



DIVISION OF
CORPORATION FINANCE

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

July 27, 2010

Ms. Patricia A. Gray
Senior Vice President and General Counsel
American Science and Engineering, Inc.
829 Middlesex Turnpike
Billerica, Massachusetts 01821

Re: American Science and Engineering, Inc.
Form 8-K for Item 4.01
Filed on July 26, 2010
File No. 001-06549

Dear Ms. Gray:

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 response to this letter within ten business days by amending your filing, 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 any amendment to your filing and the information you provide in response to these comments, we may have additional comments.

Form 8-K Filed July 26, 2010

1. We note that you are reporting that your independent registered public accounting firm, Caturano and Company Inc ("Caturano"), informed you on July 21, 2010 of its

acquisition by McGladrey & Pullen LLP ("McGladrey"). Please amend your report to comply with our comments about the clarification of your disclosures.

2. We see that you have inferred that your relationship with Caturano has ceased. We see in Exhibit 16 that this interpretation does not reflect any formal communication by Caturano. Please determine the exact status of your relationship with Caturano, and clarify your disclosures to present a definitive statement as to whether your former auditors resigned, declined to stand for re-election, or were dismissed, and the date your relationship ended. Please see the requirement in Item 304(a)(1)(i) of Regulation S-K.
3. We read your audit committee has not met on the selection of a new accountant. Please revise your disclosures to indicate whether the decision to change auditors was recommended or approved by your board of directors. Please see the requirement in Item 304(a)(1)(iii) of Regulation S-K.
4. We read that Caturano continues to be engaged as your independent registered public accounting firm, and that they will perform the review of the quarter ended June 30, 2010. Please clarify your disclosures to explain how Caturano continues to be engaged and to perform work if your relationship with Caturano has ceased.
5. We read that substantially all officers and employees of Caturano have joined the McGladrey firm. Please clarify how Caturano is able to continue to perform work if the officers and employees now work for a different firm.
6. In order for Caturano to provide you with the letter required by Item 304(a)(3) of Regulation S-K, please give a copy of the amendment to them as soon as possible. Please include in the amendment as Exhibit 16 the letter from Caturano addressing the revised disclosures.

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 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.

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In responding to our comments, please provide a written 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.

If you have any questions, please call Jeanne Bennett at (202) 551-3606. In her absence, you may call me at (202) 551-3676.

Sincerely,

Brian R. Cascio
Accounting Branch Chief