

May 8, 2006

VIA EDGAR, E-MAIL AND MESSENGER

Securities and Exchange Commission
Division of Corporate Finance
100 F Street, N.E.
Washington, D.C. 20549-6010

Mail Stop 6010

Attention: Mr. Jeffrey P. Riedler
Ms. Sonia Barros
Ms. Suzanne Hayes
Ms. Tabatha Akins
Mr. Oscar Young

Re: Luna Innovations Incorporated
Registration Statement on Form S-1 (File No. 333-131764)
Initially filed on February 10, 2006
Amendment No. 2 filed on April 10, 2006
Amendment No. 3 filed on April 28, 2006

Ladies and Gentlemen:

On behalf of Luna Innovations Incorporated (the “**Company**”), we respectfully submit this letter as a supplemental response to your request for additional information made during your conversation this morning with Scott Graeff, the Chief Financial Officer of the Company. We have previously submitted to you a response letter on April 27, 2006 (the “**April 27 Response Letter**”), two supplemental response letters on May 4, 2006 (the “**First and Second Supplemental Response Letters**”), and a supplemental response letter today dated May 8, 2006 (the “**Third Supplemental Response Letter**”, and together with the First and Second Supplemental Response Letters, collectively the “**Supplemental Response Letters**”). The foregoing Supplemental Response Letters were prepared in response to telephone discussions with you on May 3rd through 5th and on May 8th, 2006.

In the April 27 Response Letter, we submitted for review the Company's response to comments from the staff (the "**Staff**") of the Securities and Exchange Commission (the "**Commission**") received by letter dated April 24, 2006 (the "**April 24 SEC Comment Letter**"), relating to the Company's Amendment No. 2 ("**Amendment No. 2**") to the Registration Statement on Form S-1 (File No. 333-131764) filed with the Commission on April 10, 2006 (the "**Registration Statement**"). Concurrent with its filing of the April 27 Response Letter, the Company filed via EDGAR Amendment No. 3 to the Registration Statement ("**Amendment No. 3**"). The Supplemental Response Letters included further supplemental responses to the Staff's comment number 11 contained in the April 24 SEC Comment Letter. All capitalized terms not defined herein have the meanings given to them in the Registration Statement and in the Supplemental Response Letters.

Following your review of the Third Supplemental Response Letter, you requested in your discussion with Mr. Graeff this morning that the Company prepare a brief analysis of the materiality of an increase in pricing of stock option grants made by the Company on November 11, 2005 (the "**November 11 Options**"). Specifically, you have asked for an analysis of the materiality of an increase in fair value from \$1.77 to up to \$3.00 per share of the Company's nonvoting Class B Common Stock, par value \$0.001 per share (the "**Nonvoting Class B Common Stock**") underlying options granted on this date. All share and per share numbers in this letter reflect a 1-for-1.7691911 reverse stock split that the Company intends to effect immediately prior to the closing of the offering.

Background

On November 11, 2005, the Company granted options to purchase an aggregate of 895,813 shares of Nonvoting Class B Common Stock with an exercise price of \$1.77 per share. On November 11, 2005, following delivery and review of a contemporaneous valuation report prepared by an independent third-party valuation expert, the Company's board of directors (the "**Board**") determined the fair value of the Company's Nonvoting Class B Common Stock on that date was \$1.77 per share. The Board's determination of the fair value was based on a contemporaneous valuation of the Company's Nonvoting Class B Common Stock performed by the Clawson Group ("**Clawson**"), an independent third-party valuation expert. Clawson's contemporaneous third-party valuation report concluded that the value of the Nonvoting Class B Common Stock on September 30, 2005 was \$1.63 per share. Given the information obtained from such contemporaneous valuation, the Board ultimately concluded that the fair value of the Company's Nonvoting Class B Common Stock was \$1.77 per share.

Certain members of the Company's management and the Board (collectively, the "**Review Committee**") considered the materiality to the Company's financial statements of changes to the \$1.77 fair value determination. A detailed materiality analysis is provided herein.

Materiality Analysis

In light of the fact that the valuation of the Nonvoting Class B Common Stock is not an item capable of precise measurement, the Review Committee considered a range of potential values between the \$1.63 valuation provided by the independent valuation specialist as of September 30, 2005, and subsequent valuations. As a result of this analysis, the Review Committee considered a range of potential values and concluded that hypothetically if the \$1.77 valuation differed by a range of 25% (i.e., \$2.21 per share) to 70% (i.e. \$3.00 per share), any resulting compensation charge would be immaterial to fiscal years ended December 31, 2005 and December 31, 2006 (as budgeted).

The impact of an increase in fair value of the Nonvoting Class B Common Stock to \$3.00 per share for the November 11 Options would consist of a compensation charge of (i) approximately \$41,000 for fiscal year ended 2005, and (ii) approximately \$300,000 for fiscal year ended 2006. Additionally, the impact of stock options subject to variable plan accounting would be \$100,000 for fiscal year 2005. Such options subject to variable plan accounting have been marked to fair value of \$9.00 per share at March 31, 2006, and the Company will continue to mark such options to market as required until such options are exercised, forfeited or cancelled.

