

IONATRON, INC.
Form S-3
September 14, 2006

As filed with the Securities and Exchange Commission on September 14 , 2006
Registration No. 333-

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

FORM S-3
REGISTRATION STATEMENT
Under
THE SECURITIES ACT OF 1933

IONATRON, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other
jurisdiction of
incorporation or
organization)

3716 East Columbia Street, Suite 120
Tucson, Arizona 85714
(520) 628-7415
(Address, including zip code, and telephone number,
including area code, of registrant's principal executive
offices)

77-0262908
(IRS employer
identification
number)

Dana A. Marshall
Chief Executive Officer
Ionatron, Inc.
3716 East Columbia Street, Suite 120
Tucson, Arizona 85714
(520) 628-7415
(Name, address, including zip code, and telephone
number,
including area code, of agent for service)

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Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this

Registration Statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. "

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. x

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. " _____

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. " _____

If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box. "

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CALCULATION OF REGISTRATION FEE

Title of each Class of Securities to be Registered	Amount To be Registered	Proposed Maximum Offering Price Per Security(2)	Proposed Maximum Aggregate Offering Price(2)	Amount of Registration Fee
Common stock, par value \$0.001 per share (1)	5,539,599 (3)	\$ 5.68	\$ 31,464,922.32	\$ 3,366.75
Total Fee				\$ 3,366.75

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- (1) Includes (i) 923,272 shares of common stock issuable upon exercise of warrants.
- (2) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) of the Securities Act of 1933, based upon the average of the high and low sales prices of the common stock as reported on the Nasdaq National Market on September 12, 2006.
- (3) Pursuant to Rule 416 of the Securities Act of 1933, there are also being registered hereunder additional shares of common stock as may be issued to the selling stockholders because of any future stock dividends, stock distributions, stock splits or similar capital readjustments or other similar transactions.

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(A) OF THE SECURITIES ACT OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(A), MAY DETERMINE.

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The information in this prospectus is not complete and may be changed. Securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION
DATED SEPTEMBER 14, 2006

IONATRON, INC.

5,539,599 Shares of Common Stock

This prospectus relates to up to 5,539,599 shares of the common stock of Ionatron, Inc., which have been registered for resale by some of our securityholders pursuant to this prospectus. The shares of common stock may be offered and sold to the public from time to time.

The common stock may be offered from time to time by the selling securityholders through ordinary brokerage transactions in the over-the-counter markets, in negotiated transactions or otherwise, at market prices prevailing at the time of sale or at negotiated prices and in other ways as described in the "Plan of Distribution." The shares of common stock being offered include: an aggregate of up to 923,272 shares of common stock issuable upon exercise of outstanding warrants issued in the August 2006 private placement. Ionatron will not receive any of the proceeds from any sale of common stock by the selling securityholders. Ionatron will, however, receive proceeds from any cash exercise of the warrants.

The common stock is listed for trading on the Nasdaq National Market under the symbol "IOTN". On September 13, 2006, the closing sale price of the common stock as reported by the Nasdaq National Market was \$5.70.

An investment in the common stock is speculative and involves a high degree of risk. See "Risk Factors" beginning on Page 6.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this Prospectus is September 14, 2006.

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FORWARD-LOOKING STATEMENTS

Certain statements in this prospectus and in the documents incorporated by reference herein constitute forward-looking statements within the meaning of the securities laws. Forward-looking statements include all statements that do not relate solely to the historical or current facts, and can be identified by the use of forward looking words such as "may", "believe", "will", "expect", "expected", "project", "anticipate", "anticipated estimates", "plans", "strategy", "target", "prospects" or "continue". These forward looking statements are based on the current plans and expectations of our management and are subject to a number of uncertainties and risks that could significantly affect our current plans and expectations, as well as future results of operations and financial condition and may cause our actual results, performances or achievements to be materially different from any future results, performances or achievements expressed or implied by such forward-looking statements. Important factors that could cause our actual results to differ materially from our expectations include, among others, those set forth under the caption "Risk Factors." In making these forward-looking statements, we claim the protection of the safe-harbor for forward-looking statements contained in the Private Securities Reform Act of 1995. Although we believe that the expectations reflected in such forward-looking statements are reasonable, there can be no assurance that such expectations will prove to have been correct. We do not assume any obligation to update these forward-looking statements to reflect actual results, changes in assumptions, or changes in other factors affecting such forward-looking statements.

The registration statement containing this prospectus, including exhibits to the registration statement, provides additional information about us and the common stock offered under this prospectus. The registration statement can be read at the SEC web site or at the SEC offices mentioned under the heading "Where You Can Find More Information."

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THE COMPANY

Ionatron, Inc. was formed on June 3, 2002 to develop and market products and systems based on Laser Guided Energy or LGE™ technologies. We produced LGE products for specific U.S. Government customer applications and platforms and develop LGE and high-voltage technologies into other viable industrial and commercial applications. We expect to incorporate our proprietary technologies into Directed Energy systems and products to be developed for use by a range of U.S. Government customers. Ionatron and various U.S. Government organizations have entered into several contracts and services as well as Cooperative Research and Development Agreements for joint research on Laser Induced Plasma Channel, or LIPC, based directed energy technologies. We expect to offer U.S. Government approved versions of our products and/or systems that incorporate our technology and products for commercial security applications in the future.

Since our inception, we have been engaged in research and development and business development activities. Our technologies support both lethal and non-lethal applications, including products under development incorporating lasers, high voltage and other innovative technologies. In 2005, in response to a heightened threat and at the request of a government customer, we developed both major components and a system that can counter Improvised Explosive Devices, or IEDs, which constitute a major threat in several areas of war. We have also entered into teaming agreements with other defense contractors to advance the use of our LGE technology.

Through our wholly owned subsidiary, North Star Power Engineering, Inc., we are engaged in the business of designing and manufacturing a broad range of customized, high performance electrical equipment for the defense, aerospace, semi-conductor and medical industries. North Star also produces proprietary technology directly for Ionatron applications. We are continually exploring ways to apply and advance its unique technologies to provide commercially viable products in a range of worldwide markets.

Our intellectual property strategy is directed toward establishing an integral position for us to be involved with a broad range of products and applications that utilize concepts, know-how, and technology invented through our own internal funding and creativity. We believe this approach will enhance our ability to work for the government as well as other entities in mutually productive collaborations.

Ionatron incorporated under the laws of the State of Delaware in 2002. On March 18, 2004, a subsidiary of U.S. House & Garden Inc, a non-operating, publicly traded company merged into Ionatron, Inc. Ionatron's principal offices are located at 3716 East Columbia Street, Suite 120, Tucson, Arizona 85714, and its telephone number is (520) 628-7415.

Unless the context requires otherwise, reference in this prospectus to “we”, “us”, “our”, “Ionatron” or “Company” refers to Ionatron, Inc.

