

Mail Stop 6010

May 8, 2006

Kent A. Murphy, Ph.D.
President, Chief Executive Officer and Chairman
Luna Innovations Incorporated
10 South Jefferson Street, Suite 130
Roanoke, Virginia 24011

**Re: Luna Innovations Incorporated
Amendment No. 3 filed April 28, 2006 to Registration Statement on Form S-1
File No. 333-131764**

Dear Dr. Murphy:

We have reviewed your filing and have the following 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 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 supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not 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.

Risk Factors, page 8

General

1. We note your disclosure on page 46 regarding the stipulations in the Danville grant and your assessment that you anticipate you will not satisfy those stipulations on time. Please add a risk factor that addresses the related risks to your business.

Use of Proceeds, page 28

2. We note your response to our prior comment 1 and the additional information included in your May 4, 2006 letter. Please include the information in the May 4 letter in your next amendment. Additionally, explain the difference between the third and forth bullet point.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 35

Results of Operations, page 41

Three Months Ended March 31, 2006, page 41

3. In our recent MD&A Release No. 33-8350; 34-48960; FR-72 (December 19, 2003), we explained that, "A thorough analysis often will involve discussing both the intermediate effects of those matters and the reasons underlying those intermediate effects." Accordingly, please revise your disclosure to explain why your contract research revenue grew 20.4%.

Year Ended December 31, 2005, page 42

Other Income (Expense), page 43

4. We note your response to our prior comment 5. Please also revise your disclosure to clarify that for 2004, the company's pro rata portion of the losses of Luna Technologies was reflected in other income (expense) because Luna Technologies was accounted for as an equity-method investment and that the company's share of losses in Luna Technologies from January 1, 2005 to September 30, 2005, the acquisition date, was nominal.

Business, pages 48

Products Group, page 55

Luna Advanced Systems Division, page 55

5. We note your statement that you do not anticipate receiving approval from the FDA through a 510(k) registration before the end of 2007 for your medical device products. Please revise your disclosure to explain where you currently are in the FDA approval process.

Luna nanoWorks Division, page 57

6. We note your responses to our prior comments 7 and 8. Your revised disclosure states that you are still in the process of developing intellectual property covering carbon nanotubes but that you also currently manufacture carbon nanotubes. If you are still in the process of developing intellectual property covering carbon nanotubes, it is unclear to us how you can manufacture those carbon nanotubes. Please explain.

Intellectual Property, page 61

7. We note your response to our prior comment 9 and reissue that comment in part.

Please disclose the annual expenditures you are required to make toward development of the licensed products under the Virginia Tech agreement.

8. We note your May 4, 2006 letter states that your annual minimum royalty payments under the NASA agreement are \$3.5 million in the aggregate. Please revise your registration statement to include this information.

Index to Financial Statements, page F-1

Luna Innovations Incorporated and Subsidiaries consolidated financial ..., page F-2

Notes to consolidated financial statements, page F-7

9. Stockholders' equity, page F-20

9. We have read your responses to prior comment eleven that you filed on April 27, May 4, May 4, and May 8, 2006. As we discussed today, we are still considering your estimate of the per share value of your common stock as of November 11, 2005 and look forward to the additional information that you agreed to provide us. In addition, in your second May 4, 2006 response, you noted that you had elected to record an increase in the aggregate amount of compensation expense reflected in Amendment No. 3; in this regard, please note that we will consider the revisions reflecting this increase once they are made to your filing.

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As appropriate, please amend your filing in response to these comments. 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 supplemental information. Detailed cover letters greatly facilitate our review. Please file your cover letter on EDGAR under the form type label CORRESP. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact Tabatha Akins at (202) 551-3658 or Oscar Young at (202) 551-3622 if you have questions regarding comments on the financial statements and related matters. Please contact Sonia Barros at (202) 551-3655 or Suzanne Hayes at (202) 551-3675 with any other questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director

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