



DIVISION OF
CORPORATION FINANCE

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

February 2, 2011

Via Facsimile and U.S. Mail

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

**Re: Varian Medical Systems, Inc.
Form 10-K for the Fiscal Year Ended October 1, 2010
File No. 001-07598**

Dear Mr. Finney:

We have reviewed your filings and have the following comment. We have limited our review to only your financial statements and related disclosures and do not intend to expand our review to other portions of your documents. In our comment, 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 providing the requested information or by advising us when you will provide the requested response. If you do not believe our comment applies to your facts and circumstances, please tell us why in your response.

After reviewing the information you provide in response to this comment, we may have additional comments.

Form 10-K for the Fiscal Year Ended October 1, 2010

Critical Accounting Estimates, page 55

– Goodwill and Intangible Assets, page 57

1. We note your disclosures here and on pages 86-87 related to how you evaluate your goodwill for impairment. In order to gain more insight into your goodwill impairment analysis, please provide to us the key assumptions used to determine the fair value of

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each of your reporting units as of October 1, 2010 and explain to us how you determined each of these assumptions. Tell us how you consider the different risks, customers, products, etc. of each reporting unit in developing significant assumptions for each reporting unit.

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