



DIVISION OF
CORPORATION FINANCE

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

Mail Stop 3030

June 14, 2010

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

Re: ATS Medical, Inc.
Preliminary Proxy Statement on Schedule 14A
Filed May 25, 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.

Background to the Merger, page 12

1. Please revise here, under Bridge Financing on page 48 and elsewhere as appropriate, to disclose, and provide additional detail regarding the negotiation of, the terms of the bridge financing. We note that you state on page 29 that the bridge financing was integral to the overall merger transaction; however, you have provided limited information regarding the financing, its significance to the merger transaction, and why its terms were preferable to those of the Skokos loan commitment. Please note that your revisions should also discuss the effect on the bridge financing if the merger is terminated, including any warrants or other securities that may be issued in connection with such termination.

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Class Action Suits Relating to the Merger, page 34

2. Please confirm, if true, that you have disclosed all material litigation related to the merger. Alternatively, please revise to disclose.

Effect on Capital Stock, page 36

Common Stock, page 36

3. We note that the merger consideration is subject to decrease. Please revise to expand your disclosure regarding the circumstances under which the merger consideration may be decreased. For example, you should, among other things:
 - clarify whether \$22,400,000 and \$348,650,883 represent, respectively, the current amount of the 2025 Notes and the merger consideration calculated at \$4.00 per share;
 - disclose the agreed-upon amount which third party expenses must exceed in order to trigger a reduction in the merger consideration;
 - disclose the likelihood of exceeding the cap on third party expenses (described in the immediately preceding bullet) or otherwise triggering a reduction in the merger consideration payable; and
 - disclose how the amount of any reduction would be calculated and the minimum and maximum amounts, if estimable, by which stockholders may reasonably expect the consideration to decrease.

Note that the bullets above are not intended as an exhaustive list of items to be addressed in your revision. Instead, your disclosure should be expanded as necessary so that investors fully understand the factors, and relevant formulas, that may cause the consideration they receive for their shares to be less than \$4.00 per share.

4. With regard to the preceding comment, please revise the letter to your shareholders to disclose the possibility of a decrease in the merger consideration. In addition, please revise the summary to provide additional detail regarding the possibility that the merger consideration may be less than \$4.00 per share. Make other appropriate revisions throughout the registration statement as appropriate.

* * *

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.

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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
- 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

cc (fax):