

INTERNATIONAL ISOTOPES INC
Form POS AM
June 16, 2008

As filed with the Securities and Exchange Commission on June 16, 2008

Registration No. 333-142674

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

POST-EFFECTIVE AMENDMENT NO. 1
ON FORM S-3 TO FORM SB-2
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

INTERNATIONAL ISOTOPES, INC.

(Exact name of registrant as specified in its charter)

| | |
|--|---|
| Texas | 74-2763837 |
| (State or other jurisdiction of incorporation or organization) | (I.R.S. Employer Identification Number) |

4137 Commerce Circle

Idaho Falls, Idaho 83401

(208) 524-5300

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Steve T. Laflin
President and Chief Executive Officer

International Isotopes, Inc.
4137 Commerce Circle

Idaho Falls, Idaho 83401

(208) 524-5300

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Sonny Allison
Perkins Coie LLP
1899 Wynkoop Street, Suite 700
Denver, Colorado 80202
(303) 291-2300

Edgar Filing: INTERNATIONAL ISOTOPES INC - Form POS AM

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.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act of 1933, 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 of 1933, 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 registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

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

| | | | |
|-------------------------|-----------------------|---------------------------|----------------------------------|
| Large accelerated filer | <input type="radio"/> | Accelerated filer | <input type="radio"/> |
| Non-accelerated filer | <input type="radio"/> | Smaller reporting company | <input checked="" type="radio"/> |

(Do not check if a smaller reporting company)

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 of 1933 or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

Preliminary Prospectus

Subject to Completion

Dated June 16, 2008

INTERNATIONAL ISOTOPES, INC.

32,222,216 Shares

International Isotopes, Inc.

Common Stock

This prospectus relates to the disposition from time to time of up to 32,222,216 shares of our outstanding common stock that are held by certain shareholders named in this prospectus.

The selling shareholders may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. The selling shareholders will determine when they will sell their shares and in certain cases, securities laws and SEC regulations may require the selling shareholders to deliver this prospectus to purchasers when they resell their shares of common stock. We will not receive any of the proceeds from the sale of the shares. The selling shareholders will bear all sales commissions and similar expenses. All other expenses in connection with this registration will be borne by us.

Our common stock is quoted on the OTC Bulletin Board® under the ticker symbol "INIS.OB." On May 23, 2008 the last sale price of the common stock, as reported on the OTC Bulletin Board®, was \$0.70 per share.

INVESTING IN OUR COMMON STOCK INVOLVES A HIGH DEGREE OF RISK. SEE "RISK FACTORS" BEGINNING ON PAGE 3.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED THESE SECURITIES OR DETERMINED IF THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this prospectus is June 16, 2008.

Table of Contents

| | |
|---|----|
| Prospectus Summary | 1 |
| Our Business | 1 |
| The Offering | 3 |
| Corporate Information | 3 |
| Where You Can Find Additional Information | 3 |
| Risk Factors | 3 |
| Forward-Looking Statements | 8 |
| Use Of Proceeds | 8 |
| Determination of Offering Price | 8 |
| Selling Shareholders | 8 |
| Plan of Distribution | 10 |
| Legal Matters | 12 |
| Experts | 12 |
| Information Incorporated By Reference | 12 |
| Commission Position on Indemnification For Securities Act Liabilities | 13 |

You should rely on the information that is contained in or incorporated by reference into this prospectus or that is contained in any free writing prospectus we may authorize to be delivered to you. We have not authorized anyone to provide you with information different from that contained in this prospectus. If anyone provides you with different or inconsistent information, you should not rely on it. You should assume that information contained in or incorporated by reference into this prospectus is accurate only as of the date on the front cover of this prospectus or the date of the document incorporated by reference, as applicable. Our business, financial condition, results of operations, and prospects may have changed since those dates. The selling shareholders are offering to sell, and seeking offers to buy, our common stock only in jurisdictions where offers and sales are permitted.

In this prospectus, the "Company," "International Isotopes," "we," "us," and "our" refer to International Isotopes Inc., a Texas corporation.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere or incorporated by reference in this prospectus. This summary is not complete and may not contain all of the information that you should consider before investing in our common stock. Investors should read the entire prospectus carefully, including the "Risk Factors" section, and other documents, including our financial statements, incorporated by reference into this prospectus before making an investment decision.

OUR BUSINESS

International Isotopes Inc., was formed as a Texas corporation in 1995. Our wholly owned subsidiaries are International Isotopes Idaho Inc.; International Isotopes Fluorine Products Inc.; and International Isotopes Transportation Services Inc., all of which are Idaho corporations. Our headquarters and all operations are located within two facilities in Idaho Falls, Idaho. Our business consists of six reportable segments which include; Nuclear Medicine Standards, Cobalt Products, Radiochemical Products, Fluorine Products, Radiological Services, and Transportation.

Nuclear Medicine

This segment consists of the manufacture of sources and standards associated with SPECT (Single Photon Emission Computed Tomography), patient positioning, and calibration or operational testing of dose measuring equipment for the nuclear pharmacy. These items include flood sources, dose calibrators, rod sources, flexible and rigid rulers, spot markers, pen point markers, and a host of specialty design items. We manufacture these products through an exclusive manufacturing agreement with RadQual LLC. RadQual has, in turn, numerous distributors for direct sales of the products. There are over 5,000 nuclear medicine centers around the country that require these types of products on a regular repeat basis. We have been manufacturing these products since 2001, and have continued to grow this business at an annual rate of between 7% and 10% per year. The nuclear pharmacy business has been growing, and is anticipated to continue to grow, at an annual rate of about 5%. During 2007 and 2008 we acquired a 24.5% ownership position in RadQual. We acquired this position in RadQual to increase our profit margin on sales of products in this segment through direct sales to customers.