Recent Financing

On August 8, 2006, we sold an aggregate of 4,616,327 shares (the “Shares”) of our common stock and warrants to purchase up to an additional 923,272 shares of our common stock for gross proceeds of \$26,543,881. The warrants are exercisable for a five-year period at a price of \$9.15 per share.

In connection with the financing, we entered into a registration rights agreement with each purchaser of common stock and warrants in which we agreed to use our best efforts to file a shelf registration statement with the SEC covering the resale of the shares of common stock sold in the financing and the shares of common stock issuable upon exercise of the warrants within 45 days after the closing. We also agreed in the registration rights agreement to use its best efforts to have the registration statement declared effective by the SEC within 150 days and keep the registration

statement effective for a specified period.

If the registration statement is not timely filed or declared effective by the SEC, we will make a payment to each holder on the date of the registration default and each monthly anniversary thereafter until the default is cured in an amount equal to 1% of the purchase price initially paid by the investors in the financing for any of such securities then held; provided that in no event shall the amount of penalties payable to any investor in the financing exceed 10% of its initial purchase price.

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We entered into an agency agreement with J Giordano Securities Group (“J Giordano”), pursuant to which J Giordano served as placement agent in connection with the Financing. For serving as placement agent, J Giordano received a placement agent fee of \$1,593,755. In addition, if within twelve months following the closing of the financing, we sell, directly or indirectly, securities to any purchasers (other than securities in connection with a working capital loan or facility or project debt financing), J Giordano will be entitled to receive the same compensation with respect to such sale of securities as it will receive in connection with the financing.

The net proceeds to us from the financing, after deducting placement agent fees and expenses and other expenses were approximately \$24.9 million, which was added to our working capital.

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RISK FACTORS

Prospective investors should consider carefully the following risk factors before purchasing any shares of the common stock offered hereby by the selling securityholders.

Risk Related to Our Business

We have a history of losses and may not be able to achieve and maintain profitable operations.

We have incurred net losses since our formation in June 2002, including net losses of \$3,242,109, \$3,261,005, \$3,835,329 and \$8,292,742 for the years ended December 31, 2003, 2004 and 2005 and six months ended June 30, 2006, respectively. Additionally, losses are continuing to date. Our ability to achieve profitable operations is dependent upon, among other things, our ability to obtain sufficient government contracts and to complete the development of products based on our technologies. We cannot assure you that we will be able to significantly increase our revenue or achieve and maintain profitability.

The timing and magnitude of government funding and orders for our Counter-IED products cannot be predicted in light of the conclusion of our 12-unit pre-production contract during the second quarter of 2006.

The contract for our 12-unit pre-production counter-IED products was concluded during the second quarter of 2006. This contract accounted for approximately 68.4% and 70.2% of our revenue for the year ended December 31, 2005 and the three months ended March 31, 2006, respectively. As the pre-production order and assessment ended during the second quarter of 2006, the path forward is currently being identified and evaluated. Any new funding will come from approved statements of work and will require additional satisfactory testing by the government. Because Government agencies are the intended customers for our counter-IED products, it is uncertain whether we will enter into such production orders and, if we do, what the timing or magnitude of such orders will be. In the event these orders do not develop as anticipated, especially following hiring of additional employees and further expenditures in anticipation of such sales, our losses may increase and we may experience cash flow shortages. There can be no assurance that we will receive production orders for our counter-IED products in accordance with our anticipated time table, or at all.

The receipt of future government funding is uncertain and may be reduced or eliminated at any time, particularly if our LIPC technology does not meet certain testing milestones.

We rely on government funding for certain aspects of LIPC development through funding provided in the federal government budget and contracts with various government agencies. Due to federal budgetary constraints and an anticipated overall reduction in the defense budget, we cannot assure you that any continued Government funding will be made available, or that we will be able to enter into any agreements with government customers for the further development of LIPC. We expect that additional funding for LIPC will be subject to our technology meeting certain government established milestones. If our LIPC technology does not meet government established milestones, additional government funding may be reduced or eliminated. If additional government funding for LIPC is reduced or is not forthcoming, in the absence of additional funding, our LIPC technology development efforts and revenues will be adversely affected.

Our future success will depend on our ability to develop new technologies and applications that address the needs of our markets.

Both our defense and commercial markets are characterized by rapidly changing technologies and evolving industry standards. Accordingly, our future performance depends on a number of factors, including our ability to:

- identify emerging technological trends in our target markets;
- develop and maintain competitive products;
- enhance our products by improving performance and adding innovative features that differentiate our products from those of our competitors;
- develop and manufacture and bring products to market quickly at cost-effective prices; and
- meet scheduled timetables for the development, certification and delivery of new products.

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We believe that, in order to remain competitive in the future, we will need to continue to develop new products, which will require the investment of significant financial and engineering resources. The need to make these expenditures could divert our attention and resources from other projects, and we cannot be sure that these expenditures will ultimately lead to the timely development of new technology. Due to the design complexity of our products, we may in the future experience delays in completing development and introduction of new products. Any delays could result in increased costs of development, deflect resources from other projects or loss of contracts.

In addition, there can be no assurance that the market for our products will develop or continue to expand as we currently anticipate. The failure of our technology to gain market acceptance could significantly reduce our revenue and harm our business. Furthermore, we cannot be sure that our competitors will not develop competing technologies which gain market acceptance in advance of our products. The possibility that our competitors might develop new technology or products might cause our existing technology and products to become obsolete or create significant price competition. If we fail in our new product development efforts or our products fail to achieve market acceptance more rapidly than our competitors, our revenue will decline and our business, financial condition and results of operations will be negatively affected.

We depend on the U.S. Government for substantially all of our revenue, and a reduction in the quality of this relationship or a shift in Government funding could have severe consequences on our prospects and financial condition.

Approximately 100%, 99%, 96% and 96% of our net revenue for the years ended December 31, 2003, 2004, 2005 and six months ended June 30, 2006, respectively, were to the U.S. Government and U.S. Government contractors. Therefore, any significant disruption or deterioration of our relationship with the U.S. Government would significantly reduce our revenue. Our U.S. Government programs must compete with programs managed by other defense contractors for a limited number of programs and for uncertain levels of funding. The development of our business will depend upon the continued willingness of the U.S. government agencies to fund existing and new defense programs and, in particular, to continue to purchase our products and services. Although defense spending in the United States has recently increased, further increases may not continue and any proposed budget or supplemental budget request may not be approved. In addition, the U.S. Department of Defense may not continue to focus its spending on technologies that we incorporate in our products.

Our competitors continuously engage in efforts to expand their business relationships with the U.S. Government which may be to our disadvantage and are likely to continue these efforts in the future. The U.S. Government may choose to use other defense contractors for its limited number of defense programs. In addition, the funding of defense programs also competes with non-defense spending of the U.S. Government. Budget decisions made by the U.S. Government are outside of our control and have long-term consequences for the size and structure of Ionatron. A shift in Government defense spending to other programs in which we are not involved or a reduction in U.S. Government defense spending generally could have severe consequences for our results of operations.

