

Mail Stop 6010

August 11, 2006

By U.S. Mail and Facsimile

Mr. Kevin C. O'Boyle
Executive Vice President and Chief Financial Officer
Nuvasive, Inc.
4545 Towne Centre Court
San Diego, CA 92121

**RE: Nuvasive, Inc.
Form 10-K for the year ended December 31, 2005
Form 10-Q for the quarter ended June 30, 2006
Form 8-K filed July 27, 2006
File No. 000-50744**

Dear Mr. O'Boyle:

We have reviewed your filings and have the following comments. We have limited our review to only your financial statements and related disclosures and do not intend to expand our review to other portions of your documents. Where indicated, we think you should revise your future 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. Please be as detailed as necessary in your explanation. In some of our comments, 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 numbers listed at the end of this letter.

Form 10-K as of December 31, 2005

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 31

Critical Accounting Policies, page 32

1. We see your critical accounting policy regarding revenue recognition. However, the disclosure merely repeats the policies from your significant accounting policies footnote without elaboration. Please expand future filings to describe the specific factors that in your view make it critical. Discuss the nature of estimates and uncertainties about those estimates inherent to your revenue recognition policy, including how you make those estimates. Discuss how different assumptions, methods or conditions might effect your financial statements.

Consolidated Statements of Cash Flows, page 55

2. We note at least two non-cash investing and financing transactions including acquisitions consummated, in part, for non-cash consideration not summarized on page 55. As required by SFAS 95, all non-cash financing and investing transactions should be summarized on the face of the statement of cash flows or disclosed in a single clearly identified footnote. If the acquisitions were considered non-cash financing/investing activities for financial reporting purposes, revise future filings to provide the disclosure required by paragraph 32 to SFAS 95.

Note 1. Organization and Significant Accounting Policies, page 56

Revenue Recognition, page 57

3. Please explain your accounting for the equipment and surgical instruments given to hospitals and surgeons at no cost. Discuss where these items are recorded and expensed. Tell us about the minimum purchase requirements, including how the amounts and prices of disposable products have been determined. Compare the discounts offered on these products, in dollar and percentage terms, with the discounts offered in other types of sales, including undiscounted sales, sales with special pricing arrangements and sales to members of group purchasing organizations. Also indicate the costs of the disposable products, for comparative purposes. Refer to the guidance in EITF 01-9 in your response.

Balance Sheet Details, page 63

Short-term Investments

4. We see from disclosures that approximately \$4 million of your short-term investments at December 31, 2005 mature after one year. Please revise future filings to correctly classify your available-for-sale securities as either current or non-current. Refer to paragraph 17 of SFAS 115.

Property and Equipment

5. We note you classify the equipment loaned to hospitals in property and equipment. Please explain:
- where you record surgical instruments loaned to hospitals;
 - the “contractual” terms entered into with the hospitals and surgeons, provide a sample contract for our review;
 - how you track the equipment and instruments located at the hospital sites and who has risk of loss if the equipment or instruments are damaged; and
 - your accounting upon expiration of the agreement or in the event a hospital or surgeon does not meet the minimum monthly purchase commitments, for example does the customer return the equipment and instruments.

Please cite the accounting literature upon which you relied. We may have additional comment after reviewing your response.

Form 10-Q for the period ended June 30, 2006

Condensed Consolidated Statements of Operations, page 4

6. Please revise the statement in future filings to remove the total stock-based compensation from the table included as a footnote on the face of your statements of operations. Otherwise, as indicated in SAB Topic 14-F, please revise the statement to present the related stock-based compensation charges in a parenthetical note to the appropriate income statement line items. That guidance also indicates that you may present the information in the notes to the financial statements or within MD&A.

Form 8-K filed July 27, 2006

7. We note that you present your non-GAAP measures and reconciliation in the form of a non-GAAP statement of operations. This format may be confusing to investors as it also reflects several non-GAAP measures, including non-GAAP cost of goods sold, non-GAAP sales, marketing and administrative, non-GAAP research and development, non-GAAP development milestone expense, and non-GAAP operating expenses, which have not been described to investors. In fact, it appears that management does not use these non-GAAP measures but they are shown here as a result of the presentation format. Please note that Instruction 2 to Item 2.02 of Form 8-K requires that when furnishing information under this item you must provide all the disclosures required by paragraph (e)(1)(i) of Item 10 of

Regulation S-K, including a reconciliation to the directly comparable GAAP measure for each non-GAAP measure presented and explain why you believe the measures provide useful information to investors.

- To eliminate investor confusion, please remove the non-GAAP statements of operations from all future filings and instead disclose only those non-GAAP measures used by management that you wish to highlight for investors, with the appropriate reconciliations.
- Please note that in the event that your Form 8-K is incorporated by reference into a 33 Act registration statement, we may have additional questions relating to the appropriateness of this information being included in a document filed with, and not just furnished to, the Commission. At that time, we may request an amendment to the Form 8-K.

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 cover 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.

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 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.

Mr. Kevin C. O'Boyle
Nuvasive, Inc.
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You may contact me at (202) 551-3554 regarding comments on the financial statements and related matters. In this regard, do not hesitate to contact, Martin James, Senior Assistant Chief Accountant, at (202) 551-3671 with any other questions.

Sincerely,

Angela J. Crane
Branch Chief