



DIVISION OF
CORPORATION FINANCE

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

Mail Stop 3030

March 5, 2009

Via U.S. Mail and Facsimile to (781) 280-0614

Glenn Muir
Chief Financial Officer
Hologic, Inc.
35 Crosby Drive
Bedford, MA 01730

**Re: Hologic, Inc.
Form 10-K for the Fiscal-Year ended September 27, 2008
Filed November 26, 2008
File No. 000-18281**

Dear Mr. Muir:

We have reviewed your response dated February 12, 2009, and have the following comment. 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.

Glenn Muir
Hologic, Inc.
March 5, 2009
Page 2

Form 10-K for the Fiscal-Year ended September 27,2008

Goodwill, page F-14

1. Please refer to prior comment 2. We note your response to our comment and similar disclosure provided on pages 26, 30 and 46 of your Form 10-Q filed February 5, 2009, that you were unable to complete step 2 of the goodwill impairment analysis and concluded that you “cannot determine if an impairment charge is probable and cannot reasonably estimate the amount of any potential impairment charge.” To help us better understand your goodwill impairment tests, please tell us:
 - Why you could not determine if an impairment charge is probable and reasonably estimate the impairment. Refer to the guidance in SFAS 5 to support your conclusion.
 - How your accounting is in compliance with paragraphs 22 and 47c of SFAS 142.
 - Provide us with a summary of the results of the Step 2 goodwill impairment test when it has been completed.
 - We may have further comments based on our review of your response.

As appropriate, please respond to this comment within 10 business days or tell us when you will provide us with a response. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your response to our comment.

You may contact Kevin Kuhar, Staff Accountant, at (202) 551-3662 or me at (202) 551-3554 if you have questions regarding comments on the financial statements and related matters. Please contact Mary Beth Breslin at (202) 551-3625 or Jay Mumford at (202) 551-3637 if you have questions on other comments. In this regard, do not hesitate to contact me or Martin James, Senior Assistant Chief Accountant, at (202) 551-3671 with any questions.

Sincerely,

Angela Crane
Branch Chief