



DIVISION OF
CORPORATION FINANCE

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

June 25, 2010

Via U.S. Mail and Facsimile

R. Brian Hanson
Executive Vice President and Chief Financial Officer
ION Geophysical Corporation
2105 CityWest Blvd., Suite 400
Houston, TX 77042-2839

**Re: ION Geophysical Corporation
Form 10-K for Fiscal Year Ended December 31, 2009
Filed March 1, 2010
Definitive Proxy Statement on Schedule 14A
Filed April 21, 2010
File No. 001-12691**

Dear Mr. Hanson:

We have reviewed your letter dated June 1, 2010 and have the following comments. Please feel free to call us at the telephone numbers listed at the end of this letter.

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

1. Please file an amendment to your Form 10-K incorporating the draft disclosure you provided to us.

Results of Operations, page 46

2. We note your response to comment 2 of our letter dated May 17, 2010. In your Form 10-K amendment, please quantify gross profit and gross margin for each segment in your narrative disclosure, as you have done for net revenues. Also revise your "Results of Operations" discussion with respect to 2008 vs. 2007 in the same manner in which you have revised your discussion with respect to 2009 vs. 2008 in your draft disclosure.

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Cash Flow from Operations, page 57

3. We note your response to comment 4 of our letter dated May 17, 2010. In your Form 10-K amendment, please also expand your “Cash Flows from Operations” discussion with respect to 2008 vs. 2007 in the same manner in which you have revised your discussion with respect to 2009 vs. 2008 in your draft disclosure.

Executive Compensation

4. We note your response to comment 10 of our letter dated May 17, 2010. In Part III of your Form 10-K amendment, please revise your “Potential Payments upon Termination or a Change of Control” discussion to include disclosure of Mr. Hollis’ employment agreement provisions, as you have done for the other named executive officers, even though Mr. Hollis is no longer employed by the company. Also include the information you provided to us regarding the effect of his voluntary resignation effective January 29, 2010. Refer to Item 402(j) of Regulation S-K.

* * *

Please contact Alexandra M. Ledbetter, Staff Attorney, at (202) 551-3317 or me at (202) 551-3740 with any questions.

Sincerely,

Roger Schwall
Assistant Director

cc: Marc H. Folladori, Esq.
Mayer Brown LLP
Facsimile No. (713) 238-4696