



DIVISION OF  
CORPORATION FINANCE

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

Mail Stop 6010

March 11, 2008

VIA U.S. MAIL and FACSIMILE

Kenneth J. Galaznik  
American Science and Engineering, Inc.  
Chief Financial Officer  
829 Middlesex Turnpike  
Billerica, MA 01821

**RE: American Science and Engineering, Inc.  
Form 10-K for the fiscal year ended March 31, 2007  
Filed June 13, 2007  
Form 10-Q for the fiscal quarter ended December 31, 2007  
File No. 001-06549**

Dear Mr. Galaznik:

We have reviewed your filing and have the following comments. We have limited our review of your filing to only your financial statements and related disclosures and do not intend to expand our review to other portions of your documents. 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 information so we may better understand your disclosure. After reviewing this information, we may 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 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 ended March 31, 2007

Quantitative and Qualitative Disclosures about Market Risk, page 21

1. Your discussion indicates that short-term investments are comprised primarily of “money market funds and U.S. government and government agency bonds.” However, we see from financial statement footnote 1 that your investments appear to be primarily comprised of commercial paper and corporate debentures/bonds. In future filings, please update this disclosure to describe the actual composition of your investment securities. The S-K Item 305 discussion should be updated as necessary to address the market risk associated with the actual portfolio.
2. As a related matter, in light of the significance of short-term investments to your assets and the recent difficulties in the credit markets, in future filings please expand the discussion of “Liquidity and Capital Resources” to describe the material components of your investments so as to provide investors with information necessary for a clear understanding of your balance sheet items. In that regard, describe the factors that may affect the fair value and liquidity of your securities. Also, if the value of your investments is reasonably likely to affect your financial condition in any material way, please expand your discussion and analysis in applicable future filings to provide investors with information necessary for a clear understanding of the trend or uncertainty. Refer to Item 303(a) of Regulation S-K.

Consolidated Financial Statements

Note 1. Nature of Operations and Summary of Significant Accounting Policies

Revenue Recognition, page 32

3. We reference the disclosure of your revenue recognition policy for agreements involving multiple revenue elements under EITF 00-21. In your response and in future filings, please identify the units of accounting identified in such arrangements. In addition, please discuss how fair value of each unit is determined and disclose the revenue recognition policy for each individual unit of accounting.
4. For products where revenue is recognized on other than the percentage of completion method, please expand future filings to further clarify your practices. In that regard, clarify when title passes and, if significant, address customer acceptance and return provisions.

Form 10-Q for the fiscal quarter ended December 31, 2007

Condensed Consolidated Statements of Cash Flows, page 5

5. We see from page 12 that you recorded a charge of \$1.7 million for the write-down of a note receivable that was deemed uncollectible. Please tell us how you presented the adjustment to net income for this non-cash write-down of the note receivable in the statement of cash flows.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 12

Liquidity and Capital Resources, page 13

6. We note that during the quarter ended December 31, 2007 inventories increased nearly \$20 million, primarily attributed to finished goods, despite product revenues decreasing over the same period. Please expand future filings to provide substantive disclosure regarding the underlying reasons for significant or unusual changes in inventory. In that regard, please explain why finished goods inventory increased and address any increased impairment and liquidity risk from inventory growth.
7. We also note that deferred revenue increased 492% from \$4.2 million at March 31, 2007 to \$25 million at December 31, 2007 and your disclosure that the increase resulted from a "large government service agreement." Please tell us and revise future filings to discuss the terms of the service agreement that resulted in a large deferred revenue balance. In addition, please discuss the period over which the related revenue is expected to be recognized.

As appropriate, please 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 information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your responses to our comments.

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 all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed decision. 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.

Kenneth J. Galaznik  
American Science and Engineering, Inc.  
March 11, 2008  
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In connection with responding to our comments, please provide, in writing, a 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
- 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.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

You may contact Kristin Lochhead at (202) 551-3664 or me at (202) 551-3605 if you have questions. In this regard, please do not hesitate to contact Brian Cascio, Accounting Branch Chief, at (202) 551-3676 with any other questions.

Sincerely,

Gary Todd  
Reviewing Accountant