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April 22, 2010

Via EDGAR

Securities and Exchange Commission
Division of Corporation Finance
One Station Place
100 F Street, NE
Washington, D.C. 20549-4561

Re: Aspen Technology, Inc.
Form 10-K for the Fiscal Year Ended June 30, 2009 (Filed November 9, 2009)
Form 10-Q for the Fiscal Quarter Ended December 31, 2009 (Filed February 9, 2010)
File No. 000-24786

Ladies and Gentlemen:

This letter is being filed by Aspen Technology, Inc. (the "Company" in response to comments set forth in a letter dated March 12, 2010 from Kathleen Collins, Accounting Branch Chief of the Division of Corporation Finance of the Securities and Exchange Commission (the "SEC"), to Mark P. Sullivan, Senior Vice President and Chief Financial Officer of the Company. The Company is filing with the SEC, contemporaneously herewith, Amendment No. 1 (the "Form 10-K/A") to the Annual Report on Form 10-K of the Company for the fiscal year ended June 30, 2009 (the "original Form 10-K").

For convenient reference, the Company has set forth below in italics each of the comments of the staff of the SEC (the "Staff") set forth in the comment letter and has keyed the Company's responses to the numbering of the comments and the headings used in the comment letter.

Form 10-K for the Fiscal Year Ended June 30, 2009

Item 1. Business, page 3

General

- Your risk factor disclosure on page 25 indicates that some of your software products incorporate or otherwise require technology licensed from third parties, and that any interruption in the supply of any such third-party software could materially adversely affect your business. We also refer to your contractual obligations table on page 55 that lists the company's royalty obligations. We were unable, however, to locate a discussion of third-party licenses in the business section. To the extent your business is materially dependent on any third-party licenses, the agreements and their material terms should be discussed in the business disclosure. Please advise. In addition, it appears that you have not filed as exhibits to your Form 10-K any of these license agreements, other than the System License Agreement with the Massachusetts Institute of Technology and amendment thereto filed as Exhibits 10.4 and 10.5. Please provide us with your analysis, in quantified terms if possible, as to whether you are required to file any other of your material third-party licenses as exhibits to your Form 10-K pursuant to Item 601(b)(10)(ii)(B) of Regulation S-K.*

The Company acknowledges the Staff's comments and has reviewed the extent to which it depended, and now depends, on technology licensed from one or more third parties. After reviewing its existing third-party license arrangements, the Company determined that the Company's business is not materially dependent on any third-party license agreements other

than the System License Agreement with the Massachusetts Institute of Technology, as amended. The Company therefore believes that no discussion of any third-party license agreement or agreements was required in the business section of the original Form 10-K and that no such agreement was required to be filed as an exhibit to the original Form 10-K. The Company also concluded, however, that the System License Agreement with the Massachusetts Institute of Technology does not, in light of the terms of that Agreement and the Company's extensive experience with the technology, present the types of risks to the Company's business contemplated under "Item 1A. Risk Factors—Because some of our software products incorporate or otherwise require technology licensed from, or provided by, third parties, the loss of our right to use that third-party technology or defects in that technology could harm our business" in the original Form 10-K. The Company therefore has included in the Form 10-K/A the disclosures set forth under "Item 1A. Risk Factors" in the original Form 10-K, but excluding the referenced risk factor.

Item 7A. Quantitative and Qualitative Disclosure about Market Risk, page 59

- You disclose you are exposed to foreign exchange rate fluctuations for the Euro, British Pound Sterling, Canadian Dollar, and Japanese Yen. As your net transaction gains and losses for foreign currency appear to be material to earnings per share, tell us how you considered providing a sensitivity analysis or other quantitative presentation of the potential impact of changes in foreign exchange rates pursuant to Item 305(a)(1) of Regulation S-K.*

During fiscal 2009, the Company recorded \$1.8 million of net foreign currency exchange losses related to settlement and remeasurement of transactions denominated in currencies other than the functional currency of the Company's operating units. During fiscal 2008, the comparative foreign currency activity

for similar non-functional currency denominated transactions resulted in a net gain of \$3.4 million.

The Company's analysis of operating results transacted in various foreign currencies indicated that a hypothetical 10% change in the foreign currency exchange rates could have increased or decreased the Company's fiscal 2009 consolidated results of operations by approximately \$4.7 million. In light of this analysis and the Staff's comment, the Company confirms that it will provide sensitivity analyses of foreign currency exchange rates in the Company's future periodic reports, commencing with its Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2010, which must be filed by May 10, 2010. As a result of the changes to our software licensing business model, we anticipate reporting significant losses for the next several years. We believe that the hypothetical change in our results of operations from the above change in foreign currency rates is immaterial when considered together with the effect of the change in our business model.