The U.S. Government may terminate or modify our existing contracts, which would adversely affect our revenue.

There are inherent risks in contracting with the U.S. Government, including risks peculiar to the defense industry, which could have a material adverse effect on our business, financial condition or results of operations. Laws and regulations permit the U.S. Government to:

- terminate contracts for its convenience;
- reduce or modify contracts if its requirements or budgetary constraints change;

- cancel multi-year contracts and related orders if funds for contract performance for any subsequent year become unavailable;

- shift its spending practices; and

- adjust contract costs and fees on the basis of audits done by its agencies.

If the U.S. Government terminates our contracts for convenience, we may only recover our costs incurred or committed for settlement expenses and profit on work completed before the termination. Additionally, most of our backlog could be adversely affected by any modification or termination of contracts with the U.S. Government or contracts the prime

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contractors have with the U.S. Government. The U.S. Government regularly reviews our costs and performance on its contracts, as well as our accounting and general business practices. The U.S. Government may reduce the reimbursement for our fees and contract-related costs as a result of an audit. We can give no assurance that one or more of our Government contracts will not be terminated under these circumstances. Also, we can give no assurance that we would be able to procure new Government contracts to offset the revenue lost as a result of any termination of our contracts. As our revenue is dependent on our procurement, performance and payment under our contracts, the loss of one or more critical contracts could have a negative impact on our financial condition.

Our business is subject to various restrictive laws and regulations because we are a contractor and subcontractor to the U.S. Government.

As a contractor and subcontractor to the U.S. Government, we are subject to various laws and regulations that are more restrictive than those applicable to non-government contractors. We are required to obtain and maintain material governmental authorizations and approvals to run our business as it is currently conducted. New or more stringent laws or government regulations concerning government contracts, if adopted and enacted, could have a material adverse effect on our business.

Generally, government contracts are subject to oversight audits by government representatives. Responding to governmental audits, inquiries or investigations may involve significant expense and divert management attention from regular operations. Our government business is also subject to specific procurement regulations and a variety of socio-economic and other requirements. These requirements, although customary in government contracts, increase our performance and compliance costs. These costs might increase in the future, reducing our margins, which could have a negative effect on our financial condition. Failure to comply with these regulations and requirements could lead to suspension or debarment, for cause, from government contracting or subcontracting for a period of time. Among the causes for debarment are violations of various statutes, including those related to:

- procurement integrity;
- export control;
- government security regulations;
- employment practices;
- protection of the environment;
- accuracy of records and the recording of costs; and
- foreign corruption.

Any of these factors, which are largely beyond our control, could also negatively impact our financial condition. We also may experience problems associated with advanced designs required by the government, which may result in unforeseen technological difficulties and cost overruns. Failure to overcome these technological difficulties and the occurrence of cost overruns would have a negative impact on our results.

At North Star, if we fail to win competitively awarded contracts in the future, we may experience a reduction in our revenue, which could negatively affect our profitability.

North Star obtains many of its U.S. Government, U.S. Government subcontractor and commercial contracts through a competitive bidding process. We cannot assure you that we will continue to win competitively awarded contracts or that awarded contracts will generate revenue sufficient to result in our profitability. We are also subject to risks associated with the following:

- the frequent need to bid on programs in advance of the completion of their design (which may result in unforeseen technological difficulties and cost overruns);
- the substantial time and effort, including the relatively unproductive design and development required to prepare bids and proposals, spent for competitively awarded contracts that may not be awarded to us;
- design complexity and rapid technological obsolescence; and

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the constant need for design improvement.

Our government contracts may be subject to protest or challenge by unsuccessful bidders or to termination, reduction or modification in the event of changes in government requirements, reductions in federal spending or other factors.

Competition within our markets may reduce our procurement of future contracts and our revenue.

The defense and commercial industries in which we operate are highly competitive. Our future competitors may range from highly resourceful small concerns, which engineer and produce specialized items, to large, diversified firms and defense contractors. Many of our potential competitors have more extensive or more specialized engineering, manufacturing and marketing capabilities and greater financial resources than we do. Consequently, these competitors may be better suited to take advantage of economics of scale and devote greater resources to develop new technologies. There can be no assurance that we can continue to compete effectively with these firms. In addition, some of our suppliers and customers could develop the capability to manufacture products similar to products that we are developing. This would result in them competing directly which could significantly reduce our revenue and seriously harm our business.

There can be no assurance that we will be able to compete successfully against our current or future competitors or that the competitive pressures we face will not result in reduced revenue and market share or seriously harm our business.

We derive a substantial portion of our revenue from a limited number of contracts. Therefore, our revenue will be adversely affected if we fail to receive renewal or follow-on contracts.

Renewal and follow-on contracts are important because our contracts are typically for fixed terms. These terms vary from shorter than one year to multi-year, particularly for contracts with options. The typical term of our contracts with the U.S. government is between one and two years. The loss of revenue from our possible failure to obtain renewal or follow-on contracts may be significant because our U.S. Government contracts account for a substantial portion of our revenue.

Our products may fail to perform satisfactorily in field tests at various stages of development and even if our products perform satisfactorily, there may be unanticipated delays in obtaining contracts.

Our government customers typically field test our products at various stages of development. Although we believe our technologies will perform their ultimately intended applications, many of our products have not been completed to date. Our success will ultimately depend upon our products meeting performance criteria established by our customers. Failure of a product to perform satisfactorily in a field test could result in delay of product development, cost overruns or even termination of the contract, any of which could materially affect the development of such product and our prospects, revenue and final condition.

We have in the past experienced delays in obtaining government contracts despite what we have been advised by prospective government customers after our products have been satisfactorily field tested. These delays are inherent in doing business with government contracting agencies. Nevertheless, these delays make it difficult for us to predict and prepare for production and can adversely affect anticipated operating results.

We depend on component availability, subcontractor performance and our key suppliers to manufacture and deliver our products and services.

Our manufacturing operations are highly dependent upon the delivery of materials by outside suppliers in a timely manner. In addition, we depend in part upon subcontractors to assemble major components and subsystems used in our products in a timely and satisfactory manner. If these contract manufacturers are not willing to contract with us on competitive terms or devote adequate resources to fulfill their obligations to us, or we do not properly manage these relationships, our existing customer relationships may suffer. In addition, by undertaking these activities, we run the risks that:

- the reputation and competitiveness of our products and services may deteriorate as a result of the reduction of our control and quality and delivery schedules and the consequent risk that we will experience supply interruptions and be subject to escalating costs; and
- our competitiveness may be harmed by the failure of our contract manufacturers to develop, implement or maintain manufacturing methods appropriate for our products and customers.

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Moreover, because most of our contracts are with Governmental agencies, we may be limited in the third parties we can engage as component manufacturers.

