

Mail Stop 6010

April 24, 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. 1 filed April 10, 2006 to
Registration Statement on Form S-1 filed February 10, 2006
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.

Use of Proceeds, page 28

1. We note your response to our prior comment 17 and reissue that comment in part. Please estimate the amount of funds you anticipate using for each project and identify the stage of development you expect to achieve with those funds. You state that you intend to use the net proceeds of this offering to partially fund FDA clinical trials of your MRI contrast agent and ultrasound medical device products, but that due to the uncertainties inherent in the clinical trial process you are unable to estimate the total costs that will be required to complete FDA clinical trials. You do not have to provide an estimate of the total costs to complete FDA clinical trials. You must, however, disclose any amounts you currently expect to spend on this project and the stage of development you expect to achieve with these funds.

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

2. Please revise your disclosure on page 36 to disclose the amount paid by Baker Hughes in December 2004 to acquire your remaining equity interest in Luna Energy at that time. We note your statement in footnote 5 to the financial statements that Baker Hughes acquired all of the remaining equity interest for a non-refundable payment of \$990,000.
3. We note your response to our prior comment 19 and reissue that comment in part. Please supplementally explain to us the basis for your statement that you do not anticipate that the amounts you may receive in the future from Luna i-Monitoring will be material to your business. It appears that IHS Energy Group may have to pay you up to an aggregate of \$2.5 million based on a percentage of Luna i-Monitoring sales from December 1, 2003 through November 30, 2008. In addition, to the extent these future payments are material, please file the relevant agreement with IHS Energy Group as an exhibit to the registration statement and summarize the material provisions in your business section.

Critical Accounting Policies and Estimates, page 38

4. The additional disclosures on pages 38 through 41 do not appear to have sufficiently addressed prior comment 22. As such, for each of your critical accounting estimates, please provide all of the information we had requested. Otherwise, as was contemplated by prior comment 23, please justify the extent to which any specific information is either inapplicable to a particular estimate or impracticable to provide. Based on the extent of your contract research revenues and your disclosure that its recognition inherently involves estimation, all of the information we requested appear to be applicable and practicable.

Results of Operations, page 41

Other Income (Expense), page 42

5. We note your statement that prior to your acquisition of Luna Technologies in September 2005, your pro rata portion of the losses of Luna Technologies were reported in “operating income.” This does not appear to explain the reason for the decrease in other expenses. If you meant to refer to “other income” please revise. Also, if the decrease in other expenses was also due to the fact that Luna Technologies had no losses for the nine months ended September 30, 2005, please add this to the explanation.

Summary of Contractual Obligations, page 45

6. Please revise your table to include the Carilion Health Systems and the Virginia Tech Foundation notes, as well as any expected interest payments, consistent with Item 303(a)(5) of Regulation S-K and Financial Reporting Release 67.

Business, pages 46

Products Group, page 53

Luna nanoWorks Division, pages 55-57

7. On page 55 you state that Luna nanoWorks is developing advanced carbon nanomaterials, which include Trimetasphere™ nanomaterials, fullerenes and carbon nanotubes. You then state that you have an exclusive license for Trimetasphere.™ You do not, however, address whether you own, license or are still developing the intellectual property for fullerenes and carbon nanotubes. Please revise your disclosure to provide this information for fullerenes and carbon nanotubes.
8. We note your disclosure on page 57 that your Luna nanoWorks division is investigating the use of carbon nanotubes. In various press releases and on your website, however, you indicate that you are already manufacturing these carbon nanotubes at your Danville facility. Please provide us an explanation of this discrepancy.

Intellectual Property, pages 59-63

9. We note your response to our prior comment 26 and reissue that comment in part. Please disclose the following:
 - aggregate potential milestone payments under the Virginia Tech agreement as we consider aggregate potential milestone payments to be material information,
 - the annual expenditures you are required to make toward development of the licensed products under the Virginia Tech agreement,

- all amounts paid to date under each agreement,
- all minimum annual royalty payments, and
- term and termination provisions for the June 2005 Joint Cooperation Agreement.

Please note that this is not the type of information for which we are willing to grant confidential treatment. We generally are willing to grant confidential treatment for milestone payments as long as the amounts paid to date and the amount of aggregate potential payments are disclosed.

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

Contract Research Revenues, page F-7

10. Regarding the third paragraph of your response to prior comment 40, please elaborate on why the proportional performance model is the best method to measure the satisfaction of your obligations to the customer under contracts that involve the delivery of only research reports. In this regard, it is unclear whether each report represents a separate unit of accounting under EITF 00-21 and whether recognition should be deferred until the delivery of all reports within one unit of accounting. To the extent you use the proportional performance model, an input-based model, for other types of contracts, please clarify the terms, deliverables, milestones and other outputs of those contracts and how they support using the proportional performance model over an output-based model.

9. Stockholders' Equity, page F-19

11. In the conclusion to your response to prior comment 55, you noted that the increase in the fair value of the stock could not be attributed to a single factor but reflects a number of factors. As such, please elaborate on the extent to which each of the factors contributed to the increase, with as much quantification as possible. In addition, please update your analysis through the date of your next and any subsequent responses or amendments. When you have an estimate of the IPO price, please ensure that you have sufficiently discussed the factors contributing to the difference between the fair value of the stock at the issuance date and the estimated IPO price, as contemplated by part f. of our comment.

10. Commitments and Contingencies, page F-21

Governor's Opportunity Fund, page F-22

12. Please refer to your response to prior comment 57. Please clarify whether the \$450,000 related to leasehold improvements will be recorded as an offset to your leasehold improvements when you satisfy the terms of the grant. If not, please tell us how it will be recorded and why that recognition would be appropriate.

Luna Technologies, Inc. financial statements ..., page F-26

13. Regarding the revisions you made in response to prior comment number 62, please further revise the interim financial statements of Luna Technologies so that they are as of the end of and through the latest interim date prior to the acquisition. As the acquisition occurred on September 30, 2005, it would not appear appropriate for the interim financial statements to be as of and through that date because they would presumably have to reflect either the acquisition or only some of the transactions that occurred that day. Neither would appear to be consistent with Rules 3-05(b) and 3-02 of Regulation S-X

Statements of operations, page F-28

14. Please show the net loss attributable to common shareholders, as required by paragraph 40(b) of SFAS 128 and by SAB Topic 6.B. Further, please tell us how, in light of the accretion of their preferred stock, the calculation of their earnings per share complies with paragraphs eight and nine of SFAS 128 and the measurement provisions of EITF D-98.

Exhibit 23.2 – Consent of Independent Registered Public Accounting Firm

15. Please include a consent that has been updated by Brown, Edwards & Company, L.L.P.

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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

cc: Trevor J. Chaplick, Esq.
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