



UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549-7010

October 5, 2006

James J. Barber  
Chief Executive Officer  
Metabolix, Inc.  
21 Erie Street  
Cambridge, MA 02139

**Re: Metabolix, Inc.  
Amendment No. 2 to Registration Statement on Form S-1  
Filed September 21, 2006  
File No. 333-135760**

Dear Mr. Barber:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is 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.

Risks Associated with Our Business, page 3

1. We note your revised disclosure on page 3 in the sixth bullet point. Please revise to briefly describe what "changed circumstances" means, with more detail in your business section, as appropriate. We note your disclosure on page 11 that a "change in circumstances" contemplates a situation beyond ADM and ADM Polymer's reasonable control where "the projected financial return from the commercial alliance is deemed by ADM Polymer to be either too uncertain or inadequate." We also note your disclosure on page 57 that a "change in circumstances" contemplates a situation that is not reasonably in "a party's" control that "makes the anticipated financial return from the project inadequate or too uncertain." For example, please disclose the "projected" or "anticipated"

financial return. Please be sure that your disclosures are consistent throughout your document.

Business, page 48

2. We note your response to comment 10 of our letter dated September 13, 2006 and your revised disclosure. Please revise further to provide quantification with respect to payment amounts, royalties, reimbursements and fees.

Financial Statements

Consolidated Statements of Cash Flows, page F-6

3. We have read your response to comment 11 of our letter dated September 13, 2006. Based on the nature of the cash expenditure it is unclear why you have not classified it as a financing cash flow, particularly given that the cash inflow related to the offering will be classified as a financing activity. Please advise or revise.

Note 11 – Stock Compensation Plans, page F-33

4. We have read your responses to comments 12 and 13 of our letter dated September 13, 2006. According to your valuation analysis, between December 31, 2005 and July 28, 2006, the per share value of your preferred stock increased 128%. During the same seven-month period the value of your common stock increased 356%. The difference between the value you attributed to your common stock at February 1, 2006 and the mid-point of the offering range you estimated at the end of August 2006 is over 600%. In this regard, we note that an IPO was anticipated and taken into account in your valuation as early as December 31, 2005. Although we recognize that the Commercial Alliance Agreement and final regulatory clearance contributed significantly to your value, we do not understand the basis for such a significant increase. Please provide us with additional information to help us understand the basis for the magnitude of the increase in the value of your common stock and its relationship to the change in the value of your preferred stock.
5. Please provide us with a revised schedule of stock option grant activity for 2006 that includes a column for the total value attributed to options issued on each grant date in 2006 in accordance with SFAS 123 (R).
6. Please tell us your current estimate of the post-reverse split offering range.

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your

James J. Barber  
Metabolix, Inc.  
October 5, 2006  
Page 3

responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

Please direct questions regarding accounting comments to Gus Rodriguez at (202) 551-3752, or in his absence, to Scott Watkinson at (202) 551-3741. Please contact Brigitte Lippmann at (202) 551-3713 or in her absence, Lesli Sheppard at (202) 551-3708 with any other questions.

Sincerely,

Pamela A. Long  
Assistant Director

cc: Robert E. Puopolo, Esq.  
Goodwin Procter LLP  
Exchange Place  
Boston, MA 02109