

Mail Stop 4561

January 29, 2009

Rick E. Russo
Sr. Vice President and Chief Financial Officer
Accelrys, Inc.
10188 Telesis Court, Suite 100
San Diego, CA 92121

Re: Accelrys, Inc.
Form 10-K for the fiscal year ended March 31, 2008
Filed June 5, 2008
Form 10-Q for the quarterly period ended September 30, 2008
Filed November 6, 2008
File No. 000-27188

Dear Mr. Russo:

We have reviewed the above-referenced filings and have the following comments. If indicated, we think you should revise your document 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 supplemental 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 fiscal year ended March 31, 2008

Risk Factors, page 8

1. We note several instances where you fail to provide quantitative data that would enable investors to more quickly understand the significance and potential effects

of conditions and events that are described in the risk factors section. We note the following examples:

- the effect that the decline in sales of computer aided design modeling and simulation software to the life science discovery research marketplace has had on your revenues (page 8);
 - the declines in the average selling price for computer aided design modeling and simulation cheminformatics products due to pricing pressure as well as the resulting impact on your revenues (page 10) and;
 - the percentage of reductions in your headcount and the effects, if any, that those reductions have had on your company's operations (page 12).
2. Please expand your disclosure regarding the success, or lack thereof, of your strategy to sustain or increase revenues by entering new markets for the usage of your software and services. Specifically, disclose significant steps taken towards the implementation of this strategy, whether those steps have met with success and any effects the success, or lack thereof, has had on your revenues.
 3. Please expand your disclosure of the risks associated with operating a global business by including a discussion as to how and to what extent each of the risks listed has affected or may affect your non-U.S. operations.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Results of Operations, page 28

4. We note instances throughout the results of operations section where you have identified two or more sources of a material change in results of operations from year-to-year without quantifying the contribution for each source. We note the following as examples:
 - the \$1.3 million decrease in revenue in fiscal year 2008 compared to fiscal year 2007 primarily attributable to lower orders of your deemphasized products over the prior year, partially offset by an increase in orders for your scientific operating platform product line solutions, page 28;
 - the \$1.1 million decrease in product development expenses in fiscal year 2008 compared to fiscal year 2007 primarily attributable to savings related to the closure of your research and development facility in Bangalore, India in the fourth quarter of fiscal year 2007 along with a decrease in

stock-based compensation expense, partially offset by increased personnel costs resulting from hiring replacement product personnel;

- the \$2.8 million decrease in general and administrative expenses in fiscal year 2008 compared to fiscal year 2007 primarily attributable to a decrease in personnel costs, along with savings in depreciation, rent and insurance costs, page 29;

To the extent contributions of identified factors are material, the contributions should be stated in quantitative terms to conform to the requirements of Item 303(a)(3)(iii) of Regulation S-K. See Instruction 4 to Item 303(a) of Regulation S-K and the related interpretive guidance in Section III.D of SEC Release 33-6835 Interpretation: Management's Discussion and Analysis of Financial Condition and Results of Operations when preparing your discussion. It is of particular importance that you provide quantitative disclosures for offsetting amounts such as those disclosed in the first and second bullets so that investors will have an understanding of the significance of each of the offsetting factors.

5. We note that on page 10 of your risk factors section you disclose that competition in the market for computer aided design modeling and simulation and cheminformatics products for the life science industry led to significant pricing pressure and declines in average selling price over the past several years. Please provide quantitative disclosure for the effects of the pricing pressure and declines in the average selling price for the fiscal year 2008 as compared to the fiscal year 2007.

Part II

Quantitative and Qualitative Disclosures About Market Risk, page 34

6. We note that you use "sensitivity analysis" disclosures to provide information about market risk in accordance with Item 305(a)(1)(ii) or Regulation S-K. Please expand your description of the model, assumptions and parameters pursuant to Instruction 3(F) to paragraph 305(a)(1)(ii) of Regulation S-K.

Controls and Procedures, page 6

7. We note the statement in your Form 10-K, as well as in your Form 10-Qs for the quarter ended June 30, 2008 and the quarter ended September 30, 2008, that your "disclosure controls and procedures, no matter how well designed and operated, can provide only reasonable, and not absolute, assurance that the objectives of such disclosure controls and procedures are met." In your response letter, please confirm, if true, that your disclosure controls and procedures are designed to provide reasonable assurance of achieving their objectives and that your CEO and

CFO concluded that your disclosure controls and procedures were effective at that reasonable assurance level as of the end of the periods covered by the above-referenced reports. In addition, ensure that future reports clarify whether your controls and procedures are designed to provide such reasonable assurance and whether your CEO and CFO have concluded that the controls and procedures are effective at that reasonable assurance level. In the alternative, omit from future filings the reference to the level of assurance of your disclosure controls and procedures. Please refer to Section II.F.4 of SEC Release No. 33-8238, Management's Reports on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports.

Part III

Executive Compensation, as incorporated by reference to the company's definitive proxy filed on July 23, 2008

Compensation Discussion and Analysis

8. We note that you have constructed two or more comparison indices that you believe to be competitive for setting compensation rates for various executives. Please disclose the component companies for each of the comparison groups used pursuant to Item 402(b)(xiv) of Regulation S-K. In addition, please include in your disclosure a description as to why and how the varying comparison groups were constructed and for which executive's compensation setting the peer groups were used and why. You should also explain in your disclosure whether the performance of the peer group component companies was considered relative to that of your company in evaluating whether the compensation offered by your company was competitive compared to that offered by the peer group component companies.

Note 2. Significant Accounting Policies

Revenue Recognition, page 46

9. We note in your disclosure that you sell perpetual licenses that include twelve months of bundled post-contract support (PCS) and because you do not have vendor-specific objective evidence (VSOE) of fair value for PCS, revenue for the entire fee is recognized ratably over the term of the bundled PCS. We also note in your disclosure that customer renewals of PCS related to previously purchased perpetual licenses are recognized ratably over the term of the PCS. Tell us why you are not able to establish VSOE of PCS sold with perpetual licenses given the history of customer renewals of PCS.

Signatures, page 72

10. We note that you do not indicate on your report which executive officer is signing in the capacity as controller or principal accounting officer. See General Instructions D(2)(a) to Form 10-K. The signature page should indicate the officer who signs in that capacity.

Form 10-Q for the quarterly period ended September 30, 2008

Note 5. Marketable Securities, page 11

11. We note in your disclosure that you used a discounted cash-flow valuation model to value your auction rate securities. We also note in your Form 8-K filed on November 14, 2008 that you entered into an agreement with the broker of certain of your auction rate securities that provide you with the future option to sell such auction rate securities to the broker at the par value of the underlying securities between June 2010 and July 2012. Tell us what impact, if any, the agreement offered by the broker in November 2008 had or will have on the valuation of your auction rate securities.

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Please respond to these comments within 10 business days or tell us when you will provide us with a response. Please submit all correspondence and supplemental materials on EDGAR as required by Rule 101 of Regulation S-T. If you amend your filing(s), you may wish to provide us with marked copies of any amendment to expedite our review. Please furnish a cover letter that keys your response 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 any amendment and your response 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 filing;

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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 Patrick Gilmore, at (202) 551-3406 if you have any questions regarding comments on the financial statements and related matters. Please address questions regarding all other comments to Ryan Houseal, Staff Attorney, at (202) 551-3105 or if further assistance is required, Mark Shuman, Legal Branch Chief at (202) 551-3462. If you need further assistance, you may contact me at (202) 551-3499.

Sincerely,

Kathleen Collins
Accounting Branch Chief