



DIVISION OF
CORPORATION FINANCE

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

October 29, 2010

Via Facsimile and U.S. Mail

Mr. Corey N. Conn
Chief Financial Officer
Positron Corporation
7715 Loma Ct., Suite A
Fishers, IN 46038

Re: Positron Corporation
Form 10-K for the Year Ended December 31, 2009
Filed April 15, 2010
Form 10-Q for the Quarter Ended June 30, 2010
File No. 000-24092

Dear Mr. Conn:

We have reviewed your filings and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter within ten business days by amending your filings, by providing the requested information, or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your filings and the information you provide in response to these comments, we may have additional comments.

1. We note that you have a pending registration statement on Form SB-2 filed on August 8, 2007, file number 333-145217. Please advise us of your intentions with respect to that registration statement.

Form 10-K For the Year Ended December 31, 2009

Facing page of Form 10-K

2. We note you indicate that your shares of common stock are registered under Section 12(g) of the Securities Exchange Act. Please tell us how and when you registered your securities under the Exchange Act or revise your future filings as appropriate.

Item 1. Business, page 3

3. Please revise your future filings to describe the development of your business in the last three years including any material reclassification, merger, consolidation, or purchase or sale of a significant amount of assets not in the ordinary course of business. For example, we note your disclosure on page 8 of your changed business model; on page 14 of your “remaining” Houston operations; on page 17 of your move from Ottawa to Indianapolis, your acquisition of Dose Shield in June 2008, and your closure of the Canadian facility of IPT; and on page 41 of your acquisition of the remaining stock of IPT, your inability to sell your cardio-assist device, your consolidated operations, and your consideration of structural changes. Refer to Regulation S-K Item 101(h).
4. Please tell us, and revise your future filings to describe, the business activities and primary location of all of your subsidiaries and your relationship with all of your affiliated entities. For example, we note your disclosure in the first paragraph on page 17 that your consolidated results include your wholly-owned subsidiary Imaging Pet Technologies and your disclosure on page 42 that all assets and liabilities of IPT are translated from Canadian dollars. We also note your disclosure of another subsidiary, Positron Pharmaceuticals, in the third paragraph on page 17 and several affiliated entities on page 42.
5. Please revise your future filings to further explain the need for government approval of your principal products or services and the effects of existing or probable government regulations on your business. Refer to Regulation S-K Item 101(h)(4)(viii)-(ix), (xi). For example, please explain:
 - Material FDA Quality System, state, and European regulations to which you and your third-party manufacturer are subject, mentioned on page 9;
 - The FDA 501k regulatory approval process, mentioned on page 10;
 - ISO regulatory compliance, mentioned in the second paragraph on page 24;
 - The effects of material federal and state anti-kickback laws, HIPAA, the Stark Law, and state laws prohibiting fee-splitting arrangements on your business practices, including your offer of financing and partnership flexibility to imaging providers mentioned in the last bullet point of “Competitive Strengths” on page 6 and your reliance on referrals, corporate partnership with MedAxiom, and agent agreement with TIS mentioned on page 7; and

- The effects of federal and state radioactive materials laws on your business, mentioned on page 13.

Customer Service and Warranty, page 8

6. We note your disclosure in the fourth paragraph. Please tell us in more detail how your business model has changed, what you mean by “servisation,” and how this disclosure is consistent with your disclosure that you design, manufacture, market, and service your various products.

Item 2. Properties, page 14

7. Please revise future filings to describe the location and general character of all principal plants or properties. For example, please describe:
- The amount of space leased for your headquarters in Fishers, Indiana;
 - The activities that take place at your Houston facility; and
 - Your manufacturing facility for your Nuclear Pharm-Assist line in Indianapolis, Indiana, mentioned on page 9.

Item 9A(T). Controls and Procedures, page 21

-Evaluation of Disclosure Controls and Procedures., page 21

8. We note your disclosure here related to management’s evaluation of your disclosure controls and procedures as of December 31, 2009 and that you concluded that there are material weaknesses in your disclosure controls and procedures. However, we do not see where you have made a clear and definite statement as to whether your disclosure control and procedures was effective or not effective as of December 31, 2009. Please amend this filing to provide management’s conclusion as to the effectiveness of your disclosure controls and procedures as of December 31, 2009. Refer to Item 307 of Regulation S-K.
9. Further to the above, we note from your second sentence of this section that you do not include the full definition of disclosure controls and procedures as set forth in Rule 13a-15(e) of the Exchange Act. While you are not required to include the definition of disclosure controls and procedures, when you do, all of the language must be consistent with the language that appears in the two-sentence definition of "disclosure controls and procedures" set forth in Rule 13a-15(e) of the Exchange Act. Please revise future filings, including any amendments to this filing, to either include the full two-sentence definition or to remove the definition.