We are dependent for some purposes on sole-source suppliers. If any of these sole-source suppliers fails to meet our needs, we may not have readily available alternatives. Our inability to fill our supply needs would jeopardize our ability to satisfactorily and timely complete our obligations under government and other contracts. This might result in reduced revenue, termination of one or more of these contracts and damage to our reputation and relationships with our customers. We cannot be sure that materials, components, and subsystems will be available in the quantities we require, if at all.

Because the manufacturing process of our products is highly complex, errors, changes or uncertainties could disrupt production.

The manufacture of our products involves highly complex and precise processes, requiring production in a highly controlled and clean environment. Inadvertent or slight changes or uncertainties in our manufacturing processes, errors or use of defective or contaminated materials could impact our ability to achieve, disrupt and/or delay production and affect product reliability.

Our business could be adversely affected by a negative audit by the U.S. Government.

U.S. Government agencies such as the Defense Contract Audit Agency ("DCAA") routinely audit and investigate government contractors. These agencies review a contractor's performance under its contracts, cost structure and compliance with applicable laws, regulations and standards. The DCAA also reviews the adequacy of, and a contractor's compliance with, its internal control systems and policies, including the contractor's purchasing, property, estimating, compensation and management information systems. Any costs found to be improperly allocated to a specific contract will not be reimbursed, while such costs already reimbursed must be refunded. If an audit uncovers improper or illegal activities, we may be subject to civil and criminal penalties and administrative sanctions, including termination of contracts, forfeiture of profits, suspension of payments, fines and suspension or prohibition from doing business with the U.S. Government. In addition, we could suffer serious reputational harm if allegations of impropriety were made against us.

Our backlog is subject to reduction and cancellation.

Backlog represents products or services that our customers have committed by contract to purchase from us, our total funded backlog as of June 30, 2006 was approximately \$5.7 million. Backlog is subject to fluctuations and is not necessarily indicative of future revenue. Moreover, cancellations of purchase orders or reductions of product quantities in existing contracts could substantially and materially reduce backlog and, consequently, future revenue. Our failure to replace cancelled or reduced backlog could result in lower revenue.

We depend on the recruitment and retention of qualified personnel, and our failure to attract and retain such personnel could seriously harm our business.

Due to the specialized nature of our businesses, our future performance is highly dependent upon the continued services of our key engineering personnel and executive officers. Our prospects depend upon our ability to attract and retain qualified engineering, manufacturing, marketing, sales and management personnel for our operations. Competition for personnel is intense, and we may not be successful in attracting or retaining qualified personnel. Our failure to compete for these personnel could seriously harm our business, results of operations and financial condition. Additionally, since the majority of our business involves technologies that are classified due to national security reasons, we must hire U.S. Citizens who have the ability to obtain a security clearance. This further reduces our

potential labor pool.

Because many of our contracts and projects are classified for national security reasons, we may not be able to provide important information to the public.

To date, substantially all of our revenue has been derived from contracts which are classified by the U.S. Government for national security reasons. Therefore, we are prohibited from filing these contracts as exhibits to our SEC reports, registration statements and filings or provide more than the summary information that we provide in our reports, registration statements and other filings with the SEC and in our press releases. Accordingly, investors may not have important information concerning our businesses and operations with which to make an informed investment decision.

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The U.S. government's royalty-free right to use technology developed by us limits our intellectual property rights.

We seek to protect the competitive benefits we derive from our patents, proprietary information and other intellectual property. However, we do not have the right to prohibit the U.S. government from using certain technologies developed or acquired by us or to prohibit third party companies, including our competitors, from using those technologies in providing products and services to the U.S. government. The U.S. government has the right to royalty-free use of technologies that we have developed under U.S. Government contracts. We are free to commercially exploit those government-funded technologies and may assert our intellectual property rights to seek to block other non-government users thereof, but we cannot assure you we could successfully do so.

We are subject to government regulation which may require us to obtain additional licenses and could limit our ability to sell our products outside the United States.

We may be unable to adequately protect our intellectual property rights, which could affect our ability to compete.

Protecting our intellectual property rights is critical to our ability to compete and succeed as a company. We hold a number of United States patents and patent applications, as well as trademark, and registrations which are necessary and contribute significantly to the preservation of our competitive position in the market. There can be no assurance that any of these patents or future patent applications and other intellectual property will not be challenged, invalidated or circumvented by third parties. In some instances, we have augmented our technology base by licensing the proprietary intellectual property of others. In the future, we may not be able to obtain necessary licenses on commercially reasonable terms. We enter into confidentiality and invention assignment agreements with our employees, and enter into nondisclosure agreements with our suppliers and appropriate customers so as to limit access to and disclosure of our proprietary information. These measures may not suffice to deter misappropriation or independent third party development of similar technologies. Moreover, the protection provided to our intellectual property by the laws and courts of foreign nations may not be as advantageous to us as the remedies available under United States law.

We may face claims of infringement of proprietary rights.

There is a risk that a third party may claim our products infringe on their proprietary rights. Whether or not our products infringe on proprietary rights of third parties, infringement or invalidity claims may be asserted or prosecuted against us and we could incur significant expense in defending them. If any claims or actions are asserted against us, we may be required to modify our products or obtain licenses on commercially reasonable terms, in a timely manner or at all. Our failure to do so could adversely affect our business.

Our operations expose us to the risk of material environmental liabilities.

We are also subject to increasingly stringent laws and regulations that impose strict requirements for the proper management, treatment, storage and disposal of hazardous substances and wastes, restrict air and water emissions from our testing and manufacturing operations, and require maintenance of a safe workplace. These laws and regulations can impose substantial fines and criminal sanctions for violations, and require the installation of costly pollution control equipment or operational changes to limit pollution emissions and/or decrease the likelihood of accidental hazardous substance releases. We incur, and expect to continue to incur, substantial capital and operating costs to comply with these laws and regulations. In addition, new laws and regulations, stricter enforcement of existing laws and regulations, the discovery of previously unknown contamination or the imposition of new clean-up requirements could require us to incur costs in the future that would have a negative effect on our financial condition or results of operations.

The unpredictability of our results may harm the trading price of our securities, or contribute to volatility.

Our operating results may vary significantly over time for a variety of reasons, many of which are outside of our control, and any of which may harm our business. The value of our securities may fluctuate as a result of considerations that are difficult to forecast, such as:

- the size and timing of contract receipt and funding; changes in U.S. Government policies and government budgetary policies;
- termination or expiration of a key government contract;

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- our ability and the ability of our key suppliers to respond to changes in customer orders;
- timing of our new product introductions and the new product introductions of our competitors;
- adoption of new technologies and industry standards;
- competitive factors, including pricing, availability and demand for competing products fluctuations in foreign currency exchange rates;
- conditions in the capital markets and the availability of project financing;
- regulatory developments;
- general economic conditions;
- changes in the mix of our products;
- cost and availability of components and subsystems; and
- price erosion.

Our management holds a majority of our outstanding voting stock and has control over stockholder matters.