Cobalt Products

This segment includes the production of bulk cobalt (cobalt-60), fabrication of cobalt capsules for teletherapy and irradiation devices, and recycling of expended cobalt sources. The sale of bulk cobalt has typically accounted for a large percentage of the total revenue from this business segment and because those sales run in a non-annual cycle we typically see large variations in revenues for this segment in financial period comparisons. However, the year-over-year demand for bulk cobalt, and our ability to supply it, remains steady. New products added to this area include cobalt source recycling and sealed source fabrication. Increasing sales and additional contract opportunities were developed with these products in 2007 and additional growth opportunities are expected in the future.

Radiochemical Products

This segment includes production and distribution of various isotopically pure radiochemical for medical, industrial, or research applications. These products are either directly produced by us or are purchased in bulk from other producers and distributed by us in customized packages and chemical forms tailored to meet customer requirements. Iodine 131 radiochemical accounts for the largest portion of revenue within this segment. We import radiochemical iodine and distribute this material in custom packages and concentrations per individual radiopharmacy orders and specifications. Radiopharmaceuticals produced with Iodine-131 are used in the treatment and diagnosis of various diseases of the thyroid such as Graves disease, thyroid cancer, and hyperthyroidism and are used in a host of investigational and clinical trials such as for the treatment of breast, lung, prostate, and ovarian cancers. Other less

significant sales in this segment consist of bulk Cobalt-57 (Co-57), Cesium-137 (Cs-137), Sodium-22 (Na-22), and Barium-133 (Ba-133) isotope sales.

Fluorine Products

The Fluorine Extraction Process (FEP) is a process that produces ultra-high purity fluoride gas products through a solid to solid reaction between depleted uranium tetrafluoride (DUF4) and various solid metal oxides such as silicon, boron, or germanium. We acquired seven patents for the Fluorine Extraction Process in January 2004 and will use this technology to produce several high purity fluorine products, such as germanium tetrafluoride, silicon tetrafluoride, and boron trifluoride. High purity fluoride gases are in ever-increasing demand for ion-implantation or chemical vapor deposition processes for microelectronics components and high-speed silicon chip manufacture. The FEP products have very high purity, which makes them ideally suited to these specialty applications, where high purity gas is required. In addition, we anticipate that the production costs of FEP products will be low compared to conventional processes used by our competitors to manufacture ultra pure fluoride products. This will enable us to effectively compete with existing high purity fluoride product suppliers.

In 2004, we began the design and construction of an FEP plant intended to produce germanium tetrafluoride. The plant was completed to the extent required to conduct some initial production testing in early 2006. During the remainder of 2006 and 2007 we expanded the scale of production testing in order to define the operational parameters for regular commercial production and completed installation of additional ancillary equipment and systems. The plant is now ready to commence commercial production of germanium tetrafluoride. We have indications that the market size and growth outlook for high purity fluorine products should provide us with an opportunity to grow our revenue in the coming years.

Additionally, we were successful in obtaining our first Small Business Innovative Research (SBIR) grant for Phase I research program to investigate the potential use of germanium tetrafluoride as a fluorinating agent for the production of hydro fluorocarbons. The Phase I investigational studies were completed during 2007, however, we were not successful in obtaining additional funding to carry on phase II investigational studies. The Company will continue to explore the potential commercial merits of this fluorination technology.

Radiological Services

This segment includes a wide variety of miscellaneous services, the largest of which is processing gemstones that have undergone irradiation for color enhancement. We have an exclusive contract with one customer for gemstone processing and this contract accounts for most of our sales in this segment. During 2007, we obtained an additional license from the Nuclear Regulatory Commission (NRC) for exempt distribution of gemstones and we are now one of only three companies in the U.S. licensed for this sort of activity. Other services in this segment consist of radiological engineering consultant services, contract shipping services for large quantities of radioactive materials, research and development activities, and Type A package certification testing. In 2007, this segment also included operations associated with the support of the orphan source recovery project for the Department of Energy. Under that program we provide on location packaging services and we transport radioactive materials from facilities where it is no longer in use.

Transportation

This segment was established in 2006 under the subsidiary name of International Isotopes Transportation Services (IITS). IITS was established to provide for transportation of our products (such as cobalt sources) and to offer for hire transportation services of hazardous and non-hazardous cargo materials. A major factor our determination of the need to establish this subsidiary and business segment was based upon many new regulations involving the security and tracking of shipments of cobalt. IITS provides us with considerable savings for the transportation of our own products and has introduced a new revenue stream for transportation of products for other companies. During 2007, we added additional equipment to support this segment and contracted with Alpha Omega Services to be its exclusive worldwide distributor for a family of new Type B radioactive material packages. These packages are intended to be licensed by the NRC in 2008, and will replace a large number of containers that are losing regulatory approval in the

U.S. after October 1, 2008.

THE OFFERING

On March 21, 2007, we entered into a Securities Purchase Agreement with certain institutional and private purchasers pursuant to which we sold (i) 13,333,331 shares of the Company's common stock, par value \$0.01 per share, (ii) Class C Warrants exercisable for 13,333,331 shares of the Company's common stock at an exercise price of \$0.10, and (iii) Class D Warrants exercisable for 13,333,331 shares of the Company's common stock at an exercise price of \$0.11, all for an aggregate sale price of approximately \$1,200,000. The Class C Warrants and Class D Warrants have been fully exercised.

This prospectus relates to the sale of up to 32,222,216 shares of our common stock by the selling shareholders identified in the section of this prospectus entitled "Selling Shareholders."