Item 11. Executive Compensation

Compensation Discussion and Analysis

General

3. *Revise to disclose clearly how you determine the amount to pay for each material element of compensation. See Item 402(b)(1)(v)-(vi) of Regulation S-K. As an example only, we note that you have provided a general discussion of your annual cash bonus plans and explained how various corporate financial and individual performance factors are weighted in determining payouts under each plan. This discussion should be expanded to set forth the actual amounts, if any, awarded under the cash bonus plans and to provide substantive analysis and insight into how the compensation committee determines the actual size of cash bonus payments, as well as the threshold, target, and maximum awards. As it appears from your summary compensation table that no amounts were awarded to your named executive officers pursuant to the Executive Plan for fiscal 2009, please disclose why not.*

The Company has revised the referenced disclosure in response to the Staff's comments. Please see "Item 11. Executive Compensation—Compensation Discussion and Analysis" commencing on page 12 of the Form 10-K/A.

Objectives and Philosophy of Our Executive Compensation Program, page 73

4. *You disclose that the compensation committee reviews compensation practices at the identified peer companies in making compensation decisions, and your disclosure on page 75 indicates that the committee engages in benchmarking of base salaries for your executives against the median of the range of similarly-situated executives at the peer companies. Please*

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clarify whether the company engages in benchmarking with respect to total compensation, or any other material elements of compensation besides base salaries, for your named executive officers. We note in this regard your general disclosure on page 77 that your compensation committee "considers" peer group data in determining the size of equity grants to your executives. For each applicable material element of compensation, identify the benchmark and disclose where actual payments fell in comparison to the targeted benchmark. To the extent actual compensation was outside the targeted range, please explain why. If you do not benchmark compensation other than with respect to base salaries, please clarify the manner in which you utilize the information regarding compensation practices from the peer group.

The Company has revised the referenced disclosure in response to the Staff's comments. Please see "Item 11. Executive Compensation—Compensation Discussion and Analysis," and in particular the information set forth in that section under "Compensation Benchmarking" on pages 14 through 15 of the Form 10-K/A and "Reasons for Providing, and Manner of Structuring, the Key Compensation Elements in Fiscal 2009" on pages 15 through 21 of the Form 10-K/A.

Base Salary, page 75

5. *Further to the above comment, please disclose where actual base salaries for your named executive officers for fiscal 2009 fell relative to the targeted peer-group median and explain any significant deviations from the targeted benchmark.*

The Company has revised its disclosure in response to the Staff's comment. Please see "Item 11. Executive Compensation—Compensation Discussion and Analysis," and in particular the information set forth in such section following the subheading "Reasons for Providing, and Manner of Structuring, the Key Compensation Elements in Fiscal 2009—Base Salary" on pages 15 through 16 of the Form 10-K/A.

Annual Cash Bonus, page 75

6. *It appears from your disclosure that certain corporate performance targets were material to the company's executive compensation policies and decision-making processes for fiscal 2009, in particular its determination of cash bonuses for named executive officers pursuant to the Executive Plan and the Operations Plan. It further appears that you have not provided quantitative disclosure of the terms of these performance targets in reliance on Instruction 4 to Item 402(b) of Regulation S-K. In your response letter, please confirm, if true, that the target information was omitted on this basis and that you have a competitive harm analysis that supports your reliance on that instruction; or advise.*

The Company has revised the referenced disclosure in response to the Staff's comment. Please see "Item 11. Executive Compensation—Compensation Discussion and Analysis—Variable Cash Compensation—2009 Executive Plan" and "—2009 Operations Plan" on pages 17 through 19 of the Form 10-K/A.

7. *Further, to the extent that you are relying on Instruction 4 to Item 402(b) to omit performance target disclosure, please provide meaningful disclosure of the level of difficulty of attaining such targets. In this regard, the following disclosure does not appear to sufficiently address the disclosure requirement: "The threshold level for being awarded a bonus pursuant to the Executive Plan can be characterized as demanding, while the maximum goal contemplates compliance with challenging requirements."*

The Company has revised the referenced disclosure in response to the Staff's comment. Please see (a) the penultimate paragraph of "Item 11. Executive Compensation—Compensation Discussion and Analysis—Variable Cash Compensation—2009 Executive Plan" on pages 17 and 18 of the Form 10-K/A and (b) the penultimate paragraph of "Item 11. Executive Compensation—Compensation Discussion and Analysis—Variable Cash Compensation—2009 Operations Plan" on page 19 of the Form 10-K/A.

