



DIVISION OF  
CORPORATION FINANCE  
Mail Stop 3030

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

April 9, 2010

VIA U.S. MAIL and FACSIMILE

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, 2009**  
**Filed June 29, 2009**  
**File No. 000-11740**

Dear Mr. Peterson:

We have reviewed your response letter dated March 16, 2010 and have the following comments. Where indicated, we think you should revise your document in response to these comments and comply with the remaining comments in all future filings. 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.

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 for the Fiscal Year End March 31, 2009  
Notes to Financial Statements, page 28  
Note 10 Segment Data, page 39

1. We note your response to our prior comment 2, but do not believe you have been fully responsive. Your response did not provide us with each of your operating segments and it remains unclear to us how you meet all the criteria for

aggregation under FASB ASC 280-10-50-11. In this regard, for each operating segment please provide us with the revenue, cost of sales, and gross margin for each period used by you to determine that the operating segments have similar economic characteristics. Also, for each operating segment please summarize how (1) the nature of the products and services, (2) the nature of the production process, (3) the type or class of customer for their products and services, (4) the methods used to distribute their products or provide their services, and (5) if applicable, the nature of the regulatory environment is similar with that of the other operating segments. Specifically, please explain in detail your rationale in concluding that each segment is similar, by providing this comparative analysis separately for each criterion mentioned above.

Additionally, if DATATRACE Data Loggers, RAVEN Biological Indicators, MEDICAL HEMODIALYSIS products, and NUSONIC products are not operating segments, please tell us why they do not meet the definition of an operating segment as prescribed by paragraph 1 and 3 of FASB ASC 280-10-50. It appears from the information disclosed in your results of operations section in MD&A, that discrete financial information may be available for each of the abovementioned product lines.

2. We note your response to our prior comment 3. Please note that the disclosures outlined in FASB ASC 280-10-50-40 apply to all enterprises subject to FASB ASC 280-10 including those enterprises that have a single reportable segment. Based on your response we reissue our prior comment 3. As previously requested, please provide us with and revise your future filings to include the disclosures outlined in FASB ASC 280-10-50-40.

Form 10-Q for the Quarter Ended June 30, 2009  
Exhibit 31

3. We recognize your response to prior comments 4 and 5. Please tell us the expected date you intend to file your amended Forms 10-Q for the quarters ending June 30, 2009, September 30, 2009, and December 31, 2009 to correct your certifications.

As appropriate, please amend your documents and respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a cover letter with your response that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please submit your cover letter on EDGAR. Please understand that we may have additional comments after reviewing your responses to our comments.

Steven W. Peterson  
Mesa Laboratories, Inc.  
April 9, 2010  
Page 3

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