As of September 14, 2006, our management owned approximately 26% of our outstanding common stock. Accordingly, they can exert significant influence over matters, which require stockholder vote, including the election of directors, amendments to our Certificate of Incorporation or approval of the dissolution, merger, or sale of Ionatron, our subsidiaries or substantially all of our assets. This concentration of ownership and control by management could delay or prevent a change in our control or other action, even when a change in control or other action might be in the best interests of other stockholders.

A large number of shares of our common stock could be sold in the market in the near future, which could depress our stock price.

As of September 14, 2006, we had outstanding approximately 78 million shares of common stock. A substantial portion of our shares are currently freely trading without restriction under the Securities Act of 1933, having been held by their holders for over two years and are eligible for sale under Rule 144(k). Our outstanding Series A Preferred Stock is convertible into an aggregate of approximately 1.48 million shares of common stock. There are also currently outstanding options and warrants to purchase approximately 5.0 million shares of our common stock, a majority of which have exercise prices substantially below our current market price. To the extent any of our options or warrants are exercised or the Series A Preferred Stock are converted, your percentage ownership will be diluted and our stock price could be further adversely affected. The shares of common stock underlying the Series A Preferred Stock and outstanding options and warrants have been registered for resale by the holders thereof or are eligible for sale under Rule 144(k). As the underlying shares are sold, the market price could drop significantly if the holders of these restricted shares sell them or if the market perceives that the holders intend to sell these shares.

Provisions of our corporate charter documents could delay or prevent change of control.

Our Certificate of Incorporation authorizes our board of directors to issue up to 1,000,000 shares of "blank check" preferred stock without stockholder approval, in one or more series and to fix the dividend rights, terms, conversion

rights, voting rights, redemption rights and terms, liquidation preferences, and any other rights, preferences, privileges, and restrictions applicable to each new series of preferred stock. In addition, our Certificate of Incorporation divides our board of directors into three classes, serving staggered three-year terms. At least two annual meetings, instead of one, will be required to effect a change in a majority of our board of directors. We also have a rights agreement, commonly known as a "poison pill" in place which provides that in the event an individual or entity becomes a beneficial holder of 12% or more of the shares of our capital stock, without the approval of the board of directors, our other stockholders shall have the right to purchase shares of our (or in some cases the acquirer's) common stock from us at 50% of its then market value. The designation of preferred stock in the future, the classification of our board of directors, its three classes and the rights agreement could make it difficult for third parties to gain control of our company, prevent or substantially delay a change in control, discourage bids for our common stock at a premium, or otherwise adversely affect the market price of our common stock.

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[Back to Table of Contents](#)**SELLING SECURITYHOLDERS**

The following table sets forth information as of September 14, 2006, with respect to the securityholders for which shares are being registered for sale.

The table below assumes for calculating each selling securityholder's beneficial percentage ownership that options, warrants and/or convertible securities that are held by such selling securityholder (but not held by any other selling securityholder or person) and are exercisable or convertible within 60 days from the date of this prospectus have been exercised or converted. The table also assumes the sale of all of the shares registered for sale by the selling securityholder pursuant to this prospectus.

Name of selling security holder	Number of shares beneficially owned prior to the offering	Number of shares being offered	Common stock beneficially owned after the offering	
			Number of shares	Percentage of outstanding shares
LibertyView Funds, L.P. (1)	83,478 (2)	83,478 (2)	-0-	-0-
LibertyView Special Opportunities Fund, L.P. (3)	41,740 (4)	41,740 (4)	-0-	-0-
Trust D (for a portion of the assets of Kodak Retirement Income Plan) (5)	83,478 (6)	83,478 (6)	-0-	-0-
Pierce Diversified Strategy Master Fund LLC, Ena (7)	83,478 (8)	83,478 (8)	-0-	-0-
Enable Opportunity Partners LP (9)	125,218 (10)	125,218 (10)	-0-	-0-
Enable Growth Partners LP (11)	626,087 (12)	626,087 (12)	-0-	-0-
The Heller Family Foundation (13)	120,000 (14)	120,000 (14)	-0-	-0-
Ronald I. Heller IRA (15)	150,000 (16)	150,000 (16)	-0-	-0-
Highbridge International LLC (17)	417,392 (18)	417,392 (18)	-0-	-0-
Iroquois Master Fund Ltd. (19)	420,000 (20)	420,000 (20)	-0-	-0-
Rockmore Investment Master Fund Ltd. (21)	288,107 (22)	260,870 (23)	27,237	*
Cranshire Capital, L.P. (24)	156,522 (25)	156,522 (25)	-0-	-0-
Atlas Master Fund, Ltd. (26)	228,696 (27)	208,696 (28)	20,000	*
Whitebox Intermarket Partners, LP (29)	146,087 (30)	146,087 (30)	-0-	-0-
SF Capital Partners Ltd. (31)	626,088 (32)	626,088 (32)	-0-	-0-
Ellsworth Fund Ltd. (33)	140,700 (34)	52,200 (35)	88,500	*
Portside Growth and Opportunity Fund (36)	161,282 (37)	104,349 (38)	56,933	*
OTA Swaps LLC (39)	64,696 (40)	64,696 (40)	-0-	-0-

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Name of selling security holder	Number of shares beneficially owned prior to the offering	Number of shares being offered	Common stock beneficially owned after the offering	
			Number of shares	Percentage of outstanding shares
Triage Capital Management B, L.P. (41)	79,305 (42)	79,305 (42)	-0-	-0-
Triage Capital Management L.P. (43)	64,696 (44)	64,696 (44)	-0-	-0-
Castle Creek Technology Partners, LLC (45)	104,349 (46)	104,349 (46)	-0-	-0-
David S. Nagelberg IRA (47)	60,000 (48)	60,000 (48)	-0-	-0-
Hudson Bay Fund, L.P. (49)	651,130 (50)	651,130 (50)	-0-	-0-
Hudson Bay Overseas Fund, Ltd. (51)	183,653 (52)	183,653 (52)	-0-	-0-
Alexandra Global Master Fund Ltd. (53)	980,087 (54)	626,087 (55)	354,000	*

*

Less than 1%.

- (1) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Richard A. Meckler, an employee of Neuberger Berman, LLC, which is the investment advisor of the selling security holder.
- (2) Represents (i) 69,565 Shares and (ii) 13,913 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (3) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Richard A. Meckler, an employee of Neuberger Berman, LLC, which is the investment advisor of the selling security holder.
- (4) Represents (i) 34,783 Shares and (ii) 6,957 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (5) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Richard A. Meckler, an employee of Neuberger Berman, LLC, which is the investment advisor of the selling security holder.
- (6) Represents (i) 69,565 Shares and (ii) 13,913 shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (7) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Mitch Levine, the managing partner of the selling security holder.
- (8) Represents (i) 69,565 Shares and (ii) 13,913 shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (9) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Mitch Levine, the managing partner of the selling security holder.
- (10) Represents (i) 104,348 Shares and (ii) 20,870 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (11) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Mitch Levine, the managing partner of the selling security holder.
- (12)

Represents (i) 521,739 Shares and (ii) 104,348 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.

