

PROSPECTUS SUPPLEMENT NO. 13
(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 6, 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 6, 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 6, 2018

GASTAR EXPLORATION INC.

(Exact Name of Registrant as Specified in its Charter)

DELAWARE
(State or other jurisdiction
of incorporation)

001-35211
(Commission File Number)

38-3531640
(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 3 – SECURITIES AND TRADING MARKETS

Item 3.01. Notice of Delisting or Failure to Satisfy a Continued Listing Rule or Standard; Transfer of Listing.

On September 6, 2018, Gastar Exploration Inc. (the “Company”) received notification from the NYSE American LLC (the “NYSE American”) that the NYSE American has suspended trading of the Company’s common stock, 8.625% Series A Cumulative Preferred Stock (the “Series A preferred”) and 10.75% Series B Cumulative Preferred Stock (the “Series B preferred” together, with the Series A Preferred, the “preferred stock”) on the exchange due to the Company’s common stock’s abnormally low trading price (the “Notice”).

The Company anticipates that during the trading suspension its common stock and preferred stock issues will be quoted for trading on the OTCQB over-the counter market under different trading symbols on September 7, 2018, or shortly thereafter. The transition to the over-the-counter market will not affect the Company’s business operations or its previously announced process seeking proposals from third parties as it continues to evaluate strategic alternatives for the Company. The Company will remain subject to the public reporting requirements of the Securities and Exchange Commission (“SEC”) following the transfer of trading to the OTCQB.

As disclosed on August 29, 2018, the Company was informed by the NYSE American that the Company was not in compliance with the NYSE American’s continued listing standards because the Company’s common stock has been selling for a low price per share for a substantial period of time. In light of the trading suspension, the NYSE American stated that it intends to commence the delisting process and will apply to the SEC to delist the Company’s common stock and preferred stocks upon completion of all applicable procedures. The Company is reviewing whether it will appeal the delisting determination pending the outcome of its previously announced process seeking proposals from third parties for strategic alternatives for the Company.

A delisting of the Company’s common stock would constitute a "fundamental change" under the terms of the indenture (the "Indenture") governing the Company’s Convertible Notes due 2022 ("Convertible Notes"), which would permit the noteholders to require the Company to repurchase all or part of such holder’s notes at a cash repurchase price equal to 101% of the principal amount of the Convertible Notes being repurchased, plus accrued and unpaid interest. The Convertible Notes would be required to be repurchased on a date specified by the Company (the "Fundamental Change Repurchase Date") that is not less than 20 nor more than 35 calendar days after the date a fundamental change repurchase notice is sent (which is required to be sent within 20 calendar days of the fundamental change event). The failure to repurchase the Convertible Notes on the Fundamental Change Repurchase Date would constitute an event of default under the Indenture and result in the automatic acceleration of the maturity date of the Convertible Notes. Furthermore, upon the occurrence of an event of default under the Indenture, Ares Management LLC and its affiliates, as holders of a majority in principal amount of the Company’s term loan, or any transferee holder of a majority in principal amount of the Company’s term loan, would have the right to immediately accelerate the maturity of the term loan.

SECTION 7 – REGULATION FD

Item 7.01 Regulation FD Disclosures.

The Company issued a press release on September 6, 2018 announcing that it had received the Deficiency Letter. A copy of the press release is furnished hereto as Exhibit 99.1 and is incorporated herein by reference.

In accordance with General Instruction B.2 of Form 8-K, the information presented herein under Item 7.01 and set forth in the attached press release included in Exhibit 99.1 to this report is deemed to be “furnished” solely pursuant to Item 7.01 of this report and shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), or otherwise subject to the

liabilities of that section, nor shall such information or the exhibit be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended or the Exchange Act.

SECTION 9 – FINANCIAL STATEMENTS AND EXHIBITS

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

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

Exhibit No.	Description of Document
99.1	Press release issued September 6, 2018.

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.

Date: September 6, 2018

GASTAR EXPLORATION INC.

