



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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4628

October 20, 2016

Jamey S. Seely
Executive Vice President, General Counsel and Corporate Secretary
ION Geophysical Corporation
2105 CityWest Blvd., Suite 100
Houston, TX 77042

**Re: ION Geophysical Corporation
Registration Statement on Form S-3
Filed September 23, 2016
File No. 333-213769
Form 10-K for Fiscal Year Ended December 31, 2015
Filed February 11, 2016 as amended on February 12, 2016
Form 10-Q for Fiscal Quarter Ended June 30, 2016
Filed August 4, 2016
Current Report on Form 8-K
Furnished August 4, 2016
File No. 1-12691**

Dear Ms. Seely:

We have limited our review of your registration statement to those issues we have addressed in our 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 by amending your registration statement and providing the requested information. 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 registration statement and the information you provide in response to these comments, we may have additional comments.

Registration Statement on Form S-3

1. Please be advised that we will not be in a position to take action on the registration statement until you have resolved all outstanding staff comments relating to your Exchange Act reports.

Amendment No. 1 to Form 10-K for Fiscal Year Ended December 31, 2015

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 the comments on your Exchange Act reports within ten business days by amending your filings, by providing the requested information, or by advising us when you will provide the requested response.

Exhibits

2. We note you have filed as Exhibits 3.2 and 3.3 to your first amended Form 10-K filed February 12, 2016 two Certificates of Amendment to your Restated Certificate of Incorporation dated February 2, 2016 and February 4, 2016, respectively. Please file the complete copy of your Restated Certificate of Incorporation as amended. Refer to Item 601(b)(3)(i) of Regulation S-K.

Form 10-Q for the Fiscal Quarter Ended June 30, 2016

Note 18. Subsequent Events, page 24

3. We note your disclosure that beginning with the third quarter of fiscal year 2016 you changed your presentation of reportable segments. Where annual financial statements are included in a registration statement that includes subsequent periods managed on the basis of a new organizational structure, the annual audited financial statements should include a revised segment footnote that reflects the new reportable segments. Your Description of Business and MD&A should be similarly revised. The revised annual financial statements and related disclosures may be included directly in the registration statement or in a Form 8-K incorporated by reference. For guidance, refer to ASC 280-10-50-34.

Form 8-K Furnished August 4, 2016

Exhibit 99.1 Press Release

4. You disclose the non-GAAP measure of Adjusted EBITDA in the second quarter highlights to your earnings release without also showing the comparable GAAP measure. Further, you disclose Adjusted EBITDA for the first half of 2016 and 2015 in your discussion of results without also showing the comparable GAAP measures for such periods. Please present, with equal or greater prominence, the most directly comparable financial measure or measures calculated and presented in accordance with GAAP. See Instruction 2 to Item 2.02 of Form 8-K and Item 10(e)(1)(i) of Regulation S-K.

Jamey S. Seely
ION Geophysical Corporation
October 20, 2016
Page 3

We remind you that the company and its management are responsible for the accuracy and adequacy of their disclosures, notwithstanding any review, comments, action or absence of action by the staff.

Refer to Rules 460 and 461 regarding requests for acceleration. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Lily Dang, Staff Accountant, at (202) 551-3867 or John Cannarella, Staff Accountant, at (202) 551-3337 if you have questions regarding comments on the financial statements and related matters. Please contact Parhaum J. Hamidi, Attorney-Adviser, at (202) 551-3421 or, in his absence, Kevin Dougherty, Senior Counsel, at (202) 551-3271 with any other questions.

Sincerely,

/s/H. Roger Schwall

H. Roger Schwall
Assistant Director
Office of Natural Resources