Information regarding the selling shareholders, the common shares being offering to sell under this prospectus, and the times and manner in which they may offer and sell those shares, is provided in the sections of this prospectus entitled "Selling Shareholders" and "Plan of Distribution." We will not receive any of the proceeds from these sales. The registration of common shares pursuant to this prospectus does not necessarily mean that any of those shares will ultimately be offered or sold by the selling shareholders.

CORPORATE INFORMATION

Our principal executive offices are located at 4137 Commerce Circle, Idaho Falls, Idaho and our phone number is (208) 524-5300. Our website is located at www.intisoid.com. Information contained on our website does not constitute, and shall not be deemed to constitute, part of this prospectus and shall not be deemed to be incorporated by reference into the registration statement as a result of this prospectus.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We file reports, proxy statements and other information with the SEC. You may read any document we file at the SEC's public reference room located at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC toll free at 1-800-SEC-0330 for information about the public reference room. You may also read our filings at the SEC's web site at <http://www.sec.gov>, which contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC. We also maintain a web site, www.intisoid.com, at which you may view information about us and some of the reports we file with the SEC. Information contained on our website does not constitute, and shall not be deemed to constitute, part of this prospectus and shall not be deemed to be incorporated by reference into the registration statement of which this prospectus is part.

We have filed with the SEC a registration statement, which contains this prospectus, on Form S-3 under the Securities Act of 1933. This prospectus does not contain all of the information in the registration statement. We have omitted parts of the registration statement as permitted by the rules and regulations of the SEC. You may inspect and copy the registration statement, including exhibits, at the SEC's public reference room or from its web site. Our statements in this prospectus about the contents of any contract or other document are not necessarily complete. You should refer to the copy of each contract or other document we have filed as an exhibit to the registration statement for complete information.

RISK FACTORS

Investing in our common stock involves a high degree of risk. The following risk factors should be considered carefully before you decide to buy our common stock. The risks and uncertainties we describe are not the only ones facing us. Additional risks not presently known to us or that we currently deem immaterial may also impair our business operations. If any of these risks were to occur, our business, financial condition or results of operations would likely suffer. In that event, the trading price of our common stock could decline, and you could lose all or part of your investment. You should carefully consider the following factors, together with all of the other information included or incorporated by reference in this prospectus, before you decide whether to invest in our common stock

RISKS RELATED TO OUR COMPANY

We have incurred and may continue to incur losses.

With the exception of 2002, we have incurred net losses for most fiscal periods since our inception. From inception through December 31, 2007, we have generated \$29,335,937 in revenues and accumulated deficit (including preferred stock dividends and returns) in the amount of \$ 92,552,706. The negative cash flow we have sustained has materially reduced our working capital, which in turn, could materially and negatively impact our ability to fund future operations and continue to operate as a going concern. Management has and continues to take actions to improve our results. The availability of necessary working capital, however, is subject to many factors beyond our control, including, our ability to obtain favorable financing, economic cycles, market acceptance of our products, competitors responses to our products, the intensity of competition in our markets, the level of demand for our products, etc.

We may need additional financing to continue operations.

Because we may continue to experience negative cash flow, we may need to obtain additional financing to continue operations. Management has and continues to take actions to improve our results and credit performance to enhance our ability to continue to finance debt. However, obtaining additional financing is subject to many factors beyond our control.

Operational hazards could result in the spread of contamination within our facility and require additional funding to correct.

An irrevocable, automatic renewable letter of credit against a certificate of deposit at Texas State Bank has been used to provide the financial assurance required by the Nuclear Regulatory Commission for our Idaho facility license. If a contamination event resulted in liability to us in an amount greater than the amount available under the letter of credit, we would have to borrow money or fund the liability from our future revenue.

We may incur material losses and costs as a result of product liability claims that may be brought against us.

We face an inherent business risk of exposure to product liability claims in the event that products supplied by us fail to perform as expected or such failure results, or is alleged to result, in bodily injury, and possible adverse publicity, which could damage our reputation by raising questions about our products' safety and efficacy, and could interfere with our efforts to market our products. A successful product liability claim against us in excess of our available insurance coverage or established reserves may have a material adverse effect on our business. Although we currently maintain liability insurance in amounts we believe are commercially reasonable, any product liability we incur may exceed our insurance coverage.

We are dependent upon key personnel, particularly our President and Chief Executive Officer.

Our ongoing operations are dependent on Steve T. Laflin, President and Chief Executive Officer. The loss of Mr. Laflin could have a material adverse effect on our business. We have a \$2 million dollar key man life insurance policy on Mr. Laflin and an employment agreement that extends through February 2010. There is no assurance that we will be able to retain Mr. Laflin or our existing personnel or attract additional qualified employees. The loss of any of our key personnel or an inability to attract additional qualified employees could result in a significant decline in revenue.

We are dependent on various third parties in connection with our business operations.

The production of HSA Cobalt is dependent upon the Department of Energy, and its prime-operating contractor, which controls the Idaho reactor and laboratory operations. Our gemstone production is tied to an exclusive agreement with Quali Tech Inc. Nuclear medicine calibration and reference standard manufacturing is conducted under an exclusive contract with RadQual, LLC, which in turn has agreements in place with several companies for marketing and sales. Termination of any of these agreements would have a significantly negative impact upon Company revenues and our business performance.

We are subject to competition from other companies, many of which have greater resources than us.

Each of our business areas has direct competition from other businesses. HSA cobalt is supplied by other reactor facilities around the world. Nuclear medicine calibration and reference standards are being produced by several other manufacturers in the U.S. and overseas, and there is at least one other gemstone processor in Europe. Most of our radiochemicals are also manufactured by several other companies in the world, and there are other suppliers of high purity fluorine products. Each of our competitors has significantly greater financial resources that could give them competitive advantage over us.