Executive Compensation Tables

Summary Compensation Table, page 85

8. *Your summary compensation table discloses that the company awarded discretionary bonuses of \$350,000, \$192,500, and \$70,000 to Messrs. Fusco, Pietri and Hammond, respectively, for fiscal 2009. We note also your disclosure on page 87*

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that the compensation committee "approved funding a discretionary bonus pool for employees who did not participate in a commission-based incentive plan" and that the committee made awards from this bonus pool to Messrs. Fusco, Pietri and Hammond. Please expand your disclosure to provide a materially-complete analysis of the specific factors considered by the compensation committee in awarding these bonuses. The current disclosure does not provide adequate qualitative or quantitative disclosure of the contributions or the documented goals that the committee considered in determining to award the bonuses; nor does it describe the reasons the committee believes the amount paid to each named executive officer is appropriate in light of the various items it considered in awarding discretionary bonuses.

The Company has revised its disclosure in response to the Staff's comments. Please see "Item 11. Executive Compensation—Compensation Discussion and Analysis—Variable Cash Compensation—2009 Discretionary Cash Bonus Awards" on page 19 of the Form 10-K/A.

Item 13. Certain Relationships and Related Transactions, page 94

9. *You do not appear to have provided the disclosure required by Item 404 of Regulation S-K with respect to your transactions with related persons and policies for review, approval or ratification of such transactions. Please revise or advise.*

The Company has revised its disclosure in response to the Staff's comment. Please see "Item 13. Certain Relationships and Related Transactions, and Director Independence—Related-Party Transactions" pages 32 through 33 of the Form 10-K/A.

Item 15. Exhibits and Financial Statement Schedules

Note 3. Restructuring Charges, page F-23

10. *Tell us how you considered providing the total amount of restructuring charges you expect to incur in connection with your various restructuring plans, if material, pursuant to paragraph ASC 420-10-50 (paragraph 20(b)(2) of SFAS 146).*

The Company recognizes restructuring liabilities based on the fair value at the date in which the liability is incurred. The cumulative effect of a change resulting from a revision to either the timing, or the amount of estimated cash flows, is recognized as an adjustment to the liability in the period of the change. Changes due to the passage of time are recognized as an increase in the carrying amount of the liability and as an expense. Therefore, the Company records the restructuring liability at the present value of the expected future cash flows using the applicable credit-adjusted risk-free rate. For employee-related costs, the Company accrues 100% of the employee costs for those expected to terminate within 60 days in the period incurred and calculates the ratable amount for employees who will continue providing service beyond the minimum retention period (in most cases 60 days) over the expected service period. The Company considers all current and future charges in determining the initial measurement of fair value.

The Company followed the requirements of ASC 420-10-50 (paragraph 20(b)(2) of SFAS 146) by disclosing, by type of exit activity, a reconciliation of the beginning and ending restructuring liability balances with the changes in the period attributable to costs incurred and charged to expenses, costs paid or otherwise settled, and any adjustments to the liability. Please also see Note 3, "Restructuring Charges," to the Company's consolidated financial statements, as set forth at page F-23 through F-26 of the original Form 10-K, for information regarding the actual expenses associated with each of the Company's restructuring plans.

Note 8. Stock Based Compensation, page F-32

11. *We note from your disclosures beginning on page F-35 that you made various modifications to certain options in December 2006, May 2007, and December 2007. Please describe these modifications in further detail and explain how you determined compensation expense was not required to be recorded as a result of these modifications. In addition, please tell us if and when you reversed the \$1 million contingent liability you recorded in the fourth quarter of fiscal 2006 for anticipated plans to assist affected employees with their tax obligations or adjusting the terms of their original option grant (see page iii of your amended Form 10-K for fiscal 2006).*

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In September 2006, we completed a review of our accounting treatment for all stock options that the Company had issued since its initial public offering in fiscal 1995. We identified that errors were made in the determination of the measurement date for certain grants. Certain options were issued with exercise prices that were below the fair value of the Company's common stock on the date of grant/measurement date. As a result of these errors, the Company restated its financial statements for periods in fiscal 2006 and certain prior periods. In June 2006, the Company recorded a liability of \$1.9 million related to the estimated payroll withholding tax charges resulting from the disqualification of ISO tax treatment.

