

INTERNATIONAL ISOTOPES INC
Form 10-K
March 26, 2009

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D. C. 20549

FORM 10-K

ANNUAL REPORT UNDER SECTION 13 OR 15 (d) OF THE

SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2008

OR

TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE

SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number

000-22923

INTERNATIONAL ISOTOPES INC.

(Exact name of registrant as specified in its charter)

Texas
(State of incorporation)

74-2763837
(IRS Employer Identification Number)

4137 Commerce Circle

Idaho Falls, Idaho
(Address of principal executive offices)

83401
(Zip code)

(208) 524-5300

(Registrant's telephone number, including area code)

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

COMMON STOCK, \$.01 PAR VALUE

(Title of Class)

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Indicate by check mark if the registrant is a well-known seasoned issuer as defined in Rule 405 of the Securities Act.
YES NO

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. YES NO

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15 (d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES NO

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

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).
YES NO

The aggregate market value of the voting and non-voting common equity held by non-affiliates computed by reference to be the average bid and asked price of such common equity at June 30, 2008 was \$73,415,712.

As of March 6, 2009 the number of shares outstanding of common stock, \$.01 par value was 288,837,610 shares.

Documents Incorporated by Reference

Certain information called for in Part III of this Annual Report on Form 10-K is incorporated by reference to the definitive proxy statement for the annual meeting of shareholders of the Company, which will be filed with the Securities and Exchange Commission not later than 120 days after the registrant's fiscal year ended December 31, 2008.

INTERNATIONAL ISOTOPES INC.

FORM 10-K

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PART I

This Annual Report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. This Act provides a "safe harbor" for forward-looking statements to encourage companies to provide prospective information about themselves so long as they identify these statements as forward-looking and provide meaningful cautionary statements identifying important factors that could cause actual results to differ from the projected results. All statements, other than statements of historical fact, including statements regarding industry prospects and future results of operations or financial position, made in this Annual Report are forward looking. Words such as anticipates, believes, expects, future and intends and similar expressions identify forward-looking statements. In particular, statements regarding: the sufficiency of our available cash and revenues from operations to meet our operating needs; our ability to generate revenue; improvements in our gross profit; the implementation of our 2009 goals and objectives; anticipated growth in our business segments; the effect of any business segment on our total revenues; the effect of our new FEP production capabilities on our business and the growth of the Fluorine products market; the effect of our ability to use our patents; our future research focus; the improvement of our competitive position based on low production costs; and the outcome of litigation pending against us are forward-looking. Forward-looking statements reflect management's current expectations, plans or projections and are inherently uncertain. Actual results could differ materially from management's expectations, plans or projections. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this report. Certain risks and uncertainties that could cause actual results to differ significantly from management's expectations are described in the section entitled Risk Factors. That section, along with other sections of this Annual Report, describes some, but not all, of the factors that could cause actual results to differ significantly from management's expectations. The company does not intend to publicly release any revisions to these forward-looking statements that may be made to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events. Readers are urged, however, to review the factors set forth in reports that the company files from time to time with the Securities and Exchange Commission.

Item 1. BUSINESS

General Business and Products Description

International Isotopes Inc., was formed as a Texas corporation in 1995. Its 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 core business consists of six reportable segments which include; Nuclear Medicine Standards, Cobalt Products, Radiochemical Products, Fluorine Products, Radiological Services, and Transportation.

Beginning in 2008, the Company started a major undertaking to construct the first commercial uranium de-conversion facility in the U.S. There are two predominant reasons for our belief that this will provide an excellent commercial

opportunity for the Company. First, there is a significant shift underway by several companies from foreign to domestic construction of new uranium enrichment facilities. We anticipate that the operation of these new commercial enrichment facilities will result in the annual production of over 70 million pounds of depleted uranium hexafluoride (UF₆) that must be processed for disposal. Second, we hold patents that give us exclusive rights for the Fluorine Extraction Process (FEP), a process that produces high value, high purity fluoride gasses in conjunction with uranium de-conversion.

We expect that significant capital and time will be required to design, license, and construct our planned uranium de-conversion facility. Nonetheless, we believe that the commercial opportunity will justify this investment and we took several actions in 2008 towards the planned construction. First, we completed a private offering and raised approximately \$2 million to support near term actions associated with design and licensing of the new facility. Second, we acquired a large amount of uranium de-conversion plant equipment, software, and know-how from Sequoyah Fuels Corporation that will be used in the new uranium de-conversion facility. And third, we have contracted with a company to perform facility process design and prepare our Nuclear Regulatory Commission (NRC) license application. In 2009, we intend to continue to make progress towards full funding, design, and licensing of the facility. Under the current schedule for this project, upcoming milestones include site selection in early 2009, license application submittal to NRC late 2009, and receipt of an operating license and start of construction in 2011.

While the commercial uranium de-conversion business presents a significant opportunity for the company, that opportunity will not change our commitment to our current core business segments. We will continue to invest in these segments to expand market share and increase revenue and profits in each of these business areas. The following paragraphs provide a brief description of each of these business segments. Certain financial information with respect to each of our business segments, including revenues from external customers, a measure of profit or loss and total assets, is set forth in Note 13 in the Notes to our Consolidated Financial Statements beginning on p.46 and incorporated by reference herein.

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 a typical 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%. In 2007 we acquired a 6% ownership position in RadQual and in May 2008 we acquired additional shares of that company raising our total ownership interest in RadQual to 24.5%. We acquired this position in RadQual to increase our profit margin on sales of products in this segment and better secure our long-term contract manufacturing relationship with RadQual.

Cobalt Products

This segment includes the production of bulk cobalt (cobalt-60), fabrication of cobalt capsules for teletherapy or 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 and the Company has continued to see a robust growth in the sales of other cobalt manufactured products such as sealed sources. Cobalt sales are expected to be one of our strongest growth segments in the coming years.

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 and is supplied to our Company through a supply agreement with a foreign entity. We import radiochemical iodine and distribute it 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 can use this technology to produce several high purity fluoride 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. In 2008, we began production of fluoride gas and provided qualification samples to a prospective customer. This pilot plant has successfully demonstrated the technical viability of FEP and its ability to produce high purity germanium tetrafluoride. Going forward, however, we will evaluate the costs of maintaining the pilot operation against today's market and sales potential of germanium tetrafluoride.

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 2008, 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 through our subsidiary, 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 in our determination of the need to establish this subsidiary and business segment was the many 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.

Industry Overview, Target Markets, and Competition

The industries and markets that require or involve the use of radioactive material are diverse. Our current core business operations involve products that are used in a wide variety of applications and in various markets. The following provides some explanation of the markets and competitive factors affecting our current business segments.

Nuclear Medicine

Calibration and Reference Standards are required for the daily operational checks and calibration of the measurement of SPECT imaging devices frequently used in nuclear medicine. This calibration and quality assurance testing is required as a routine part of the normal operations of this equipment to ensure its reliability and accuracy. We exclusively manufacture many of these products for RadQual LLC, which in turn has several distributors who make direct sales around the U.S. We directly ship these products to all 50 states and several overseas locations. There is only one other producer of these products in the world that directly competes with us for these products. Most of the products manufactured by our competitors are similar in design to our products because all must meet Original Equipment Manufacturer (OEM) dimensional and performance standards. However, we attempt to differentiate our products from our competitors' products through increased levels of quality control and customer service. The adverse economic condition the U.S. is experiencing today is expected to have a minimal effect upon this business segment. These calibration sources decay with time and must be replaced by the pharmacy on a regular basis. Although the economy is certainly expected to have an impact upon medical industry acquisition of new imaging and treatment equipment we do not expect it to cause a decline in patient treatment numbers or the need for these calibration standards.

Cobalt Products

We sell high activity bulk cobalt to a customer that uses it to fabricate sealed sources for the Elekta GammaKnife unit. The gamma knife is a device used for the precise radiation treatment of certain tumors and vascular deformities of the brain. There are over 100 treatment centers around the U.S. that are using the gamma knife and through 2008 it is estimated that nearly 200,000 patients have been successfully treated with this device. We also accept old gamma knife sources for recycling when they have decayed past their useful activity. This recycled cobalt, combined with cobalt we produce in a reactor, is incorporated into new sealed sources for teletherapy, experimental irradiators. There are no other producers of cobalt in the U.S.; however, there are at least three significant producers in other parts of the world. There is only one other company in the U.S. currently licensed to handle the form and quantity of cobalt we are authorized to handle and one other company in the U.S. capable of handling large quantities of sealed cobalt material and competing directly with us for some sealed sources and recycling services in this segment. Increased regulation by the NRC in recent years has created a significant barrier to any new entrants to this market. Current economic conditions in the world could cause a decline in the sales of sealed sources into third world countries in some continents such as South America. Nonetheless, our growing market share and the advent of a new transportation container in 2009 is expected to more than compensate for these challenging economic conditions.

Radiochemical Products

We typically supply radioisotope products in bulk form. The markets for most radiochemicals are highly competitive. The target markets for these products are customers who 1) incorporate them into finished industrial or medical devices; 2) use radioisotope products in clinical trials for various medical applications; or 3) further process and include the radioisotope products into a pharmaceutical product for FDA approved therapy or imaging. We are the only U.S. company supplying iodine-131 radiochemical directly to radiopharmacies. Our radiochemical sales compete directly against not only other radiochemical suppliers but also pharmaceutical grade kits and products that are mass produced by Food and Drug Administration (FDA) pharmaceutical manufacturers. Continuation of business in this segment is highly dependent upon maintaining low cost. Economic conditions are not expected to have a significant impact upon sales since product use is more directly related to potential treatment demands which are not expected to vary because of market or economic conditions.

Fluorine Products

We are developing our fluorine products in order to take advantage of increased market demand for certain high purity fluoride compounds in the microelectronics industry and to pursue unique opportunities to produce derivative commercial products. Fluorine extraction also pairs perfectly with our plans to construct a large scale depleted uranium de-conversion facility. Our Idaho FEP pilot plant successfully produced germanium tetrafluoride and supplied qualification samples to our customer in 2008. There is only one other company producing germanium tetrafluoride in the U.S. but the overall market for this gas is extremely limited. Furthermore, current economic conditions have significantly restricted market growth opportunities for germanium tetrafluoride at least in the near term. Therefore, we will continue to carefully evaluate the market prospects for germanium tetrafluoride in the coming year.

Radiological Services

Most of our radiological services are performed in support of gemstone processing. However, other services in this segment consist of radiological engineering consultant services, contract shipping services, research and development activities, and orphan source recovery activities. There are very few companies in the U.S. that possess this mix of qualifications and licensing necessary to provide these types of services. In the U.S., for example, there is only a single reactor capable of providing irradiation services for gemstone processing. On a global scale, however, the gemstone industry is a highly competitive industry and there are several alternatives to irradiation treatment. There are also other reactors located outside the U.S. that offer irradiation service. In the current economic market sales of luxury items such as jewelry, are expected to decline significantly. We expect that this decline in the jewelry industry will have a direct negative impact upon gemstone irradiation as well.

Transportation

Our transportation subsidiary (IITS) was formed in order to support transportation of our own products and to provide for hire transportation services. IITS specializes in the transportation of hazardous, radioactive, materials including especially large quantity cobalt shipments. These types of shipments are under a significant amount of increased new regulation and enhanced security requirements and IITS is especially well suited to meeting these requirements while significantly reducing the costs of transport to our Company. IITS has specially trained drivers and equipped vehicles intended to meet all the new standards for transportation large cobalt shipments. Therefore, IITS is capable of providing unique transportation services that perhaps only one or two other commercial carriers in the U.S. can also provide. We also continue to work with Alpha Omega services on their development of a new family of Type B shipping containers. We have contracted with them to act as their exclusive worldwide distributor for these containers that are intended to replace a significant number of containers that have lost their regulatory approval for use in the U.S. after October 1, 2008. There are very few alternatives for other type B packages in the U.S. and we feel that the distributor arrangement will provide significant financial opportunities for additional revenues through sales and leases of these containers in the coming years.

