



DIVISION OF
CORPORATION FINANCE

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

December 30, 2013

Via E-mail

Scott McNeill
Chief Financial Officer
RSP Permian, Inc.
3141 Hood Street, Suite 701
Dallas, Texas 75219

**Re: RSP Permian, Inc.
Amendment No. 1 to Registration Statement on Form S-1
Filed December 13, 2013
Letter dated December 16, 2013
File No. 333-192268**

Dear Mr. McNeill:

We have reviewed your amendment 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 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.

Amendment No. 1 to Registration Statement on Form S-1

Executive Compensation, page 120

1. We note your response to prior comment 4. Please revise your disclosure to provide examples of events that would cause cash distributions that could trigger payout with respect to the incentive units. For example, clarify whether the sale of your common stock by the relevant members of RSP Permian Holdco, L.L.C. could trigger payout.

Principal and Selling Stockholders, page 128

2. For each selling shareholder that is a legal entity, please identify in the registration statement the natural person or persons who exercise sole and/or shared voting or dispositive powers over the securities offered for resale by that shareholder. See Compliance and Disclosure Interpretations: Regulation S-K, Question 140.02 at <http://www.sec.gov/divisions/corpfin/guidance/regs-kinterp.htm>.

Summary Pro Forma Reserve and Operating Data, page 23

3. We note that you have updated certain disclosures such as production and pricing to provide information as of September 30, 2013. Please tell us how you considered providing updated pro forma net proved oil and natural gas reserve information.

Historical Combined Financial Statements

Combined Statements of Operations, page F-22

4. The gain recognized on the property sale to Resolute in March 2013 appears to have increased from \$6.0 million as of June 30, 2013 to \$22.7 million as of September 30, 2013. Please tell us about the cause of this change in the gain recognized in connection with this transaction.

Notes to Combined Financial Statements

Note 9 – Members' Equity, page F-42

5. We note your response to comment 9 in our letter dated December 4, 2013. The draft disclosure you intend to provide in future amendments to your filing states that non-cash compensation expense may be recorded in future reporting periods. Please tell us how you considered providing disclosure quantifying the amount of potential non-cash compensation future expense associated with incentive units.

Exhibits

6. We are considering your response to prior comment 13 and may have further comment.

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 the information the Securities Act of 1933 and all applicable Securities Act rules 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.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Jennifer O'Brien, Staff Accountant, at (202) 551-3721 or Ethan Horowitz, Accounting Branch Chief, at (202) 551-3311 if you have questions regarding comments on the financial statements and related matters. You may contact Ronald Winfrey, Petroleum Engineer, at (202) 551-3704 with questions about engineering comments. Please contact Caroline Kim, Attorney-Adviser, at (202) 551-3878 or Laura Nicholson, Attorney-Adviser, at (202) 551-3584 with any other questions.

Sincerely,

/s/ A.N. Parker for

H. Roger Schwall
Assistant Director

cc: Douglas E. McWilliams
Vinson & Elkins LLP