

Via Facsimile and U.S. Mail
Mail Stop 6010

September 28, 2007

Ms. Leanne M. Kelly
Senior Vice President and
Chief Financial Officer
Genaera Corporation
5110 Campus Drive
Plymouth Meeting, PA 19462

Re: Genaera Corporation
Form 10-K for the Fiscal Year Ended December 31, 2006
Filed March 14, 2007
File No. 000-19651

Dear Ms. Kelly:

We have reviewed your filing and have the following comments. 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 comments, we ask you to provide us with information so we may better understand your disclosure.

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 on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, page 24

Critical Accounting Policies and Estimates, page 24

Research and Development Expenses, page 24

1. You state that changes in your estimate could have a significant effect on the amount of research and development costs in a specific period. Please tell us, using disclosure-type format, whether there have historically been material changes to your estimate.

Index to Financial Statements, page F-1

Notes to Financial Statements, page F-7

Note 8. Common Stock Warrants, page F-12

2. Please provide us with an analysis under EITF No. 00-19 that supports your classification of the 2005 and 2006 warrants as equity instruments.

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Please provide us the information requested within 10 business days of the date of this letter or tell us when you will provide a response prior to the expiration of the 10-day period. Please furnish a letter with your responses that keys your responses to our comments. Detailed letters greatly facilitate our review. You should furnish the letter on EDGAR under the form type label CORRESP. Please understand that we may have additional comments after reviewing your responses to our comments.

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 your letter, 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

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- 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 Tabatha Akins, Staff Accountant, at (202) 551-3658, or Joel Parker, Accounting Branch Chief, at (202) 551-3651, if you have questions regarding the comments. In this regard, do not hesitate to contact me, at (202) 551-3679.

Sincerely,

Jim B. Rosenberg
Senior Assistant Chief
Accountant