

Gastar Exploration Inc.  
Form 424B3  
September 17, 2018

Filed Pursuant to Rule 424(b)(3)

Registration No. 333-217168

PROSPECTUS SUPPLEMENT NO. 16

(to Prospectus dated March 23, 2018)

169,933,626 Shares

GASTAR EXPLORATION INC.

Common Stock

This prospectus supplement is being filed to update and supplement information contained in the prospectus dated March 23, 2018, relating to the resale or other disposition of our common stock par value \$0.001 per share, which may be offered for sale from time to time by the selling stockholders named in the prospectus, with information contained in our Current Report on Form 8-K, filed with the Securities and Exchange Commission on September 17, 2018.

This prospectus supplement updates and supplements the information in the prospectus and is not complete without, and may not be delivered or utilized except in combination with, the prospectus, including any amendments or supplements thereto. This prospectus supplement should be read in conjunction with the prospectus and if there is any inconsistency between the information in the prospectus and this prospectus supplement, you should rely on the information in this prospectus supplement.

Investing in our securities involves risk. Please see "Risk Factors" beginning on page 3 of the prospectus for a discussion of certain risks that you should consider in connection with an investment in the securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

This prospectus supplement is dated September 17, 2018.



UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

PURSUANT TO SECTION 13 OR 15(D) OF THE

SECURITIES EXCHANGE ACT OF 1934

Date of Report (Date of earliest event reported): September 12, 2018

GASTAR EXPLORATION INC.

(Exact Name of Registrant as Specified in its Charter)

DELAWARE	001-35211	38-3531640
(State or other jurisdiction of incorporation)	(Commission File Number)	(IRS Employer Identification No.)
1331 LAMAR STREET, SUITE 650		
HOUSTON, TEXAS 77010		
(Address of principal executive offices)		

(713) 739-1800

(Registrant's telephone number, including area code)

Check the appropriate box  
below if the Form 8-K filing is

intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§ 230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§ 240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

## SECTION 1 – REGISTRANT’S BUSINESS AND OPERATIONS

### Item 1.01 Entry into a Material Definitive Agreement.

In connection with the election of William L. Transier and Marc Beilinson as members of the board of directors of Gastar Exploration Inc. (the “Company”), the Company entered into indemnification agreements (the “Indemnification Agreements”) with Mr. Transier and Mr. Beilinson on September 12, 2018 and September 14, 2018, respectively. The Indemnification Agreements were in the same form as the indemnification agreement attached as Exhibit 10.1 to the Company’s Current Report on Form 8-K filed on June 29, 2018.

The Indemnification Agreements generally require the Company to indemnify Mr. Transier and Mr. Beilinson to the fullest extent permitted by applicable law against liability that may arise by reason of their service to the Company. The Indemnification Agreements provide for the advancement of expenses incurred as a result of any proceeding against such individual as to which he or she could be indemnified.

The foregoing description is qualified in its entirety by reference to the full text of the form of Indemnification Agreement, which is attached as Exhibit 10.1 to this Current Report on Form 8-K and incorporated in this Item 1.01 by reference.

## SECTION 9 – FINANCIAL STATEMENTS AND EXHIBITS

### Item 9.01 Financial Statements and Exhibits.

#### (d) Exhibits

The following is a list of exhibits filed as part of this Form 8-K:

#### Exhibit

No.	Description of Document
10.1	Form of Amended and Restated Indemnification Agreement (incorporated by reference to Exhibit 10.1 to the Registrant’s Current Report on Form 8-K filed with the Commission on June 29, 2018).

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

GASTAR  
Date: September 17, 2018 EXPLORATION INC.

/s/ Michael A.  
By: Gerlich  
Michael A. Gerlich  
Senior Vice  
President and Chief  
Financial Officer