Government Regulation

Licensing

We have obtained two broad scope materials licenses from the Nuclear Regulatory Commission (NRC) that permit use and possession of by-product material, as well as licenses that permit the exempt distribution of irradiated gemstones, import and export of certain radioactive materials, and our Type B shipments of radioactive materials. The broad scope material license covers calibration and reference standard manufacturing and distribution, radioisotope processing and distribution, large scale cobalt processing and recycle operations, radioactive gemstone processing, environmental sample analysis, and various research and development activities. The other broad scope materials license specifically covers FEP production and our subsidiary, International Isotopes Fluorine Products Inc. This license is specific to the handling of fairly large quantities of depleted uranium in various chemical forms. The exempt distribution license permits the direct release of irradiated gemstone into the U.S. without export. The existing license and permits are adequate to allow all of our current business operations. At this time, there are no additional permits or approvals required for our current operations, however, we will continue to pursue additional licenses as necessary to expand operations and grow the business.

As a condition of our NRC licenses, we are required to provide financial assurance for decommissioning activities. We fulfill this license requirement with an actual cash reserve, in the form of a certificate of deposit and irrevocable letter of credit to the NRC, to support our estimated decommissioning and disposal costs for our facilities. We do not handle "special nuclear materials" (i.e. nuclear fuels and weapons grade uranium, thorium and plutonium). Therefore, our facility is not designated as a nuclear facility that would require additional licensing.

Regulation of Radioisotope Production Radioactive Waste

All of our manufacturing processes generate some radioactive waste. We must handle this waste pursuant to the Low Level Radioactive Waste Policy Act of 1980, which requires the safe disposal of mildly radioactive materials. The estimated costs for storage and disposal of these materials have been included in the manufacturing and sales price of our products. However, actual disposal costs are subject to change at the discretion of the disposal site and are ultimately applied at the time of disposal. We have obtained all necessary permits and approvals for the disposal of our waste materials. We do not anticipate any changes in capacity or regulatory conditions that would limit or restrict our waste disposal capabilities.

Other Regulations

We are registered as a medical device manufacturer through the Food and Drug Administration (FDA) for several of our nuclear medicine reference and calibration standards. We are registered with the U.S. Department of Transportation for the shipment of radioactive materials. We also have an NRC license for the import and export of radioactive materials. Because of increasing security controls and regulations, it is likely that we may encounter additional regulations affecting transportation, storage, sale, and import/export of radioactive materials. Registration of any of our radiochemicals into a Drug Master File (DMF) could subject us to the additional regulations of the Food and Drug Administration (FDA).

Employees

As of December 31, 2008 we had 29 full-time employees and 2 part-time employees.

Reports to Security Holders

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy materials that we have filed with the SEC at the SEC Public Reference Room located at 100 F Street, NE., Washington, D.C. 20549, on official business days during the hours of 10:00 am to 3:00 pm. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. Our SEC filings are also available to the public at no charge from the SEC's website at www.sec.gov and under the "Investor Center" section of our website at www.intisoid.com. Information on our website is not incorporated into this report or other securities filings.

Distribution Methods for Products

We sell our products directly to our customers. We use common commercial carriers and our own IITS subsidiary for delivery of the company's products. For smaller quantities of material, and overnight and next day delivery, we utilize other commercial carriers. For our products that involve large quantities of radioactive material, most commonly cobalt-60, that invoke certain special transportation requirements, we use our IITS transportation subsidiary. The creation of IITS subsidiary has produced additional revenue in for-Hire operations and saved expense by transporting

our own products more cost effectively than other commercial carriers.

Dependence on Customers

During 2008, one major customer accounted for 33% of our total gross revenue. This represents a significant and continuing improvement in customer diversification since sales to this customer amounted to more than 58% in 2007. Also, combined sales to our three largest customers declined from 81% of total sales in 2006, to 74% in 2007 and 50% in 2008. Continued diversification of our customer base is expected in the coming years as cobalt source sales continue to expand in both domestic and foreign markets.

Patents, Trademarks, Licenses, Royalty Agreements, etc

During the year ended December 31, 2004, we obtained certain patents related to the Fluorine Extraction Process. These patents will be important to our future plans to build upon FEP production capacity. In 2007 we applied for four new patents related to various fluorination technologies. At December 31, 2008 those patents were still under review by the U.S. Patent office. These new patents are important as they may potentially expand the commercial markets for fluoride gasses produced by FEP.

Research and Development

We had research and development expenses totaling \$402,795 in 2008, compared with \$61,276 in 2007. Expenses for research and development for our core business segments totaled \$30,642 in 2008, compared to \$61,279 in 2007.

These expenses were associated with development work leading to the addition of several new products in the nuclear medicine reference and calibration business. We also began to incur significant additional expense in our Fluorine Products Division in 2008 for costs associated with the start of plans to design and construct a depleted uranium de-conversion and fluorine extraction processing facility. For example, professional services alone attributed to this effort in 2008, were in excess of \$370,000 and additional development expense in this area contributed to a segment loss in fluorine products of \$1,564,557 in 2008. We expect to continue to expend significant resources in the planning, research and development of this new uranium processing facility for the next several years. Beginning in 2009, these expenses will be segregated from the existing fluorine products expenditures associated with production development of germanium tetrafluoride.

Item 1A. RISK FACTORS

Readers should carefully consider the following factors that may affect our business, future operating results and financial condition, as well as other information included in this Annual Report. The risks and uncertainties described below are not the only ones the company faces. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations. If any of the following risks actually occur, our business, financial condition and operating results could be materially adversely affected.

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, 2008, we have generated \$39,913,664 in revenues and accumulated deficit (including preferred stock dividends and returns) in the amount of \$94,719,673.

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 and may not be available to us on acceptable terms or at all.

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 greater liability to us, 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. Our gemstone production is tied to an exclusive agreement with Quali Tech Inc. Continued gemstone irradiation services are dependent upon the continuation of that agreement. 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 the RadQual agreement would directly impact the Company's ability to manufacture items in this business segment.

We are subject to competition from other companies. 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. Many of these products are supplied through a single source of supply, therefore, continuing sales of some products depends upon those uninterrupted supplies. 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 can 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, and in turn negatively impact 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 or suppliers 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.

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 our 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. To 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 rates. Fluctuations in domestic and world markets could adversely affect interest rates and impact our ability to obtain credit or attract investors.

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, to acts of war and terrorism. 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) produce high purity fluoride gasses on a commercial scale utilizing the FEP process in connection with uranium de-conversion services, (ii) identify emerging technological trends in our target end-markets, (iii) develop and maintain competitive products, (iv) enhance our products by adding innovative features that differentiate our products from those of our competitors, and (v) develop, manufacture and bring products to market quickly and cost-effectively.

We have not yet performed large commercial scale fluoride gas production utilizing FEP. 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 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 are licensed under 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.

Terrorist activities may adversely affect our business. 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.

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 December 31, 2008, there were approximately 18,780,000 shares of common stock issuable upon exercise of stock options outstanding, at a weighted average exercise price of \$0.09 per share. An additional 18,404,000 shares of common stock are reserved for issuance under our 2006 Equity Incentive Plan and our Employee Stock Purchase Plan as of December 31, 2008. Also outstanding as of December 31, 2008 are Series E warrants for the issuance of an additional 13,333,331 shares of common stock and Series F warrants for the issuance of 8,200,000 shares of common stock.

Moreover, 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 to fund design, licensing and construction of a uranium de-conversion plant. Any such issuances will have the effect of further diluting the interest of the holders of our securities.

Item 2. PROPERTIES

We lease two properties in Idaho Falls, Idaho. The following paragraphs provide a brief summary of these properties.

4137 Commerce Circle The facility located on this property houses our main corporate headquarters and all of our manufacturing operations except our FEP operations. We hold this property pursuant to a lease that extends through April 2011. The facility was new when leased in March 2001 and remains in excellent condition. Our lease includes unlimited automatic five year extensions of the lease at our sole discretion. Lease payments are adjusted annually based upon the Consumer Price Index. We also have a purchase option and a right of first refusal on this property that allows us to purchase this property at any time for a stated amount.

3159 Commerce Way The facility located on this property houses our FEP production operations. The facility was first leased in February 2004 and is in excellent overall condition. We hold this property pursuant to a lease that extends through April 2011. Our lease includes unlimited automatic five year extensions of the lease at our sole discretion. Lease payments are adjusted annually based upon changes in the Consumer Price Index. We also have a purchase option and a right of first refusal on this property that allows us to purchase this property at any time for a stated amount.

Item 3. LEGAL PROCEEDINGS

None.

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

No matters were submitted to a vote of our shareholders during the fourth quarter of fiscal 2008.

PART II**Item 5.****MARKET FOR REGISTRANTS COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES**

Our common stock is reported on the Over the Counter Bulletin Board (OTCBB) under the trading symbol INIS.OB. High asked prices and low bid prices reported by the OTCBB during the periods indicated are shown below, which reflect inter-dealer prices, without retail markup, mark-down, or commission and may not reflect actual transactions:

| Fiscal Year | Quarter | High | Low |
|--------------------|-----------------|-------------|------------|
| 2008 | 1 st | \$1.15 | \$0.77 |
| 2008 | 2 nd | \$0.85 | \$0.63 |
| 2008 | 3 rd | \$0.82 | \$0.50 |
| 2008 | 4 th | \$0.49 | \$0.16 |
| 2007 | 1 st | \$0.18 | \$0.10 |
| 2007 | 2 nd | \$0.22 | \$0.13 |
| 2007 | 3 rd | \$0.70 | \$0.22 |
| 2007 | 4 th | \$0.82 | \$0.58 |

On March 6, 2009, there were 403 holders of record of our common stock. We have never paid any cash dividends on our common stock. In the future, and based upon our profit performance, our Board of Directors will evaluate and determine whether to issue dividends or retain funds for research and development and expansion of our business. It is unlikely that we will pay any dividends to shareholders for the foreseeable future.

Item 6. SELECTED FINANCIAL DATA

The Company is a smaller reporting company, as defined by Item 10(f)(1) of Regulation S-K, and is, therefore, not required to provide the information required by this item.

Item 7.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion of the results of the company's operations and financial condition should be read in conjunction with the accompanying financial statements and the notes thereto included within this report.

Overview

International Isotopes Inc. manufactures a full range of nuclear medicine calibration and reference standards, high purity fluoride gases, and a wide range of products such as cobalt teletherapy sources, and a wide selection of radioisotopes and radiochemicals for medical, research, and clinical devices. We also provide a host of transportation, recycling, and processing services on a contract basis for clients. An overall discussion comparing the year over year performance of our various business segments, as well as a summary of our accomplishments for the year and objectives for 2008, are contained in the following sections.

In 2008, we continued to build our various business segments, make investments into facilities and infrastructure, launch new products, and enter into new agreements that we believe will increase our future revenues. The following is a list of some of the more significant accomplishments in 2008:

·

Our 2008 revenues were up more than 19% over 2007, and revenue increased in every business segment except transportation.

·

We completed a private placement with several investors which provides us with a stronger financial platform from which we will continue to develop our product lines as well as pursue future business potential with FEP including initial costs of a planned de-conversion facility.

·

We acquired additional shares in RadQual L.L.C. increasing our total ownership position of that company to 24.5%.

·

We have continued to add new cobalt products, including several models of sealed source capsules, and expanded sales agreements with new international customers.

·

We successfully produced germanium tetrafluoride in our pilot scale facility and provided qualification samples to a prospective commercial customer.

·

We initiated efforts to design and license a depleted uranium de-conversion and fluorine extraction process facility.

·

Based upon the investments we have made in our facilities and products developed in 2008, we have the following goals and objectives for 2009:

To continue the design and licensing activities for a new depleted uranium de-conversion and processing facility, including site selection, license application submittal to NRC, and progression towards de-conversion service agreements with one or more commercial uranium enrichment companies.

To pursue additional opportunities for various source recovery and recycle programs expected to be funded through the federal government and to which we are uniquely suited to provide services.

To continue advertising and promoting the use of International Isotopes Transportation Services (IITS) and increase our revenues from Transportation Services to commercial customers.

To continue to expand our customer base, increase revenues in every business segment, continue to reduce production and operating costs, and attempt to achieve profitability in our core business segment operations.