- (13) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Ronald I. Heller.
- (14) Represents (i) 100,000 Shares and (ii) 20,000 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (15) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Ronald I. Heller.
- (16) Represents (i) 125,000 Shares and (ii) 25,000 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (17) The selling security holder has advised us that Highbridge Capital Management, LLC is the trading manager of the selling security holder and has voting control and investment discretion over the securities held by the selling security holder. Glenn Dubin and

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Henry Swieca control Highbridge Capital Management, LLC and have voting control and investment discretion over the securities held by the selling security holder. Each of Highbridge Capital Management, LLC, Glenn Dubin and Henry Swieca disclaims beneficial ownership of the securities held by the selling security holder.

- (18) Represents (i) 347,826 Shares and (ii) 69,566 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (19) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Joshua Silverman. Joshua Silverman disclaims beneficial ownership of the securities held by the selling security holder.
- (20) Represents (i) 350,000 Shares and (ii) 70,000 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (21) The selling security holder has advised us that the Rockmore Capital, LLC (“Rockmore Capital”) and Rockmore Partners, LLC (“Rockmore Partners”), each a limited liability company formed under the laws of the State of Delaware, serve as the investment manager and general partner, respectively, to Rockmore Investments (US) LP, a Delaware limited partnership, which invests all of its assets through the selling security holder. By reason of such relationships, Rockmore Capital and Rockmore Partners may be deemed to share dispositive power over the shares of our common stock owned by the selling security holder. Rockmore Capital and Rockmore Partners disclaim beneficial ownership of such shares of our common stock. Rockmore Partners has delegated authority to Rockmore Capital regarding the portfolio management decisions with respect to the shares of common stock owned by the selling security holder and, as of August 7, 2006, Mr. Bruce T. Bernstein and Mr. Brian Daly, as officers of Rockmore Capital, are responsible for the portfolio management decisions of the shares of common stock owned by the selling security holder. By reason of such authority, Messrs. Bernstein and Daly may be deemed to share dispositive power over the shares of our common stock owned by the selling security holder. Messrs. Bernstein and Daly disclaim beneficial ownership of such shares of our common stock and neither of such persons has any legal right to maintain such authority.
- (22) Represents (i) 837 shares of common stock, (ii) 26,400 shares of common stock issuable upon the conversion of the Series A Preferred Stock, (iii) 217,391 Shares and (iv) 43,479 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (23) Represents (i) 217,391 Shares and (ii) 43,479 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (24) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Mitchell P. Kopin, President of Downsvie Capital, Inc., which is the general partner of the selling security holder.
- (25) Represents (i) 130,435 Shares and (ii) 26,087 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (26) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Dmitry Balyasny, a partner of Balyasny Asset Management LP, which is the investment adviser of the selling security holder.
- (27) Includes (i) 20,000 shares of common stock, (ii) 173,913 Shares and (iii) 34,783 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (28) Represents (i) 173,913 Shares and (ii) 34,783 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (29) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Andrew Redleaf, managing member of Whitebox Intermarket Advisors, LLC, the general partner of the selling security holder.
- (30) Represents (i) 121,739 Shares and (ii) 24,348 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (31) The selling security holder has advised us that the natural persons that have voting and dispositive power over its securities are Michael A. Roth and Brian J. Stark. Each of Michael A. Roth and Brian J. Stark disclaims beneficial ownership of the securities held by the selling security holder.

- (32) Represents (i) 521,740 Shares and (ii) 104,348 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (33) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Thomas H. Dinsmore, portfolio manager of Davis-Dinsmore Management Company, the investment adviser of the selling security holder.
- (34) Represents (i) 5,167 shares of common stock, (ii) 83,333 shares of common stock issuable upon the conversion of the Series A Preferred Stock, (iii) 43,500 Shares and (iv) 8,700 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (35) Represents (i) 43,500 Shares and (ii) 8,700 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (36) The selling security holder has advised us that Ramius Capital Group, L.L.C. ("Ramius Capital") is the investment adviser of the selling security holder and consequently has voting control and investment discretion over securities held by the selling security holder. Ramius Capital disclaims beneficial ownership of the shares held by the selling security holder. Peter A. Cohen, Morgan B. Stark, Thomas W. Strauss and Jeffrey M. Solomon are the sole managing members of CAS & Co., L.L.C., the sole managing member of Ramius Capital. As a result, Messrs. Cohen, Stark, Strauss and Solomon may be considered beneficial owners of any shares deemed to be beneficially owned by Ramius Capital. Messrs. Cohen, Stark, Strauss and Solomon disclaim beneficial ownership of these shares.
- (37) Represents (i) 56,933 shares of common stock issuable upon the conversion of the Series A Preferred Stock, (ii) 86,957 Shares and (iii) 17,392 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.

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- (38) Represents (i) 86,957 Shares and (ii) 17,392 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (39) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Ira M. Leventhal.
- (40) Represents (i) 53,913 Shares and (ii) 10,783 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (41) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Leon Frenkel, senior manager of Triage Capital LF Group LLC, which is the general partner of Triage Management L.P., which is the general partner of the selling security holder.
- (42) Represents (i) 66,087 Shares and (ii) 13,218 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (43) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Leon Frenkel, senior manager of Triage Capital LF Group LLC, which is the general partner of Triage Management L.P., which is the general partner of the selling security holder.
- (44) Represents (i) 53,913 Shares and (ii) 10,783 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (45) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is Daniel Asher, the managing member of Castle Creek Partners, LLC, which is the investment manager of the selling security holder. Each of Castle Creek Partners, LLC and Daniel Asher disclaims beneficial ownership of the securities held by the selling security holder.
- (46) Represents (i) 86,957 Shares and (ii) 17,392 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (47) The selling security holder has advised us that the natural person that has voting and dispositive power over its securities is David S. Nagelberg.
- (48) Represents (i) 50,000 Shares and (ii) 10,000 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (49) The selling security holder has advised us that the natural persons that have voting and dispositive power over its securities are Yoav Roth and John Doscas. Both Yoav Roth and John Doscas disclaim beneficial ownership of the securities held by the selling security holder.
- (50) Represents (i) 542,608 Shares and (ii) 108,522 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (51) The selling security holder has advised us that the natural persons that have voting and dispositive power over its securities are Yoav Roth and John Doscas. Both Yoav Roth and John Doscas disclaim beneficial ownership of the securities held by the selling security holder.
- (52) Represents (i) 153,044 Shares and (ii) 30,609 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (53) The selling security holder has advised us that the natural person that may be deemed to have voting and dispositive power over its securities is Mikhail Filimonov, an officer of Alexandra Investment Management, LLC, which is the investment advisor of the selling security holder. Mikhail Filimonov and Alexandra Investment Management, LLC disclaim beneficial ownership of the shares listed as beneficially owned by this selling stockholder.
- (54) Represents (i) 20,667 shares of common stock, (ii) 333,333 shares of common stock issuable upon the conversion of the Series A Preferred Stock, (iii) 521,739 Shares and (iv) 104,348 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.
- (55) Represents (i) 521,739 Shares and (ii) 104,348 Shares issuable upon exercise of the warrant issued in the August 2006 private placement.

