

Keane James J  
Form SC 13D/A  
May 13, 2010

**UNITED STATES**  
**SECURITIES AND EXCHANGE COMMISSION**  
**Washington, D.C. 20549**  
**SCHEDULE 13D**  
**Under the Securities Exchange Act of 1934**  
**(Amendment No. 1)\***

International Isotopes Inc.

(Name of Issuer)

Common Stock, par value \$0.01 per share

(Title of Class of Securities)

45972C102

(CUSIP Number)

James J. Keane

26 Hillwood Avenue

Edison, New Jersey 08820

(732) 549-5138

*With a copy to:*

Timothy J. Fete, Esq.

Perkins Coie LLP

1899 Wynkoop Street, Suite 700

Denver, Colorado 80202-1043

(303) 291-2300

(Name, Address and Telephone Number of Person  
Authorized to Receive Notices and Communications)

February 24, 2010

(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§ 240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box.

**Note:** Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See § 240.13d-7(b) for other parties to whom copies are to be sent.

\*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be filed for the purpose of Section 18 of the Securities Exchange Act of 1934 ( Act ) or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

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**CUSIP No. 45972C102**

1. Names Of Reporting Persons:

Marie C. Keane

2. Check the Appropriate Box if a Member of a Group (See Instructions):

(a)

(b)

3. SEC Use Only

4. Source of Funds (See Instructions): PF

5. Check if Disclosure of Legal Proceedings is Required Pursuant to Items 2(d) OR 2(e):

6. Citizenship or Place of Organization: United States of America

	7.	Sole Voting Power:	0
<b>Number Of</b>			
<b>Shares</b>	8.	Shared Voting Power:	15,738,855
<b>Beneficially</b>			
<b>Owned By</b>			
<b>Each Reporting</b>	9.	Sole Dispositive Power:	0
<b>Person With</b>			
	10.	Shared Dispositive Power:	15,738,855

11. Aggregate Amount Beneficially Owned by Each Reporting Person:  
15,738,855

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares

(See Instructions):

Not Applicable

13. Percent of Class Represented by Amount in Row (11): 5.3%(1)

14. Type of Reporting Person (See Instructions): CO

(1) Percentage is based upon 294,567,905 shares of common stock, par value \$0.01 per share, of International Isotopes Inc., a Texas corporation, issued and outstanding as of March 15, 2010, as disclosed in the Issuer's Annual Report on Form 10-K for the period ended December 31, 2009.

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**CUSIP No. 45972C102**

1. Names Of Reporting Persons:

James J. Keane

2. Check the Appropriate Box if a Member of a Group (See Instructions):

(a)

(b)

3. SEC Use Only

4. Source of Funds (See Instructions): PF

5. Check if Disclosure of Legal Proceedings is Required Pursuant to Items 2(d) OR 2(e):

6. Citizenship or Place of Organization: United States of America

	7.	Sole Voting Power:	1,837,786(1)
<b>Number Of</b>			
<b>Shares</b>	8.	Shared Voting Power:	15,738,855
<b>Beneficially</b>			
<b>Owned By</b>			
<b>Each Reporting</b>	9.	Sole Dispositive Power:	1,837,786(1)
<b>Person With</b>			
	10.	Shared Dispositive Power:	15,738,855

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11. Aggregate Amount Beneficially Owned by Each Reporting Person:  
17,576,641(1)
12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares  
  
(See Instructions):  
  
Not Applicable
13. Percent of Class Represented by Amount in Row (11): 6.0%(2)
14. Type of Reporting Person (See Instructions): CO

(1) Includes 400,000 shares of common stock subject to warrants exercisable within 60 days of the filing of this Schedule 13D/A, and 214,286 shares subject to debentures convertible within 60 days of the filing of this Schedule 13D/A.

(2) Percentage is based upon 294,567,905 shares of common stock, par value \$0.01 per share, of International Isotopes Inc., a Texas corporation, issued and outstanding as of March 15, 2010, as disclosed in the Issuer's Annual Report on Form 10-K for the period ended December 31, 2009.

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**Item 1.**

**Security and Issuer**

This Schedule 13D relates to the Common Stock, par value \$0.01 per share (the "Common Stock") of International Isotopes Inc., a Texas corporation (the "Issuer"). The address of the executive offices of the Issuer is 4137 Commerce Circle, Idaho Falls, Idaho, 83401.

**Item 2.**

**Identity and Background**

(a-f) This Schedule 13D is being filed by Ms. Marie C. Keane ("Ms. Keane") and James J. Keane ("Mr. Keane" and together with Ms. Keane, the "Reporting Persons").

Ms. Keane, a citizen of the United States of America, has a residence address of 26 Hillwood Avenue, Edison, New Jersey 08820.

Mr. Keane, a citizen of the United States of America, has a residence address of 26 Hillwood Avenue, Edison, New Jersey 08820.

During the past five years, none of the Reporting Persons have been: (i) convicted in any criminal proceeding, or (ii) a party to any civil proceeding commenced before a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is now subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

**Item 3.**

**Source and Amount of Funds or Other Consideration**

Each of the Reporting Persons purchased its shares of Common Stock, or equity securities convertible into Common Stock, as the case may be, with personal funds.

