



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

DIVISION OF
CORPORATION FINANCE

October 19, 2006

Mail Stop 7010

By U.S. Mail and facsimile to (303) 279-7300

James E. Alexander
President
Isonics Corporation
5906 McIntyre Street
Golden, Colorado 80403

**Re: Isonics Corporation
Amendment No. 2 to Registration Statement on Form S-3
Filed October 3, 2006
File No. 333-134816**

Dear Mr. Alexander:

We have reviewed your filing and have the following comments. 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. Please revise to disclose the effect of your failure to obtain effectiveness of this registration statement by September 27, 2006, as required by your registration rights agreement with Cornell.
2. We note that your shareholders will vote on approval of your transaction with Cornell and to increase the number of authorized shares at their meeting scheduled for October 30, 2006. If you receive shareholder approval of these actions, update your registration statement to disclose the votes and their consequences, including your requirement to register additional shares underlying the equity line.

Closing Comment

3. We note your response to comment 11 of our letter dated September 13, 2006. The representations provided therein do not conform to the representations

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requested on pages 6-7 of our letter dated July 3, 2006. Accordingly, we reissue prior comment 11.

You may contact Dale Welcome, Staff Accountant, at (202) 551-3865 or Jennifer Thompson, Senior Staff Accountant, at (202) 551-3737 in you have questions regarding comments on the financial statements and related matters. Please contact Matt Franker, Staff Attorney, at (202) 551-3749 or me, at (202) 551-3767 with any other questions.

Sincerely,

Jennifer R. Hardy
Branch Chief

cc: Herrick K. Lidstone, Jr. (*via facsimile* 303/796-2777)
Burns, Figa & Will, P.C.
6400 S. Fiddlers Green Circle
Suite 1000
Greenwood Village, Colorado 80111