General economic conditions in markets in which we do business can impact the demand for our goods and services. Decreased demand for our products and services could have a negative impact on our financial performance and cash flow.

Demand for our products and services, in part, depends on the general economic conditions affecting the countries and industries in which we do business. A downturn in economic conditions in a country or industry that we serve may negatively impact demand for our products and services, in turn negatively impacting our operations and financial results. Further, changes in demand for our products and services can magnify the impact of economic cycles on our businesses. Unanticipated contract terminations by current customers can negatively impact operations, financial results and cash flow.

Volatility in raw material and energy costs, interruption in ordinary sources of supply and an inability to recover unanticipated increases in energy and raw material costs from customers could result in lost sales or significantly increase the cost of doing business.

Market and economic conditions affecting the costs of raw materials, utilities, energy costs, and infrastructure required to provide for the delivery of those goods and services, are beyond our control and any disruption or halt in supplies, or rapid escalations in costs could affect our ability to manufacture products or to competitively price our products in the marketplace. To date to ultimate impact of these energy costs increases have been mitigated through price increases or offset through improved process efficiencies, however, continuing escalation of energy costs could have a negative impact upon business performance.

We are subject to extensive government regulation in jurisdictions around the globe in which we do business. Regulations address, among other things, environmental compliance, import/export restrictions, healthcare services, taxes and financial reporting, and can significantly increase the cost of doing business, which in turn can negatively impact our operations, financial results and cash flow.

We are subject to extensive government regulation and intervention both in the United States and in all foreign jurisdictions in which we conduct business. Compliance with applicable laws and regulations results in higher capital expenditures and operating costs and changes to current regulations with which we comply can necessitate further capital expenditures and increases in operating costs to enable continued compliance. Additionally, from time to time, we are involved in proceedings under certain of these laws and regulations. Foreign operations are subject to political instabilities, restrictions on funds transfers, import/export restrictions and currency fluctuation. Significant areas of

regulation and intervention include the following:

Environmental and Health Compliance. We are committed to conducting our activities so that there is no or only minimal damage to the environment; there is no assurance, however, that its activities will not at times result in liability under environmental and health regulations. Costs and expenses resulting from such

liability may materially negatively impact our operations and financial condition. Overall, environmental and health laws and regulations will continue to affect our businesses worldwide.

Import/Export Regulation. We are subject to significant regulatory oversight of our import and export operations due to the nature of our product offerings. Penalties for non-compliance can be significant and violation can result in adverse publicity for the Company.

Financial Accounting Standards. Our financial results can be impacted by new or modified financial accounting standards.

Other Regulations. Our operations are subject to U.S. Nuclear Regulatory Commission, Food and Drug Administration, Department of Transportation, and Department of Homeland Security regulations. The extent these regulations are or become burdensome, our business development could be adversely affected.

Our earnings, cash flow and financial position are exposed to financial market risks worldwide, including interest rate and currency exchange rate fluctuations and exchange rate controls.

Fluctuations in domestic and world markets could adversely affect interest rates and impact our ability to obtain credit or attract investors. In order to reduce this risk the Company is structuring future agreements in such a manner that they provide for early termination provisions by the Company and continued development of the Company core business segments to such an extent that additional investment would not be required to sustain the Company as a going concern.

Catastrophic events such as natural disasters, pandemics, war and acts of terrorism, could disrupt our business or the business of our suppliers or customers, any of which disruptions could have a negative impact on our operations, financial results and cash flow.

Our operations are at all times subject to the occurrence of catastrophic events outside our control, ranging from severe weather conditions such as hurricanes, floods, earthquakes and storms, to health epidemics and pandemics. Terrorist activities, including events similar to those of September 11, 2001, or armed conflict involving the United States or any other country in which we hold interests, may adversely affect our business activities and financial condition. In addition, nuclear facilities could be direct targets of terrorist attacks. Costs associated with insurance and other security measures may increase as a result of these threats, and some insurance coverage may become more difficult to obtain, if available at all. Any such event could cause a serious business disruption that could affect our ability to produce and distribute our products and possibly expose us to third-party liability claims. Additionally, such events could impact our suppliers, in which event energy and raw materials may be unavailable to us, and our customers, who may be unable to purchase or accept our products and services. Any such occurrence could have a negative impact on our operations and financial condition.

Our future growth is largely dependent upon our ability to develop new technologies that achieve market acceptance with acceptable margins.

Our businesses operate in global markets that are characterized by rapidly changing technologies and evolving industry standards. Accordingly, our future growth rate depends upon a number of factors, including our ability to (i) identify emerging technological trends in our target end-markets, (ii) develop and maintain competitive products, (iii) enhance our products by adding innovative features that differentiate our products from those of our competitors, and (iv) develop, manufacture and bring products to market quickly and cost-effectively.

Our ability to develop new products based on technological innovation can affect our competitive position and requires the investment of significant resources. These development efforts divert resources from other potential investments in our businesses, and they may not lead to the development of new technologies or products on a timely

basis or that meet the needs of our customers as fully as competitive offerings. In addition, the markets for our products may not develop or grow as we currently anticipate. The failure of our technologies or products to gain market acceptance due to more attractive offerings by our competitors could significantly reduce our revenues and adversely affect our competitive standing and prospects.

Protecting our intellectual property is critical to our innovation efforts.

We own or have a license to use a large number of U.S. and foreign patents and patent applications, trademarks and copyrights. Our intellectual property rights may be challenged, invalidated or infringed upon by third parties or we may be unable to maintain, renew or enter into new licenses of third party proprietary intellectual property on commercially reasonable terms. In some non-U.S. countries, laws affecting intellectual property are uncertain in their application, which can affect the scope or enforceability of our patents and other intellectual property rights. Any of these events or factors could diminish or cause us to lose the competitive advantages associated with our intellectual property, subject us to judgments, penalties and significant litigation costs, and/or temporarily or permanently disrupt our sales and marketing of the affected products or services.

