



DIVISION OF
CORPORATION FINANCE

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

December 28, 2010

Via Facsimile and U.S. Mail

Mr. James Dorst
Chief Financial Officer and Chief Operating Officer
SpectraScience, Inc.
11568 Sorrento Valley Rd., Suite 11
San Diego, California 92121

Re: SpectraScience, Inc.
Form 10-K for the Year Ended December 31, 2009
Filed March 31, 2010
Form 10-Q for the Quarter Ended September 30, 2010
File No. 000-13092

Dear Mr. Dorst:

We have reviewed your response dated December 13, 2010 and have the following additional 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.

General

1. Please provide the three acknowledgements included at the end of our November 24, 2010 comment letter. For your reference, we have repeated the acknowledgements below. Please note that the acknowledgements must be provided by an authorized officer of the Company.

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

Note 2. Significant Accounting Policies, page 32

-Patents, page 34

2. We note your response to prior comments 6 and 7. Specifically, we note that (i) you are focusing your efforts on other product lines other than the LUMA equipment; (ii) you are reviewing your overall business model; (iii) you believe the LUMA technologies patent portfolio could be applicable to different products that the company could develop in the future; and (iv) you have experienced net operating losses in all reporting periods presented. These appear to be factors outlined in 360-10-35-21 of the FASB Accounting Standards Codification that indicates when a long-lived asset should be tested for recoverability. Please explain to us in more detail how you have determined that the LUMA patents were not impaired as of December 31, 2009 and September 30, 2010. Please provide to us a summary of your impairment analyses that you conducted at each of these reporting dates.

Note 3. Inventories, page 36

3. We note your response to prior comment 8. You state that you are “optimistic that [you] will be able to sell WavSTAT systems in the relatively near future.” Please expand upon your prior response to help us to understand how you concluded that the inventory balances at December 31, 2009 and September 30, 2010 are recoverable. Specifically, address the following:
 - Clarify what time period you are referring to when you say “in the relatively near future.”
 - Provide us with details of your internal sales projections that support the realization of the inventory.
 - In light of your reference that you have not yet secured partner distribution, explain to us the basis for your statement that you are “optimistic.”
4. We note your response to prior comment 9. Please explain to us why you have capitalized the WavSTAT esophageal cancer diagnostic application as inventory since the development of this application is not complete. Refer to the guidance in 730-10 of the FASB Accounting Standards Codification.
5. Further to the above, we note from your response to prior comment 8 that you recognized a \$100,000 provision for inventory obsolescence during the year ended December 31, 2009 related to the book value of certain WavSTAT Optical Biopsy systems. However,

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we note from your response to prior comment 9 that the inventory obsolescence charge related to your WavSTAT esophageal cancer diagnostic application. Please clearly explain to us which product(s) the \$100,000 provision for inventory obsolescence recognized during the year ended December 31, 2009 related to. Revise your disclosures in future filings as appropriate to properly disclose the nature of the significant charge.

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. 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