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PLAN OF DISTRIBUTION

The selling securityholders and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their shares of our common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These sales may be at fixed or negotiated prices. The selling securityholders may use any one or more of the following methods when selling shares:

- ordinary brokerage transactions and transactions in which the broker/dealer solicits purchasers;
- block trades in which the broker/dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker/dealer as principal and resale by the broker/dealer for its account;
- an exchange distribution in accordance with the Rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales;
- broker/dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The selling securityholders may also sell shares under Rule 144 under the Securities Act, if available, rather than under this prospectus.

Broker/dealers engaged by the selling securityholders may arrange for other brokers/dealers to participate in sales. Broker/dealers may receive commissions from the selling securityholders (or, if any broker/dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The selling securityholders do not expect these commissions to exceed what is customary in the types of transactions involved.

The selling securityholders may from time to time pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock from time to time under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act of 1933 amending the list of selling securityholders to include the pledgee, transferee or other successors in interest as selling securityholders under this prospectus.

The selling stockholders and any broker/dealers or agents that are involved in selling the shares may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker/dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions under the Securities Act. The selling securityholders have informed Ionatron that they do not have any agreement or understanding, directly or indirectly, with any person to distribute Ionatron common stock.

Ionatron is required to pay all fees and expenses incident to the registration of the shares. Ionatron has agreed to indemnify the selling securityholders who purchased securities in the August 2006 financing against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

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INDEMNIFICATION

Sections 145 of the General Corporation Law of the State of Delaware provides for the indemnification of officers and directors under certain circumstances against expenses incurred in successfully defending against a claim and authorizes Delaware corporations to indemnify their officers and directors under certain circumstances against expenses and liabilities incurred in legal proceedings involving such persons because of their being or having been an officer or director.

Section 102(b) of the Delaware General Corporation Law permits a corporation, by so providing in its certificate of incorporation, to eliminate or limit director's liability to the corporation and its stockholders for monetary damages arising out of certain alleged breaches of their fiduciary duty. Section 102(b)(7) provides that no such limitation of liability may affect a director's liability with respect to any of the following: (i) breaches of the director's duty of loyalty to the corporation or its stockholders; (ii) acts or omissions not made in good faith or which involve intentional misconduct of knowing violations of law; (iii) liability for dividends paid or stock repurchased or redeemed in violation of the Delaware General Corporation Law; or (iv) any transaction from which the director derived an improper personal benefit. Section 102(b)(7) does not authorize any limitation on the ability of the corporation or its stockholders to obtain injunctive relief, specific performance or other equitable relief against directors.

Article Ninth of Ionatron's Certificate of Incorporation and Article XVIII of Ionatron's By-laws provide that all persons who the registrant is empowered to indemnify pursuant to the provisions of Section 145 of the General Corporation Law of the State of Delaware (or any similar provision or provisions of applicable law at the time in effect), shall be indemnified by Ionatron to the full extent permitted thereby. The foregoing right of indemnification shall not be deemed to be exclusive of any other rights to which those seeking indemnification may be entitled under any by-law, agreement, vote of stockholders or disinterested directors, or otherwise.

Article Tenth of Ionatron's Certificate of Incorporation provides that no director of Ionatron shall be personally liable to Ionatron or its stockholders for any monetary damages for breaches of fiduciary duty as a director, provided that this provision shall not eliminate or limit the liability of a director (i) for any breach of the director's duty of loyalty to the registrant or its stockholders; (ii) for acts or omissions in good faith or which involve intentional misconduct or a knowing violation of law; (iii) under Section 174 of the General Corporation Law of the State of Delaware; or (iv) for any transaction from which the director derived an improper personal benefit.

LEGAL MATTERS

The legality of the shares of common stock offered hereby was passed upon for Ionatron, Inc. by Blank Rome LLP, New York, New York.

EXPERTS

The financial statements, schedule, and management's report on the effectiveness of internal control over financial reporting incorporated by reference in this Prospectus have been audited by BDO Seidman, LLP, an independent registered public accounting firm, to the extent and for the periods set forth in their reports incorporated herein by reference, and are incorporated herein in reliance upon such reports given upon the authority of said firm as experts in auditing and accounting.

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WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934 and we file reports and other information with the SEC.

You may read and copy any of the reports, statements, or other information we file with the SEC at the SEC's Public Reference Section at 100 F Street, N.E., Washington, D.C. 20549 at prescribed rates. Information on the operation of the Public Reference Room may be obtained by calling the SEC at 1-800-SEC-0330. The SEC maintains a Web site at <http://www.sec.gov> that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC. The Nasdaq Stock Market maintains a Web site at <http://www.nasdaq.com> that contains reports, proxy statements and other information filed by us.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

We have filed with the SEC, Washington, D.C., a registration statement on Form S-3 under the Securities Act of 1933, covering the securities offered by this prospectus. This prospectus does not contain all of the information that you can find in our registration statement and the exhibits to the registration statement. Statements contained in this prospectus as to the contents of any contract or other document referred to are not necessarily complete and in each instance such statement is qualified by reference to each such contract or document filed or incorporated by reference as an exhibit to the registration statement.

The SEC allows us to "incorporate by reference" the information we file with them. This means that we can disclose important information to you by referring you to other documents that are legally considered to be part of this prospectus, and later information that we file with the SEC will automatically update and supersede the information in this prospectus and the documents listed below. We incorporate by reference the documents listed below, and any future filings made with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 until the selling stockholders sell all the shares.

The following documents previously filed by Ionatron with the Securities and Exchange Commission are incorporated herein by reference and shall be deemed a part of this prospectus:

- (a) Annual Report on Form 10-K for the fiscal year ended December 31, 2005;
- (b) Quarterly Reports on Form 10-Q for the fiscal quarters ended March 31, 2006 and June 30, 2006;
- (c) Current Report on Form 8-K filed with the SEC on February 16, 2006;
- (d) Current Report on Form 8-K filed with the SEC on March 24, 2006;
- (e) Current Report on Form 8-K filed with the SEC on June 8, 2006;
- (f) Current Report on Form 8-K filed with the SEC on July 5, 2006;
- (g) Current Report on Form 8-K filed with the SEC on August 9, 2006;
- (h) Current Report on Form 8-K filed with the SEC on August 18, 2006;
- (i) Current Report on Form 8-K filed with the SEC on August 31, 2006;

(j) The description of our common stock contained in our Registration Statement on Form 8-A dated March 4, 1992, together with any amendment or report filed with the SEC for the purpose of updating the description; and

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(k) All documents filed by Ionatron pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act subsequent to the date of the initial registration statement to which this prospectus relates and prior to the effectiveness of the registration statement to which this prospectus relates.