Options granted below fair market value, which vested subsequent to December 2004, would have been subject to taxation as nonqualified deferred compensation under Section 409A of the Internal Revenue Code, and as a result, holders would have been subject to an excise tax in the year in which they vested. The Company decided to modify stock option agreements covering an aggregate of 1,184,470 shares of common stock in order to eliminate the future

tax exposure to those option grantees. The effect of the stock option modifications was to increase the exercise price of the options. The Company reimbursed the affected grantees for the difference between the original and modified option price. In addition, for those employees who had already incurred a Section 409A excise tax on previously vested options, the Company provided cash compensation to reimburse them for any incremental taxes. The modifications did not result in any incremental stock compensation expense because the fair value of the awards declined. However, the Company's decision to reimburse grantees for their 409A tax exposure and for the increase to the exercise price of their unvested options resulted in an additional cost of \$1.0 million. A \$1.0 million liability was accrued in June 2006.

The modifications to the exercise price were implemented in December 2006 and in May 2007. In December 2007, the Company determined that a portion of the May 2007 modifications were not priced correctly. Consequently, the Company made additional modifications in December 2007 to correct these issues. Since the December 2006, May 2007 and December 2007 modifications all increased the exercise price for the affected grants, thus lowering the fair value of the options; no additional stock compensation expense was required.

The \$1.0 million accrued liability established in June 2006 was subsequently reduced by payments made to affected employees; \$0.4 million in March 2007, \$0.4 million in December 2007 and \$0.2 million in January 2008.

Signatures, page 105

12. *We note that Mr. Fusco and Mr. Sullivan have signed the Form 10-K for the registrant, and that Mr. Fusco has signed in his individual capacity as chief executive officer. However, Mr. Sullivan has not signed in his individual capacity as principal financial and accounting officer, as required. Please revise to conform with the requirements of General Instruction D to Form 10-K, or advise.*

The Company acknowledges the Staff's comment. Please see "Signatures" at page 34 of the Form 10-K/A.

Form 10-Q for the Fiscal Quarter Ended December 31, 2009

General

13. *Beginning in fiscal 2010, we note that a significant percentage of your revenues are generated from software-enabled service arrangements. Tell us if you plan to disclose the total contract value of all your non-cancellable software-enabled services contracts (i.e. backlog) pursuant to Item 101(c)(1) (viii) of Regulation S-K in your fiscal 2010 Form 10-K. If not, please tell us why you believe such disclosure is not considered necessary. Also, to the extent that bookings are (or become) a key indicator used by management to monitor your business, then tell your consideration to include both a quantitative and qualitative discussion of this metric in your future MD&A disclosures. If you do not believe bookings are a key metric, then please explain why. Refer to Item 303(a)(3) of Regulation S-K and SEC Release 33-8350.*

The Company introduced a new go-to-market licensing model in July 2009. Prior to July 2009, the Company recognized the majority of its term license revenue at the net present value of the future customer payments (i.e. up-front revenue recognition), provided all conditions for revenue recognition were met. When license revenue was recognized up-front, the Company recorded the net present value of the future payments as installment receivables on the Balance Sheet. In effect, installments

receivable was a measure of the Company's contract "Backlog". As a result of the adoption of the new licensing model, installments receivable will no longer be recorded. The Company believes that investors appreciated visibility to the contract "backlog" and intends to begin disclosing a non-GAAP equivalent metric called "Billings Backlog" as soon as practicable.

The conversion to the new licensing model required extensive changes to the Company's business and financial systems. These system modifications were required to support the back office management of the business as well as support the considerable accounting changes that occurred as a by-product of changing the licensing model. The Company is in the process of developing more robust management reporting to help monitor and analyze the business. Because the modifications to the underlying transactional system was fairly extensive, it is prudent to ensure that we have sufficient in-house experience and that we have performed adequate testing with respect to the calculation of Billings Backlog prior to disclosure in Forms 10-Q. It is currently the Company's intention to disclose Billings Backlog in our Form 10-K for fiscal 2010.

Additionally, the Company agrees that bookings are a meaningful metric that management uses to measure performance of the business; particularly in light of the near-term decrease in revenue and income resulting from the licensing model change. It is currently the Company's intention to disclose bookings in conjunction with billings backlog in our Form 10-K for fiscal 2010.

Condensed Consolidated Statements of Operations, page 2

14. *We note from your disclosures on page F-9 that software license revenue and cost of revenue includes "...license revenue recognized over the term of the license agreements for fixed-term contracts including point product licenses with SMS bundled for the entire license term; and other license revenue derived from transactions that are being recognized over time as the result of not previously meeting one or more of the requirements for recognition under the upfront revenue model." Tell us how you considered classifying revenue and cost of revenue for these bundled arrangements separately (i.e. in a similar manner as your subscription arrangements) pursuant to Rule 5-03(b)(1) of Regulation S-X. In your response, please provide us with the amount of revenue and cost of revenue recognized for these arrangements for the six months ended December 31, 2009, fiscal 2009, and fiscal 2008.*

