



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

Mail Stop 3030

January 25, 2010

Via Facsimile and U.S. Mail

Mr. Elisha W. Finney
Chief Financial Officer
Varian Medical Systems, Inc.
3100 Hansen Way
Palo Alto, CA 94304

Re: Varian Medical Systems, Inc.
Form 10-K for the Fiscal Year Ended October 2, 2009
Filed November 25, 2009
File No. 001-07598

Dear Mr. Finney:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your documents in future filings in response to these comments. If you disagree, we will consider your explanation as to why our comments are inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-K for the Fiscal Year Ended October 2, 2009

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, page 55

Critical Accounting Estimates, page 58

– Goodwill and Intangible Assets, page 60

1. In order to provide investors with greater insight into the probability of a future material impairment charge, please revise your disclosures here in future filings to disclose the following for any of your reporting units with material amounts of goodwill that are at risk of failing step one:
 - Disclose the percentage by which the fair value exceeded carrying value as of the date of the most recent test;
 - Disclose the amount of goodwill allocated to the reporting unit;
 - Describe the methods and key assumptions used and how the key assumptions were determined;
 - Describe the degree of uncertainty associated with the key assumptions; and
 - Describe the potential events and/or changes in circumstances that could reasonably be expected to negatively affect the key assumptions.

Note 1. Summary of Significant Accounting Policies, page 88

-Revenue Recognition, page 92

2. We note that you present deferred revenue and advance payments from customers within your consolidated balance sheet. Given the significance of these line items, please revise future filings to clearly describe how you present related deferred costs of revenues in your consolidated balance sheets. If you record both the deferred revenues and the deferred costs together in one line item on the balance sheet, revise future filings to clearly disclose the components of the net deferred balance.

As appropriate, please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a cover letter that keys your responses to our comment and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your responses to our comments.

Varian Medical Systems, Inc.
Mr. Elisha W. Finney
January 25, 2010
Page 3

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 all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. 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 connection with responding to our comments, please provide, in writing, a 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.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

You may contact Tara Harkins, Staff Accountant, at (202) 551-3639 or me at (202) 551-3643 if you have questions regarding comments on the financial statements and related matters. 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