



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

Mail Stop 3030

January 30, 2009

Hong Q. Hou, Ph.D.  
Chief Executive Officer  
EMCORE Corporation  
10420 Research Road SE  
Albuquerque, New Mexico

**Re: EMCORE Corporation**  
**Form 10-K for the fiscal year ended September 30, 2009**  
**Filed December 30, 2008**  
**File No. 000-22175**

Dear Dr. Hou:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document 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 on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Item 1A. Risk Factors

If we fail to remediate deficiencies in our current system..., page 24

1. Please tell us the nature of the “deficiencies in [y]our internal controls over financial reporting” that were identified by you in fiscal 2007 and 2008. Additionally, describe the impact these deficiencies have had on financial

reporting and the control environment, and describe what plans, if any, are currently in place to remediate the deficiencies.

Item 5. Market for Registrant's Common Equity...

Sales of Unregistered Securities, page 32

2. We note the private placement transaction that was completed on February 20, 2008. Please expand your disclosure to identify the following: the class of persons to whom the securities were sold; which exemption from registration was claimed; and the facts you relied upon when claiming this exemption. Please refer to Item 701 of Regulation S-K.

Item 7. Management's Discussion and Analysis...

Significant Customers, page 44

3. We note your tabular disclosure on page 44. Please provide the disclosure required by Item 101(c)(1)(vii) of Regulation S-K and advise us of the basis upon which you concluded that you are not required to file as exhibits to your Form 10-K the agreements with any customers upon whom you are substantially dependent. See Item 601(b)(10)(ii)(B) of Regulation S-K. Refer also to the risk factor on page 18, which highlights the risks associated with losing customers that you are substantially dependent upon.

Item 8. Financial Statements

Statements of Operations, page 58

4. We see that Other Expense (Income) includes the following items:
  - Stock-based compensation expense from tolled options,
  - Gains from insurance proceeds,
  - Impairment of investment, and
  - Loss on disposal of property plant and equipment.

Tell us why these items are not included in Operating Loss. Refer to paragraph 25 of SFAS 144, Question 2 of SAB Topic 5:P, and SAB Topic 14:F.

Note 1. Management's Actions and Plans, page 63

5. We note that your business will need significant additional cash to continue operations as a going concern. In future filings please enhance your disclosure to provide a substantive description of management's viable plans to raise additional capital to continue the business. In this regard, please address when you believe

additional financing will be required and give an estimate of the amount. Please also expand your discussion of liquidity and capital resources within MD&A to specifically discuss your plans to generate sufficient liquidity, financing needs and expected sources of this financing. Refer to Item 303 of Regulation S-K and FRC 607.02.

Note 2. Valuation of Goodwill, Long-lived Assets and Other Intangible Assets, page 66

Note 11. Goodwill and Intangible Assets, Net, page 81

6. Please tell us and revise future filings to disclose the business and operational facts and circumstances leading to the impairment of goodwill as of September 30, 2008. Your discussion should focus on the business reasons that estimates of future operating results and cash flows changed from those estimates developed at the time of the completion of the acquisition. Refer to the requirements of paragraph 47 of SFAS 142.
7. With respect to goodwill, please tell us and in future filings disclose how you determined the fair value of your reporting units for goodwill impairment testing purposes. In that regard, please describe your methods, models and significant assumptions and explain to us why you believe your impairment estimate is in accordance with GAAP. If you applied more than one model, please clarify how you applied, evaluated and weighted the models.
8. To help us better understand the goodwill impairment, please tell us:
  - How you developed your estimate of impairment since you did not complete the step 2 analysis,
  - The status of your completion of step 2 and whether you will have material adjustments, including how they were derived,
  - The complexities which led to the inability to complete the analysis and why you were unable to complete step 2,
  - How your accounting is in compliance with paragraphs 22 and 47c of SFAS 142,
  - How you considered the need to disclose this information in your MD&A.
9. We note your disclosure on page 66 that you performed impairment testing on intangible assets as of September 30, 2008 and determined that there was no impairment. In light of your recurring losses, decreasing stock price, cash flow deficits and the economic downturn, please tell us how you determined that there was no impairment of amortizing intangible assets. In that regard, tell us how you determined the fair value of the intangible assets and explain why you believe your methods, models and assumptions are appropriate in GAAP. If you applied more than one model, please clarify how you applied, evaluated and weighted the models.

10. We reference your recurring losses each period. Please tell us and revise future filings to disclose in MD&A why you believe the remaining carrying amounts of goodwill and intangible assets are recoverable. Please provide reasonably specific disclosure about the accounting, cash flow, business and operational factors that form the bases for your conclusion.

Note 4. Equity – Former Employee Stock Options Tolled, page 72

11. Please tell us and disclose in future filings how you valued the modified stock options. Please disclose the methods, models and assumptions under SFAS 123(R).

Note 5. Acquisitions, page 75

12. Please tell us whether you have filed the agreements for your significant acquisitions in February 2008 and in April 2008.
13. Please tell us and in future filings disclose how you determined the fair value of the assets acquired. Specifically address each identifiable intangible asset recognized. In addition, disclose the nature of the developed and core technology acquired.
14. Please tell us and in future filings disclose how the 3.7 million restricted shares were valued.
15. Please tell us about and in future filings disclose any significant changes in the purchase allocation from what was reported in the Form 8-K/A dated February 22, 2008, including the reasons for those changes. In that regard, we see that the amounts allocated to goodwill and intangible assets are significantly different from the amount reported in the pro forma balance sheet included in the Form 8-K/A.