As noted in the Company's response to comment 13, the Company announced a new term licensing model for our software in July 2009. The new aspenOne licensing model provides customers with access to all engineering or manufacturing/supply chain software products within the aspenOne software suite. As part of the offering, customers receive SMS for the term of the license and the right to unspecified future software products that may be introduced during the term of the arrangement for no additional fee. As a result of these licensing changes, the Company concluded that it created a new revenue stream (class) — subscription revenue. Although subscription revenue currently represents less than 10% of total revenue (\$1.2 million for the six months ended December 31, 2009), the Company expects to generate substantial growth from arrangements that qualify for subscription revenue accounting treatment, and over time, expects that it will represent the majority of our software-related revenue. The Company believes that the ability for investors to see the rate of adoption of our subscription business is a useful measure of business performance. Therefore, the Company elected to display subscription revenue on the consolidated statement of operations before we were required to so under Rule 5-03(b)(1).

In addition to the new aspenOne licensing model, the Company continues to offer term licenses for specifically defined sets of point products. Revenue associated with these arrangements is shown as "software revenue" on the fiscal 2010 consolidated statement of operations and is comparable to what the Company formerly called "software licenses" prior to fiscal 2010. The Company has three types of software revenue: 1) point product licenses with SMS included for the full license term, 2) perpetual license arrangements, and 3) legacy license arrangements; amendments to pre-existing arrangements that continue to have eligibility for up-front revenue recognition, as well as term license arrangements booked in prior periods that were determined to have ratable revenue recognition.

The Company concluded that for point product arrangements which included SMS for the license term, the revenue value associated with the SMS should be carved out based on our vendor specific evidence of fair value and included in "services and other" revenue on the consolidated statement of operations. The primary considerations supporting this conclusion were 1) comparability within the software revenue stream (all software revenue is "license-only"), 2) comparability to prior periods which do not have SMS revenue included in "license revenue," and 3) complying with Rule 5-03(b)(1) of Regulation S-X (not combining product and service revenue in the same revenue stream).

Software revenue and subscription revenue for the first six months of fiscal 2010, ended December 31, 2009, was \$20.1 million and \$1.2 million respectively. Software revenue for the comparable six-month period of fiscal 2009 was \$96.9 million. There was no subscription revenue prior to fiscal 2010. Software license revenue for fiscal years 2009 and 2008 was \$179.6 million

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and \$168.4 million, respectively. The significant reduction in software revenue between fiscal year 2009 and the first six months of fiscal 2010 reflects the impact of the changing the licensing model as described in our Form 10-Q for the Fiscal Quarter Ended December 31, 2009.

The majority of the cost of subscription and software revenue consists of royalty costs and amortization of capitalized software costs. The Company also allocates a portion of the cost of providing SMS to the cost of subscription and software revenue. Cost of revenue for subscription and software was \$3.5 million for the six months of fiscal 2010, ended December 31, 2009. Cost of software licenses for fiscal years 2009 and 2008 was \$12.4 million and \$15.9 million, respectively. We do not separately identify cost of revenue for subscription versus all other software license revenue, primarily because there is not a meaningful way to differentiate royalty and amortized development costs between the two revenue streams. Additionally, the cost of subscription and software revenue does not represent a significant cost overall and we do not believe that allocating it formulaically would provide any additional insight to investors.

As a result of the foregoing, the Company believes that we have complied with the requirements of Rule 5-03(b)(1) of Regulation S-X.

In responding to the comments of the Staff, the Company acknowledges that:

- the Company is responsible for the adequacy and accuracy of the disclosure in the original Form 10-K and the Form 10-K/A;
- Staff comments, or the Company's changes to disclosure in response to Staff comments do not foreclose the SEC from taking any action with respect to the original Form 10-K and the Form 10-K/A; and
- the Company may not assert Staff comments as a defense in any proceeding initiated by the SEC or any person under the federal securities laws of the United States.

If you would like to discuss any of our responses, or any further questions that you may have, please do not hesitate to contact the undersigned at (781) 221-5201.

Respectfully,

/s/ Mark P. Sullivan

Mark P. Sullivan
Senior Vice President and Chief Financial Officer

cc (with enclosures):

Kathleen Collins, Accounting Branch Chief, Securities and Exchange Commission
Melissa Feider, Staff Accountant, Securities and Exchange Commission
Katherine Wray, Staff Attorney, Securities and Exchange Commission
Mark E. Fusco, President and Chief Executive Officer, Aspen Technology, Inc.
Frederic G. Hammond, Senior Vice President and General Counsel, Aspen Technology, Inc.
Mark L. Johnson, Cooley Godward Kronish LLP

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