



DIVISION OF
CORPORATION FINANCE

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

October 21, 2010

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 the Fiscal Year Ended December 31, 2009
Filed March 1, 2010
Schedule 14A Definitive Proxy Statement
Filed April 26, 2010
File No. 001-34224

Dear Mr. Shepherd:

We have completed our review of your Form 10-K and related filings and have no further comments at this time.

Sincerely,

H. Roger Schwall
Assistant Director