



DIVISION OF  
CORPORATION FINANCE

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

June 30, 2010

Mr. Michael D. Dale  
President and Chief Executive Officer  
ATS Medical, Inc.  
3905 Annapolis Lane North  
Minneapolis, MN 55447

**Re:   ATS Medical, Inc.**  
**Revised Preliminary Proxy Statement on Schedule 14A**  
**Filed June 22, 2010**  
**File No. 000-18602**

Dear Mr. Dale:

We have limited our review of your filing to the 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 comments are inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. We may ask you to provide us with information so we may better understand your disclosure. 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 any other aspect of our review. Feel free to call us at the telephone number listed at the end of this letter.

Class Action Complaints Relating to the Merger, page 37

1. We note your response to prior comment 2. Please provide us copies of all court filings made by you and other parties in connection with the legal proceedings disclosed in this section as well as any related dispositions made by the courts. Please note your continued obligation to update your disclosure regarding material litigation, including the relevant procedural posture of each suit.

Effect on Capital Stock, page 39

2. Please disclose the agreed-upon thresholds referenced in item (i) of the spillover paragraph at the bottom off page 39.

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3. We note your reference in the first full paragraph on page 40 to the reasonable margin of error that you negotiated with respect to the number of common stock, options, warrants and restricted stock set forth in your records. Please disclose the margin of error, clarify whether the agreed-upon thresholds include the margin of error, and tell us how you determined that the margin of error was reasonable.
4. We note that in response to prior comment 3 you have indicated that you must exceed the permitted third party expenses cap by \$765,000 in order to reduce the merger consideration by \$0.01 per share. Please provide similar disclosure illustrating the effect of exceeding the agreed-upon thresholds (referenced in the comment 3 above).
5. The meaning of the term “third-party expenses” remains unclear. Please clarify.

Bridge Financing, page 53

6. Please briefly describe the events of default which permit Medtronic to accelerate repayment of amounts outstanding under the promissory note.

\* \* \*

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 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 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 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

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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.

Please contact me at (202) 551-3314 with any questions.

Sincerely,

Daniel Morris  
Special Counsel