-Internal Control Over Financial Reporting, page 22

10. We note your disclosure here related to management's report on internal control over financial reporting as of December 31, 2009 that management concluded you have a significant deficiency and material weakness in your internal control over financial reporting. However, we do not see where you have made a clear and definite statement as to whether your internal control over financial reporting was effective or not effective as of December 31, 2009. Please amend your filing to provide management's conclusion as to the effectiveness of your internal control over financial reporting as of December 31, 2009. Refer to Item 308T(a)(3) of Regulation S-K.

Item 10. Directors, Executive Officers, and Corporate Governance, page 23

11. In your future filings, please identify who serves as your chief executive officer. For example, if true, please indicate that Mr. Rooney is your chief executive officer.
12. Please tell us, and revise future filings to describe, the principal occupations and employment and all directorships held during the last five years for each person listed. For example, we note the following:
 - You do not disclose Patrick G. Rooney's previous experience as founder, chief executive officer, president, chairman, or director at IMAGIN Molecular Corporation, Cipher Holding, Inc., Cipher Holding Corp., Cipher Multimedia, Inc., or Momentum Holdings Corporation;
 - You do not disclose that Joseph G. Oliverio has been a director of Imagin Molecular Corporation since August 18, 2006, as disclosed on pages 20-21 of the 10-K for Imagin Molecular Corporation filed April 15, 2010;
 - You do not describe the principal positions of John Zehner from 2005-2007;
 - You do not disclose that Corey N. Conn is chief financial officer of Imagin Molecular Corporation, has been a director of Imagin Molecular Corporation since August 19, 2003, and co-founded Cipher Multimedia, Inc., as disclosed on pages 20-21 of the 10-K for Imagin Molecular Corporation filed April 15, 2010. We also note that your disclosure that Mr. Conn currently serves as President of Imagin Molecular Corporation and was Vice President of Business Development at iXL from 1999 is inconsistent with the disclosure of Imagin Molecular Corporation on page 21;
 - You do not disclose the dates of Scott Stiffler's employment at Eli Lilly;
 - You do not disclose when Dr. Anthony C. Nicholls co-founded FAS Medical Ltd. or the dates of his employment with FAS Medical Ltd.
 - It is unclear whether Joseph C. Sardano continues to serve as CTI's Senior Vice President of Sales and Marketing. You also do not disclose that Mr. Sardano is chief executive officer of Sensus Healthcare LLC.

13. Please revise future filings to discuss briefly, for each director, the specific experience, qualifications, attributes or skills that led to the conclusion that the person should serve as a director, in light of your business and structure. Refer to Regulation S-K Item 401(e).
14. Please revise future filings to disclose whether you have adopted a code of ethics that applies to your principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. If you have not adopted such a code of ethics, explain why you have not done so. See Regulation S-K Item 406.

Item 11. Executive Compensation, page 24

15. Please tell us, and revise future filings to include, the information required by Regulation S-K Item 402(p), given your disclosure on pages 25 and 30 regarding stock option grants.

Summary Compensation Table, page 24

16. Please tell us why you have included Patrick G. Rooney in the summary compensation table for named executive officers rather than in a director compensation table, given your disclosure that Mr. Rooney is the Chairman of the Board of Directors. If Mr. Rooney is also an employee or executive officer, please revise future filings where appropriate to explain his positions or offices.
17. Please revise future filings to describe the material terms of each stock option grant, including but not limited to the date of exercisability, any conditions to exercisability, any tax-reimbursement feature, and any provision that could cause the exercise price to be lowered. See Regulation S-K Item 402(n)(vi), (o)(4).

Item 12. Security Ownership of Directors, Officers . . . , page 29

18. Please tell us, and revise future filings to disclose:
 - The identities of the natural persons with voting and dispositive power over the shares owned by Solaris Opportunity Fund, L.P. and IMAGIN Diagnostic Centres, Inc.;
 - The address of Solaris Opportunity Fund, L.P.; and
 - The conversion rate for the convertible shares listed.

If the natural persons with voting and dispositive powers are related parties, please say so.

