

Mail Stop 0610

February 14, 2008

Ms. Sherri C. Oberg  
President and Chief Executive Officer  
Acusphere, Inc.  
500 Arsenal Street  
Watertown, Massachusetts 02472

Re: Acusphere, Inc.  
Preliminary proxy statement filed February 12, 2008  
File No. 0-50405

Dear Ms. Oberg:

We have reviewed your filing solely with respect to the proposed reverse stock split 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 supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not 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.

Proposal One: Approval of amendment to the company's certificate of incorporation to effect a reverse stock split.

1. Please expand the discussion to state whether you have any plan, commitment, arrangement, understanding or agreement, either oral or written, regarding the issuance of common stock subsequent to the increase in the number of available authorized shares as a result of the reverse stock split.

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As appropriate, please amend your filing and respond to these comments within 10 business days or tell us when you will provide us with a response. 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 supplemental 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.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing reviewed by the staff to be certain that they have provided all information investors require for an informed 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 writing, 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
- 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 John L. Krug at (202) 551-3862, Senior Counsel, or me at (202) 551-3715 if you have any questions.

Sincerely,

Jeffrey Riedler  
Assistant Director