Large commercial scale fluoride gas production utilizing FEP has not been performed.

We have successfully demonstrated the feasibility of using the FEP process to produce germanium tetrafluoride and others have used FEP to produce boron trifluoride and silicon tetrafluoride. However, the FEP process has not been used for large scale commercial production and there may be technical issues and process challenges related to the utilization of FEP for commercial production.

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

We are subject to potentially material liabilities related to the remediation of environmental hazards and to personal injuries or property damages that may be caused by hazardous substance releases and exposures. We are subject to various federal, state, local and foreign government requirements regulating the discharge of materials into the environment or otherwise relating to the protection of the environment. These laws and regulations can impose substantial fines and criminal sanctions for violations, and require installation of costly equipment or operational changes to limit emissions and/or decrease the likelihood of accidental hazardous substance releases. We incur, and expect to continue to incur capital and operating costs to comply with these laws and regulations. In addition, changes in laws, regulations and enforcement of policies, the discovery of previously unknown contamination or new technology or information related to individual sites, or the imposition of new clean-up requirements or remedial techniques could require us to incur costs in the future that would have a negative effect on our financial condition or results of operations.

RISKS RELATED TO OUR COMMON STOCK

Trading in our common stock is limited and the price of our common stock may be subject to substantial volatility.

Our common stock has historically traded on the OTC Bulletin Board®, or the OTCBB, under the ticker symbol INIS.OB. The market for our securities is limited, the price of our stock is volatile, and the risk to investors in our common stock is greater than the risk associated with stock trading on other markets. These factors may reduce the potential market for our common stock by reducing the number of potential investors. This may make it more difficult for investors in our common stock to sell shares to third parties or to otherwise dispose of their shares. This could cause our stock price to decline.

Additionally, the price of our common stock may be volatile as a result of a number of factors, including, but not limited to, the following:

our ability to successfully conceive and to develop new products and services to enhance the performance characteristics and methods of manufacture of existing products;

.
our ability to retain existing customers and customers' continued demand for our products and services;

.
the timing of our research and development expenditures and of new product introductions;

.
the timing and level of acceptance of new products or enhanced versions of our existing products; and

price and volume fluctuations in the stock market at large which do not relate to our operating performance.

We are contractually obligated to issue shares in the future, which will dilute your interest in us.

As of May 23, 2008, there were approximately 15,605,000 shares of common stock issuable upon exercise of stock options outstanding, at a weighted average exercise price of \$0.04 per share. An additional 18,250,000 shares of common stock are reserved for issuance under our 2006 Equity Incentive Plan and our Employee Stock Purchase Plan as of May 23, 2008. As of May 23, 2008, there were outstanding Class E Warrants exercisable for 13,333,331 shares of the Company's common stock at an exercise price of \$0.869 per share. We expect to issue additional options to purchase shares of our common stock to compensate employees, consultants and directors, and may issue additional shares to raise capital. Any such issuances will have the effect of further diluting the interest of the holders of our securities.

FORWARD-LOOKING STATEMENTS

This prospectus, including the sections entitled "Prospectus Summary" and "Risk Factors" contain forward looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and within the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. When used in this discussion, words such as "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "might," "plan," "potential," "predict," "should" or "will" or the negative of such terms and similar expressions are intended to identify forward-looking statements. Such statements relate to future events or our future financial performance and are subject to certain risks and uncertainties which could cause actual results to differ materially from those projected. These risks and uncertainties, many of which are not within our control, include, but are not limited to, the uncertainty and timing of the successful development of our new products; decisions by customers to place orders for our products; the risks associated with reliance on a few key customers; our ability to attract and retain personnel with the necessary scientific and technical skills; the timing and completion of significant orders; the timing and amount of our research and development expenditures; the timing and level of market acceptance of customers' products for which we supply components; performance of our vendors; our ability to control costs associated with performance under fixed price contracts; and the continued availability of essential supplies, materials and services. We caution investors not to place undue reliance on these forward looking statements, which speak only as of the date hereof. We undertake no obligation to publicly release the result of any revision to these forward-looking statements which may be made to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events. In evaluating these statements, you should specifically consider various factors, including the risks outlined under the section entitled "Risk Factors."

USE OF PROCEEDS

The net proceeds from the disposition of the shares covered hereby will be received by the selling shareholders or their transferees. We will not receive any proceeds from the disposition of the shares by the selling shareholders or their transferees.

DETERMINATION OF OFFERING PRICE

The prices at which the shares of common stock covered by this prospectus may actually be disposed may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

SELLING SHAREHOLDERS

We issued 13,333,331 shares of common stock and two series of warrants designated as Class C and Class D Warrants to purchase an aggregate of 26,666,662 shares of common stock on March 21, 2007 to certain shareholders set forth below (the Private Placement). All of the Class C and Class D Warrants have been exercised in full. Pursuant to the securities purchase agreement entered into in connection with the Private Placement among us and the selling shareholders, we agreed to file a registration statement of which this prospectus is a part with the Securities and Exchange Commission (the Commission or the SEC) to register the disposition of the shares of

our common stock we issued to those shareholders and the shares of common stock issuable upon exercise of the warrants and to keep the registration statement effective until the earlier of (i) such time as all of the shares covered by this prospectus have been sold or (ii) the date on which the shares may be sold by non-affiliates without pursuant to Rule 144 of the Securities Act of 1933 (the Securities Act). The documents relating to the Private Placement are attached as exhibits to the Current Report on Form 8-K filed with the SEC on March 22, 2007.

