

Mail Stop 6010

June 16, 2006

Mr. Donald Morgan
Chief Financial Officer
RAE Systems, Inc.
3775 North First Street
San Jose, CA 95134

**Re: RAE Systems, Inc.
Form 10-K for the Year Ended December 31, 2005
Forms 10-Q for the Quarters Ended March 31, 2006
File No. 001-31783**

Dear Mr. Morgan:

We have reviewed your filing and have the following comments. We have limited our review to only your financial statements and related disclosures and will make no further review of your documents. 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 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 Year Ended December 31, 2005

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, page 22

Results of Operations, page 25

-Cost of Sales and Gross Margin, page 25

1. We note throughout the filing that you explain changes in line items excluding certain transactions. For instance, we note that you explain the change in your cost of sales excluding the cost of sales from your acquired businesses. While this type of disclosure is helpful in describing your results from period to period, it removes focus from the excluded items and may be misleading to investors since it is a non-GAAP measure. Please revise future filings to discuss only changes in your GAAP-based results, identifying those unique or material transactions or events that contributed to the changes.

Liquidity and Capital Resources, page 30

Contractual Obligations, page 32

2. We note that you present total Notes Payable-Related Parties of \$1.3 million. However, based on your disclosures under Related Party Transactions on page 33 and in Note 14 to the consolidated financial statements, it appears that there is an additional \$434,000 that will be due on demand after December 31, 2005 that does not appear to be reflected in this table or in the notes to the table. Please tell us what consideration you gave to including this amount and tell us more about the basis for your conclusion not to include this amount in the table.

Item 9A. Controls and Procedures, page 35

Changes In Internal Controls Over Financial Reporting, page 38

3. We note your disclosure on page 35 that your management including your CEO and CFO concluded that as of December 31, 2005 that your internal controls over financial reporting "were not effective" due to the three material weaknesses in your internal control over financial reporting identified by management as of December 31, 2005. We also note your statement that you "have concluded that [your] internal control over financial reporting provided reasonable assurance to support an assessment that your internal controls were effective, with the exception of the three material weaknesses..." We do not believe the second disclosure is appropriate in light of the conclusion above that your internal controls over financial reporting were not effective. Please revise your disclosure in future filings to state, in clear and unqualified language, the conclusions

reached by your chief executive officer and your chief financial officer on the effectiveness of internal control over financial reporting. For example, if true, you can state that given the identified matters, your internal control over financial reporting are not effective. You should not, however, state here the conclusion in your current disclosure, which appears to state that your internal controls over financial reporting are effective except to the extent they are not effective. Please refer to Question 5 of the SEC Frequently Asked Questions on Management's Report on Internal Control over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports.

Consolidated Statement of Cash Flows, page F-5

4. We note your disclosure of the changes in operating assets and liabilities, net of effects of deconsolidation. Please tell us and revise future filings to explain what items are being deconsolidated and why.
5. It appears that you are presenting your purchases, sales and maturities of short term investments held to maturity on a net basis within your cash flows from investing activities. Please revise your future filings to present your cash inflows and outflows related to your securities held to maturity on a gross basis in accordance with paragraph 11 of SFAS 95, or tell us why you believe your current presentation is appropriate.

Note 1. Summary of Significant Accounting Policies, page F-6

-(d) Revenue Recognition, page F-6

6. We note from your disclosure within your amended Form 10-K/A for the year ended December 31, 2004 that you restated your financial statements due to identifying several U.S. local, state, and federal agency purchase orders with freight delivery terms of "FOB destination" and that you had previously recognized the revenue related to these transactions at "FOB factory". We further note that you restated your financial statements to appropriately defer these transactions until delivery had occurred. Please tell us and revise your future filings to explain how your current revenue recognition policy addresses transactions that have FOB destination shipping terms. In this regard, revise future filings to clarify how you determine when you have met the delivery criteria for revenue recognition.