By: /s/ Michael A. Gerlich
Michael A. Gerlich

Senior Vice President and Chief Financial Officer



NEWS RELEASE

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Gastar Exploration Announces Suspension of Trading on the NYSE American Exchange and Expected Commencement of Over-the-Counter Trading

HOUSTON, September 6, 2018 – Gastar Exploration Inc. (NYSE American: GST) (“Gastar”) today announced that it received notification from the NYSE American LLC (“NYSE”) that the NYSE has suspended trading of the Company’s common stock on the exchange due to its abnormally low trading price. The Company’s following two preferred stock issues listed on the NYSE have also been suspended from trading on the exchange:

<u>Ticker Symbol</u>	<u>Issue Description</u>
GST.PRA	8.625% Series A Cumulative Preferred Stock, par value \$0.01 per share
GST.PRB	10.75% Series B Cumulative Preferred Stock, par value \$0.01 per share

The Company anticipates that during the trading suspension its common stock and its two preferred stock issues will be quoted for trading on the OTCQB over-the counter market under different trading symbols on September 7, 2018, or shortly thereafter. The transition to the over-the-counter market will not affect Gastar’s business operations or its previously announced process seeking proposals from third parties as it continues to evaluate strategic alternatives for Gastar. The Company will remain subject to the public reporting requirements of the Securities and Exchange Commission (“SEC”) following the transfer of trading to the OTCQB.

As reported on August 29, 2018, Gastar was informed by the NYSE that Gastar was not in compliance with the NYSE’s continued listing standards because the Company’s common

stock has been selling for a low price per share for a substantial period of time. In light of the trading suspension, the NYSE stated that it intends to commence the delisting process and will apply to the SEC to delist the Company's common stock and preferred stocks upon completion of all applicable procedures. Gastar is reviewing whether it will appeal the delisting determination pending the outcome of its previously announced process seeking proposals from third parties for strategic alternatives for the Company.

A delisting of the Company's common stock would constitute a "fundamental change" under the terms of the indenture (the "Indenture") governing the Company's Convertible Notes due 2022 ("Convertible Notes"), which would permit the noteholders to require the Company to repurchase all or part of such holder's notes at a cash repurchase price equal to 101% of the principal amount of the Convertible Notes being repurchased, plus accrued and unpaid interest. The Convertible Notes would be required to be repurchased on a date specified by the Company (the "Fundamental Change Repurchase Date") that is not less than 20 nor more than 35 calendar days after the date a fundamental change repurchase notice is sent (which is required to be sent within 20 calendar days of the fundamental change event). The failure to repurchase the Convertible Notes on the Fundamental Change Repurchase Date would constitute an event of default under the Indenture and result in the automatic acceleration of the maturity date of the Convertible Notes. Furthermore, upon the occurrence of an event of default under the Indenture, Ares Management LLC and its affiliates, as holders of a majority in principal amount of the Company's term loan, or any transferee holder of a majority in principal amount of the Company's term loan, would have the right to immediately accelerate the maturity of the term loan.

About Gastar Exploration

Gastar Exploration Inc. is a pure play Mid-Continent independent energy company engaged in the exploration, development and production of oil, condensate, natural gas and natural gas liquids in the United States. Gastar's principal business activities include the identification, acquisition, and subsequent exploration and development of oil and natural gas properties with an emphasis on unconventional reserves, such as shale resource plays. Gastar holds a concentrated acreage position in the normally pressured oil window of the STACK Play, an area of central Oklahoma which is home to multiple oil and natural gas-rich reservoirs including the Oswego limestone, Meramec and Osage bench formations within the Mississippi Lime, the Woodford shale and Hunton limestone formations. For more information, visit Gastar's website at www.gastar.com.

Forward Looking Statements

This news release includes "forward looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities

Exchange Act of 1934, as amended. Forward looking statements express our current expectations, opinion, belief or forecasts of future events and performance. A statement identified by the use of forward looking words including "may," "expects," "projects," "anticipates," "plans," "believes," "estimate," "will," "should," and certain of the other foregoing statements may be deemed forward-looking statements. Although Gastar believes that the expectations reflected in such forward-looking statements are reasonable, these statements involve risks and uncertainties that may cause actual future activities and results to be materially different from those suggested or described in this news release. These include risks described in Gastar's Annual Report on Form 10-K and other filings with the U.S. Securities and Exchange Commission ("SEC"), available at the SEC's website at www.sec.gov. By issuing forward looking statements based on current expectations, opinions, views or beliefs, Gastar has no obligation and, except as required by law, is not undertaking any obligation, to update or revise these statements or provide any other information relating to such statements.