The following table sets forth: (1) the name of each of the selling shareholders; (2) the number of shares of our common stock beneficially owned by each such selling shareholder prior to this offering; (3) the number of shares of our common stock covered by this prospectus; (4) the number of shares of our common stock beneficially owned upon completion of this offering, and (5) the percentage (if one percent or more) of common stock beneficially owned by each such selling shareholder after this offering, assuming all of the shares covered hereby are sold. Such information was obtained from the selling shareholders and has not been independently verified by us. The term "selling shareholder" includes each person or entity listed below, and his, her or its respective transferees, pledgees, donees, or other successors. Any material relationship the selling shareholders have had with us during the past three years is described in the footnotes to the table. To our knowledge, there currently are no agreements, arrangements, or understandings with respect to the sale of any shares of our common stock. Beneficial ownership is determined in accordance with Rule 13d-3 promulgated by the SEC, and generally includes those shares a selling shareholder has the power to vote or the power to transfer, and stock options and other rights to acquire common stock that are exercisable currently or become exercisable within 60 days. The selling shareholders may decide to sell all, some, or none of the shares of common stock covered hereby. Accordingly, we cannot provide any estimate of the number of shares of our common stock that any of the selling shareholders will hold once the offering is complete. The calculation of the percentage owned is based on 279,323,060 shares outstanding on May 23, 2008.

| Name | Common Stock | Common Stock | Number of Shares | Percentage of |
|--|-----------------------------------|---|--|--|
| | Owned Prior To the Offering | Being Offered Pursuant to this Prospectus | of Common Stock Owned Upon Completion of this Offering(k) | Shares of Common Stock Owned Upon Completion of this Offering |
| Firebird Global Master Fund II, Ltd. (a) | 28,250,811 (b) | 11,111,110 | 19,227,410 (c) | 6.7% |
| Ralph Richart (h) | 73,995,379(d) | 15,833,331 | 58,162,048(d) | 20.3% |
| PowerOne Capital Markets Ltd (e) | 9,444,444(f) | 6,333,333 | 3,111,111(f) | 1.1% |
| Christopher Grosso (h) | 12,613,540(g) | 833,331 | 11,780,209(g) | 4.2% |
| Francis Stobart (i) | 334,444(j) | 222,222 | 112,222(j) | * |

* less than 1.0%

(a) The address of Firebird Global Master Fund II, Ltd. is c/o FG2 Advisors, LLC, 152 West 57th Street, 24th Floor, New York, NY, 10019. FG2 Advisors, LLC is the investment manager of Firebird Global Master Fund II, Ltd. and has voting control and investment discretion over securities held by Firebird Global Master Fund II, Ltd. James Passin and Harvey Sawikin are the controlling principals of FG2 Advisors, LLC. Each of FG2 Advisors, LLC, James Passin and Harvey Sawikin disclaims beneficial ownership of the securities held by Firebird Global Master Fund II, Ltd.

(b) Includes 3,467,846 shares of common stock subject to warrants exercisable within 60 days of May 23, 2008. Excludes 2,087,709 shares of common stock subject to warrants exercisable within 60 days of May 23, 2008. The terms of such warrants contain a blocker provision (the Blocker) under which the holder thereof does not have the right to exercise such warrants to the extent that such conversion or exercise would result in beneficial ownership by the holder thereof of more than 9.99% of the shares of common stock then issued and outstanding. Without such

Blockers, 30,338,520 shares of common stock would be beneficially owned, which would constitute 10.6% of the outstanding common stock.

(c) Includes 5,555,555 shares of common stock subject to warrants exercisable within 60 days of May 23, 2008.

(d) Includes (i) 5,277,777 shares of common stock subject to warrants exercisable within 60 days of May 23, 2008, (ii) 2,000,000 shares subject to vested stock options exercisable within 60 days of May 23, 2008, and (iii) 1,374,866 shares held in a Richart family trust of which Dr. Richart is a co-trustee. This figure excludes 9,429,730 shares which are owned directly by Dr. Richart's adult children.

(e) The address of PowerOne Capital Markets Limited is Suite 2500, 130 King Street West, Toronto ON M5X 1A9. Pat DiCapo, Managing Director of PowerOne Capital Markets Limited has voting and dispositive powers over the securities.

(f) Includes 2,111,111 shares of common stock subject to warrants exercisable within 60 days of May 23, 2008.

(g) Includes (i) 277,777 shares of common stock subject to warrants exercisable within 60 days of May 23, 2008 (ii) 2,000,000 shares subject to vested stock options exercisable within 60 days of May 23, 2008, and (iii) 4,064,873 shares held by family members.

(h) Messrs. Richart and Grosso are directors of the Company

(i) Francis and Marie Claude Stobart have joint beneficial ownership of the securities.

(j) Includes 111,111 shares of common stock subject to warrants exercisable within 60 days of May 23, 2008.

(k) Represents shares held by such selling shareholder prior to the Private Placement that are not being registered hereunder and assumes that all shares being offered pursuant to this offering will be sold. We cannot be sure, however, of the number, or percentage, of shares of our common stock such selling shareholder will sell in this offering or hold following the offering.

PLAN OF DISTRIBUTION

The selling shareholders and any of their pledgees, donees, transferees, assignees and successors-in-interest may, from time to time, sell any or all of their shares of 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 shareholders 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;

.
to cover short sales made after the date that this Registration Statement is declared effective by the Securities and Exchange Commission;

.
broker-dealers may agree with the selling shareholders 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 shareholders may also sell shares under Rule 144 under the Securities Act, if available, rather than under this prospectus.

The selling shareholders may also engage in short sales against the box, puts and calls and other transactions in our securities or derivatives of our securities and may sell or deliver shares in connection with these trades.