-(t) Segment Reporting, page F-10

7. We note your disclosure that you aggregate your geographical operating divisions into one reportable operating segment based on SFAS 131. We also note the following:
 - You state that through your acquisition of KLH in 2004, you have significantly expanded your international operations, primarily in China. We note your disclosures

on page 16 regarding the risks relating to your substantial international operations and sales.

- On page 25, you discuss your gross profit margins excluding KLH. You also state that gross profit margins remained consistent “as the increase in lower margin distribution and installation business at KLH was offset by the favorable impact of higher volumes and manufacturing efficiencies on our overall product costs.” In this regard, it appears that your profit margins vary between KLH and non-KLH businesses.

Please tell us about your analysis of the factors under paragraph 17 of SFAS 131 in determining that your operating segments met the aggregation criteria outlined in that paragraph, including similar economic characteristics. Please refer to paragraphs 17 and 73 – 74 of SFAS 131. In your response, please clarify for us how many operating segments have been aggregated into the one reportable segment.

8. Further to the above, we note your disclosures on page 25 where you separately discuss the results of the KLH operations and the operations excluding KLH. Tell us what consideration you have given to presenting KLH as a separate operating segment under SFAS 131.

Note 2. Mergers and Acquisitions, page F-11

9. We note that in the fourth quarter of 2005, you completed the purchase price allocation for your acquisition of KLH and that you recorded an additional \$107,000 of intangible assets, \$136,000 of goodwill, and \$243,000 of long-term liabilities to finalize the purchase price allocation. Appendix F of SFAS 141 states that the allocation period for the purchase price should usually not exceed one year from the consummation of a business combination. Further, paragraph 51(h) of SFAS 141 requires you to disclose, for any purchase price allocation that has not yet been finalized, that fact and the reasons therefore. We do not see where you included these disclosures in your December 31, 2004 Form 10-K. Please tell us what contingencies existed or what information you had not yet obtained that prohibited you from finalizing your purchase price allocation. In addition, please tell us the basis for your conclusion that it was appropriate to record adjustments to the purchase price allocation after the one year anniversary of the acquisition. Please also refer to paragraph B183 of SFAS 141.

Note 13. Investments in Other Entities, page F-21

10. We note that you recorded an adjustment consisting of a \$489,000 debit to your investment in Renex and credited additional paid in capital for a corresponding amount during the fourth quarter of 2005 to adjust the prior year investment balance to properly reflect the carrying value of your investment and your prorata share of the net equity in Renex. Please respond to the following:

- Please tell us and revise future filings to discuss why there was a difference between the carrying value of your investment and the amount of underlying equity in net assets of Renex. Refer to paragraph 20(a) of APB 18.
- Please tell us the basis for your conclusion that this difference required adjustment in the current period financial statements. Please also discuss the basis for the manner in which you recorded the adjustment
- Based on your disclosure here, it appears that this represents the correction of a prior period error. If so, please tell us why you believe it was appropriate to record this correction in the current year.

Note 15. Quarterly Information (Unaudited), page F-23

11. We note that you recorded a discount of \$288,000 for a related party note that was incurred as part of financing for the KLH investment acquisition and an adjustment of \$126,000 related to the amortization of the discount for this note payable. Please tell us and revise future filings to please explain to us in more detail the nature and timing of this transaction. Please also provide us with a comprehensive qualitative and quantitative analysis of the materiality of the error based on the guidance in SAB 99. Provide the analysis of the materiality for each of fiscal years 2004 and 2005 assuming the transaction had been recorded correctly. The quantitative analysis should address operating income (loss), net income (loss), earnings (loss) per share and any other relevant measures. Your analysis should address the factors outlined in SAB 99. We may have further comment based upon your response.

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 that keys your responses to our comment 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 investment 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.

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;

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- 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 Tara Harkins, Staff Accountant, at (202) 551-3639 or me at (202) 551-3643 if you have any questions regarding these comments. In this regard, please do not hesitate to contact Martin James, the Senior Assistant Chief Accountant, at (202) 551-3671.

Sincerely,

Kevin Vaughn
Reviewing Accountant