Results of Operations

Year ended December 31, 2008 compared to year ended December 31, 2007

For the past two years we have continued to significantly increase annual sales revenues. These increases have been equally attributable to the growth in markets as well as our penetration of those markets. Most of the products we manufacture have not been directly impacted by worsening economic condition in 2008. However, should the current economic conditions continue to decline in the U.S., and in other countries, we expect direct and indirect affect on our revenue in subsequent years. For example, while nuclear patient imaging, and the need for our nuclear medicine standards, is expected to continue at its current rate, sales of new imaging units are expected to decline because of economic conditions. The decline in purchasing of new imaging devices will slow the growth in the market and will, in turn, have a longer term negative impact the growth of sales in these and related products.

Revenues

Total revenues in 2008 were \$5,602,443 compared to \$4,690,588 in 2007, which represents an increase of \$911,885 or 19.4%. The overall increase in revenue was the result of a significant increase in the revenue of several business segments. In past periods we have discounted the impact of revenue performance attributable to normal cyclical

fluctuations in bulk cobalt sales because those fluctuations have created large variations in the revenue for period to period comparisons. However, for 2008, bulk cobalt sales were approximately the same as in 2007, and did not account for a significant variation in revenue. Therefore, a period comparison in which bulk cobalt sales have been excluded has not been provided. The following paragraphs provide a brief summary of the revenue performance in each of our business segments.

Radiochemical Products

Sales of radiochemical products accounted for approximately 25% of our total sales revenue in 2008. Sales of radiochemical products increased by approximately 30% to \$1,379,906 in 2008, as compared to \$1,062,477 in 2007. Increased sales performance in this segment was driven largely by increases in our sales of iodine-131.

Cobalt Products

Sales of cobalt products accounted for approximately 29% of our total sales revenue in 2008. Sales of cobalt products increased by 52% to \$1,616,020 in 2008, as compared to \$1,064,727 in 2007. The increase in sales was attributable to increased sales of sealed source products to numerous customers.

Nuclear Medicine Standards

Sales of nuclear medicine standards accounted for approximately 33% of our total sales revenue in 2008. Sales of nuclear medicine standards increased by approximately 2% to \$1,864,099 in 2008, as compared to \$1,819,049 in 2007. The small increase in sales in this segment is attributable to the slow, but steady, growth in the nuclear imaging industry.

Radiological Services

Sales of our radiological services accounted for approximately 11% of our total sales revenue in 2008. Sales of radiological services increased by about 7% to \$634,201 in 2008, as compared to \$590,160 in 2007. The increase in this segment was largely attributable to an increase in gemstone undergoing processing.

Fluorine Products

We made no sales of fluorine products during 2008. We had previously estimated that the FEP plant would start commercial production by the end of 2008. The plant started regular production of germanium tetrafluoride during 2008 and we operated the facility as required to be satisfied of its commercial reliability. However, unforeseen difficulties with product analysis caused a delay in the start of commercial production. By the end of 2008, most of these difficulties had been resolved and qualification samples of our product were supplied to a prospective customer. We will continue to evaluate this opportunity in 2009 and begin commercial sales after qualification acceptance of the material by our customer.

Transportation

Sales of transportation services accounted for approximately 2% of our total sales revenue in 2008. Sales of transportation services decreased by 30% to \$108,217 in 2008, as compared to \$154,175 in 2007. The decline in Transportation services was attributable to a small reduction in the transportation services provided in conjunction with orphan source recovery government contracts. Although revenue for the transportation segment declined, the transportation segment did positively contribute to the bottom line of our other segments in that it provided significant cost savings over the procurement of third party transportation services.

Cost of Revenues and Gross Profit

Cost of revenue for 2008, was \$2,879,839 compared to \$2,660,781 in 2007, an increase of \$219,058 or 8%. Gross profit for 2008, was \$2,722,604 or 49% as compared to \$2,029,807 or 43% in 2007. The increase in gross profit was attributable to successful control of production costs and implementation of manufacturing process improvements over the course of the year. The impact of these increases in efficiency and process improvements are more significant than the increase in gross profit would reflect as a result of significant increases in manufacturing expenses due to increased cost of raw materials and higher fuel prices. Nonetheless, we were able to compensate for these cost increases and cause an overall improvement in our gross profit percentage for 2008.

Operating Costs and Expenses

Total operating costs and expenses for 2008, were \$4,827,985 as compared to \$3,645,549 in 2007, an increase of \$1,182,436 or 32.4%. Approximately half of this increase was attributable to an increase in costs associated with the fluorine products division and the start of activities to raise capital and begin licensing and design work on the new depleted uranium de-conversion and fluorine extraction processing facility. Operational costs for the fluorine products segment totaled \$1,536,000 in 2008 as compared to \$940,128 in 2007, an increase of \$595,872 or about 63%.

Other Income (Expense)

Other (expense) in 2008 was (\$61,586) compared to other expense of (\$103,313) in 2007. The difference of \$41,727 was principally attributable to an increase in interest income and a decrease in interest expense.

Net Loss

Our Net Loss was \$2,166,967 in 2008 compared to a net loss of \$1,719,055 in 2007. The \$447,912 increase in net loss was almost fully attributable to the increased operational costs of the fluorine products division and more specifically the design and development work associated with the new depleted uranium de-conversion and fluorine extraction processing facility.

Liquidity and Capital Resources

On December 31, 2008, we had cash and cash equivalents of \$2,149,340 compared to \$121,887 at December 31, 2007. This significant increase is due primarily to the November 7, 2008 private placement offering discussed below. For the year ended December 31, 2008, our cash flows included net cash used in operating activities of \$1,476,502, net cash provided by financing activities of \$4,775,279 and cash used in investing activities of \$1,271,324.

We incurred a loss of \$2,166,967 for the year ended December 31, 2008, and have an accumulated deficit of \$94,719,673 since inception. To date, our operations and plant and equipment expenditures have been funded principally from proceeds from public and private sales of equity as well as through asset sales.

As of December 31, 2008, we had net term borrowings of \$647,262 from two loans with Compass Bank. One of these loans, with an outstanding balance of \$538,263 as of December 31, 2008 matures in March 2009. The other, with a balance of \$108,999 as of December 31, 2008, matures in September 2011.

We also owe \$840,753 to our former Chairman of the Board pursuant to a note that matures in April 2012. Principal and interest payments on this note are paid annually based upon net profits (annual principal payment to equal 30% of net pre-tax profits).

During January 2008, 13,333,331 Series D warrants were exercised for cash totaling \$1,466,666. In April 2008, the holders of all Class C warrants agreed to amend the terms of the Class C warrant to allow for the Company's call of those warrants. Subsequent to completing this modification, all 13,333,331 Class C warrants were exercised for cash totaling \$1,333,333 and the Company issued 13,333,331 exchange (Class E) warrants in accordance with the terms of the Class C warrant. Class E warrants entitle the holder to purchase shares of common stock, \$0.01 par value per share, at an exercise price equal to \$0.869 per share. Class E warrants expire March 20, 2011.

On November 7, 2008, the Company completed a private placement offering of 8,200,000 units consisting of (i) one (1) share of the Company's common stock and (ii) one (1) Class F Warrants exercisable for a share of the Company's common stock at an exercise price of \$0.30, for an aggregate sale price of approximately \$2,050,000.

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The Company is a smaller reporting company, as defined by Item 10(f)(1) of Regulation S-K, and is, therefore, not required to provide the information required by this item.

Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The following financial statements are included herewith:

Page No.

Index to Consolidated Financial Statements

| | |
|--|----|
| Report of Independent Registered Public Accounting Firm Financial Statements | 25 |
| Consolidated Balance Sheets as of December 31, 2008 and 2007 | 26 |
| Consolidated Statements of Operations for the years ended December 31, 2008 and 2007 | 27 |
| Consolidated Statement of Shareholders' Equity for the years ended December 31, 2007 and 2008 | 28 |
| Consolidated Statements of Cash Flows for the years ended December 31, 2008 and 2007 | 29 |
| Notes to Consolidated Financial Statements | 30 |

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

None

Item 9A (T). CONTROLS AND PROCEDURES

Conclusion regarding the Effectiveness of Disclosure Controls and Procedures

We carried out an evaluation, under the supervision and with the participation of our management, including the chief executive officer and the chief financial officer, of the effectiveness of the design and the operations of the disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act). Based upon that evaluation, our chief executive officer and chief financial officer concluded that the company's disclosure controls and procedures are effective, as of December 31, 2008, in ensuring that information required to be disclosed by us in reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our chief executive officer and chief financial officer, as appropriate to allow timely decisions regarding required disclosure. There were no changes in our internal control over financial reporting during the quarter and fiscal year ended December 31, 2008, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Report of Management on Internal Control over Financial Reporting

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process to provide reasonable assurance regarding the reliability of our financial reporting for external purposes in accordance with accounting principles generally accepted in the United States of America. Internal control over financial reporting includes maintaining records that in reasonable detail accurately and fairly reflect our transactions; providing reasonable assurance that transactions are recorded as necessary for preparation of our financial statements; providing reasonable assurance that receipts and expenditures are made in accordance with management authorization; and providing reasonable assurance that unauthorized acquisition, use or disposition of company assets that could have a material effect on our financial statements would be prevented or detected on a timely basis. Because of its inherent limitations, internal control over financial reporting is not intended to provide absolute assurance that a misstatement of our financial statements would be prevented or detected.

Management conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework and criteria established in *Internal Control - Integrated Framework*, issued by the Committee of Sponsoring Organizations of the Treadway Commission. This evaluation included review of the documentation of controls, evaluation of the design effectiveness of controls, testing of the operating effectiveness of controls and a conclusion on this evaluation. Based on this evaluation, management concluded that our Company's internal control over financial reporting was effective as of December 31, 2008.

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

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

Item 9B. OTHER INFORMATION

None

PART III.

Item 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE

We have adopted a Code of Ethics that applies to our principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions. Our Code of Ethics is posted on our website and can be accessed, free of charge, at www.intisoid.com.

The other information required by this item will be included in our Proxy Statement for our 2009 annual meeting of shareholders, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2008, the close of our fiscal year.

Item 11. EXECUTIVE COMPENSATION

The information required by this item will be included in our Proxy Statement for our 2009 annual meeting of shareholders, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2008, the close of our fiscal year.

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

Securities Authorized for Issuance under Equity Compensation Plans

We currently maintain three compensation plans that provide for the issuance of our Common Stock to officers and other employees, directors and consultants, the 2002 Long Term Incentive Plan, the International Isotopes Employee Stock Purchase Plan and the 2006 Equity Incentive Plan, each of which have been approved by our shareholders. The following table sets forth information regarding outstanding options and shares reserved for future issuance under the foregoing plans as of December 31, 2008:

**Equity Compensation Plan Information
December 31, 2008**

| (a) | (b) | (c) |
|---|---|---|
| Number of securities to be issued upon exercise of outstanding options, | Weighted-average exercise price of outstanding options, | Number of securities remaining available for future issuance under equity compensation plans (excluding |

| Plan Category | warrants, and rights | warrants, and rights | securities reflected in column) (a) |
|--|---------------------------------|---------------------------------|--|
| Equity compensation plans approved by shareholders: | 18,780,000 | \$.09 | 18,404,146 |
| Equity compensation plans not approved by shareholders | | \$ | |
| Total | 18,780,000 | \$.09 | 18,404,146 |

(c) Includes 16,750,000 shares available for issuance under the 2006 Equity Incentive Plan and 1,654,146 shares available for issuance under the International Isotopes Employee Stock Purchase Plan. Up to 13,380,000 shares that are currently subject to outstanding options granted under the 2002 Long Term Incentive Plan may become available for issuance under the Company's 2006 Equity Incentive Plan in the future to the extent those shares are not issued (for example, if those options expire without being exercised). Shares available for issuance under the Company's 2006 Equity Incentive Plan may be granted in the form of stock options, stock awards, restricted stock awards, restricted stock units, stock appreciation rights or any other form of equity compensation approved by the Compensation Committee or the Board.

The other information required by this item will be included in our Proxy Statement for our 2009 annual meeting of shareholders, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2008, the close of our fiscal year.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

The information required by this item will be included in our Proxy Statement for our 2009 annual meeting of shareholders, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2008, the close of our fiscal year.

Item 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item will be included in our Proxy Statement for our 2009 annual meeting of shareholders, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2008, the close of our fiscal year.