Broker-dealers engaged by the selling shareholders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling shareholders (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The selling shareholders do not expect these commissions and discounts to exceed what is customary in the types of transactions involved. Any profits on the resale of shares of common stock by a broker-dealer acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. Discounts, concessions, commissions and similar selling expenses, if any, attributable to the sale of shares will be borne by the selling shareholder. The selling shareholders may agree to indemnify any agent, dealer or broker-dealer that participates in transactions involving sales of the shares if liabilities are imposed on that person under the Securities Act.

The selling shareholders 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 after we have filed 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 shareholders to include the pledgee, transferee or other successors in interest as selling shareholders under this prospectus.

The selling shareholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus and may sell the shares of common stock from time to time under this prospectus after we have filed 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 shareholders to include the pledgee, transferee or other successors in interest as selling shareholders under this prospectus.

The selling shareholders and any broker-dealers or agents that are involved in selling the shares of common stock 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 of common stock purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act.

We are required to pay all fees and expenses incident to the registration of the shares of common stock, but we will not receive any proceeds from the sale of the common stock by the selling shareholders. We have agreed to indemnify the selling shareholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

The selling shareholders have advised us that they have not entered into any agreements, understandings or arrangements with any underwriters or broker-dealers regarding the sale of their shares of common stock, nor is there an underwriter or coordinating broker acting in connection with a proposed sale of shares of common stock by any

selling shareholder. If we are notified by any selling shareholder that any material arrangement has been entered into with a broker-dealer for the sale or purchase of shares of common stock, if required, we will file a supplement to this prospectus. If the selling shareholders use this prospectus for any sale of the shares of common stock, they will be subject to the prospectus delivery requirements of the Securities Act.

We have advised each selling shareholder that it may not use shares registered under this Registration Statement to cover short sales of common stock made prior to the date on which this Registration Statement shall have been

declared effective by the Securities and Exchange Commission. The selling shareholders will be responsible for their respective compliance with the applicable provisions of the Securities Act and Exchange Act, and the rules and regulations thereunder promulgated, including, without limitation, Regulation M, as applicable to such selling shareholders in connection with resales of their respective shares under this Registration Statement.

The anti-manipulation rules of Regulation M under the Securities Exchange Act of 1934 may apply to sales of our common stock and activities of the selling shareholders. Regulation M may restrict the ability of any person engaged in the distribution of the shares to engage in market-making activities for a period of up to five business days before the distribution.

We have advised the selling shareholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling shareholders and their affiliates. In addition, we will make copies of this Prospectus available to the selling shareholders for the purpose of satisfying the Prospectus delivery requirements of the Securities Act.

LEGAL MATTERS

Perkins Coie LLP, Denver, Colorado, will pass upon the validity of the issuance of the common stock offered hereby.

EXPERTS

Our consolidated financial statements incorporated in this prospectus by reference to our Annual Report on Form 10-KSB for the years ended December 31, 2007 and 2006, have been so incorporated in reliance on the report of Hansen, Barnett & Maxwell, P.C., an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus information we file with it. This means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is considered a part of this prospectus, and later information we file with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings we make with the SEC under Sections 13(a), 13(c), 14 and 15(d) of the Securities Exchange Act of 1934, as amended (other than those "furnished" pursuant to Item 2.02 or 7.01 or disclosures made in accordance with Regulation FD on Item 8.01 in any Current Report on Form 8-K or other information "furnished" to the SEC), until this offering is completed:

- (1)
our Annual Report on Form 10-KSB for the fiscal year ended December 31, 2007 filed on March 28, 2008;
- (2)
our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2008 filed on May 9, 2008;
- (3)
our Current Reports on Form 8-K filed on April 18, 2008, June 2, 2008 and June 5, 2008; and

(4)

the description of the Common Stock that is contained in the Company's Registration Statement on Form 8-A dated August 1, 1997, filed pursuant to Section 12 of the Exchange Act, and all amendments thereto and reports which have been filed for the purpose of updating such description.

We file reports, proxy statements and other information with the SEC. You may read any document we file at the SEC's public reference room located at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC toll free at 1-800-SEC-0330 for information about the public reference room. You may also read our filings at the SEC's web site at <http://www.sec.gov>, which contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC. We also maintain a web site, www.intisoid.com, at which you may view information about us and some of the reports we file with the SEC. Information contained on our website does

not constitute, and shall not be deemed to constitute, part of this prospectus and shall not be deemed to be incorporated by reference into the registration statement of which this prospectus is part.

We have filed with the SEC a registration statement, which contains this prospectus, on Form S-3 under the Securities Act of 1933. This prospectus does not contain all of the information in the registration statement. We have omitted parts of the registration statement as permitted by the rules and regulations of the SEC. You should read the registration statement for further information about International Isotopes, Inc. and our common stock. You may inspect and copy the registration statement, including exhibits, at the SEC's public reference room or from its web site. Our statements in this prospectus about the contents of any contract or other document are not necessarily complete. You should refer to the copy of each contract or other document we have filed as an exhibit to the registration statement for complete information.

We will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered, upon the written or oral request of such person, a copy of any or all of the documents that have been incorporated herein by reference but are not delivered with this prospectus. Requests for such copies should be directed to: Steve Laflin, President and Chief Executive Officer, at our principal offices, which are located at 4137 Commerce Circle, Idaho Falls, Idaho 83401; telephone number (208) 524-5300.

**COMMISSION POSITION ON INDEMNIFICATION
FOR SECURITIES ACT LIABILITIES**

We are organized under the laws of the State of Texas. We have authority under Article 2.02-1 of the Texas Business Corporation Act to indemnify our directors and officers to the extent provided in that statute. Our Articles of Incorporation and our Bylaws require the company to indemnify each of our directors and officers against liabilities imposed upon them (including reasonable amounts paid in settlement) and expenses incurred by them in connection with any claim made against them or any action, suit or proceeding to which they may be a party by reason of their being or having been a director or officer of the company. Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable.

