, or agent with respect to this Lease or the negotiation of this Lease.

(f) All rights and obligations under this Lease shall bind and inure to the benefit of the successors and permitted assigns of the parties hereto.

(g) If Landlord incurs legal fees to enforce any provision of this Lease, Tenant shall pay such fees and any costs associated therewith.

(h) Tenant shall, in the event any proceedings are brought for the foreclosure of, or exercise of the power of sale under, any mortgage or deed of trust made by Landlord covering the Leased Premises, attorn to the purchaser

upon any such foreclosure or sale and recognize such purchaser as the Landlord under this Lease so long as Landlord is not in default under the Lease.

(i) Tenant agrees that this Lease shall, at the request of Landlord, be subordinate to any first mortgage or deed of trust that may hereafter be placed upon the Leased Premises and to any and all advances to be made thereunder, and to the interest thereon, and all renewals, replacements and extensions thereof, provided the mortgagee or trustee named in such mortgage or deed of trust shall agree to recognize the Lease of Tenant in the event of foreclosure if Tenant is not in default. Tenant also agrees that any mortgagee or trustee may elect to have this Lease a prior lien to its mortgage or deed of trust, and in the event of such election and upon notification by such mortgagee or trustee to Tenant to that effect, this Lease shall be deemed prior in lien to the said mortgage, or deed of trust, whether this Lease is dated prior to or subsequent to the date of said mortgage or deed of trust. Tenant agrees that, upon the request of Landlord, any mortgagee or any trustee, it shall execute whatever instruments may be required to carry out the intent of this paragraph.

(j) All notices must be sent in writing to Landlord at:

Veeco Compound Semiconductor Inc.
4900 Constellation Dr.
St. Paul, MN 55127
Attn: General Manager

with a copy to:

Veeco Instruments Inc.
100 Sunnyside Blvd, Suite B
Woodbury, NY 11797
Attn: General Counsel

and to Tenant at:

APA Optics, Inc.
2950 NE 84th Avenue
Blaine, MN 55449
Attn: Dan Herzog, Controller

(n) This Lease shall be governed by, and construed in accordance with the laws of the State of Minnesota.

(o) Tenant agrees that it shall pay on demand all expenses incurred by Landlord in enforcing its rights hereunder, including, but not limited to, collection costs and Landlord's reasonable attorneys' fees. In addition, when Tenant requests Landlord to take any action not specifically required

of it hereunder, Tenant shall reimburse Landlord for its reasonable expenses therefor.

(p) LANDLORD AND TENANT EXPRESSLY DISCLAIM ANY IMPLIED WARRANTY THAT THE LEASED PREMISES ARE SUITABLE FOR TENANTS INTENDED COMMERCIAL PURPOSE, AND TENANT'S OBLIGATION TO PAY RENT HEREUNDER IS NOT DEPENDENT ON THE CONDITION OF THE LEASED PREMISES OR THE PERFORMANCE BY LANDLORD OF ITS OBLIGATIONS HEREUNDER, AND, EXCEPT AS OTHERWISE PROVIDED HEREIN, TENANT SHALL CONTINUE TO PAY THE RENT THROUGHOUT THE TERM, WITHOUT ABATEMENT, SETOFF, OR DEDUCTION, NOTWITHSTANDING ANY BREACH BY LANDLORD OF ITS OBLIGATIONS HEREUNDER, WHETHER EXPRESS OR IMPLIED. LANDLORD AND TENANT EXPRESSLY AGREE AND ACKNOWLEDGE THAT THE DISCLAIMER PROVIDED IN THIS SECTION 30 DOES NOT APPLY TO ANY WARRANTY OF ANY TYPE RESPECTING THE SEPARATE AGREEMENT FOR THE PURCHASE OF THE TENANT MACHINE NOR TO WHETHER THE LEASEHOLD IMPROVEMENTS TO BE INSTALLED BY LANDLORD ARE ADEQUATE FOR THE TENANT MACHINE TO OPERATE IN THE MANNER PROVIDED FOR IN SAID PURCHASE AGREEMENT.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands the day and year first written above.

LANDLORD:	TENANT:
Veeco Compound Semiconductor Inc.	APA Optics, Inc.
By ______________________________	By ______________________________
Its ______________________________	Its ______________________________

EXHIBIT A

SITE PLAN SHOWING THE BUILDING, THE LEASED PREMISES AND THE COMMON AREAS

EXHIBIT A, CONT.