Item 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a)(1) and (a)(2) *Financial Statements and Financial Statement Schedules*

See the index to and the financial statements and supplementary data beginning on page 24 which are incorporated by reference.

(a)(3) *Exhibits*

The following documents are filed or incorporated by reference as exhibits to this Report:

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).

2.2

Unit Purchase Agreement effective as of May 23, 2008 (incorporated by reference to Exhibits 99.1 of the Company's Current Report on Form 8-K filed on June 2, 2008).

2.3

Asset Purchase Agreement, dated May 30, 2008 (incorporated by reference to Exhibits 99.1 of the Company's Current Report on Form 8-K filed on June 5, 2008).

2.4

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First Amendment to the Asset Purchase Agreement, dated June 3, 2008 (incorporated by reference to Exhibits 99.2 of the Company's Current Report on Form 8-K filed on June 5, 2008).

2.5

Securities Purchase Agreement dated November 7, 2008 (incorporated by reference to Exhibits 99.1 of the Company's Current Report on Form 8-K filed on November 12, 2008).

3.1

Second Amended and Restated Articles of Incorporation (incorporated by reference to Appendix C to the Company's definitive proxy statement on Schedule 14A filed on April 28, 2005).

3.2

Bylaws of the Company (incorporated by reference to Exhibit 3.2 of the Company's Registration Statement on Form SB-2 filed on May 1, 1997 (Registration No. 333-26269)).

4.1

Form of Class E Warrant (incorporated by reference to Exhibits 4.1 of the Company's Current Report on Form 8-K filed on April 21, 2008).

4.2

Form of Class F Warrant (incorporated by reference to Exhibits 99.1 of the Company's Current Report on Form 8-K filed on November 12, 2008).

10.1

* 2002 Long Term Incentive Plan (incorporated by reference to Exhibit 10.1 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2002).

10.2

Form of Incentive Stock Option Agreement (incorporated by reference to Exhibit 10.2 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.3

*International Isotopes Employee Stock Purchase Plan (incorporated by reference to Appendix B to the Company's definitive proxy statement on Schedule 14A, as amended, filed on May 6, 2005).

10.4

*International Isotopes Employment Agreement with Steve T. Laflin dated February 28, 2007 (incorporated by reference to Exhibit 10.4 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2007).

10.5

Lease Agreement 4137 Commerce Circle (incorporated by reference to Exhibit 10.6 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.6

Option to Purchase and Right of First Refusal for Property located at 4137 Commerce Circle (incorporated by reference to Exhibit 10.7 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.7

Lease Agreement 3159 Commerce Way (incorporated by reference to Exhibit 10.8 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.8

Option to Purchase and Right of First Refusal for Property located at 3159 Commerce Way (incorporated by reference to Exhibit 10.9 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.9

Promissory Note with Texas State Bank for Commercial Loan (incorporated by reference to Exhibit 10.11 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2006).

10.10

Unsecured Note to former Chairman of the Board, Dated April 1, 2002 (incorporated by reference to Exhibit 10.12 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.11

Form of Note Purchase Agreement and Form of Unsecured Convertible Promissory Notes (incorporated by reference to Exhibit 10.13 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.12

2006 Equity Incentive Plan (incorporated by reference to Annex A of the Company's definitive proxy statement on Schedule 14A filed on May 1, 2006)

10.13

Alpha Omega Services, Inc. Distributor Agreement dated August 14, 2007 (incorporated by reference to Exhibit 99.1 of the Company's Current Report of Form 8-K filed on August 22, 2007).

10.14

Letter Agreement dated December 21, 2007 between the Company and Firebird Global Master Fund II, Ltd., together with a schedule of substantially identical documents omitted from filing pursuant to Rule 12b-31 promulgated under the Exchange Act

10.15

Technical Support Services Agreement, dated May 30, 2008 (incorporated by reference to Exhibits 99.3 of the Company's Current Report on Form 8-K filed on June 5, 2008).

10.16

Form of Indemnification Agreement (incorporated by reference to Exhibits 99.1 of the Company's Current Report on Form 8-K filed on September 17, 2008).

10.17

Letter Agreement dated April 9, 2008 (incorporated by reference to Exhibits 4.1 of the Company's Current Report on Form 8-K filed on April 21, 2008).

21.1

Subsidiaries (incorporated by reference to the Company's Annual Report on Form 10-KSB for the year ended December 31, 2005).

23.1

Consent of Hansen, Barnett & Maxwell.

31.1

Certification under section 302 of the Sarbanes-Oxley Act of 2002 for Chief Executive Officer.

31.2

Certification under section 302 of the Sarbanes-Oxley Act of 2002 for Chief Financial Officer.

32.1

Certification furnished under section 906 of the Sarbanes-Oxley Act of 2002.

32.2

Certification furnished under section 906 of the Sarbanes-Oxley Act of 2002.

*This exhibit constitutes a management contract or compensatory plan or arrangement.

SIGNATURES

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

International Isotopes Inc.

By: /s/ Steve T. Laflin

Steve T. Laflin

President, Chief Executive Officer, Secretary, and
Director

Date: March 26, 2009

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

March 26, 2009

By: /s/ Steve T. Laflin

Steve T. Laflin

President, Chief Executive Officer, Secretary, and
Director

March 26, 2009

By: /s/ Laurie McKenzie-Carter

Laurie McKenzie Carter

Chief Financial Officer

March 26, 2009

By: /s/ Christopher Grosso

Christopher Grosso

Director, Audit Committee Chairman

March 26, 2009

By: /s/ Dr. Ralph Richart

Dr. Ralph Richart

Chairman of the Board of Directors

INTERNATIONAL ISOTOPES INC. AND SUBSIDIARIES

CONSOLIDATED FINANCIAL STATEMENTS

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and the Stockholders

International Isotopes Inc

We have audited the accompanying consolidated balance sheets of International Isotopes, Inc. and subsidiaries as of December 31, 2008 and 2007, and the related consolidated statements of operations, stockholders' equity, and cash flows for the years then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

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

believe that our audits provide a reasonable basis for our opinion.

In our opinion the consolidated financial statements referred to above present fairly, in all material respects, the financial position of International Isotopes, Inc. and subsidiaries as of December 31, 2008 and 2007, and the results of its operations and its cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

HANSEN, BARNETT & MAXWELL P.C.

Salt Lake City, Utah

March 25, 2009

INTERNATIONAL ISOTOPES INC. AND SUBSIDIARIES
Consolidated Balance Sheets

| | December 31, | |
|---|---------------------|--------------|
| | 2008 | 2007 |
| Assets | | |
| Current assets | | |
| Cash and cash equivalents | \$ 2,149,340 | \$ 121,887 |
| Accounts receivable | 521,908 | 518,464 |
| Inventories (Note 4) | 2,518,254 | 2,502,266 |
| Prepays and other current assets | 117,621 | 94,936 |
| Total current assets | 5,307,123 | 3,237,553 |
| | | |
| Long-term assets | | |
| Restricted certificate of deposit | 260,517 | 184,937 |
| Property, plant and equipment, net (Note 5) | 2,748,023 | 2,095,610 |
| Capitalized lease disposal costs, net (Note 12) | 86,974 | 83,271 |
| Investment | 1,290,000 | 330,000 |
| Patents and other intangibles, net (Note 6) | 247,682 | 91,857 |
| Total long-term assets | 4,633,196 | 2,785,675 |
| Total assets | \$ 9,940,319 | \$ 6,023,228 |
| Liabilities and Stockholders Equity | | |
| Current liabilities | | |
| Accounts payable | \$ 430,457 | \$ 441,910 |
| Accrued liabilities | 348,427 | 402,950 |
| Deferred revenue | 102,814 | - |
| Current installments of capital leases (Note 8) | 33,149 | 29,648 |
| Current installments of notes payable (Note 7) | 580,759 | 97,216 |
| Total current liabilities | 1,495,606 | 971,724 |
| | | |
| Long-term liabilities | | |
| Obligation for lease disposal costs (Note 12) | 261,721 | 221,742 |
| Notes payable, excluding current installments (Note 7) | 930,493 | 1,510,612 |
| Capital leases, excluding current installments (Note 8) | 46,991 | 80,138 |
| Mandatorily redeemable convertible preferred stock (Note 9) | 850,000 | 850,000 |

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| | | |
|--|--------------|--------------|
| Total long-term liabilities | 2,089,205 | 2,662,492 |
| Total liabilities | 3,584,811 | 3,634,216 |
| Stockholders' equity (Note 9) | | |
| Common stock, \$0.01 par value; 500,000,000 shares authorized; 288,625,708 and 250,481,324 shares issued and outstanding respectively | 2,886,257 | 2,504,811 |
| Additional paid-in capital | 98,188,924 | 92,436,907 |
| Accumulated deficit | (94,719,673) | (92,552,706) |
| Total stockholders' equity | 6,355,508 | 2,389,012 |
| Total liabilities and stockholders' equity | \$ 9,940,319 | \$ 6,023,228 |

See accompanying notes to consolidated financial statements.

INTERNATIONAL ISOTOPES INC. AND SUBSIDIARIES
Consolidated Statements of Operations

| | Years ended December 31, | |
|--|---------------------------------|----------------|
| | 2008 | 2007 |
| Sale of product | \$ 5,602,443 | \$ 4,690,588 |
| Cost of products | 2,879,839 | 2,660,781 |
| Gross profit | 2,722,604 | 2,029,807 |
| Operating costs and expenses: | | |
| Salaries and contract labor | 1,978,149 | 1,567,159 |
| General, administrative and consulting | 2,447,041 | 2,017,111 |
| Research and development | 402,795 | 61,279 |
| Total operating expenses | 4,827,985 | 3,645,549 |
| Operating loss | (2,105,381) | (1,615,742) |
| Other income (expense): | | |
| Other income | 57,535 | 52,354 |
| Interest income | 25,211 | 8,015 |
| Interest expense | (144,332) | (163,682) |
| Total other (expense) | (61,586) | (103,313) |
| Net loss | \$ (2,166,967) | \$ (1,719,055) |
| Net loss per common share basic and diluted: | \$ (0.01) | \$ (0.01) |
| Weighted average common shares outstanding - | | |
| basic and diluted | 276,486,713 | 238,939,638 |

See accompanying notes to consolidated financial statements.

INTERNATIONAL ISOTOPES INC AND SUBSIDIARIES
Consolidated Statement of Stockholders' Equity
Years ended December 31, 2007 and 2008

| | Common Stock | | Additional | Accumulated | Total |
|--|---------------------|---------------|----------------------------|--------------------|---------------------------------|
| | Shares | Amount | Paid-in Capital | Deficit | Stockholders' Equity |
| Balance December 31, 2006 | 216,721,146 | \$ 2,167,211 | \$ 90,040,150 | \$ (90,833,651) | \$ 1,373,710 |
| Exercise of Series B warrants | 9,363,122 | 93,631 | 374,525 | - | 468,156 |
| Shares issued under private placement | 13,333,331 | 133,333 | 1,066,667 | - | 1,200,000 |
| Shares issued under employee stock purchase plan | 60,931 | 609 | 6,584 | - | 7,193 |
| Shares issued for conversion of notes payable | 8,420,172 | 84,202 | 589,412 | - | 673,614 |
| Shares issued for acquisition of RadQual interest | 392,857 | 3,928 | 51,072 | - | 55,000 |
| Shares issued for exercise of employee stock options | 2,189,765 | 21,897 | (21,897) | - | - |
| Compensation expense related to stock options | - | - | 330,394 | - | 330,394 |
| Net loss | - | - | - | (1,719,055) | (1,719,055) |
| Balance December 31, 2007 | 250,481,324 | 2,504,811 | 92,436,907 | (92,552,706) | 2,389,012 |
| Shares issued under private placement | 8,200,000 | 82,000 | 1,968,000 | - | 2,050,000 |
| Shares issued under employee stock purchase plan | 40,402 | 404 | 21,099 | - | 21,503 |
| Exercise of Series C and D warrants | 26,666,662 | 266,667 | 2,533,330 | - | 2,799,997 |

| | | | | | |
|--|-------------|--------------|---------------|-----------------|--------------|
| Shares issued for acquisition of RadQual interest | 1,370,753 | 13,708 | 946,292 | - | 960,000 |
| Shares issued for exercise of employee stock options | 1,866,567 | 18,667 | 11,334 | - | 30,001 |
| Compensation expense related to stock options | - | - | 271,962 | - | 271,962 |
| Net loss | - | - | - | (2,166,967) | (2,166,967) |
| Balance December 31, 2008 | 288,625,708 | \$ 2,886,257 | \$ 98,188,924 | \$ (94,719,673) | \$ 6,355,508 |

See accompanying notes to consolidated financial statements.