19. Please tell us how you have determined that Patrick G. Rooney beneficially owns only 5,075,000 shares of your company, given your disclosure that he is the Managing Director of Solaris Opportunity Fund, L.P.

Item 13. Certain Relationships and Related Transactions . . . , page 30

20. Please revise future filings to clearly describe the listed related party transactions. Refer to Regulation S-K Item 404(a). For example:

- Please clearly explain the material terms of the Stock Exchange Agreement for the acquisition of Dose Shield Corporation, including the total amount involved in the transaction and the duration of your commission and royalty obligations; the approximate dollar value of John Zehner's interest in the transaction; in the case of indebtedness, the amount involved in the transaction, including the largest aggregate amount of principal outstanding during the period for which disclosure is provided, the amount outstanding as of the latest practicable date, the amount of principal paid during the periods for which disclosure is provided, the amount of interest paid during the period for which disclosure is provided, and the rate or amount of interest payable; and any other amounts paid or outstanding under the agreement;
- Please clearly identify the party to your related party lease agreement; the approximate dollar value of John Zehner's interest in the transaction; and the amounts paid for the last two completed fiscal years; and
- Please clearly explain the context for the settlement of notes payable to Solaris Opportunity and Solaris Management Fund; the name of the related person; the related person's interest in the transaction; any payments of principal or interest made during the last two completed fiscal years; the outstanding amount of interest and principal at the time of the settlement; and the material terms of the Series S preferred stock and Series B preferred shares issued.

Please also tell us why your related party disclosure does not include your related party transactions with Imagin Molecular Corporation that resulted in the amounts due *from* Imagin Molecular Corporation mentioned on page 48.

Item 15. Exhibits, page 31

21. Please amend your filing to include the exhibits required by Regulation S-K Item 601. For example, please file your articles of incorporation and bylaws. Please also file any material contracts including the following:

- Any material consulting agreement;
- Any contract upon which your business is substantially dependent, such as your joint venture agreement with Neusoft Medical Systems Co., Ltd., your partnership agreement with MedAxiom, your Agent Agreement with Technology Imaging Services, your contract with your single contract manufacturer;
- Contracts to which your directors, officers, or listed security holders are parties such as your related party agreement related to commissions and royalty payments, related party notes payable, and related party lease; and

- Any management contract or compensatory plan including those in which any director or named executive officer participates such as your employment agreements with John Zehner and Joseph G. Oliverio; Amended and Restated 2005 Stock Incentive Plan; 2006 Stock Incentive Plan; 2007 Omnibus Securities and Incentive Plan; 2008 Stock Incentive Plan; 2009 Stock Incentive Plan; and 2010 Equity Incentive Plan.

Exhibits 31.1 and 31.2

22. Please ensure that each of your principal executive officer and principal financial officer has signed the certifications filed as exhibits 31.1 and 31.2 to your future filings and that those certifications parenthetically indicate those positions.

Signatures, page 32

23. Please amend your filing to provide the signatures required by General Instruction D to Form 10-K. We note that your registrant duly caused the report to be signed on its behalf by Patrick G. Rooney, but the report was not signed by the principal executive officer, principal financial officer, controller or principal accounting officer, and by at least the majority of the board of directors or persons performing similar functions on behalf of the registrant. Please ensure that your revised filing indicates each capacity in which the individual signs the report.

Financial Statements, page 33

Notes to Consolidated Financial Statements, page 41

24. We note from the presentations furnished on Forms 8-K filed on May 11, 2010 and September 20, 2010 that in presenting your business at various conferences, you indicate that you operate two segments – imaging devices and radiopharmaceuticals. We also note reference on page 16 of this filing to your “Radiopharmaceutical Products segment.” Noting that you do not include any segment disclosures in this filing, please explain to us how you have complied with Topic 280 of the FASB Accounting Standards Codification.

Note 1. Description of Business and Summary of Significant Accounting Policies, page 41

-Affiliated Entities, page 42

25. We note your disclosures related to affiliated entities and that your affiliated entities include companies with significant shareholders, joint venture companies, joint venture partners and companies with common management or control and that you provide a list of certain affiliated companies. Please explain to us how your disclosures in this filing comply with the requirements of Topic 850 of the FASB Accounting Standards Codification.

26. Further to the above, please tell us how you are accounting for these affiliated entities and your basis for your accounting for these entities. Cite the accounting literature relied upon and how you applied it to your situation.

-Inventory, page 43

27. We note that your inventories are stated at the lower of cost or market. Please explain to us in detail how you evaluated your inventory for recoverability as of December 31, 2009.

