



DIVISION OF
CORPORATION FINANCE

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

August 30, 2012

Via E-Mail

Mr. Anthony R. Fabiano
President and Chief Executive Officer
American Science and Engineering, Inc.
829 Middlesex Turnpike
Billerica, Massachusetts 01821

**Re: American Science and Engineering, Inc.
Form 10-K for the Fiscal Year Ended March 31, 2012
Filed June 8, 2012
Form 10-Q for the Quarterly Period ended June 30, 2012
Filed August 8, 2012
Current Report on Form 8-K dated August 27, 2012
Filed August 27, 2012
File No. 001-06549**

Dear Mr. Fabiano:

We have reviewed your filing 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.

Please respond to this letter within ten business days 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 or do not believe an amendment is appropriate, please tell us why in your response.

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

Form 10-K for the Fiscal Year Ended March 31, 2012

1. Please provide an analysis as to whether you meet the definition of 'investment company' under Section 3(a) of the Investment Company Act of 1940 and, if so, whether you come within any exception to such definition or are otherwise exempt from registration with the SEC as an investment company. In your response, please provide us with specific facts regarding the investment company status of the Company.

Business, page 3

2. Please tell us about the nature of government regulation of your products in each material jurisdiction. Also tell us about the status of any required regulatory approvals, when and how those approvals could terminate, and remedies for non-compliance with government regulation. For example, what is the process for obtaining the export approval that you mention on page 11? Which products have received that approval? When do the approvals expire, and how can they be terminated? Are your products subject to regulation by the Food and Drug Administration?

Customers, page 7

3. Please tell us, and disclose in future filings, the names of the customers that contributed 10% or more of your revenue. See Regulation S-K Item 101(c)(1)(vii).

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 18

4. Please tell us why you combine your discussion of product sales and contracts. In your response, show us the changes in revenue and margins related to product sales and contracts separately, both for your most recently completed fiscal year and for your first subsequent fiscal quarter. Also tell us about any material contracts that will expire within the next year; quantify the historic contribution of those contracts to your business, and tell us where you disclose this information.

2012 Compared to 2011, page 19

5. With a view toward clarified disclosure in your future filings, please tell us what portion of the lower sales was a result of the government procurement policy paradigm shift mentioned in your May 14, 2012 conference call and why you do not discuss this shift in your MD&A. Provide us any documentation you have regarding this shift and when it occurred.
6. Please clarify the types of revenue you derive from military sales such that "force reduction" would decrease your sales to the extent you mention.
7. Under cost of sales you disclose that gross margin for products and contracts decreased in fiscal 2012 primarily because of (1) contract loss reserves, (2) equipment write-downs and (3) inventory impairment. We also see similar disclosure explaining decreased product and contract gross margin in the Form 10-Q for the quarter ended June 30, 2012. Accordingly, in future filings please separately quantify the amounts of individual factors cited in explaining changes in gross margin and describe the underlying causes of the factors cited. Show us how you intend to apply this comment.

Financial Statements

Consolidated Statements of Operations, page 31

8. It appears that contract research and development is presented under the caption “net product sales and contract revenues.” Tell us how you determined that it is appropriate to present contract research and development with product revenues as opposed to service revenues for financial statement purposes. Refer to Rule 5-03(b)1 of Regulation S-X.
9. As a related matter, please also tell us how you evaluated the guidance from FASB Codification Topic 912-730 in assessing whether contract research and development services are revenue versus cost sharing arrangements for income statement presentation purposes.

Note 1. Nature of Operations and Summary of Significant Accounting Policies, page 34

Impairment of Long-Lived Assets, page 37

10. Tell us how the statement that no costs were recognized for impairment of long-lived assets in 2012 is consistent with your disclosure in MD&A on page 19 that gross margin in 2012 was negatively impacted by the “write-down of certain equipment.”

Note 5. Warranty Obligations, page 42

11. Please tell us the reasons for the decrease in the warranty provision and related accrual in fiscal 2012.

Note 7. Business Segment Information, page 44

12. We see that you have several product groups including (1) cargo inspection systems, (2) Z backscatter systems, and (3) parcel and personnel screening inspection systems, as well as contract research and development, which appears to be classified with product revenues. Please tell us how your enterprise-wide disclosure considers the guidance from FASB ASC 280-10-50-40. Under the cited guidance, the notes to financial statements should present disclosure of revenues from external customers for each product and service or each group of similar products and services unless it is impracticable to do so.
13. We see that your disclosure about sales outside of the United States is summarized by geographic region. Please explain to us whether sales in any individual foreign countries are material. In that regard, FASB ASC 280-10-50-41a provides that if revenues from external customers attributed to an individual foreign country are material, those revenues should be disclosed separately.

Note 9. Commitments and Contingencies, page 47

14. In light of the current uncertainties regarding the U.S. Federal budget, tell us how the notes to financial statements consider the disclosure guidance regarding risks and uncertainties set forth in FASB ASC 912-275-50-6. Under the cited guidance, if there are indications that a contract termination may occur and the termination would have a material effect on the contractor's operations, disclosure of the circumstances and the potential effects shall be made in the notes to financial statements. Indicators of a potential contract termination include notice of a possible termination, contract performance problems, procurement cutbacks, and so forth.

Form 10-Q for the Quarterly Period ended June 30, 2012

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 11

15. We note that, in your conference call dated August 2, 2012, you discuss a trend in BOT programs and anticipated declines in your DOD business. Please tell us why you have not discussed these known trends or uncertainties in your MD&A. See Items 303(a)(2), (a)(3)(ii) and (b).

Current Report on Form 8-K dated August 27, 2012

16. We note the disclosure of your new contract. Please provide us your analysis of whether you should identify the customer, the duration over which the disclosed \$34.4 million will be earned, and any material termination provisions or other material terms of the agreement. Include in your response your analysis of whether the identity of the customer would provide investors information about the ability of the customer to satisfy its obligations over the duration of the agreement. See Rule 12b-20.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In responding to our comments, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and

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- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

You may contact Jeanne Bennett at (202) 551-3606 or Gary Todd, Reviewing Accountant, at (202) 551-3605 if you have questions regarding comments on the financial statements and related matters. Please contact Jay Mumford at (202) 551-3637 or Russell Mancuso, Legal Branch Chief, at (202) 551-3617 with any other questions.

Sincerely,

/s/Gary Todd for

Brian Cascio
Accounting Branch Chief