INTERNATIONAL ISOTOPES INC. AND SUBSIDIARIES
Consolidated Statements of Cash Flows

| | Years ended December 31, | |
|--|---------------------------------|----------------|
| | 2008 | 2007 |
| Cash flows from operating activities: | | |
| Net loss | \$ (2,166,967) | \$ (1,719,055) |
| Adjustments to reconcile net loss to net cash used in operating activities | | |
| Depreciation and amortization | 402,338 | 342,545 |
| Accretion of obligation for lease disposal costs | 21,444 | 15,291 |
| Compensation expense related to issuance of options | 271,962 | 330,394 |
| Changes in operating assets and liabilities: | | |
| Accounts receivable | (3,444) | (165,085) |
| Prepays and other current assets | (22,685) | 20,653 |
| Inventories | (15,988) | 35,361 |
| Deferred revenue | 102,814 | - |
| Accounts payable and accrued liabilities | (65,976) | 223,382 |
| Net cash used in operating activities | (1,476,502) | (916,514) |
| Cash flows from investing activities: | | |
| Restricted certificate of deposit | (75,580) | (7,971) |
| Purchase of patents and other intangibles | (183,847) | (29,769) |
| Purchase of RadQual interest | - | (275,000) |
| Purchase of property, plant and equipment | (1,011,897) | (291,568) |
| Net cash used in investing activities | (1,271,324) | (604,308) |
| Cash flows from financing activities: | | |
| Proceeds from exercise of warrants | 2,799,997 | 468,156 |
| Proceeds from sale of stock and warrants | 2,101,504 | 1,207,193 |
| Principal payments on notes payable and capital leases | (126,222) | (202,342) |
| Net cash provided by financing activities | 4,775,279 | 1,473,007 |
| Net change in cash and cash equivalents | 2,027,453 | (47,815) |
| Cash and cash equivalents at beginning of year | 121,887 | 169,702 |
| Cash and cash equivalents at end of year | \$ 2,149,340 | \$ 121,887 |
| Supplemental disclosure of cash flow activities: | | |
| Cash paid for interest | \$ 145,220 | \$ 166,299 |

Supplemental disclosure of noncash financing and investing transactions:

| | | | | |
|---|----|---------|----|---------|
| Increase in lease disposal costs | \$ | 18,535 | \$ | - |
| Acquisition of interest in RadQual LLC in exchange for issuance of common stock | \$ | 960,000 | \$ | 55,000 |
| Conversion of note payable and accrued interest into common stock | \$ | - | \$ | 673,614 |
| Issuance of note payable for property and equipment | \$ | - | \$ | 42,499 |

See accompanying notes to consolidated financial statements

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INTERNATIONAL ISOTOPES INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEARS ENDED DECEMBER 31, 2008 AND 2007

NOTE 1 - DESCRIPTION OF BUSINESS AND SIGNIFICANT ACCOUNTING POLICIES

Description of Business

International Isotopes Inc. (the Company) was incorporated in Texas in November 1995. The consolidated financial statements include all the accounts of the Company and its wholly owned subsidiaries, International Isotopes Idaho Inc., International Isotopes Fluorine Products Inc., and International Isotopes Transportation Services Inc., all of which are Idaho corporations. The Company's headquarters and all operations are located in Idaho Falls, Idaho.

Nature of Operations The Company's business consists of six major business segments which include: Nuclear Medicine Standards, Cobalt Products, Radiochemical Products, Fluorine Products, Radiological Services, and Transportation.

With the exception of certain unique products, the Company's normal operating cycle is considered to be one year. Due to the time required to produce some cobalt products, the Company's operating cycle for those products is considered to be three years. All assets expected to be realized in cash or sold during the normal operating cycle of business are classified as current assets.

Significant Accounting Policies

(a)

Financial Instruments and Cash Equivalents

The carrying value of notes payable approximates fair value because they bear interest at rates which approximate market rates.

Cash and cash equivalents, totaling \$2,149,340 and \$121,887 at December 31, 2008 and 2007, respectively, consist of operating accounts, and money market accounts. For purposes of the consolidated statements of cash flows, the Company considers all highly-liquid financial instruments with original maturities of three months or less at date of purchase to be cash equivalents.

At December 31, 2008 and 2007, the Company has pledged certificates of deposit valued at \$260,517 and \$184,937, respectively as security on a letter of credit. The letter of credit is required as part of the licensing agreement with the Nuclear Regulatory Commission (NRC). Among other things, the licensing agreement calls for a letter of credit to provide a level of financial assurance to maintain licensing with the NRC. Accordingly, withdrawal of the certificate is restricted over the remaining life of the license.

At December 31, 2008, the Company had cash deposits in excess of the federally insured limits. These funds will be moved into other insured accounts as soon as practicable.

(b)

Accounts Receivable

The Company sells products mainly to recurring customers, wherein the customer's ability to pay has previously been evaluated. The Company generally does not require collateral. The Company periodically reviews accounts receivable for amounts considered uncollectible. Allowances are provided for uncollectible accounts when deemed necessary.

(c)

Inventories

Inventories are carried at the lower of cost or market. Cost is determined using the first in, first out method. Work in progress inventory contains product that is undergoing irradiation. This irradiation process can take up to three years to reach high specific activity (HSA) levels.

(d)

Property, Plant and Equipment

Depreciation on property, plant and equipment is computed using the straight-line method over the estimated useful life of the asset.

Leasehold improvements are amortized over the shorter of the life of the lease or the service life of the improvements. Maintenance, repairs, and renewals that neither materially add to the value of the property nor appreciably prolong its life are charged to expense as incurred. Gains or losses on dispositions of property and equipment are included in the results of operations.

(e)

Patents and Other Intangibles

Patents and other intangibles are amortized using the straight-line method over their estimated useful lives and are evaluated for impairment at least annually or when events or circumstances arise that indicate the existence of impairment.

(f)

Impairment of Long-Lived Assets and Long-Lived Assets to be Disposed Of

Long-lived assets are reviewed for impairment annually or when events or circumstances arise that indicate the existence of impairment. Recoverability of assets to be held and used is measured by comparison of the carrying amount of an asset to future net cash flows expected to be generated by the asset. If such assets are considered to be

impaired, the impairment to be recognized is measured by the amount that the carrying amount of the assets exceeds the fair value of the assets. Assets to be disposed of are reported at the lower of the carrying amount or fair value less costs to sell. Based on the evaluation, no impairment was considered necessary during the years ended December 31, 2008 or 2007, respectively.

(g)

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carry forwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rate is recognized in income in the period that includes the enactment date.

(h)

Use of Estimates

Management of the Company has made a number of estimates and assumptions relating to the reporting of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the consolidated financial statements and reported amounts of revenues and expenses during the reporting period to prepare these consolidated financial statements in conformity with accounting principles generally accepted in the United States of America. Actual results could differ from those estimates.

i)

Revenue Recognition

Revenue is recognized when products are shipped. No warranty coverage or right of return provisions are provided to customers. During 2008 the Company was paid for some services in advance and recorded these payments as deferred revenue. As of December 31, 2008, deferred revenue amounted to \$102,814. There was no deferred revenue as of December 31, 2007.

During the fiscal year ending December 31, 2008, the Company had sales to an entity which represented more than 10% of its revenues. These sales are reported in the Radiochemical Products and Nuclear Medicine business segments. The customer accounted for approximately 33% of total revenues. At December 31, 2008, 76% of accounts receivable were from this customer because of their additional role as a distributor for the Company's radiochemical sales. During 2007, that same company accounted for approximately 58% of total revenues. During 2008, there were two additional entities which accounted for approximately 17% of total revenues. The loss of these customers may result in lower revenues and limit the cash available to grow the business and achieve profitability.

(j)

Research and Development Costs

The Company had research and development expenses totaling \$402,795 in 2008. Research and development expenses for its core business segments were \$30,642 in 2008, compared to \$61,279 in 2007. These expenses were associated with development work leading to the addition of several new products in the nuclear medicine reference and calibration business. The Company also began to incur significant additional expense in our Fluorine Products Division in 2008 for costs associated with the start of plans to design and construct a depleted uranium de-conversion and fluorine extraction processing facility. These additional research and development expenses totaled approximately \$370,000 in 2008.

(k)

Share Based Compensation

The Company has adopted Statement of Financial Accounting Standards (SFAS) No. 123(R), share based payments using the modified prospective method. SFAS 123R requires the recognition of the cost of employee services received in exchange for an award of equity instruments in the financial statements and is measured based on the grant date fair value of the award. SFAS 123R also requires the stock option compensation expense to be recognized over the period during which an employee is required to provide service in exchange for the award (the vesting period).

For the twelve months ended December 31, 2008 and December 31, 2007, the Company recognized compensation expense of \$271,962 and \$330,394 respectively, related to stock options. This expense is included as part of salaries and contract labor on the accompanying statements of operations.

(1)

Net Loss Per Common Share-Basic and Diluted

Basic loss per share is computed on the basis of the weighted-average number of common shares outstanding during the year. Diluted loss per share is computed on the basis of the weighted-average number of common shares and all dilutive potentially issuable common shares outstanding during the year.

At December 31, 2008, and 2007, the Company had the following common stock equivalents outstanding that were not included in the computation of diluted net loss per common share as their effect would have been anti-dilutive, thereby decreasing the net loss per common share:

| | December 31, | |
|---|---------------------|-------------|
| | 2008 | 2007 |
| Stock options | 18,780,000 | 21,350,000 |
| Warrants Series E and F | 21,533,331 | 26,666,662 |
| 850 shares of Series B redeemable convertible | | |
| preferred stock | 425,000 | 425,000 |
| | 40,738,331 | 48,441,662 |

(m)

Business Segments and Related Information

SFAS No. 131, *Disclosures about Segments of an Enterprise and Related Information*, establishes standards for the way public business enterprises are to report information about operating segments in annual financial statements and requires enterprises to report selected information about operating segments in interim financial reports issued to shareholders. It also establishes standards for related disclosure about products and services, geographic areas and major customers. The Company currently operates in six business segments.

(n)

Reclassifications

Certain 2007 amounts have been reclassified to conform to the 2008 presentation. These reclassifications had no effect on the previously reported net loss.

(o)

Recent Accounting Pronouncements

In September 2006, the Financial Accounting Standards Board (FASB) issued SFAS No. 157, *Fair Value Measurements*, which defines fair value, establishes a framework for measuring fair value in generally accepted

accounting principles and expands disclosures about fair value measurements. SFAS No. 157 is effective for fiscal years beginning after November 15, 2007, and interim periods within those fiscal years. In February 2008, the FASB issued FASB Staff Position (FSPFIN) No 157-2 which extended the effective date for certain nonfinancial assets and nonfinancial liabilities to fiscal years beginning after November 15, 2008. The Company does not expect the adoption of SFAS No. 157 to have a material impact on our consolidated financial statements.

In December 2007, the FASB issued SFAS No. 141 (R), *Business Combinations*, and SFAS No. 160, *Noncontrolling Interests in Consolidated Financial Statements*. SFAS No. 141 (R) requires an acquirer to measure the identifiable assets acquired, the liabilities assumed and any non-controlling interest in the acquire at their fair values on the acquisition date, with goodwill being the excess value over the net identifiable assets acquired. SFAS No. 160 clarifies that a non-controlling interest in a subsidiary should be reported as equity in the consolidated financial statements, consolidated net income shall be adjusted to include the net income attributed to the non-controlling interest and consolidated comprehensive income shall be adjusted to include the comprehensive income attributed to the non-controlling interest. The calculation of earnings per share will continue to be based on income amounts attributable to the parent. SFAS No. 141 (R) and SFAS No. 160 are effective for financial statements issued for fiscal years beginning after December 15, 2008. Early adoption is prohibited. The Company has not yet determined the effect on our consolidated financial statements, if any, upon adoption of SFAS No. 141 (R) or SFAS No. 160.

