



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

September 24, 2010

Via U.S. Mail and Facsimile (713) 850-7330

Mr. Richard F. Miles
President and Chief Executive Officer
Geokinetics Inc.
1500 CityWest Blvd., Suite 800
Houston, Texas 77042

**Re: Geokinetics Inc.
Form 10-K/A for the Fiscal Year Ended December 31, 2009
Filed August 9, 2010
Form 10-Q for the Fiscal Quarter Ended June 30, 2010
Filed August 9, 2010
Definitive Proxy Statement filed March 29, 2010
File No. 001-33460**

Dear Mr. Miles:

We have reviewed your filings and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter within ten business days by amending your filing, by providing the requested information, or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your filing and the information you provide in response to these comments, we may have additional comments

Form 10-K/A for the Fiscal Year Ended December 31, 2009

Risk Factors, page 16

1. Please tell us what consideration you have given to including risk factors disclosure regarding the terms of your outstanding Series B Preferred Stock. For example, we note your disclosure at page F-22 regarding the need to obtain the consent of the holders of a majority of your Series B Preferred Stock before you take certain actions, including entering into a business combination.

Quantitative and Qualitative Disclosure About Market Risk, page 51

2. Please provide separate quantitative information, to the extent material, for each market risk exposure category. See Item 305 of Regulation S-K.

Definitive Proxy Statement filed March 29, 2010

Compensation Discussion and Analysis, page 26

3. Please tell us how you determined that you have included in your executive compensation discussion all of the persons covered pursuant to Item 402(a)(3)(iii) of Regulation S-K. In that regard, we note your disclosure at page 26 that your compensation discussion and analysis provides an explanation of your compensation philosophy, policies and practices with respect to your chief executive officer, chief financial officer and the other two most highly compensated executive officers.

Executive Officer Compensation, page 27

Bonus Compensation, page 29

4. With respect to your bonus compensation, we note your disclosure regarding the key performance indicators established for 2009, and your disclosure that the bonus payable based upon achievement of the key performance indicators may be increased or decreased within the executive's target range based upon achievement of individual goals. Please disclose how or why this process translated into actual compensation. For example, please disclose your actual achievement relative to your key performance indicators, and how this achievement translated into the actual bonuses awarded. In addition, please disclose whether the bonus was increased or decreased for any executive based upon achievement of individual goals and what such elements of individual compensation were for each executive. In addition, please clarify how your compensation committee established the target compensation levels with respect to each of your executive officers.

Equity Compensation, page 29

5. We note your general disclosure about why you historically grant equity awards. However, please also provide specific disclosure as to why you awarded the restricted stock grants on July 29, 2009 and at the levels disclosed. Please also tell us why a portion of the cash bonus paid to certain named executive officers on March 2, 2010 was in the form of restricted stock.

Director Compensation, page 36

6. Please disclose by footnote to the appropriate column of your director compensation table the aggregate number of stock awards and the aggregate number of option awards outstanding at your fiscal year end. In that regard, we note your disclosure at page 26 of your definitive proxy statement filed on April 24, 2009 that you granted

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options to the directors in December 2007 that vest ratably over four years beginning November 15, 2008 in increments of 15%, 30%, 60% and 100%.

Form 10-Q for the Fiscal Quarter Ended June 30, 2010

Management's Discussion and Analysis of Financial Condition and Results of Operations,
page 29

Results of Operations, page 32

7. In this section, you sometimes refer to two or more factors that contributed to material changes over the reported periods. Revise to quantify the amount of the changes contributed by each of the factors or events that you identify as they relate to revenues, operating expenses and other income or expenses. Instead of simply using the term "primarily" to describe changes, quantify the amount of the change that is attributable to the primary source you identify. See Section III.D of SEC Release 33-6835 (May 18, 1989). For example, and without limitation, provide more detail at page 32 regarding the various components that accounted for the 17.5% change in consolidated revenues during the three months ended June 30, 2010 as compared to the three months ended June 30, 2009.

Liquidity and Capital Resources, page 37

Revolving Credit Facility, page 38

8. We note that you amended your credit facility with RBC as of June 30, 2010 to provide greater flexibility in meeting financial covenants. However, you also disclose that based on your current forecast, you believe you are likely to not be able to maintain the covenants as of the September 30, 2010 measurement date. Please expand your disclosure to address why your forecast has changed. In that regard, we note statements made by your chief executive officer during your second quarter 2010 earnings conference call with respect to unexpected job cancellations.

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 the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. 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 responding to our comments, please provide a written 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.

Please contact Kevin Dougherty at (202) 551-3271, or in his absence, Laura Nicholson at (202) 551-3584 with any questions. If you require further assistance, you may contact the undersigned at (202) 551-3740.

Sincerely,

H. Roger Schwall
Assistant Director