



DIVISION OF
CORPORATION FINANCE

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

Mail Stop 3030

October 15, 2009

Via U S Mail and FAX [(631) 421-5821]

Andrew Makrides
President, Chairman of the Board
Bovie Medical Corporation
734 Walt Whitman Road
Melville, New York 11747

**Re: Bovie Medical Corporation
Amendment No. 1 to Form 10-K for the fiscal year ended December 31, 2008
Filed on September 18, 2009
File No. 1-31885**

Dear Mr. Makrides:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your documents 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. After reviewing this information, we may 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 on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

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Amendment No. 1 to Form 10-K for December 31, 2008

Item 1A. Risk Factors, page 1

1. We note your response to prior comment 2. It is unclear whether the disclosure under the captions “Manufacturing” and “International” on page 6 is in response to Item 101 or Item 503 of Regulation S-K. In future filings:
 - If the disclosure is in response to Item 101, provide the disclosure under Item 1 of your Form 10-K; or
 - If the disclosure is in response to Item 503, revise the titles of the captions under Item 1A to highlight the risk.

Signatures, page 6

2. We note your response to prior comment 12. Your controller or principal accounting officer should also sign the report below the second paragraph required on the Signatures page. Please revise.

Exhibit Index, page 7

3. We note the exhibits you filed in response to prior comment 14. Please be advised that comments on your confidential treatment application will be issued in a separate letter.
4. We note your response to the first and second bullets of prior comment 14. Please file the complete agreement. We note the following:
 - Exhibit A of exhibit 10.12 is missing;
 - Exhibit A of exhibit 10.14 is missing; and
 - Exhibits A, B, C and D of exhibit 10.15 are missing.

Item 8. Financial Statements and Supplementary Data

Note 13. Gain from Contract Settlement, page F-21

5. We note your response to our prior comment 8. Please explain to us how you determined fair value of the assets acquired in the nonmonetary exchange. Provide the methodology

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and assumptions used, and the basis for your projections. Please also indicate how you considered the license granted to Boston Scientific in your valuation and why you believe that this is incidental to the transaction.

6. Please tell us how your accounting complies with FASB ASC 845-10-30-3 and 8, which indicates that if you are unable to determine fair value within reasonable limits, a nonmonetary exchange should be measured based on the recorded amount of the nonmonetary assets transferred.
7. Since the distribution agreement was previously considered part of your operations and any related revenues and expenses were included in operating income, please explain why the gain from settlement of the distribution agreement is not included in operations. Please explain how your presentation of this gain in your income statement is consistent with the guidance in Question 2 of SAB Topic 5P, which indicates that items related to operations should be classified in operations.

General

8. As requested in our letter dated August 25, 2009, 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.

As appropriate, please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a response letter 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 responses to our comments.

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You may contact Jeanne Bennett at (202) 551-3606, or me at (202) 551-3676 if you have questions regarding comments on the financial statements and related matters. Please contact Thomas Jones at (202) 551-3602 or Timothy Buchmiller, Senior Attorney at (202) 551-3635 with any other questions.

Sincerely,

Brian Cascio
Accounting Branch Chief