In April 2008, the FASB issued FSP FAS 142-3, Determination of the Useful Life of Intangible Assets (FSB FAS 142-3). FSP FAS 142-3 amends the factors that should be considered in developing renewal or extension assumptions used to determine the useful life of a recognized intangible asset under SFAS No. 142, Goodwill and Other Intangible Assets. The intent of this FSP is to improve the consistency between the useful life of a recognized intangible asset under FAS 142 and the period of expected cash flows used to measure the fair value of the asset under SFAS No. 141(R) and other generally accepted accounting principles. FSP FAS 142-3 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2008. The Company has not yet determined the effect on its consolidated financial statements, if any, that will occur upon adoption of FSP FAS 142-3.

In June 2008, the FASB ratified EITF Issue No. 07-5, Determining Whether an Instrument (or an Embedded Feature) Is Indexed to an Entity's Own Stock (EITF 07-5). EITF 07-5 provides that an entity should use a two step approach to evaluate whether an equity-linked financial instrument (or embedded feature) is indexed to its own stock, including evaluating the instrument's contingent exercise and settlement provisions. It also clarifies on the impact of foreign currency denominated strike prices and market-based employee stock option valuation instruments on the evaluation. EITF 07-5 is effective for fiscal years beginning after December 15, 2008. The Company has not yet determined the effect on its consolidated financial statements, if any, that will occur upon adoption of EITF 07-5.

NOTE 2 - BUSINESS CONDITION AND LIQUIDITY

Business Condition The Company has a history of recurring losses with an accumulated deficit of \$94,719,673 at December 31, 2008 and a net loss of \$2,166,967 for the year then ended. The Company's working capital has increased by \$1,545,688 from the prior year, working capital includes inventory which will not be sold for up to three years, and the Company has used cash flows from operations of \$1,476,502. During 2008, the Company sought to improve future cash flows from operating activities through significant investments into facilities and infrastructure, launching new products and implementing and improving operating cost control measures and raising capital. The Company has been able to grow the Radiochemical Products segment at an annual rate of approximately 25% each year and the cobalt segment by more than 50% in 2008, and anticipates similar growth trends over the coming year.

In 2004, the Company acquired seven patents for the Fluorine Extraction Process (FEP) and began the design and construction of an FEP pilot 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 the Company 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. In 2008, the Company began production of fluoride gas and provided qualification samples to their prospective customer. This pilot plant has successfully demonstrated the technical viability of FEP and its ability to produce high purity germanium tetrafluoride.

Beginning in 2008 the Company started a major undertaking to construct the first commercial uranium de-conversion facility in the U.S. The Company believes this will provide an excellent commercial opportunity because of the shift underway by several companies to construct new uranium enrichment facilities in the U.S. and the resulting need to process, or de-convert the large amount of depleted uranium hexafluoride (UF₆) that must be processed for disposal.

The Company also plans to use the FEP patents to produce high value high purity fluoride gasses in conjunction with uranium de-conversion services.

It will require significant capital and time to design, license, and construct such a uranium de-conversion facility. Nonetheless, the Company believes that the commercial opportunity will certainly justify this investment and they have taken several actions in 2008 to put this plan in place. First, the Company completed an underwriting agreement with Cormark Securities, Inc. to support a public offering to raise additional capital at a time best coordinated with market conditions. Second, the Company completed an initial private offering and raised approximately \$2 million to support near term actions associated with design and licensing of the new facility. Third, the Company completed the acquisition of a large amount of uranium de-conversion plant equipment, software, and know-how that will be used in the new uranium de-conversion facility. And fourth, the Company has contracted with a company to perform facility process design and prepare our Nuclear Regulatory Commission (NRC) license application.

NOTE 3 - PURCHASED ASSETS AND INVESTMENTS

Assets Purchased from Sequoyah Fuels Corporation

In May 2008, the Company entered into an Asset Purchase Agreement with Sequoyah Fuels Corporation to which the Company purchased certain tangible and intangible assets related to Sequoyah's depleted uranium hexafluoride to depleted uranium tetrafluoride conversion facility located in Gore, Oklahoma. On May 30, 2008, the Company and Sequoyah entered into a Technical Support Services Agreement pursuant to which Sequoyah will perform up to 500 hours of certain technical services to support the acquired assets. As consideration for the acquired assets and the service agreement, the Company paid Sequoyah \$900,000 cash.

The purchase price was allocated to Equipment, \$755,000, Other Intangibles, \$100,000, and Service Agreement, \$45,000 based on a fair value analysis performed by outside consultants. Amortization for the Service Agreement is based on the five year term of the agreement and in 2008 the Company reported \$5,250 in amortization expense. No depreciation has been recorded on the equipment because it has not yet been placed into operations. At the time the agreement was entered into, the facility had been placed in storage and no operations had been conducted for several years. As a result, the Company considered this an asset purchase and not a business purchase.

Acquisition of Interest in RadQual, LLC

During April 2007, the Company acquired 5.5 units representing a 6% interest in RadQual, LLC, for a total purchase price of \$330,000. Of that amount \$275,000 was paid in cash and \$55,000 was paid in the form of shares of common stock of the Company. A total of 392,857 shares were issued valued at \$0.14 per share. The investment is accounted for at cost.

In May 2008, the Company acquired an additional 18.5% interest by issuing 1,370,753 shares of common stock valued at \$960,000 or \$0.70 per share, thus giving the Company a total ownership of 24.5%. The remaining 75.5% ownership of RadQual is concentrated among a very small group of investors and due to this concentration the Company is unable to exert significant control or influence over the operations and policies of RadQual, LLC.

Accordingly, the investment in RadQual will continue to be recorded at the lower of cost or fair value in accordance with FASB Interpretation 35 *Criteria for Applying the Equity Method of Accounting for Investments in Common Stock*. The 24.5% ownership of RadQual has been recorded at cost of \$1,290,000. Member distributions from RadQual totaled \$38,481 in 2008, and were recorded as Other Income.

NOTE 4 - INVENTORIES

Inventories consisted of the following at December 31, 2008 and 2007:

| | 2008 | 2007 |
|------------------|--------------|--------------|
| Raw materials | \$ 256,576 | \$ 260,611 |
| Work in progress | 2,261,678 | 2,241,655 |
| | \$ 2,518,254 | \$ 2,502,266 |

Included in inventory are the various pellet holders and housings involved in target fabrication, raw cobalt, nickel and other raw elements, completed flood sources and irradiated cobalt.

Work in progress includes cobalt-60 isotopes that are located in the U.S. federal government's Advanced Test Reactor (ATR) located outside Idaho Falls, Idaho. These isotopes are at various stages of irradiation. Some isotopes are near completion and others may require up to three years to complete. At December 31, 2008, and 2007, these isotopes had a carrying value of \$2,009,356 and \$1,918,283, respectively. This value is based on accumulated costs which are allocated based on the length of time isotopes remain in the reactor.

NOTE 5 - PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment are summarized as follows at December 31, 2008 and 2007:

| | 2008 | 2007 | Estimated Useful Lives |
|-------------------------------|-------------|-------------|---------------------------------------|
| Furniture and fixtures | \$ 120,907 | \$ 107,721 | 3 - 5 years |
| Transportation equipment | 87,836 | 75,466 | 5 - 10 years |
| Plant and improvements | 155,162 | 149,608 | 5 years |
| Production equipment | 3,831,119 | 2,845,382 | 5 - 10 years |
| | 4,195,024 | 3,178,177 | |
| Less accumulated depreciation | (1,447,001) | (1,082,567) | |

Property, plant and equipment, net \$ 2,748,023 \$ 2,095,610

Depreciation was \$364,434 and \$316,193 for the years ended December 31, 2008 and 2007, respectively.

NOTE 6 - PATENTS AND OTHER INTANGIBLE ASSETS

During the year ended December 31, 2008, the Company obtained certain patents and patents pending related to a Fluorine Extraction Process and a container to transport radioactive materials. Patents, as of December 31, 2008 and 2007 are as follows:

| | 2008 | 2007 |
|--------------------------|-------------|-------------|
| Beginning | \$ 134,769 | \$ 105,000 |
| Additions | 183,847 | 29,769 |
| Ending | 318,616 | 134,769 |
| Accumulated amortization | (70,934) | (42,912) |
| Net | \$ 247,682 | \$ 91,857 |

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During the year ended December 31, 2008 and 2007 respectively, the Company recognized \$22,772 and \$11,412 of amortization expense, respectively. Patent amortization is based on a ten year life and estimated amortization expense of patents is as follows:

| Years Ending December 31: | |
|----------------------------------|------------|
| 2009 | \$ 22,155 |
| 2010 | 22,155 |
| 2011 | 22,155 |
| 2012 | 22,155 |
| 2013 | 22,155 |
| Thereafter | 1,017 |
| | \$ 111,792 |

NOTE 7 - NOTES PAYABLE

In September 2007, the Company converted the then outstanding line of credit with a bank to a \$150,000 term note due in September 2011 with interest at 9.25% and monthly payments of \$3,760.

In March 2007, the \$650,000 Convertible note payable along with \$23,614 of accrued interest was converted to common stock at \$0.08 per share, resulting in 8,420,172 shares of common stock being issued.

Notes payable as of December 31, 2008 and 2007, consist of the following:

| | 2008 | 2007 |
|---|-------------|-------------|
| Note payable to a finance company bearing interest at 8.9%; monthly installments of \$674, secured by a vehicle. | \$ 23,237 | \$ 29,415 |
| Note payable to a bank, converted from a line of credit in September 2007, bears interest at 9.25%, monthly payment of \$3,760, secured by equipment and accounts receivable, due September 2011. | 108,999 | 142,240 |
| Promissory note to a bank, bearing interest at 10.25%; monthly installments of \$9,710, secured by equipment, accounts receivable and inventory; due March 2009. | 538,263 | 595,420 |
| | 840,753 | 840,753 |

Note payable to the former chairman of the board, interest accrues at 7%; payable annually on April 1; principal payments are due annually on April 1 consisting of 30% of prior year net income, with remaining balance due April 2012; unsecured.

| | | |
|---|------------|--------------|
| Total notes payable | 1,511,252 | 1,607,828 |
| Less: current maturities | (580,759) | (97,216) |
| Notes payable, excluding current installments | \$ 930,493 | \$ 1,510,612 |

Maturities of long-term obligations at December 31, 2008 are as follows:

| Years ending December 31, | |
|----------------------------------|--------------|
| 2009 | \$ 580,759 |
| 2010 | 47,494 |
| 2011 | 39,804 |
| 2012 | 843,195 |
| | \$ 1,511,252 |

NOTE 8 - LEASE OBLIGATIONS

Capital leases

The following table summarizes equipment and the related depreciation held under capital leases at December 31, 2008 and 2007:

| | 2008 | 2007 |
|-----------------------------------|-------------|-------------|
| Production equipment | \$ 202,910 | \$ 202,910 |
| Less: accumulated depreciation | (91,310) | (50,728) |
| Net equipment under capital lease | \$ 111,600 | \$ 152,182 |

Operating leases

The Company leases office space, certain office equipment and production equipment under operating leases expiring at various dates through 2011. Rental expense under such leases for the years ended December 31, 2008 and 2007 was \$184,314 and \$192,676 respectively.

The following is a schedule by years of future minimum lease payments under capital and operating lease obligations together with the present value of the net minimum lease payments as of December 31, 2008:

| Years ending December 31, | Capital | Operating |
|---|----------------|------------------|
| 2009 | \$ 40,092 | \$ 190,808 |
| 2010 | 40,092 | 189,444 |
| 2011 | 10,023 | 63,045 |
| Thereafter | - | - |
| Total minimum lease payments | 90,207 | \$ 443,297 |
| Less amount representing interest | (10,067) | |
| Present value of net minimum lease payments | 80,140 | |
| Less current portion | (33,149) | |
| Capital lease obligation - long term | \$ 46,991 | |

NOTE 9 - SHAREHOLDERS EQUITY, REDEEMABLE CONVERTIBLE PREFERRED STOCK, OPTIONS AND WARRANTS

Stock Rights Offering

During 2007, 9,363,122 Series B warrants were exercised for cash proceeds of \$468,156. On July 31, 2007, the remaining 90,869 Series B warrants expired and had no value. At December 31, 2007, there were no outstanding Series B warrants.

