| RSP Permian, Inc. Form SC 13G/A October 12, 2017 |
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| SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549 |
| Schedule 13G |
| Under the Securities Exchange Act of 1934 |
| (Amendment No. 4)* |
| RSP PERMIAN, INC. (Name of Issuer) |
| Common Stock, par value \$0.01 per share (Title of Class of Securities) |
| 74978Q105 (CUSIP Number) |
| October 2, 2017 (Date of Event which Requires Filing of this Statement) |
| Check the appropriate box to designate the rule pursuant to which this Schedule is filed: |
| [] Rule 13d-1(b) |
| [X] Rule 13d-1(c) |
| [] Rule 13d-1(d) |

*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

| CUS (1) (A) (B) (2) (3) | SIP No. 74978Q105 Names of Reporting Persons Kayne Anderson Capital Advisors, L.P. Richard A. Kayne Check the Appropriate Box if a Member of SEC Use Only | 95-4486379 | (a) (b) | |
|---|---|---|----------------|--|
| (4) | Citizenship or Place of Organization | (A) Is a California limited partnership(B) USA | | |
| | Number of | (55) ole Voting Power | 1,676,119 | |
| | Shares Beneficially | (6§) hared Voting Power (7§) ole Dispositive Power | 0 1,676,119 | |
| | Owned by | | | |
| | Each | (8§) hared Dispositive Power | 0 | |
| | Reporting | | | |
| | Person With | | | |
| (9) | (9) Aggregate Amount Beneficially Owned by Each Reporting Person | | | |
| (10) Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instruction (11) Percent of Class Represented by Amount in Row (9) | | | | |
| (12) Type of Reporting Person (See Instructions) | | | | |
| | | | (B) IN | |

(1) Includes 808,907 shares of common stock, par value \$0.01 per share ("Common Stock") of RSP Permian, Inc., a Delaware corporation (the "Issuer"), owned directly by Silver Hill Energy Partners Holdings, LLC ("SHEP Holdings") and 867,212 shares of Common Stock of the Issuer owned directly by Silver Hill Energy Partners II, LLC ("SHEP II"). Kayne Anderson Capital Advisors, L.P. ("KACALP") is the managing member of the general partner of Kayne Anderson Energy Fund VI LP ("KAEF VI LP") and Kayne Anderson Energy Fund VII LP ("KAEF VII LP"). KAEF VI LP is a member of SHEP Holdings that holds the right to appoint five of the nine representatives to the board of managers of SHEP Holdings. The five representatives to the board of managers of SHEP Holdings appointed by KAEF VI LP possess the majority vote of the board of managers of SHEP Holdings. KAEF VII LP is a member of SHEP II that holds the right to appoint three of the five representatives to the board of managers of SHEP II. The three representatives to the board of managers of SHEP II appointed by KAEF VII LP possess the majority vote of the board of managers of SHEP II. As a result, KACALP may be deemed to have the power to vote or direct the vote or to dispose or direct the disposition of the shares owned by SHEP Holdings and by SHEP II. Richard A. Kayne ("Mr. Kayne") is the controlling shareholder of Kayne Anderson Investment Management, Inc., the general partner of KACALP. Mr. Kayne is also a limited partner of KAEF VI LP and KAEF VII LP. KACALP disclaims beneficial

ownership of the securities owned by SHEP Holdings and SHEP II in excess of its pecuniary interest therein and this statement shall not be deemed an admission that KACALP is the beneficial owner of the reported Common Stock for the purposes of Section 13(d) of the Exchange Act or any other purpose. Mr. Kayne disclaims beneficial ownership of the shares reported, except those shares held by him or attributable to him by virtue of his limited partnership interests in KAEF VI LP and KAEF VII LP and his indirect interest in the interest of KACALP in the limited partnerships.