SITE PLAN SHOWING THE BUILDING, THE LEASED PREMISES AND THE COMMON AREAS

<TABLE>
<CAPTION>

EXHIBIT B

LIST OF HAZARDOUS MATERIALS TO BE USED BY TENANT IN THE LEASED PREMISES

<S>	<C>
1) SOURCE MATERIALS	2) CLEANING MATERIAL
a) TMG	a) HNO3
b) TEG	b) H2SO4
c) TMA	c) HF
d) TEA	d) H2O2
e) TMI	e) NH4OH
f) SiH4 (10 ppm in H2 or N2)	f) IPA
g) Si2H6 (10 ppm H2 or N2)	g) Acetone
h) CP2Mg	h) Methanol
i) NH3	i) Ethylene Glycol (coolant for bubblers)
j) HCl (gas: 5-15% in H2)	
k) Fe(C5H5)2 (ferrocene)	
l) (CH3)2NNH2 (Dimethylhydrazine)	
m) (C6H5)NHNH2 (Phenylhydrazine)	
n) CH3-(CH2)2-NH2/C3H9N (n-propylamine)	

</TABLE>

EXHIBIT C

LIST OF ALL WASTE MATERIALS TO BE GENERATED BY TENANT ON THE LEASED PREMISES

GaN
AlN
AlGaN
InGaN
HNO3 (nitric acid)
H2SO4 (sulfuric acid)
HF (hydrofluoric acid)
H2O2 (hydrogen peroxide)
NH4OH (ammonium hydroxide)
IPA (isopropyl alcohol)
Acetone
Methanol
Ethylene Glycol (coolant for bubblers)
Ammonia
Nitrogen
Hydrogen

SUBSTRATE MATERIALS

- Si
- Al2O3
- SiC
- ZnO
- GaN
- AlN

PART A
REVISED EMPLOYMENT TERMS FOR KEN OLSEN

1. Ken Olsen will reduce his hours of work to 20 hours/week (instead of his current 40 hours/week) starting June 1, 2003 until December 31, 2003 due to work slow down at the present time. During this time, Ken Olsen will maintain all the benefits he otherwise participated in with the Company as of June 1, 2003. The Company, however, retains the rights to recall Ken Olsen for increased or full time work at any time in future, if needed. In consideration of this right to recall, the Company will guarantee at least 20 hours/week work till December 31, 2003, resulting in proportional adjustments (actual hours vs. 40 hours/week) in compensation.

2. The Company may, at the end of the guaranteed period, elect to continue Ken Olsen's employment under the terms of the employment package as provided below in item C. This employment package may also be provided within the guarantee period with the mutual consent of Ken Olsen and the Company.

3. If Ken Olsen, however, does not agree to the recall to full-time status within fifteen (15) days from the date of recall, as defined in item 1 above, or decides to terminate employment of his own free will during the guarantee period, or terminates the employment on his own free will while employed full time (during, before or after the guarantee period) the employment package (see Item C below) will NOT be provided.

4. If Ken Olsen is not reinstated for full time work on or before January 1, 2004, Ken Olsen may terminate any employment with the Company on his free will and still receive the benefits under Part C in a lump sum as a severance package.

5. Ken Olsen will be entitled to the balance of any unpaid compensation under Part C as a severance package, if his employment is terminated by the Company after January 1, 2004 for any reason other than a just cause involving misconduct of Ken Olsen.

PART B
CERTAIN PRIOR AGREEMENTS

The Company acknowledges that Ken Olsen entered in to certain Agreements regarding Repurchase of Stock and Employment/Compensation upon Change in Control Event on August 20, 1997, as approved by the Board of Directors at the time. None of the current outside Board Members were on the Board or part of the Management of the Company at the time of the Agreements. Therefore, those agreements will remain as such without any considerations at present.

PART C
POST DECEMBER 31, 2003 EMPLOYMENT PACKAGE

In recognition of the outstanding contributions from Ken Olsen, the following Employment Package is provided by the Board of Directors as pertaining to the terms and conditions outlined above in the Section - Future Employment of Ken Olsen:

1. Fifteen (15) months of full time salaried employment (pay rate equivalent to pay rate prior to this agreement, which is $96,900 per year), starting January 1, 2004. During the term of this agreement Ken Olsen will be available to APA Optics, and will not be employed elsewhere. Olsen also has the option to voluntarily resign from his employment and take any unused portion of the compensation under the employment package as a lump sum, if he chooses.

2. During the term of this employment package, Ken Olsen will not be provided any benefits at the Company's expense. However, Ken Olsen may participate in any standard benefit provided by the Company electing to so participate and by providing for a deduction from his compensation for the cost of the benefit or reimbursing the full amount of expenses incurred by the Company in providing the designated benefits.

Exhibit 14

APA OPTICS, INC.

CODE OF ETHICS FOR PRINCIPAL EXECUTIVE OFFICER AND SENIOR FINANCIAL OFFICERS

APA expects the highest ethical conduct from its principal executive officer and senior financial officers. Your full compliance with this Code and with APA's Code of Business Conduct and Ethics is mandatory. In addition, you are expected to foster a culture of transparency, integrity and honesty which will encourage compliance by all employees with APA's Code of Business Conduct and Ethics, in letter and in spirit.

CONFLICTS OF INTEREST

As an APA principal executive officer or senior financial officer, you must avoid any investment, interest or association that interferes, might interfere, or might appear to interfere, with your independent exercise of judgment in APA's best interests.