Private Placement

On March 21, 2007, the Company completed a private placement offering of 13,333,331 Units priced at \$0.09 per Unit for proceeds of \$1,200,000. Each Unit consisted of one share of common stock, one Class C warrant to purchase a share of common stock at \$0.10 per share and one Class D warrant to purchase a share of common stock at \$0.11 per share. The warrants expire in March 2011. The proceeds were allocated to the warrants based upon their fair value of \$2,460,000, and resulted in \$751,783 being allocated to the warrants and \$448,217 allocated to the shares of common stock. The fair value of the warrants, determined using the Black-Scholes Option Pricing Model, was calculated using the following assumptions: risk free interest rate of 4.43%, expected dividend yield of 0%, expected volatility of 133.76% and an expected life of 4 years.

During January 2008, 13,333,331 Series D warrants were exercised for cash totaling \$1,466,666. In April 2008, the holders of all Class C warrants agreed to amend the terms of the Class C warrant to allow for the Company's call of those warrants. Subsequent to completing this modification, all 13,333,331 Class C warrants were exercised for cash totaling \$1,333,331 and the Company issued 13,333,331 exchange (Class E) warrants in accordance with the terms of the Class C warrant. Class E warrants entitle the holder to purchase shares of common stock, at an exercise price equal to \$0.869 per share. Class E warrants expire March 20, 2011.

During November 2008, the Company completed a private placement offering of 8,200,000 Units priced at \$0.25 per share for proceeds of \$2,050,000. Each Unit consisted of one share of common stock and one Class F Warrant to purchase a share of common stock at \$0.30 per share. The Class F Warrants have a 5 year term and expire in 2013. The proceeds were allocated to the warrants based upon their fair value of \$2,720,760, and resulted in \$929,475 being allocated to the warrants and \$1,120,525 allocated to the shares of common stock. The fair value of the warrants, determined using the Black-Scholes Option Pricing Model, was calculated using the following assumptions: risk free interest rate of 0.29%, expected dividend yield of 0%, expected volatility of 128.86% and an expected life of 4 years. In accordance with the Securities Purchase Agreement, the warrants carry registration rights. A shareholder may demand that the Company

Register the securities if they are unable to sell the securities any time following the six-month holding period provided in Rule 144. The Company is to use all commercially reasonable efforts to file a Shelf registration statement within 45 days of notice, cause the registration statement to be effective within 120 days of notice and keep the registration statement continuously effective for five years after the effective date or until the underlying securities have been sold. If the Company fails to timely file the registration statement or maintain its effectiveness, the Company is required to pay a monthly penalty equal to the greater of 1% of the purchase price paid by the purchaser or 1% of the market value of the shares then outstanding. Demand for registration has not yet been made.

Mandatorily Redeemable Convertible Preferred Stock

The Company has authorized to issue up to 5,000,000 shares of Preferred Stock, par value \$0.01 per share. The Board of Directors is authorized to set the distinguishing characteristics of each series prior to issuance, including the granting of limited or full voting rights, rights to the payment of dividends and amounts payable in event of liquidation, dissolution or winding up of the Company.

At December 31, 2008, there were 850 shares of the Series B Preferred Stock outstanding with a mandatory redemption date of May 2022 at \$1,000 per share. The shares are also convertible into common stock at a conversion price of \$2.00 per share. These preferred shares carry no dividend preferences.

Employee Stock Purchase Plan

On September 30, 2004, the Company's Board of Directors approved an employee stock purchase plan for an aggregate of up to 2,000,000 shares of the Company's common stock. The plan allows employees to deduct up to 15% of their payroll each pay period to be used for the purchase of common stock at a discounted rate. The common shares will be purchased at the end of each three month offering period or other period as determined by the Board. The Plan is intended to qualify as an employee stock purchase plan under Section 423 of the Internal Revenue Code.

During 2008, and 2007, the Company issued 40,402 and 60,931 shares of common stock to employees for proceeds of \$21,503 and \$7,193 respectively in accordance with the employee stock purchase plan.

Stock Options

In April 2006, the Company adopted the International Isotopes 2006 Equity Incentive Plan (the 2006 Plan). The 2006 Plan obtained shareholder approval in July 2006. The 2006 Plan replaced the Company's 2002 Long-Term Incentive Plan (the Prior Plan).

The 2006 Plan permits the granting of any or all of the following types of awards: (1) incentive and nonqualified stock options, (2) stock appreciation rights, (3) stock awards restricted stock and stock units, (4) performance shares and performance units conditioned upon meeting performance criteria and (5) other stock or cash based awards.

The 2006 Plan authorizes the issuance of up to 20,000,000 shares of Common Stock, plus 1,350,000 shares issued but not subject to outstanding awards under the Prior Plan. There are also 13,380,000 shares granted and outstanding under the Prior Plan that could become available for issuance under the 2006 Plan. (For example, if they are forfeited or otherwise expire or terminate without the issuance of shares.) Unless earlier terminated the 2006 Plan will terminate on July 12, 2016. At December 31, 2008 there were 16,750,000 options available for issuance under this plan.

During the year ended December 31, 2008, the Company issued 400,000 non-employee options under the 2006 Equity Incentive Plan. The options were issued pursuant to a consulting agreement with an individual to provide consulting services related to the fluorine extraction process. The agreement states that the consultant will provide 20-40 hours of consulting per month at a rate of \$125 per hour. These options have an exercise price of \$0.77 per share, vest 25% each year subsequent to the grant date, and expire in January 2018. The options had a grant date fair value of \$258,012 or \$0.65 per share as calculated using the Black-Scholes option pricing model. In accordance with EITF 96-18, as of December 31, 2008, the options awarded to consultants were revalued using the Black-Scholes option pricing model and had a fair value of \$38,445 or \$0.10 per share with the following assumptions: volatility of 85.82%, remaining expected life of six years, risk free interest rate of 1.63% and no dividends.

During the year ended December 31, 2007, the Company issued 2,000,000 options to certain employees in accordance with their respective employment agreements. These options had a fair value of \$934,422 (\$0.47 per share) as estimated on the date of grant using the Black-Scholes option pricing model. The options vest 20% per year and expire 10 years from the date of grant. 1,000,000 of the options have an exercise price of \$0.40 and 1,000,000 have an exercise price of \$0.70.

During the year ended December 31, 2008, 470,000 options were exercised under cashless exercises. The Company issued 366,567 shares of common stock under the cashless exercises. There were also 1,500,000 options exercised with an option price of \$0.02 per share. The Company issued 1,500,000 shares for total proceeds of \$30,001.

During the year ended December 31, 2007, 2,500,000 options were exercised under cashless exercises. The Company issued 2,189,765 shares of common stock under the cashless exercises.

The fair value of each option grant is estimated on the date of grant using the Black-Scholes option pricing model with the following assumptions:

| | 2008 | 2007 |
|---------------------------------------|-------------|-------------|
| Expected dividend yield | - | - |
| Risk-free interest rate | 1.6% | 4.6% |
| Expected volatility | 86% | 116% |
| Expected life | 5 years | 6 years |
| Weighted average fair value per share | \$0.10 | \$0.47 |

The expected life of stock options represents the period of time that the stock options granted are expected to be outstanding based on historical exercise trends. The expected volatility is based on the historical price volatility of our common stock. The risk-free interest rate represents the U.S. Treasury bill rate for the expected life of the related stock options. The dividend yield represents our anticipated cash dividend over the expected life of the stock options.

A summary of the stock options issued under the Company's Plan is as follows:

| | Options | Weighted Average Exercise Price | Weighted Average Remaining Contractual Life | Aggregate Intrinsic Value |
|----------------------------------|----------------|--|--|--|
| Outstanding at December 31, 2006 | 22,650,000 | \$ 0.04 | | |
| Exercised | (2,500,000) | 0.07 | | \$ 995,000 |
| Forfeited | (800,000) | 0.40 | | |
| Granted | 2,000,000 | 0.55 | | |
| Outstanding at December 31, 2007 | 21,350,000 | 0.05 | | |
| Exercised | (1,970,000) | 0.07 | | \$ 1,521,500 |
| Forfeited | (1,000,000) | 0.17 | | |
| Granted | 400,000 | 0.77 | | |
| Outstanding at December 31, 2008 | 18,780,000 | 0.09 | 4.7 | \$ 2,963,400 |
| Exercisable at December 31, 2008 | 16,780,000 | \$ 0.05 | 4.3 | \$ 2,833,400 |
| Exercisable at December 31, 2007 | 18,387,500 | \$ 0.04 | | |

The year-end intrinsic values are based on a December 31, 2008 closing price of \$0.21.

The following table summarizes information about stock options under the Plan outstanding at December 31, 2008:

| Exercise Price | Number Outstanding | Weighted Average Exercise Price | Weighted Average Remaining Contractual Life | Number Exercisable | Weighted Average Exercise Price |
|---------------------------|-------------------------------|--|--|-------------------------------|--|
| \$0.02-0.03 | 12,000,000 | \$ 0.02 | 4.4 | 12,000,000 | \$ 0.02 |
| \$0.07-0.08 | 5,380,000 | \$ 0.08 | 6.3 | 4,380,000 | \$ 0.08 |
| \$0.70 | 1,000,000 | \$ 0.70 | 8.8 | 400,000 | \$ 0.70 |
| \$0.77 | 400,000 | \$ 0.77 | 9.0 | - | - |

At December 31, 2008, there was approximately \$208,271 of unrecognized compensation cost related to stock options that will be recognized over a weighted average period of 1.93 years.

All options exercised were issued under a qualified plan and accordingly, there is no income tax affect in the accompanying financial statements.

Warrants

The following summarizes warrant activity for the years ended December 31, 2008 and 2007:

| Warrants | Outstanding Shares | Weighted Average Exercise Price | Weighted Average Remaining Contractual Life |
|-------------------------------------|-----------------------|--|---|
| Outstanding at December 31, 2006 | 9,454,871 | \$ 0.05 | |
| Forfeited | (91,749) | 0.05 | |
| Granted | 26,666,662 | 0.11 | |
| Exercised | (9,363,122) | 0.05 | |
| Outstanding at December 31, 2007 | 26,666,662 | 0.05 | |
| Granted | 21,533,331 | 0.30 | |
| Exercised | (26,666,662) | 0.11 | |
| Outstanding at December 31, 2008 | 21,533,331 | \$ 0.30 | 4.2 |

NOTE 10 - INCOME TAXES

The Company paid no federal or state income taxes during 2008 or 2007. Income tax expense on loss differed from the amounts computed by applying the U.S. federal income tax rate of 34% to pretax losses as a result of the following:

| | 2008 | 2007 |
|------------------------------------|--------------|--------------|
| Income tax benefit | \$ (736,769) | \$ (584,479) |
| Nondeductible expenses | 10,520 | 2,260 |
| State taxes net of federal benefit | (99,680) | (79,077) |
| Change in valuation allowance | 825,929 | 661,296 |
| Total income tax expense | \$ - | \$ - |

The tax effects of temporary differences that give rise to significant portions of the Company's deferred tax assets (liabilities) as of December 31, 2008 and 2007 are presented below:

| | 2008 | 2007 |
|--|--------------|--------------|
| Deferred income tax asset | | |
| Net operating loss carryforward | \$ 3,944,912 | \$ 2,956,925 |
| Valuation allowance | (3,632,188) | (2,806,259) |
| Total deferred income tax asset | 312,724 | 150,666 |
| Deferred income tax liability - depreciation | (312,724) | (150,666) |
| Deferred tax asset (liability) | \$ - | \$ - |

At December 31, 2008, the Company had net operating losses of approximately \$10,064,000 that will begin to expire in 2023. The valuation allowances for 2008 and 2007 have been applied to offset the deferred tax assets in recognition of the uncertainty that such benefits will be realized.

The Internal Revenue Code contains provisions which reduce or limit the availability and utilization of net operating loss carry forwards in the event of a more than 50% change in ownership. If such an ownership change occurs with the Company, the use of these net operating losses could be limited.