(2) Based on 158,605,276 shares of Common Stock of the Issuer issued and outstanding as of August 4, 2017, as set forth in the Issuer's quarterly report on Form 10-Q, filed with the Securities and Exchange Commission on August 7, 2017.

| Item 1(a). Name of Issuer: RSP Permian, Inc., a Delaware corporation (the "Issuer") | | | | | |
|---|--|--|--|--|--|
| Item 1(b). Address of Issuer's Principal Executive Offices: 3141 Hood Street, Suite 500, Dallas, Texas 75219 | | | | | |
| Item 2(a). Name of Person Filing: This statement is jointly filed by Kayne Anderson Capital Advisors, L.P., a California limited partnership ("KACALP"), and Richard A. Kayne, a United States citizen ("Mr. Kayne"). | | | | | |
| Item 2(b). Address of Principal Business Office or, if None, Residence: The principal business office address of KACALP and Mr. Kayne is 1800 Avenue of the Stars, 3 rd Floor, Los Angeles, California 90067. | | | | | |
| Item 2(c). Citizenship: KACALP is organized under the laws of the State of California. Mr. Kayne is a United States citizen. | | | | | |
| Item 2(d). Title of Class of Securities: Common Stock, par value \$0.01 per share, of the Issuer. | | | | | |
| Item 2(e). CUSIP Number: 74978Q105 | | | | | |
| Item 3. If this statement is filed pursuant to § 240.13d-1(b), or § 240.13d-2(b) or (c), check whether the person filing is a: | | | | | |
| (a) [] Broker or dealer registered under section 15 of the Act (15 U.S.C. 780); | | | | | |
| (b) [] Bank as defined in section 3(a)(6) of the Act (15 U.S.C. 78c); | | | | | |
| (c) [] Insurance company as defined in section 3(a)(19) of the Act (15 U.S.C. 78c); | | | | | |

| (d) [] | Investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C. 80a-8) |
|-------------------|--|
| (e) [] | An investment adviser in accordance with § 240.13d-1(b)(1)(ii)(E); |
| (f) [] | An employee benefit plan or endowment fund in accordance with § 240.13d-1(b)(1)(ii)(F); |
| (g) [] | A parent holding company or control person in accordance with § 240.13d-1(b)(1)(ii)(G); |
| (h) [] | A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813); |
| (i) [] Investm | A church plan that is excluded from the definition of an investment company under section 3(c)(14) of the ent Company Act of 1940 (15 U.S.C. 80a-3); |
| (j) [] | A non-U.S. institution in accordance with § 240.13d-1(b)(1)(ii)(J); |
| (k) [] | Group, in accordance with § 240.13d-1(b)(1)(ii)(K). |
| If filing | as a non-U.S. institution in accordance with § 240.13d-1(b)(1)(ii)(J), please specify the type of institution: |

| Item 4. Ownership. | | | | |
|---|--|--|--|--|
| The information regarding ownership set forth in Items 5-9 and 11 of each cover page is hereby incorporated herein by reference. | | | | |
| Item 5. Ownership of Five Percent or Less of a Class. | | | | |
| If this statement is being filed to report the fact that as of the date hereof the following reporting persons have ceased to be the beneficial owner of more than 5 percent of the class of securities, check the following: | | | | |
| Kayne Anderson Capital Advisors, L.P. [X] | | | | |
| Richard A. Kayne [X] | | | | |
| Item 6. Ownership of More Than Five Percent on Behalf of Another Person. | | | | |
| Not applicable | | | | |
| Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company or Control Person. | | | | |
| Not applicable | | | | |
| Item 8. Identification and Classification of Members of the Group. | | | | |

| Not | onn | lion | hla |
|------|-----|------|------|
| INOL | app | nca | JIU. |

Item 9. Notice of Dissolution of Group.

Not applicable

Item 10. Certifications.

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect, other than activities solely in connection with a nomination under §240.14a-11.

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: October 12, 2017

Kayne Anderson Capital Advisors, L.P.

By: Kayne Anderson Investment Management, Inc.

By:/ s/ Michael O'Neil Name: Michael

O'Neil

Title: Chief Compliance Officer

/s/ Richard A. Kayne Richard A. Kayne

EXHIBIT INDEX

Exhibit No. Description

1.1 Joint Filing Agreement dated October 12, 2017.