Note 7. Restructuring Charges, page 79

16. Please tell us how the restructuring charges included in the summary table at the top of page 79 agree with the amounts presented in the roll-forward appearing directly below that summary.

Note 13. Debt – Convertible Subordinated Notes, page 82

17. Please tell us and clarify in future filings how you computed the loss on conversion of the subordinated notes.

Note 18. Related Party Transactions, page 89

18. Please tell us how you evaluated the requirements of EITF 02-14, including that the investment in WWAT does not qualify as "in-substance" common stock and that the equity method of accounting is not appropriate. In that regard, tell us how you evaluated the liquidation preference of the investment in arriving at your conclusion.

Item 10. Directors and Executive Officers of the Registrant

Section 16(a) Beneficial Ownership Reporting Compliance, page 7

19. We note your disclosure that "administrative errors" caused three instances of noncompliance with the beneficial ownership reporting requirements of Section 16(a) of the Exchange Act. We note further your disclosure that delinquent Forms 3 and 4 were filed on January 20, 2009 and January 8, 2009, respectively. However, we note that only one Form 4 was recently filed on the date of January 5, 2009. Please advise or revise.

Item 11. Executive Compensation

Compensation of Directors, page 7

20. It is not clear why you are reporting the amounts set forth in column (c) as "All Other Compensation" pursuant to Item 402(k)(2)(vii) of Regulation S-K. Given that it appears as though this form of compensation is payable pursuant to the 2007 Stock Award Plan, please advise us as to why you are not reporting these amounts under Item 402(k)(2)(iii) of Regulation S-K.

Compensation Discussion and Analysis, page 9

21. We note your disclosure that one factor you consider in executive compensation decisions is "the compensation paid by companies within [your] peer group." We also note your disclosure on page 10 that your goal for base salaries is "a level that approximates the median salaries of individuals in comparable positions and markets." Since you appear to benchmark compensation, please discuss how each element of compensation relates to the data you analyzed from the peer companies and include an analysis of where actual payments actually fell within the targeted parameters. If any of your named executive officers are compensated at levels that are materially different from the targeted levels of compensation,

please also provide discussion and analysis as to why. Refer to Item 402(b)(2)(xiv) of Regulation S-K.

22. Notwithstanding the identification of the “peer group” companies on page 9, it appears you rely to some extent upon “market surveys and other data” when implementing your compensation programs. Please identify the surveys you used and their components, including component companies, the elements of compensation that are benchmarked and how you determine such benchmarks.

Base Salary, page 10

23. We note your disclosure that annual salaries are set “based upon job responsibilities, level of experience, [and] individual performance....” Please describe specifically how the compensation committee considered these factors when determining specific payouts. If compensation decisions instead were based on the subjective discretion of the committee, please describe the various factors that the committee took into consideration in determining whether to make an upward or downward adjustment to compensation.
24. We note your disclosure that with respect to executive compensation, your executive chairman “reviews the performance of the Chief Executive Officer and the other executive officers and recommends salary increases for these individuals to the Compensation Committee,” which “reviews, adjusts...and approves the salary increases....” Please expand your disclosure to provide a detailed explanation of the executive chairman’s role in determining executive compensation. See Item 402(b)(2)(xv) of Regulation S-K.

Annual Cash Incentives, page 10

25. You provide little discussion and analysis of the effect of individual performance on incentive compensation, despite suggesting it is a significant factor. Please provide additional disclosure and analysis of how individual performance contributed to actual compensation for the named executive officers. For example, disclose the elements of individual performance, both quantitative and qualitative, specific contributions the compensation committee considered in its evaluation, and if applicable, how they were weighted and factored into specific compensation decisions. Refer to Item 402(b)(2)(vii) of Regulation S-K. Please also expand your disclosure to provide discussion and analysis of those factors the committee considered in establishing personal objectives for Messrs. Richards and Ho.

Long-Term Stock-Based Incentives, page 11

26. We note that you do not state how you determined the amounts of stock options to be granted to your named executive officers. In future filings, please describe the elements of corporate and individual performance that are taken into account in granting these options and why the compensation committee determined that the specific equity allocation was appropriate in light of the factors considered. Your revised disclosure also should clarify the reasons for differences in the relative size of the grants among the officers.

Item 13. Certain Relationships and Related Transactions

Transactions with Related Persons, page 25

27. Please expand your disclosure to describe your policies for the review and approval of related party transactions, and include a discussion of the standards to be applied pursuant to such policies. See Item 404(b)(1) of Regulation S-K.

Item 15. Exhibits and Financial Statement Schedules

Exhibits, page 98

28. Please file as an exhibit the “non-binding Memorandum of Understanding” referenced on page 9. Please refer to Item 601(b)(10) of Regulation S-K. Also, please tell us what you mean when you state that you have agreed to “cooperate with respect to bidding on CPV and other photovoltaic projects in North America, Europe and the Middle East.”

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 submit your cover letter on EDGAR. 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;
- 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 Jeanne Bennett at (202) 551-3606, or me at (202) 551-3676 if you have questions regarding our comments on the financial statements and related matters. Please contact Celia Soehner at (202) 551-3463 or Jay Ingram, Special Counsel at (202) 551-3397 if you have any questions on other comments.

Sincerely,

Brian R. Cascio  
Accounting Branch Chief