**Item 4.**

**Purpose of Transaction**

As reported by the Reporting Persons in Schedule 13D filed by, among others, the Reporting Persons on January 14, 2002 (the "Prior Schedule 13D"), on January 3, 2002, the Reporting Persons and the other reporting persons listed in the Prior Schedule 13D acted together as a group to purchase all of the then outstanding shares of Series A Preferred Stock of the Issuer with the intent (i) to enter into negotiations with management of the Issuer to postpone the mandatory redemption of the Series A Preferred Stock until at least 2003, (ii) to potentially acquire shares of the Issuer's outstanding Series B Preferred Stock, and (iii) to maintain the Issuer as a publicly traded corporation and to position it for possible acquisitions and/or mergers. The Reporting Persons are no longer part of the group identified in the Prior Schedule 13D, nor are they acting together as a group with any other persons with respect to the securities of the Issuer.

The Reporting Persons acquired the Common Stock, and equity securities convertible into Common Stock, because they considered the Common Stock to be an attractive investment opportunity. The Reporting Persons may make further acquisitions of Common Stock from time to time or to dispose of any or all of the shares of Common Stock held by them at any time. Except as otherwise described in this Item 4, the Reporting Persons currently have no plan or proposal which relates to, or would result, in any of the events or transactions described in Item 4(a) through (j) of Schedule 13D, although the Reporting Persons reserve the right to formulate such plans or proposals in the future.

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**Item 5.**

**Interest in Securities of the Issuer.**

(a)(b)As of the date of this Schedule 13D, Mr. and Ms. Keane beneficially and jointly own an aggregate of 15,738,855 shares of Common Stock, they share voting and dispositive power over such shares, and such shares represent 5.3% of the Issuer's total outstanding Common Stock as of March 15, 2010.

Mr. Keane individually beneficially owns 1,837,786 shares of Common Stock, which includes 400,000 shares of common stock subject to warrants exercisable within 60 days of the filing of this Schedule 13D/A, 2010, and 214,286 shares subject to debentures convertible within 60 days of the filing of this Schedule 13D/A. Mr. Keane has sole voting and dispositive power over such shares. Together with the shares held jointly with Ms. Keane as described above, Mr. Keane beneficially owns an aggregate of 17,576,641 shares of Common Stock, which represent 6.0% of the Issuer's total outstanding Common Stock as of March 15, 2010

(c) During the past sixty days, Mr.Keane has participated in the private placement of convertible debentures (the Debentures ) described in this Amendment No. 1, purchasing a Debenture with a face value of \$75,000 from the Issuer.

(d) Not applicable.

(e) Not applicable.

**Item 6.**

**Contracts, Arrangements, Understandings or Relationships With Respect to Securities of the Issuer.**

On November 7, 2008, Mr. Keane entered into a Securities Purchase Agreement with the Issuer, whereby Mr. Keane received 400,000 shares of Common Stock, and a Class F Warrant, exercisable for an aggregate of 400,000 shares of Common Stock at an exercise price of \$0.30 per share. The form of the Class F Warrant was filed by the Issuer as Exhibit 4.1 to the Issuer's Form 8-K, filed on November 12, 2008.

On February 24, 2010, Mr. Keane entered into a Securities Purchase Agreement with the Issuer, whereby Mr. Keane received the Debenture reported in this Amendment No. 1. The Debenture accrues a fixed sum of interest equal to 6% of the principal amount automatically upon issuance and mature on August 24, 2011. The Debentures is convertible at the option of Mr. Keane into shares of Common Stock or any other class of equity securities issued by the Issuer ("Other Equity Securities") for financing purposes after issuance of the Debenture, at an initial conversion price equal to \$0.35, with respect to that portion of the Debenture converted into Common Stock, and the per share subscription price of any Other Equity Securities as set forth in the definitive transaction documents for the applicable equity financing transaction, with respect to that portion of the Debenture converted into Other Equity Securities, subject to adjustment as set forth in the Debenture. Upon maturity, the outstanding principal amount of the Debenture and all accrued but unpaid interest will be converted into Common Stock at a conversion price equal to the lesser of \$0.35 and the average closing price of the Common Stock for the 120 consecutive trading days up to, but not including, the maturity date, subject to adjustment as set forth in the Debentures. To the extent the Debenture is outstanding as of the maturity date and is automatically converted pursuant to the terms of the Debenture, then Mr. Keane will also receive warrants ("Class H Warrants") to purchase the number of shares of Common Stock equal to one half of the number of shares of Common Stock issued upon automatic conversion of the Debenture, at a per share exercise price equal to the lower of \$.60 and 120% of the average closing price of the Common Stock for the 120 consecutive trading days up to, but not including, the maturity date. The exercise price will be subject to customary adjustments as set forth in the Class H Warrants. The form of the Debenture was filed by the Issuer as Exhibit 4.1 the Issuer s Form 8-K, filed on February 25, 2010.

**Item 7.**

**Material to be Filed as Exhibits.**

Not applicable

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**Signature**

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: May 13, 2010

/s/ Marie C. Keane

Marie C. Keane

Date: May 13, 2010

s/ James J. Keane

James J. Keane