

Mail Stop 6010

December 29, 2006

VIA U.S. MAIL AND FAX (503) 726-7509

Mr. Raymond A. Link
Executive Vice President and Chief Financial Officer
FEI Company
5350 Northeast Dawson Creek Drive
Hillsboro, Oregon 97124

**Re: FEI Company
Form 10-K for the year ended December 31, 2005
Filed March 10, 2006
File No. 000-22780**

Dear Mr. Link:

We have reviewed your filing and have the following comments. We have limited our review to matters related to the issues raised in our comments. Where indicated, we think you should revise your documents in future filings 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 or may not 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 comment or on any other aspects of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-K for the year ended December 31, 2005

Financial Statements, page 32

Statements of Cash Flows, page 38

1. We note you classified the decrease in restricted cash as an investing activity on your statements of cash flows. Please tell us in greater detail the nature of the restricted cash and why you believe classification as an investing activity, rather than an operating activity, is appropriate.

Note 6. Asset Impairment Charges, page 46

2. We do not believe your current goodwill impairment policies clearly indicates compliance with paragraphs 18 to 22 of SFAS 142. Please confirm that you complied and comply with this guidance and revise future filings to clearly indicate you compliance therewith. For example, you should refer to the reporting unit concept, indicate the number and nature of your reporting units and discuss the two step impairment measurement process. Also, please tell us the method and significant assumptions used to determine the fair value of the reporting units under SFAS 142 when you tested for impairment in the second quarter of 2005.

Note 8. Property, Plant and Equipment, page 47

3. We note that you have approximately \$35.8 million of demonstration systems. Please address the following:
 - The nature of the demonstration systems and your accounting policies related to the systems;
 - The contractual terms through which you loan the systems, including the typical term of the loan, any associated requirements that the borrower purchase any disposable products or services; and
 - Tell us and disclose in future filings how your record amortization expense, how it is reflected in the financial statements and why you believe the classification is appropriate.

Form 8-K dated November 1, 2006

4. While there is no *per se* prohibition against removing a recurring item, you must meet the burden of demonstrating the usefulness of any measure that excludes recurring items, especially if the non-GAAP financial measure is used to evaluate performance. Whether a non-GAAP financial measure that eliminates a recurring item or items from the most directly comparable GAAP financial measure is

acceptable depends on all of the facts and circumstances. However, if there is a past pattern of the charges, no articulated demonstration that such charges will not continue and no other unusual reason that a company can substantiate to identify the special nature of the charge, it would be difficult for a company to meet the burden of disclosing why such a non-GAAP financial measure is useful to investors. In such circumstances, Item 10(e) of Regulation S-K would not permit the use of the non-GAAP financial measure and similar considerations may apply under Item 12 of Form 8-K. In addition, inclusion of such a measure may be misleading absent the following disclosure, which should be specific and not a broad overall, vague disclosure:

- the manner in which management uses the non-GAAP measure to conduct or evaluate its business;
- the economic substance behind management's decision to use such a measure;
- the material limitations associated with use of the non-GAAP financial measure as compared to the use of the most directly comparable GAAP financial measure;
- the manner in which management compensates for these limitations when using the non-GAAP financial measure; and
- the substantive reasons why management believes the non-GAAP financial measure provides useful information to investors.

Refer to Question 8 of the FAQ Regarding the Use of Non-GAAP Financial Measures dated June 13, 2003. Revise future filings as necessary. Please note since your Form 8-K was incorporated by reference into a 33 Act registration statement, please address the appropriateness of your non-GAAP disclosures included in a document filed with, and not just furnished to, the Commission.

As appropriate, please amend your filing and respond to these comments within 10 business days or tell us when you will provide us with a response. You may wish to provide us with marked copies of the amendment to expedite our review. 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 amendment and 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 and Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. Since the company and its

Mr. Raymond A. Link
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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 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 filings;
- 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 Julie Sherman, Staff Accountant, at (202) 551-3640, or me at (202) 551-3554 if you have questions regarding these comments.

Sincerely,

Angela Crane
Accounting Branch Chief