



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

August 25, 2010

Mr. Steven W. Peterson
Chief Financial Officer
Mesa Laboratories, Inc.
12100 West Sixth Avenue
Lakewood, Colorado 80228

RE: **Mesa Laboratories, Inc.**
Form 10-K for the fiscal year ended March 31, 2010
Filed June 29, 2010
File No. 000-11740

Dear Mr. Peterson:

We have reviewed your response letter dated July 26, 2010 and filings and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Form 10-K for the Fiscal Year End March 31, 2010

Note 11. Segment Data, page 41

1. We continue to consider your response to prior comment 1. To facilitate our review, please provide us with a copy of the financial information package used by your chief operating decision maker ("CODM") whom it appears is the CEO, to regularly review operating results. Please provide us with a copy of that financial information package, including the income statement sorted by department referred to in paragraph 1D of your response, for the fiscal year ended March 31, 2010, and the quarterly period ended June 30, 2010.
2. Please explain to us the purpose of providing the "second" income statement sorted by department to your CEO. That is, describe to us the manner in which he uses the information presented in the income statement sorted by department.

3. We refer to paragraph 1B and 1D in your response where you state that “our decisions on the allocation of resources are made to a very specific levels” and “resources are allocated based on our judgment of best return for a project or individual product.” Please clearly explain to us what you mean by these statements. In addition, describe to us the “resources” to which you are referring.

Item 10. Directors, Executive Officers of the Registrant, Page 45

4. Please tell us why you have not discussed the specific experience, qualifications, attributes or skills that led to the conclusion that each director should serve as a director in light of your business and structure pursuant to Item 401(e) of Regulation S-K. Please tell us with specificity how your future filings will address this requirement.

Item 11. Executive Compensation, page 45

5. We note your summary compensation table on page 13 of the proxy statement you have incorporated by reference. Please tell us why you have not computed the aggregate grant date fair value of the awards of options in accordance with FASB ASC Topic 718. See Instruction 2(vi) to Item 402(n)(2)(iii) and (iv).

Proxy Statement on Schedule 14A filed July 30, 2010

6. Please tell us why you have not provided the information required by Item 407(h) of Regulation S-K regarding board leadership structure and role in risk oversight and how you will address this requirement in future filings.

Form 10-Q for quarterly period ended June 30, 2010

Exhibit 31.1 and 31.2

7. We note your response to our prior comment 2 and reissue that comment. However, we note that you have again deleted the language “most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report)” from paragraph 4(d) of the certifications required by Exchange Act 13a-14(a). Please confirm that in future filings, you will include this language.

Please respond to this letter within ten business by providing the requested information, or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

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After reviewing the information you provide in response to these comments, we may have additional comments.

Please contact Dennis Hult at (202) 551-3618 or me at (202) 551-3212 if you have any questions regarding comments on the financial statements. Please contact Allicia Lam at (202) 551-3316 or Jay Mumford at (202) 551-3637 if you have questions on any other comments.

Sincerely,

Jeffrey Jaramillo
Accounting Branch Chief