The effect of such hypothetical increase in fair value to \$3.00 per share for the November 11 Options on the financial statements for the annual periods ended December 31, 2005 and December 31, 2006 (as budgeted) taken as a whole is summarized below for purposes of evaluating materiality (in thousands):

Impact to total assets:	\$	0 / \$24,134	=	0%
Impact to total liabilities:	\$	0 / \$12,775	=	0%
Impact to total equity:	\$	0 / \$10,854	=	0%
Impact on pre-tax losses:	\$	(141) / \$(2,551)	=	5.5%

Additionally, there is no impact on operating cash flows.

Projected impact on 2006 pre-tax losses:	\$	(300) / \$(6,063) ¹	=	4.9%
--	----	--------------------------------	---	------

Please note that the impact to total assets, liabilities and total equity is zero because there is no impact to the balance sheet from such compensation charge, i.e. there is an equivalent increase in paid-in-capital to offset the increase in accumulated deficit.

In making this determination, the Company relied on guidance provided by SEC Staff Accounting Bulletin No. 99 – Materiality, issued August 12, 1999 (“SAB 99”). As part of this guidance, the Staff noted that use of quantitative thresholds or “rule of thumb” (e.g., five percent) to evaluate whether a change in an item might be considered material is appropriate only as an initial step in assessing materiality. As the Staff points out in SAB 99, exclusive reliance on this or any percentage or numerical threshold has no basis in the accounting literature or the law. Rather, a matter is “material” if there is a substantial likelihood that a reasonable person would consider it important. In its Statement of Financial Accounting Concepts No. 2, the FASB stated that “the omission or misstatement of an item in a financial report is material if, in the light of surrounding circumstances, the magnitude of the items is such that it is probable that the judgment of a reasonable person relying upon the report would have been changed or influenced by the inclusion or correction of the item.”²

Under the governing principles of SAB 99, an assessment of materiality requires that one views the facts in the context of the “surrounding circumstances” (as the accounting literature puts it), or the “total mix” of information (in the words of the U.S. Supreme Court). In the

¹ The 2006 pre-tax loss of \$6,063 thousand is based upon a pre-initial public offering budget, and does not take into account use of funds from this offering, and is therefore subject to revision by management of the Company.

² The SEC further noted that this formulation in the accounting literature is in substance identical to the formulation used by the courts in interpreting federal securities laws.

context of a misstatement of a financial statement item, SAB 99 notes that the "total mix" includes the size of the misstatement as well as the factual context in which the user of financial statements would view the financial statement item. In short, an analysis of materiality must consider both quantitative and qualitative factors. Accordingly, with respect to a potential misstatement of the valuation of the Company's Nonvoting Class B Common Stock on November 11, 2005, the Company and its Board considered the following factors:

- a change in compensation expense related to the November 11 Options is a non-cash charge to operations that is amortized over the relevant vesting period of such options (i.e., generally four years) and, as a result, a misstatement of this item would not mask a change in operating results or other trends;
- a misstatement of this item does not change a net loss into net income, or vice versa, during the relevant audit period (as noted in the Company's consolidated statement of operations, it sustained a pretax loss of approximately \$2.5 million for the year ended December 31, 2005);
- a misstatement of this item does not affect the Company's compliance with SEC regulatory requirements;
- a misstatement of this item does not affect the Company's compliance with loan covenants or other contractual obligations or requirements; additionally, the Company has no outstanding borrowings under its current credit facility;
- a misstatement of this item does not involve concealment of an unlawful transaction, and further, the Company believes that it has appropriately applied GAAP and has used best practices provided by the AICPA in accounting for its equity arrangements;
- although there would potentially be a compensation charge, the adjustment would not have any impact on total assets, total liabilities, or stockholders' equity; and
- the nature of such an adjustment is highly judgmental and is subject to significant assumptions and estimates.

Therefore, after consideration of both qualitative and quantitative factors surrounding a potential misstatement of compensation expense due to a change in valuation of 25% to 70%, the Company has concluded that such a misstatement would not be material to the Company's financial statements for the annual period ended December 31, 2005 and December 31, 2006 (as budgeted).

* * *

May 8, 2006

Page 6

Please direct your questions or comments to the undersigned at (703) 734-3106 (office), or (571) 275-3333 (mobile) or to Mark R. Fitzgerald at (703) 734-3105 or (703) 864-6313 (mobile). In addition, we would request that you provide a facsimile of any additional comments you may have to the attention of Mr. Fitzgerald and the undersigned at (703) 734-3199. Thank you for your assistance.

Very truly yours,
WILSON SONSINI GOODRICH & ROSATI
Professional Corporation

/s/ Trevor J. Chaplick

Trevor J. Chaplick

cc: Kent A. Murphy, Ph.D.
Aaron S. Hullman, Esq.
Luna Innovations Incorporated

Mark R. Fitzgerald, Esq.
Wilson Sonsini Goodrich & Rosati, Professional Corporation

Marjorie Sybul Adams, Esq.
Daniel I. Goldberg, Esq.
DLA Piper Rudnick Gray Cary US LLP