



DIVISION OF  
CORPORATION FINANCE

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549-4628

December 22, 2009

Richard A. Degner  
Chairman and Chief Executive Officer  
Global Geophysical Services, Inc.  
13927 South Gessner Road  
Missouri City, TX 77489

**Re: Global Geophysical Services, Inc.  
Amendment No. 1 to Form S-1  
Filed December 3, 2009  
File No. 333-162540**

Dear Mr. Degner:

We have reviewed your response letter and amended filing, and we have the following comments. Where indicated, we think you should revise your registration statement in response to these comments. If you disagree, we will consider your explanation as to why our comments are inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. 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 might 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.

General

1. Please include the calculation of fee table in your next amendment with additional detail to show how much of the dollar amount of securities will be offered by the company and how much will be offered by selling stockholders.
2. We remind you of prior comments 2 and 3. We will need sufficient time to review all new material and to process any request for confidential treatment. You will not be in a position to request accelerated effectiveness for the registration statement until all items, including matters related to the confidential treatment request, have been resolved.

3. File all material contracts as exhibits, and describe in the prospectus in appropriate detail the material terms thereof. For example, you refer to supply agreements and key suppliers at pages 10-11, but it is unclear whether you have described all such agreements and you do not appear to have filed as an exhibit any contract with ION Geophysical.
4. Similarly, describe the agreement with Kelso in necessary detail, and provide risk factor disclosure as appropriate. In that regard, it does not appear that you have discussed the potential impact of all the material terms of the contract, including Section 4 relating to the required future sale of the company.

Summary, page 1

5. We remind you of prior comment 17. Although the summary continues to provide disclosure that is repeated word-for-word in the Business section, the summary does not include a discussion of the challenges that you now describe at page 56. Please revise accordingly.

Recent Trends Affecting Our Business, page 36

6. Revise to discuss in further detail how you were able to reduce your operating expenses 29.1% in the most recent nine-month period. If, as the disclosure at page 42 suggests, the bulk of this reduction resulted from reducing crew activity, make this clear at page 36. We note the “primarily” reference in that regard, and remind you of prior comment 14.

Principal and Selling Stockholders, page 90

7. Please disclose the identities of all selling stockholders in your next amendment. In addition, ensure that you provide in that amendment all the disclosure required by Items 403 and 507 of Regulation S-K. In this regard, we note your disclosure on the cover page indicating that several of your officers will be selling shares in this offering.
8. To the extent you plan to offer shares for the accounts of your major entity shareholders, revise the table to disclose the individual with voting or investment control over such shares. In addition, if you determine that such shareholder is a registered broker-dealer, please revise your disclosure to indicate that the selling shareholder is an underwriter, unless such selling shareholder received its securities as compensation for investment banking services. If a selling shareholder is an affiliate of a registered broker-dealer, please disclose, if true, that such selling shareholder acquired its shares in the ordinary course of business and at the time of the acquisition did not have any arrangements or understandings with any person to distribute the securities. If not, you must indicate that such selling shareholder is an underwriter.

Description of Capital Stock, page 92

9. We remind you of prior comment 21. Also, we note the new disclosure under “Corporate Opportunities.” Expand the disclosure to state precisely when these provisions were added to the charter, why they were added, and by what means they were added.
10. Provide precise Risk Factor disclosure regarding the agreements with Kelso, as appropriate.

Shares Eligible for Future Sale, page 97

11. Describe the lock-up agreements in greater detail, and file them as exhibits. Clarify whether all selling stockholders must wait 180 days or obtain prior consent to sell any of the shares which form the registered resale portion of this offering.

Note 2 – Summary of Significant Accounting Policies  
Revenue Recognition, page F-8

12. We note from your response to prior comment numbers 27 and 28 that you recognize revenue in accordance with the percentage of completion method for your multi-client service contracts. Please explain how you have determined that these contracts are in the scope of SOP 81-1 and that it is appropriate to apply the percentage of completion method to these contracts. As part of your response, please address the following specific comments.
  - Your disclosure on page 35 states that you set the specifications of the multi-client programs (with some input from your clients). SOP 81-1, paragraph 11, states, “[t]his statement of position applies to accounting for performance of contracts for which specifications are provided by the customer for the construction of facilities or the production of goods or the provision of related services that are reported in financial statements prepared in conformity with generally accepted accounting principles.” Please explain how you determined that it is appropriate to apply SOP 81-1 to contracts where you and not the customer determine the specifications of the contract.
  - Your disclosure on page 35 also states that you maintain ownership of the seismic data and its corresponding revenue stream. Pursuant to SOP 81-1, paragraph 22, the percentage of completion method recognizes the legal and economic results of contract performance for contracts where performance is, in effect, a continuous sale (transfer of ownership rights) that occurs as the work progresses. Therefore, the percentage of completion method is generally applied to contracts where the contractor does not have ownership rights to the work-in-process and has in essence agreed to sell the work-in-process to the customer as work progresses. Therefore, please clarify how you have determined that it is appropriate to apply the percentage-of-completion method in accordance with SOP 81-1 to your multi-client contracts.

- Your disclosure on page 35 also states that in return for the pre-commitment payments, your clients have some influence with respect to project specifications and receive favorable pricing. Please explain the product or service that you are required to deliver to your clients in return for the pre-commitment funding. Explain the deliverable for which your clients will receive favorable pricing.
- Explain how you apply the percentage of completion method to your multi-client contracts when you capitalize costs incurred. Please explain how you calculate and estimate contract costs for these contracts.
- Explain how you determined that these arrangements should not be accounted for as funded research and development arrangements in accordance with SFAS 68.

Note 9 – Long-Term Debt, page F-18

13. We note your response to our prior comment 33 and the disclosure added to your filing regarding the interest rate swap. Based on these disclosures, it appears you are not applying hedge accounting to the swap and instead are marking the derivative to fair value at each reporting period with changes recorded to the income statement. If true, please expand your disclosures to state the method of accounting applied to your derivative instruments held.

Exhibit Index, page II-8

14. Please file all exhibits as soon as practicable. In addition, absent a request for confidential treatment, you need to file in their entirety each exhibit, including all schedules. For example, the Stockholders Agreement filed as Exhibit 10.14 appears to include at least two schedules that have been omitted. If you do not provide *all* remaining exhibits with the next amendment, explain to us the reason(s) for the continued delay in that regard.

Closing Comments

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. With your amendment, please furnish a cover letter that keys your responses 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 your amendment and responses to our comments.

Richard A. Degner  
Global Geophysical Services, Inc.  
December 22, 2009  
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You may contact Shannon Buskirk at (202) 551-3717 or Chris White, Branch Chief, at (202) 551-3461 if you have questions regarding comments on the financial statements and related matters. Please contact John Lucas at (202) 551-5798 or, in his absence, Timothy Levenberg, Special Counsel, at (202) 551-3611 with any other questions.

Sincerely,

H. Roger Schwall  
Assistant Director

cc: Via Facsimile  
Bryce D. Linsenmayer, Esq.  
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