



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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4628

December 5, 2016

Via E-mail
Scott McNeill
Chief Financial Officer
RSP Permian, Inc.
3141 Hood Street, Suite 500
Dallas, Texas 75219

**Re: RSP Permian, Inc.
Form 10-K for Fiscal Year Ended
December 31, 2015
Filed February 25, 2016
File No. 1-36264**

Dear Mr. McNeill:

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 these comments within ten business days by providing the requested information or advise us as soon as possible when you will respond. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing your response to these comments, we may have additional comments.

Form 10-K for the Fiscal Year Ended December 31, 2015

Oil and Natural Gas Data, page 36

PUDs, page 38

1. We note that during 2015, you converted 6.6 MMBOE of proved undeveloped reserves to developed status. This is about 10% of the PUD reserves available at year-end 2014. In the years-ended 2012-2015 (9 percent, 19 percent, 17 percent, 10 percent, respectively), it appears that your four year cumulative conversion is about 55%. In part, the Glossary of FASB ASC Section 932-235-20 defines "Proved Undeveloped Oil and Gas Reserves" with "Undrilled locations can be classified as having undeveloped reserves only if a development plan has been adopted indicating that they are scheduled to be drilled within

five years, unless the specific circumstances, justify a longer time.” We would expect a five year development plan to result in annual conversions averaging about 20 percent. Please explain the reasons for these low conversions.

2. Please furnish us with a list and analysis comparing the PUD locations that were scheduled to be drilled in 2016 by your year-end 2015 reserve report to those PUD locations that have been actually drilled. Include a spread sheet comparison of the pre-drill and post-drill estimated ultimate recoveries for the PUD locations that were drilled.
3. Your 2015 unit PUD development cost appears to be \$16.36/BOE [= \$108 million/6.6 MMBOE]. The unit development cost from the year-end 2015 standardized measure (page 101) is \$12.55/BOE [= \$1187 million/94.6 MMBOE]. Please explain the reasons for this lower five year unit cost. Given that proved reserves are required to be economically producible "under existing economic conditions", we would expect these conversion costs to reflect the levels you have incurred. Please address your treatment of 18 "DUC" wells (page 6), e.g. whether they were included with converted PUDs.

Developed and Undeveloped Acreage, page 41

4. We note the expiration of significant net undeveloped acreage in 2016-2017. Please tell us the figures for any proved undeveloped reserves that you have attributed to locations that are scheduled for drilling after expiry. If applicable, address the approach you will employ to forestall the expiry of such acreage.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 47

Critical Accounting Policies and Estimates, page 61

Impairment, page 61

5. On page 61 of your Form 10-K and on page 10 of your Form 10-Q as of September 30, 2016, you continue to disclose that it is reasonably possible that oil and gas prices used in future impairment evaluations may decline and result in the impairment of your proved properties. Please revise the disclosure under this section and in additional areas of your filing, as applicable, to provide additional language addressing the risks resulting from the uncertainty associated with your commodity price assumptions. Per Section V of SEC Release No. 33-8350, provide an analysis of the sensitivity of the assumptions underlying your estimates to change based on outcomes that are reasonably likely to occur.

Exhibit 99.1

6. In part, FASB ASC Paragraph 932-235-50-26 states "...some expenses incurred at an entity's central administrative office may not be general corporate expenses, but rather may be operating expenses of oil- and gas-producing activities, and therefore shall be reported as such. The nature of an expense rather than the location of its incurrence shall determine whether it is an operating expense. Only those expenses identified by their nature as operating expenses shall be allocated as operating expenses in computing the results of operations for oil and gas-producing activities." Explain to us whether your third party report (Exhibit 99.1) has included such costs in your projected production costs. If not, tell us the reasons for the omission of these costs.

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.

You may contact Wei Lu, Staff Accountant, at (202) 551-3725 or Shannon Buskirk, Staff Accountant at (202) 551-3717 if you have questions regarding comments on the financial statements and related matters. Please contact Ronald Winfrey, Petroleum Engineer, at (202) 551-3704 if you have questions regarding comments on the engineering related matters. Please contact Jason Langford, Staff Attorney, at (202) 551-3193 or me at (202) 551-3745 with any other questions.

Sincerely,

/s/H. Roger Schwall

H. Roger Schwall
Assistant Director
Office of Natural Resources