(This page intentionally left blank)

INTERNATIONAL ISOTOPES, INC.

32,222,216 Shares of Common Stock

PROSPECTUS

June 16, 2008

PART II**INFORMATION NOT REQUIRED IN THE PROSPECTUS****ITEM 14.****Other Expenses of Issuance and Distribution**

The following table sets forth the costs and expenses, other than the underwriting discounts and commissions, in connection with the sale of the securities being registered hereby, all of which are to be paid by the Company. All amounts are estimates except for the SEC registration fee.

| | | |
|-------------------------------|----|-----------|
| SEC registration fee | \$ | 150.00 |
| Accounting fees and expenses | | 5,000.00 |
| Legal fees and expenses | | 35,000.00 |
| Printing and related expenses | | 3,000.00 |
| Miscellaneous expenses | | 0 |
| Total | \$ | 43,150.00 |

ITEM 15.**Indemnification of Directors and Officers**

We are organized under the laws of the State of Texas. We have authority under Article 2.02-1 of the Texas Business Corporation Act to indemnify our directors and officers to the extent provided in that statute. Our Articles of Incorporation and our Bylaws require the company to indemnify each of our directors and officers against liabilities imposed upon them (including reasonable amounts paid in settlement) and expenses incurred by them in connection with any claim made against them or any action, suit or proceeding to which they may be a party by reason of their being or having been a director or officer of the company. We intend to enter into indemnification agreements with each of our officers and directors containing provisions that may require us, among other things, to indemnify our officers and directors against certain liabilities that may arise by reason of their status or service as officers or directors (other than liabilities arising from willful misconduct of a culpable nature) and to advance their expenses incurred as a result of any proceeding against them as to which they could be indemnified. Management believes that such indemnification provisions and agreements are necessary to attract and retain qualified persons as directors and executive officers.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable.

ITEM 16.

Exhibits

(a)

The following exhibits are filed with, or incorporated by reference into, this Registration Statement on Form S-3:

| Exhibit | Description |
|---------|---|
| 2.1 | Securities Purchase Agreement dated March 21, 2007 (incorporated by reference to Exhibit 2.1 of the Company's Current Report of Form 8-K filed on March 22, 2007) |
| 4.1 | Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form SB-2 (Registration No. 33-26269)) |
| 4.2 | Form of Class E Warrant (incorporated by reference to Exhibit 4.1 of the Company's Current Report of Form 8-K filed on April 18, 2008) |
| 5.1 | Opinion of Perkins Coie LLP (incorporated by reference to Exhibit 5.1 to the Company's Registration Statement on Form SB-2 (Registration No. 33-142674)) |
| 23.1 | Consent of Hansen, Barnett & Maxwell, P.C., independent registered public accounting firm |
| 23.2 | Consent of Perkins Coie LLP (included in Exhibit 5.1) |

ITEM 17.

Undertakings

Registrant hereby undertakes:

(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; and Notwithstanding the forgoing, any increase or decrease in volume of securities offered (if the total dollar value 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 prospects filed with the Commission pursuant to Rule 424(b) (§230.424(b) of this chapter) if, in the aggregate, the changes in the 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.

(2)

For determining liability under the Securities Act, treat each post-effective amendment as a new registration statement of the securities offered, and the offering of the securities at that time to be the initial bona fide offering.

(3)

File a post-effective amendment to remove from registration any of the securities that remain unsold at the end of the offering.

(4)

That, for purposes of determining any liability under the Securities Act of 1933, each filing of Registrant's annual report pursuant to Section 13(a) or Section 15(d) 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.

(5)

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 SEC 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.

(6)

Each prospectus filed by the registrant pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

SIGNATURES

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 for filing on Form S-3 and has duly caused this Post-Effective Amendment No. 1 to Registration Statement to be signed on its behalf by the undersigned, thereunder duly authorized, in the City of Idaho Falls, State of Idaho, on the 16th day of June, 2008.

International Isotopes Inc.

/s/ Steve T. Laflin

By: Steve T. Laflin

President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this Post-Effective Amendment No. 1 to Registration Statement has been signed by the following persons in the capacities indicated below on the 16th day of June, 2008.

Signature

Title

/s/ Steve T. Laflin
Steve T. Laflin

Director, President, and Chief Executive Officer

/s/ Ralph M. Richart*
Ralph M. Richart

Chairman of the Board

/s/ Christopher Grosso*
Christopher Grosso

Director

/s/ Laurie A. McKenzie-Carter
Laurie A. McKenzie-Carter

Chief Financial Officer

* By: /s/ Steve T. Laflin
 Steve T. Laflin

Attorney-in-Fact

EXHIBIT INDEX

| Exhibit | Description |
|---------|---|
| 2.1 | Securities Purchase Agreement dated March 21, 2007 (incorporated by reference to Exhibit 2.1 of the Company's Current Report of Form 8-K filed on March 22, 2007) |
| 4.1 | Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form SB-2 (Registration No. 33-26269)) |
| 4.2 | Form of Class E Warrant (incorporated by reference to Exhibit 4.1 of the Company's Current Report of Form 8-K filed on April 18, 2008) |
| 5.1 | Opinion of Perkins Coie LLP (incorporated by reference to Exhibit 5.1 to the Company's Registration Statement on Form SB-2 (Registration No. 33-142674)) |
| 23.1 | Consent of Hansen, Barnett & Maxwell, P.C., independent registered public accounting firm |
| 23.2 | Consent of Perkins Coie LLP (included in Exhibit 5.1) |