

Mail Stop 6010

June 3, 2008

Gerald M. Haines, Esq.
Executive Vice President and Chief Legal Officer
Verenium Corporation
55 Cambridge Parkway
Cambridge, MA 02142

**Re: Verenium Corporation
Amendment No. 1 to
Registration Statement on Form S-3
Filed May 22, 2008
File No. 333-150136**

Dear Mr. Haines:

We have limited our review of your filing to those issues we have addressed in our 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.

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.

General

1. We note your response to our prior comment 1. Given the size of the offering relative to the number of shares outstanding held by non-affiliates, the transaction appears to be a primary offering. Please either identify the selling stockholders as underwriters in the registration statement or reduce the size of the offering.
2. If you obtain the requisite shareholder approval to issue shares of common stock upon exercise of the warrants or to issue more than 12,549,677 shares of common stock under the 8% senior convertible notes prior to the date this registration statement goes effective, please revise your filing to update the disclosure

accordingly.

Payments to the investors and affiliates

3. We note your response to our prior comment 3 and reissue that comment in part. Please quantify in tabular form the dollar amount of the payments described in the five bullet points on pages 9-10 of your response letter. Please include payments that you have made or may be required to make to any selling stockholder, any affiliate of a selling stockholder, or any person with whom any selling stockholder has a contractual relationship regarding the transaction. The information as currently presented requires that an investor turn to several locations in the prospectus to gather this information, and some of the amounts, such as the "certain cash payments payable in the event of a registration default," have not been quantified.

Prior transactions between the issuer and the selling stockholders

4. We note your response to our prior comment 7. Supplementally, please provide us with a list of all prior securities transactions between Verenium and any of the selling stockholders. Please include the date of the transactions, and the number of shares and class of securities subject to the transactions.

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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 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 response to our comments.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

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Please contact Sebastian Gomez Abero at (202) 551-3578, Michael Reedich, Special Counsel, at (202) 551-3612 or me at (202) 551-3715 with any questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director

cc: Matthew T. Browne, Esq.
Amy Hallman Rice, Esq.
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