



DIVISION OF
CORPORATION FINANCE

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

July 1, 2010

Mr. Eugene B. Shepherd, Jr.
Executive Vice President
Brigham Exploration Company
6300 Bridge Point Parkway, Building 2, Suite 500
Austin, Texas 78730

Re: Brigham Exploration Company
Form 10-K for Fiscal Year Ended December 31, 2009
Filed March 1, 2010
Schedule 14A Definitive Proxy Statement
Filed April 26, 2010
File No. 1-34224

Dear Mr. Shepherd:

We have reviewed your filing 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 for Fiscal Year Ended December 31, 2009

Properties, page 22

Oil and Natural Gas Reserves, page 27

1. We are unable to locate a description of the internal controls used in your reserve estimation effort. We note you engage Cawley, Gillespie & Associates, Inc. ("CG&A"), a third-party engineering firm, to prepare your reserve estimates.

However, preparation of your reserves by a third-party engineering firm does not alleviate your obligation to disclose a description of the internal control

procedures you perform with regard to your reserve estimation effort, including controls required to ensure that information taken from third party reports is properly disclosed in your filing. Please modify your disclosures accordingly.

2. Please disclose the qualifications of the technical person primarily responsible for accepting the final report of the reserves estimates from CG&A. We refer you to the guidance in Item 1202(a)(7) of Regulation S-K.

Proved Undeveloped Reserves, page 28

3. We note from your disclosure that “The application of advance drilling and completion techniques, which incorporates drilling long laterals and completing wells with swell packers and between 18 and 32 fracture stimulation stages in 2009, appears to have enhanced our estimated ultimate recoveries (EURs) and thereby improved our rates of return. During 2009, we applied these advanced drilling and completion techniques to areas that had previously experienced minimal drilling activity and drilled apparently economic wells. In these areas, we were able to increase our level of PUD reserves.” Your use of phrases such as “appears to have enhanced” and “drilled apparently economic wells” makes it unclear if the reserves recorded meet the reasonable certainty threshold outlined in Rule 4-10 of Regulation S-X. Please modify your disclosure as necessary.
4. We note your disclosure that “The new rules increased the number of offsetting PUD locations we were able to book in unconventional resource plays such as the Williston Basin from two in 2008 to four in 2009.” Please note that the revised definitions of undeveloped oil and gas reserves in Rule 4-10 of Regulation S-X do not specify the number of offsetting PUD locations that may be identified as proved. Please modify your disclosure accordingly.
5. You state that you converted .98 MMBOE of proved undeveloped reserves into proved developed reserves during 2009. This represents approximately 8.0% of your total proved undeveloped reserves at year end 2008 and 5.6% of your proved undeveloped reserves at year end 2009. This rate of development at year end 2009 suggests that it will take approximately 18 years to develop all your proved undeveloped reserves, assuming no additional proved undeveloped reserves are added during that time. As proved undeveloped reserves should generally be developed within five years of initially booking them as proved, please tell us how you plan to accomplish this. As part of your response, please also provide us the amount and percentage of your proved undeveloped reserves that were converted to proved developed reserves for the three years prior to 2009.

Sales Volumes, Prices and Production Costs, page 32

6. We note your disclosure in the table on page 32 regarding sales volumes for each of your last three fiscal years. Please provide such disclosure for each field that contains 15% or more of your total proved reserves, or explain to us why you concluded that the information for each significant field is not required. See Item 1204(a) of Regulation S-K.

Exhibits

7. We note your disclosure at page 5 that your natural gas production is sold to various purchasers under both monthly spot market contracts and multi-year arrangements. We also note your disclosure in Note 10 to your financial statements that one customer accounted for 31% of your oil and natural gas sales for the year ended December 31, 2009. Please file all material contracts with such customers pursuant to Item 601(b)(10) of Regulation S-K. In the alternative, provide us with your analysis as to why no contracts need to be filed.

Exhibit 99.1

8. We note that the report of Cawley, Gillespie & Associates, Inc. discloses the base oil and gas prices used for the reserves estimation. Please obtain a revised report that also discloses the weighted average prices from the total company reserves report. See Item 1202(a)(8)(v) of Regulation S-K.

Schedule 14A Definitive Proxy Statement Filed April 26, 2010

Compensation Discussion and Analysis, page 11

General

9. We note that you have not included any disclosure in response to Item 402(s) of Regulation S-K. Please advise us of the basis for your conclusion that disclosure is not necessary and describe the process you undertook to reach that conclusion.

Compensation Committee, page 11

10. We note your disclosure at page 11 that you participated in and received a report that contained compensation data for 13 companies you selected. Please identify such companies, or tell us why such information is not material. See Item 402(b)(2)(xiv) of Regulation S-K.
Refer also to Question 118.05 of the Regulation S-K Compliance and Disclosure Interpretations, available at <http://www.sec.gov/divisions/corpfin/guidance/regs-kinterp.htm>.

11. We note your disclosure at page 11 that you “generally benchmark [y]our executive compensation between the high and low range of compensation reported by the companies participating in the surveys.” For each element of compensation, and for total compensation, please discuss what you mean by your statement that you benchmark “between the high and low range” of such compensation.

Non-Equity Incentive Plan Compensation and Discretionary Bonus, page 13

12. You disclose that non-equity incentive plan compensation is paid to the named executive officers upon the “successful attainment” of certain company and individual performance objectives and accomplishments. It appears from your disclosure that non-equity incentive plan compensation was not awarded during your fiscal year ended December 31, 2009. If material, please disclose, on a company and individual basis, the relevant company and individual performance objectives, and disclose the actual results attained for each such performance objective as compared to the goals established at the beginning of the year. To the extent you believe that disclosure of the quantitative or qualitative performance information would result in competitive harm, such that the information should be excluded pursuant to Instruction 4 to Item 402(b) of Regulation S-K, please provide to us a detailed explanation regarding such conclusion. If you have an appropriate basis for omitting this information, you must discuss the difficulty or likelihood of the company and each named executive officer to attain the undisclosed performance levels. Refer to Question 118.04 of the Regulation S-K Compliance and Disclosure Interpretations, available at <http://www.sec.gov/divisions/corpfin/guidance/regs-kinterp.htm>.

Long Term Incentive Compensation, page 13

13. For each named executive officer, please disclose how the compensation committee determined the amount of restricted stock and options granted to such officer during your fiscal year ended December 31, 2009. See Item 402(b)(1)(v) of Regulation S-K.

Grants of Plan-Based Awards, page 16

14. We note your disclosure at page 16 with respect to options granted on August 21, 2009 to each of your named executive officers in connection with an option

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exchange. Please tell us why you did not discuss such options in your disclosure provided under the heading "Compensation Discussion and Analysis" at page 11.

Closing 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 all applicable Exchange Act rule 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, in writing, a statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- 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.

You may contact Tracie Towner at (202) 551-3744, Mark Wojciechowski at (202) 551-3759, or Mark Shannon, Branch Chief, at (202) 551-3299 if you have questions regarding comments on the financial statements and related matters. Please contact Tracey McNeil at (202) 551-3392, Laura Nicholson at (202) 551-3584, or me at (202) 551-3740 with any other questions.

Sincerely,

H. Roger Schwall
Assistant Director