All documents we file pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, after the date of this prospectus and before the termination of the offering of the securities hereby shall be deemed to be incorporated by reference in this prospectus and to be a part of this prospectus on the date of filing of the documents. Any statement incorporated in this prospectus shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or in any other subsequently filed document which also is, or is deemed to be, incorporated by reference in this prospectus modifies or supersedes the statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus or the registration statement of which it is a part.

This prospectus incorporates documents by reference with respect to Ionatron that are not presented herein or delivered herewith. These documents are available without charge to any person, including any beneficial owner of our securities, to whom this prospectus is delivered, upon written or oral request to Corporate Secretary, Ionatron, Inc., 3716 East Columbia Street, Suite 120, Tucson, Arizona 85714, telephone: (520) 628-7415.

We have not authorized anyone else to provide you with information different from that contained or incorporated by reference in this prospectus. This prospectus is not an offer to sell nor is it a solicitation of an offer to buy any security in any jurisdiction where the offer or sale is not permitted. Neither the delivery of this prospectus nor any sale made under this prospectus shall, under any circumstances, imply that there has been no change in our affairs since the date of this prospectus or that the information contained in this prospectus or incorporated by reference herein is correct as of any time subsequent to its date.

We have not authorized any dealer, sales person or any other person to give any information or to represent anything not contained in this prospectus. You must not rely on any unauthorized information. This prospectus does not offer to sell or buy any securities in any jurisdiction where it is unlawful.

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The following are the estimated expenses of the issuance and distribution of the securities being registered, all of which will be paid by the Registrant:

SEC registration fee	\$	3,367
Legal fees and expenses		20,000
Accounting fees and expenses		10,000
Miscellaneous	\$	16,633
Total	\$	50,000.00

* All amounts are estimated except the first item.

Item 15. Indemnification of Directors and Officers.

Sections 145 of the General Corporation Law of the State of Delaware provides for the indemnification of officers and directors under certain circumstances against expenses incurred in successfully defending against a claim and authorizes Delaware corporations to indemnify their officers and directors under certain circumstances against expenses and liabilities incurred in legal proceedings involving such persons because of their being or having been an officer or director.

Section 102(b) of the Delaware General Corporation Law permits a corporation, by so providing in its certificate of incorporation, to eliminate or limit director's liability to the corporation and its stockholders for monetary damages arising out of certain alleged breaches of their fiduciary duty. Section 102(b)(7) provides that no such limitation of liability may affect a director's liability with respect to any of the following: (i) breaches of the director's duty of loyalty to the corporation or its stockholders; (ii) acts or omissions not made in good faith or which involve intentional misconduct of knowing violations of law; (iii) liability for dividends paid or stock repurchased or redeemed in violation of the Delaware General Corporation Law; or (iv) any transaction from which the director derived an improper personal benefit. Section 102(b)(7) does not authorize any limitation on the ability of the corporation or its stockholders to obtain injunctive relief, specific performance or other equitable relief against directors.

Article Ninth of the Registrant's Certificate of Incorporation and Article XVIII of the Registrant's By-laws provide that all persons who the registrant is empowered to indemnify pursuant to the provisions of Section 145 of the General Corporation Law of the State of Delaware (or any similar provision or provisions of applicable law at the time in effect), shall be indemnified by the Registrant to the full extent permitted thereby. The foregoing right of indemnification shall not be deemed to be exclusive of any other rights to which those seeking indemnification may be entitled under any by-law, agreement, vote of stockholders or disinterested directors, or otherwise.

Article Tenth of the Registrant's Certificate of Incorporation provides that no director of the Registrant shall be personally liable to the Registrant or its stockholders for any monetary damages for breaches of fiduciary duty as a director, provided that this provision shall not eliminate or limit the liability of a director (i) for any breach of the director's duty of loyalty to the registrant or its stockholders; (ii) for acts or omissions in good faith or which involve intentional misconduct or a knowing violation of law; (iii) under Section 174 of the General Corporation Law of the State of Delaware; or (iv) for any transaction from which the director derived an improper personal benefit.

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Item 16. Exhibits

(a)		Exhibits
<u>Exhibit</u>	<u>Number</u>	<u>Description</u>
<u>5.1</u>		Opinion of Blank Rome LLP as to the legality of the securities being registered
	<u>23.1</u>	Consent of BDO Seidman, LLP
	<u>23.3</u>	Consent of Blank Rome LLP, included in opinion filed as Exhibit 5.1
<u>24</u>		Power of Attorney, included in the signature page of this Registration Statement

* Previously filed

Item 17. Undertakings.

(a) The undersigned Registrant hereby undertakes to:

(1) File, during any period in which it offers or sells securities, a post-effective amendment to this registration statement to:

(i) Include any prospectus required by Section 10(a)(3) of the Securities Act.

(ii) Reflect in the prospectus any facts or events which, individually or together, represent a fundamental change in the information in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement.

(iii) Include any additional or changed material information on the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

(2) That, for the purpose of determining liability under the Securities Act, each post-effective amendment shall be deemed to be a new registration statement relating to the securities offered herein, and offering therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered that remain unsold at the termination of the offering.

(4) That for the purpose of determining any liability under the Securities Act of 1933 in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such

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purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
- (b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(b) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

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Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements of filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, in the City of Tucson, State of Arizona, on the 14th day of September 2006.

IONATRON, INC.

By: /s/ Kenneth M. Wallace

Name: Kenneth M. Wallace
Title: Chief Operating Officer and Chief Financial Officer

Each person whose signature appears below hereby authorizes each of Dana A. Marshall, Kenneth M. Wallace and Stephen A. McCommon or any one or more of them as his true and lawful attorney-in-fact with full power of substitution to execute in the name and on behalf of each person, individually and in each capacity stated below, and to file, any and all amendments to this Registration Statement, including any and all post-effective amendments thereto.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement on Form S-3 was signed by the following persons in the capacities and on the dates indicated:

Signature	Title	Date
/s/ David C. Hurley David C. Hurley	Director	September 14, 2006
/s/ Dana A. Marshall Dana A. Marshall	Chief Executive Officer, President and Director (principal executive officer)	September 14, 2006
/s/ Kenneth M. Wallace Kenneth M. Wallace	Chief Operating Officer and Chief Financial Officer (principal financial officer)	September 14, 2006
/s/ Stephen McCommon Stephen McCommon	Vice President of Finance and Chief Accounting Officer (principal accounting officer)	September 14, 2006
/s/ Thomas C. Dearmin Thomas C. Dearmin	Director	September 14, 2006
/s/ George P. Farley George P. Farley	Director	September 14, 2006
/s/ James K. Harlan	Director	September 14, 2006

James K. Harlan

/s/ James A. McDivitt
James A. McDivitt

Director

September 14, 2006

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