

October 17, 2006

United States Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549-7010

Attention: Pamela A. Long

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

Dear Ladies and Gentleman:

This letter is being furnished on behalf of Metabolix, Inc. (the "*Company*") in response to comments in the letter dated October 5, 2006 (the "*Letter*") from Pamela A. Long of the Staff (the "*Staff*") of the Securities and Exchange Commission (the "*Commission*") to James J. Barber, Chief Executive Officer of the Company, with respect to the Company's Amendment No. 2 to the Registration Statement on Form S-1 (the "*Registration Statement*") that was filed with the Commission on September 21, 2006.

The responses and supplementary information set forth below have been organized in the same manner in which the Commission's comments were organized and all page references in the Company's response are to the form of Amendment No. 3 as marked. As we discussed with the Staff, we are providing marked pages showing our changes consistent with this letter. A copy of this letter along with marked changed pages is being sent under separate cover to Brigitte Lippmann and Gus Rodriguez of the Commission.

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.*

RESPONSE: The Company acknowledges the Staff's comments and has made the following revisions:

- On bullet 6 of page 3, we have briefly described what a change in circumstances is based on the terms of the ADM Agreement. We have also revised the disclosure to indicate that both the Company and ADM have the ability to terminate the agreement for changed circumstances or for breach by the other party.
 - On page 11, we have revised the disclosure to indicate that both the Company and ADM have the ability to terminate the agreement for changed circumstances or for breach by the other party.
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- On page 59, we have added more detail in describing a change in circumstances based on the terms of the ADM Agreement, by including examples contained in the ADM Agreement of when a change in circumstances that is not reasonably in a party's control would make the anticipated financial return from the project inadequate or too uncertain.

The Company advises the Staff that the projected or anticipated financial return was neither specified in the agreement nor did ADM disclose its projected or anticipated financial return to the Company. To the extent that it was quantified, the Company is unaware of the projected or anticipated financial return to ADM. The Company has not specifically quantified any projected or anticipated financial return in this regard. The Commercial Alliance Agreement explained a change in circumstances by way of example contained in section 10.2.2 on page 44 of the Commercial Alliance Agreement which was filed as exhibit 10.5. In our revised disclosure on page 59, we have included these examples to provide more fulsome disclosure on the terms of the agreement.

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.*

RESPONSE: The Company advises the Staff that it has separately requested confidential treatment of the payment amounts, royalties, reimbursements and fees not disclosed. In addition, the Company has disclosed all material terms of the ADM agreements necessary for an understanding of the overall transaction. The Company has requested confidential treatment of specific terms and provisions of these agreements which are not necessary for an understanding of the transaction as a whole, but which is scientific or technical information (such as chemical compounds), royalty rates or other payment terms (such as a royalty rate percentage), or unique, highly-negotiated business terms, (such as the specific field of exclusivity). Disclosure of the specific provisions for which confidential treatment has been requested would cause substantial identifiable harm to the Company's competitive position.

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.*

RESPONSE: The Company advises the Staff that it has restated its statements of cash flows for the six months ended June 30, 2006 to classify these costs as a financing activity.

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.

RESPONSE: The Company advises the Staff that it has supplementally provided the Staff with additional information on the valuation of its common stock for purposes of stock option grants. In this regard, the Company advises the Staff that the Company has restated its financial statements as of and for the six month period ended June 30, 2006 to reflect a change in the value of its common stock during 2006.

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).*

RESPONSE: The Company advises the Staff that it is supplementally providing the revised schedule of stock option grant activity.

6. *Please tell us your current estimate of the post-reverse split offering range.*

RESPONSE: The Company advises the Staff that the current estimate of the post-reverse split offering range is \$12 to \$14 per share.

If you require any additional information, please telephone either John M. Mutkoski at (617) 570-1073 or the undersigned at (617) 570-1393.

Sincerely,

/s/ Robert E. Puopolo

Robert E. Puopolo

cc: James J. Barber, *Metabolix, Inc.*
Thomas G. Auchincloss, Jr., *Metabolix, Inc.*
Aninda Katragadda, *Metabolix, Inc.*
John M. Mutkoski, Esq.
Christopher J. Denn, Esq.