Situations in which your personal interests conflict with your independent exercise of judgment on behalf of APA may include (1) situations in which you can use your position at APA for personal gain (e.g. causing APA to enter into a business transaction with your relatives or friends) or (2) situations which develop into actual or potential conflicts due to factors beyond your control (e.g. the bank at which your wife is an executive in commercial lending is acquired by APA's principal lender). Situations in the first category are strictly prohibited. Situations in the second category should be disclosed immediately to the Board of Directors for a determination on procedures to avoid impairment of independent judgment on behalf of APA.

If you have concerns about any situation, follow the steps outlined in the Section on "Reporting Violations."

ACCURATE PUBLIC DISCLOSURES

Full, fair, accurate, timely and understandable disclosures in APA's periodic reports and press releases is legally required and is essential to the success of our business. You are required to exercise the highest standard of care in preparing such APA public disclosures. The following guidelines are intended to be instructive but are not comprehensive:

- All APA accounting records, as well as reports produced from those records, must comply with applicable laws, regulations, and industry standards.

- All records, including accounting records, must fairly and accurately reflect the transactions or occurrences to which they relate.

- All accounting records must fairly and accurately reflect, in reasonable detail, APA's assets, liabilities, revenues and expenses.

- APA's accounting records must not contain any false or intentionally misleading entries.

- All transactions must be supported by accurate documentation in reasonable detail and recorded in the proper account and in the proper accounting period.

- No information should be concealed from the independent auditors.

COMPLIANCE

You are expected to comply with both the letter and spirit of all applicable governmental laws, rules and regulations.

If you fail to comply with this Code, with APA's Code of Business Conduct and Ethics, and/or with any applicable laws, you will be subject to disciplinary measures, up to and including immediate discharge from APA.

REPORTING VIOLATIONS

Your conduct can reinforce an ethical atmosphere and positively influence the conduct of fellow associates. If you are powerless to stop suspected misconduct or discover it after it has occurred, you must report it to the appropriate level of management at your location.

If you are still concerned after speaking with your local management or feel uncomfortable speaking with them (for whatever reason), you must (anonymously, if you wish) send a detailed note, with relevant documents, to APA, 2950 NE 84th Lane, Blaine, MN 55449 or you may directly contact the Audit Committee of APA's Board of Directors by sending a detailed note, with relevant documents, to Chair of the Audit Committee at the above address or by email to the following email address: auditapa@aol.com

Your calls, detailed notes and/or e-mails will be dealt with confidentially. You have the commitment of APA and of the Audit Committee of APA's Board of Directors that you will be protected from retaliation.

Retaliation by anyone against any reporting person will not be tolerated.

CHANGES AND WAIVERS

In accordance with the rules of the U.S. Securities and Exchange Commission, any change to, or waiver of, this Code must be immediately publicly disclosed.

CONCLUSION

In the final analysis, there are no universal rules or easy answers. Ask yourself whether your actions could be questioned by supervisors, associates, clients, family and the general public. If you are uncomfortable with your answer, discuss the situation with the Audit Committee (See Reporting Violations) before proceeding.

APA Optics, Inc.
2950 NE 84th Lane
Blaine, MN 55449
(763) 784-4995

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our report dated June 15, 2004, accompanying the financial statements included in the Annual Report of APA Optics, Inc. on Form 10-K for the year ended March 31, 2004. We hereby consent to the incorporation by reference of said report in the Registration Statements of APA Optics, Inc. on Forms S-8 (File No. 333-74214, effective November 30, 2001; File No. 333-44500, effective August 25, 2000; File No. 333-44488, effective August 25, 2000; and File No. 333-44486, effective August 25, 2000).

/s/GRANT THORNTON LLP

Minneapolis, Minnesota
June 29, 2004

Exhibit 31.1

CERTIFICATION

I, Anil K. Jain, certify that:

1. I have reviewed this annual report on Form 10-K of APA Optics, Inc.;

2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;

3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly represent in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;

4. APA Optics, Inc.'s other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a and 15(e)) for APA Optics, Inc. and we have:

   a) Designed such disclosure controls and procedures to ensure that material information relating to APA Optics, Inc., including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;

   b) Evaluated the effectiveness of our disclosure controls and procedures as of a date and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on our evaluation.

   c) Disclosed in this report any change in APA Optics, Inc.'s internal control financial reporting that occurred during the most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the Company's control over financial reporting.

5. APA Optics, Inc.'s other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to our auditors and the audit committee of our board of directors:

   a) All significant deficiencies and material weaknesses in the design or operation of internal controls over financial reporting which are reasonably likely to adversely affect APA Optics, Inc.'s ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls over financial reporting.

June 29, 2004

Signature: /s/ Anil K. Jain

Print Name: Anil K. Jain

Print Title: Chief Executive Officer and Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of APA Optics, Inc. (the "Company") on Form 10-K for the period ending March 31, 2004, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Anil K. Jain, Chief Executive Officer and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Sec. 1350, as adopted pursuant to Sec. 906 of the Sarbanes-Oxley Act of 2002, to the best of my knowledge that:

1. The Report fully complies with the requirements of Sections 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly represents, in all material respects, the financial condition and results of operations of the Company.

Signature: /s/ Anil K. Jain

Print Name: Anil K. Jain

Print Title: Chief Executive Officer and Chief Financial Officer