-Revenue Recognition, page 44

28. We note that you recognize revenue when your significant costs have been incurred and the system has been shipped to your customer and in certain cases after installation is complete. Please revise your future filings to explain in more detail how you meet the criteria outlined in SAB Topic 14 to recognize revenue upon shipment of your products to your customers. Discuss the circumstances in which you recognize revenue upon installation. Please provide us with a sample of your proposed disclosure.

-Stock Based Compensation, page 44

29. We note on page 39 and within your March 31, 2010 Form 10-Q that you have issued common or preferred stock for services during each reporting period presented. Please revise your future filings to explain how you account for equity instruments issued to non-employees for services.

-Warranty Costs, page 44

30. We note that you accrue for product warranty costs on your systems at the time of shipment. We further note that you did not record any warranty expense for the year ended December 31, 2009. Considering your accounting policy and your disclosure on page 17 with MD&A that indicates that you sold some systems during the year ended December 31, 2009, please explain to us why you did not record any warranty expense during the year ended December 31, 2009. We may have further comment upon reviewing your response.

Note 6. Investment in Joint Venture, page 48

31. We note your disclosures here related to your investment in Neusoft Positron Medical Systems., Co., LTD (Neusoft). We also note that you are currently accounting for this entity on a cost basis of accounting. Please address the following:

- Please explain to us the circumstances that caused your ownership in Neusoft to decline to 1%.
- Giving appropriate consideration to your disclosures on page 23 that your chairman of the board and chief technical officer are members of the board of directors for the joint venture, explain why you believe accounting for the investment under the cost method is appropriate. Refer to Topic 810 of the FASB Accounting Standards Codification.

Note 12. Stock Options and Warrants, page 51

32. We note on page 54 that you issued warrants during each reporting period presented and that you valued these warrants using the Black Scholes Valuation Model. Please revise your future filings to disclose the significant assumptions utilized in the determination of the fair value of your warrants and how the underlying assumptions were determined.

Form 10-Q for the Quarter Ended June 30, 2010

Note 4. Deposits – Attrius systems, page 8

33. We note that as of June 30, 2010, you had recorded \$1,149,000 in deposits for six Attrius machines for which you have pending sales contracts. We note that the Attrius system was developed by the Neusoft joint venture. Please revise future filings to disclose in greater detail the nature of your sales contracts for these products. Describe how you account for sales transactions. Explain specifically how you are applying or will apply the guidance in Topic 605-45 of the FASB Accounting Standards Codification in concluding whether revenue should be recognized on the gross or net basis.

Note 10. Secured Convertible Notes Payable, page 9

34. We note your disclosures related to your settlement of an outstanding convertible note on July 19, 2010. We further note that you recognized a \$367,000 gain related to the settlement of this debt as of June 30, 2010. Please explain to us why you recorded a \$367,000 related to the settlement of this debt within your statement of operations for the six months ended June 30, 2010 even though you had not entered into the debt settlement agreement until July 19, 2010. Cite the accounting literature relied upon and how you applied it to your situation.

Item 2 – Management’s Discussion and Analysis of Financial Condition and Results of Operations, page 13

Results of Operations, page 15

35. We note your disclosure under “Operating Expenses” regarding “expenses for the Attrius development.” Please clarify for us the nature of these expenses. Explain why you are

incurring expenses for the development of this product in light of your disclosures elsewhere in this filing and in the Form 10-K that the Attrius product is being developed by the Neusoft joint venture.

Exhibits 31.1 and 31.2

36. We note here and within your March 31, 2010 Form 10-Q that your certifications filed pursuant to Exchange Act Rule 13a-14(a) are not in the exact form prescribed by Item 601(b)(31) of Regulation S-K. For instance, we note you made modifications to paragraph 4(d). Please revise your certifications in future filings to conform to the exact wording required by Item 601(b)(31) of Regulation S-K.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In responding to our comments, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

You may contact Tara Harkins, Staff Accountant, at (202) 551-3639 or me at (202) 551-3643 if you have questions regarding these comments. Please contact Aslynn Hogue, Staff Attorney, at (202) 551- 3841, or Tim Buchmiller, Reviewing Attorney, at (202) 551- 3635 if you have questions on any other comments. In this regard, do not hesitate to contact Martin James, Senior Assistant Chief Accountant, at (202) 551-3671.

Sincerely,

Kevin L. Vaughn
Accounting Branch Chief