NOTE 11 COMMITMENTS AND CONTINGENCIES

Dependence on Third Parties

The production of HSA Cobalt is dependent upon the U.S. Department of Energy, and its prime operating contractor, who controls the reactor and laboratory operations. The revenue associated with the sale of HSA Cobalt is largely dependent on the Company's sole customer for this product. Nuclear Medicine Reference and Calibration Standard manufacturing is conducted under an exclusive contract with RadQual, LLC who in turn has an agreement in place with several companies for distributing the product. The majority of the radiochemical sold by the Company is provided through a supply agreement with a single entity. A loss of any of these customers or suppliers could adversely affect operating results by causing a delay in production or a possible loss of sales.

Contingencies

Because all of the Company's business segments involve radioactive materials the Company is required to have an operating license from the Nuclear Regulatory Commission (NRC) and specially trained staff to handle these materials. The Company has an NRC operating license and has amended this license several times to increase the amount of material permitted within the facility. Additional processing capabilities and license amendments could be implemented that would permit processing of other reactor produced radioisotopes by the Company but this license does not currently restrict the volume of business operation performed or projected to be performed in the coming year. An irrevocable, automatic renewable letter of credit against a Certificate of Deposit at Wells Fargo Bank has been used to provide the financial assurance required by the NRC for the Idaho facility license.

Defined Contribution Pension Plan

The Company has a 401(k) defined-contribution pension plan (the Plan) for which employees are eligible after completing six months of full time service. Participants, under provision of Internal Revenue Code §401(k), may elect to contribute up to \$15,500 of their compensation to the Plan which includes both before-tax and Roth after-tax contribution options. Although The Company reserves the right to make discretionary matching contributions to participant accounts there were no employer matching contributions made for either 2008, or 2007. All amounts withheld for employee contributions were made during 2008, with the exception of the final payment being made in January 2009. This final payment was included in accrued liabilities at December 31, 2008. The employer reserves the right to terminate the Plan at any time.

NOTE 12 OBLIGATION FOR LEASE DISPOSAL COSTS

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In accordance with the provisions of SFAS No. 143, the Company has capitalized lease disposal costs of \$193,280, and accumulated amortization of \$106,306 and \$91,474, at December 31, 2008 and 2007.

The following summarizes the asset retirement obligation activity for the years ended December 31, 2008 and 2007:

| | |
|----------------------------------|------------|
| Balance January 1, 2007 | \$ 206,451 |
| Accretion expense | 15,291 |
| Balance December 31, 2007 | 221,742 |
| Increase in lease disposal costs | 18,535 |
| Accretion expense | 21,444 |
| Balance December 31, 2008 | \$ 261,721 |

NOTE 13 SEGMENT INFORMATION

Information related to the Company's reportable operating business segments is shown below. The Company's reportable segments are reported in a manner consistent with the way management evaluates the businesses. The Company identifies its reportable business segments based on differences in products and services. The accounting policies of the business segments are the same as those described in the summary of significant accounting policies. The Company has identified the following business segments:

Nuclear Medicine segment consists of manufacture of sources and standards associated with SPECT imaging, patient positioning, and calibration or operational testing of dose measuring equipment for nuclear pharmacy.

Cobalt Products segment includes the production of high and medium specific activity bulk cobalt, recycling expended cobalt sources, and fabrication of a wide array of cobalt teletherapy and experimental irradiator source capsules.

Radiochemical Products segment includes production of various isotopically pure radiochemicals for medical, industrial, or research applications. These products are either directly produced by the company or are purchased in bulk from other producers and distributed by the Company in customized packages and chemical forms tailored to customer and market demands.

Fluorine Products segment concerns the production of high purity fluorine gas compounds (such as germanium tetrafluoride) for the electronics and silicon chip manufacturing industry. The Company has acquired all patent rights to this process and is in the process of constructing/licensing a separate FEP production facility.

Radiological Services segment concerns a wide array of miscellaneous services such as processing of gemstone which has undergone irradiation for color enhancement, radiological engineering consultant services, Type A package certification testing, and waste packaging/recycle services.

Transportation segment includes transportation services the Company engages in for the commercial transfer of nuclear products for which it is licensed to move.

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The following presents certain segment information as of and for the years ended December 31, 2008 and 2007:

| | 2008 | 2007 |
|----------------------------|--------------|--------------|
| Sale of Product | | |
| Radiochemical Products | \$ 1,379,906 | \$ 1,062,477 |
| Cobalt Products | 1,616,020 | 1,064,727 |
| Nuclear Medicine Standards | 1,864,099 | 1,819,049 |
| Radiological Services | 634,201 | 590,160 |
| Flourine Products | - | - |
| Transportation | 108,217 | 154,175 |
| Total Segments | 5,602,443 | 4,690,588 |
| Corporate revenue | - | - |
| Total Consolidated | \$ 5,602,443 | \$ 4,690,588 |

| | 2008 | 2007 |
|---|-------------|-------------|
| Depreciation and Amortization | | |
| Radiochemical Products | \$ 43,961 | \$ 45,372 |
| Cobalt Products | 100,863 | 64,728 |
| Nuclear Medicine Standards | 2,572 | 4,720 |
| Radiological Services | 7,011 | 458 |
| Flourine Products | 209,517 | 178,884 |
| Transportation | 20,167 | 15,386 |
| Total Segments | 384,091 | 309,548 |
| Corporate depreciation and amortization | 18,247 | 32,997 |
| Total Consolidated | \$ 402,338 | \$ 342,545 |

| | 2008 | 2007 |
|----------------------------|----------------|----------------|
| Segment Income (Loss) | | |
| Radiochemical Products | \$ 124,912 | \$ 142,402 |
| Cobalt Products | 867,002 | 515,065 |
| Nuclear Medicine Standards | 772,343 | 646,970 |
| Radiological Services | 372,364 | 313,034 |
| Flourine Products | (1,564,557) | (975,666) |
| Transportation | (139,463) | (91,583) |
| Total Segments | 432,601 | 550,222 |
| Corporate loss | (2,599,568) | (2,269,277) |
| Net Loss | \$ (2,166,967) | \$ (1,719,055) |

| Expenditures for Segment Assets | 2008 | 2007 |
|---------------------------------|--------------|-------------|
| Radiochemical Products | \$ - | \$ - |
| Cobalt Products | 147,335 | 198,024 |
| Nuclear Medicine Standards | - | - |
| Radiological Services | 51,995 | - |
| Flourine Products | 941,939 | 61,017 |
| Transportation | 12,370 | 53,160 |
| Total Segments | 1,153,639 | 312,201 |
| Corporate purchases | 3,258 | 21,866 |
| Total Consolidated | \$ 1,156,897 | \$ 334,067 |

| Segment Assets | 2008 | 2007 |
|----------------------------|--------------|--------------|
| Radiochemical Products | \$ 312,049 | \$ 311,278 |
| Cobalt Products | 3,110,486 | 2,915,698 |
| Nuclear Medicine Standards | 439,832 | 439,875 |
| Radiological Services | 55,042 | 28,374 |
| Flourine Products | 2,044,333 | 1,255,049 |
| Transportation | 52,720 | 59,766 |
| Total Segments | 6,014,462 | 5,010,040 |
| Corporate assets | 3,925,857 | 1,013,188 |
| Total Consolidated | \$ 9,940,319 | \$ 6,023,228 |

NOTE 14 - SUBSEQUENT EVENTS

During January 2009, the Company completed a restricted stock award. The Company granted 1,243,563 shares of restricted stock to certain employees. The stock award was 20% vested on the date of grant with 20% vesting each year thereafter until fully vested. The restricted stock award was made under the 2006 Equity Incentive Plan.

EXHIBIT INDEX

Exhibit

Number

Description of Document

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).

2.2

Unit Purchase Agreement effective as of May 23, 2008 (incorporated by reference to Exhibits 99.1 of the Company's Current Report on Form 8-K filed on June 2, 2008).

2.3

Asset Purchase Agreement, dated May 30, 2008 (incorporated by reference to Exhibits 99.1 of the Company's Current Report on Form 8-K filed on June 5, 2008).

2.4

First Amendment to the Asset Purchase Agreement, dated June 3, 2008 (incorporated by reference to Exhibits 99.2 of the Company's Current Report on Form 8-K filed on June 5, 2008).

2.5

Securities Purchase Agreement dated November 7, 2008 (incorporated by reference to Exhibits 99.1 of the Company's Current Report on Form 8-K filed on November 12, 2008).

3.1

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Second Amended and Restated Articles of Incorporation (incorporated by reference to Appendix C to the Company's definitive proxy statement on Schedule 14A filed on April 28, 2005).

3.2

Bylaws of the Company (incorporated by reference to Exhibit 3.2 of the Company's Registration Statement on Form SB-2 filed on May 1, 1997 (Registration No. 333-26269)).

4.1

Form of Class E Warrant (incorporated by reference to Exhibits 4.1 of the Company's Current Report on Form 8-K filed on April 21, 2008).

4.2

Form of Class F Warrant (incorporated by reference to Exhibits 99.1 of the Company's Current Report on Form 8-K filed on November 12, 2008).

10.1

* 2002 Long Term Incentive Plan (incorporated by reference to Exhibit 10.1 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2002).

10.2

Form of Incentive Stock Option Agreement (incorporated by reference to Exhibit 10.2 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.3

*International Isotopes Employee Stock Purchase Plan (incorporated by reference to Appendix B to the Company's definitive proxy statement on Schedule 14A, as amended, filed on May 6, 2005).

10.4

*International Isotopes Employment Agreement with Steve T. Laflin dated February 28, 2007 (incorporated by reference to Exhibit 10.4 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2007).

10.5

Lease Agreement 4137 Commerce Circle (incorporated by reference to Exhibit 10.6 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.6

Option to Purchase and Right of First Refusal for Property located at 4137 Commerce Circle (incorporated by reference to Exhibit 10.7 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.7

Lease Agreement 3159 Commerce Way (incorporated by reference to Exhibit 10.8 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.8

Option to Purchase and Right of First Refusal for Property located at 3159 Commerce Way (incorporated by reference to Exhibit 10.9 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.9

Promissory Note with Texas State Bank for Commercial Loan (incorporated by reference to Exhibit 10.11 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2006).

10.10

Unsecured Note to former Chairman of the Board, Dated April 1, 2002 (incorporated by reference to Exhibit 10.12 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.11

Form of Note Purchase Agreement and Form of Unsecured Convertible Promissory Notes (incorporated by reference to Exhibit 10.13 of the Company's Annual Report on Form 10-KSB for the year ended December 31, 2004).

10.12

2006 Equity Incentive Plan (incorporated by reference to Annex A of the Company's definitive proxy statement on Schedule 14A filed on May 1, 2006)

10.13

Alpha Omega Services, Inc. Distributor Agreement dated August 14, 2007 (incorporated by reference to Exhibit 99.1 of the Company's Current Report of Form 8-K filed on August 22, 2007).

10.14

Letter Agreement dated December 21, 2007 between the Company and Firebird Global Master Fund II, Ltd., together with a schedule of substantially identical documents omitted from filing pursuant to Rule 12b-31 promulgated under the Exchange Act

10.15

Technical Support Services Agreement, dated May 30, 2008 (incorporated by reference to Exhibits 99.3 of the Company's Current Report on Form 8-K filed on June 5, 2008).

10.16

Form of Indemnification Agreement (incorporated by reference to Exhibits 99.1 of the Company's Current Report on Form 8-K filed on September 17, 2008).

10.17

Letter Agreement dated April 9, 2008 (incorporated by reference to Exhibits 4.1 of the Company's Current Report on Form 8-K filed on April 21, 2008).

21.

Subsidiaries (incorporated by reference to the Company's Annual Report on Form 10-KSB for the year ended December 31, 2005).

23.1

Consent of Hansen, Barnett & Maxwell.

31.1

Certification under section 302 of the Sarbanes-Oxley Act of 2002 for Chief Executive Officer.

31.2

Certification under section 302 of the Sarbanes-Oxley Act of 2002 for Chief Financial Officer.

32.1

Certification furnished under section 906 of the Sarbanes-Oxley Act of 2002.

32.2 Certification furnished under section 906 of the Sarbanes-Oxley Act of 2002.

*This exhibit constitutes a management contract or compensatory plan or arrangement.

