

PROSPECTUS SUPPLEMENT NO. 14  
(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 10, 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 10, 2018.

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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 7, 2018

**GASTAR EXPLORATION INC.**

(Exact Name of Registrant as Specified in its Charter)

<b>DELAWARE</b> (State or other jurisdiction of incorporation)	<b>001-35211</b> (Commission File Number)	<b>38-3531640</b> (IRS Employer Identification No.)
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**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.

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## SECTION 7 – REGULATION FD

### Item 7.01 Regulation FD Disclosures.

Gastar Exploration Inc. (the “Company”) issued a press release on September 7, 2018 announcing that its common stock commenced trading on the OTCQB over-the-counter market. A copy of the press release is furnished hereto as Exhibit 99.1.

Additionally, the Company issued a press release on September 7, 2018 announcing that its two preferred stock issues commenced trading on the OTCQB over-the-counter market. A copy of the press release is furnished hereto as Exhibit 99.2.

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 8 - OTHER EVENTS

### Item 8.01 Other Items.

On September 7, 2018, the Company announced its common stock, 8.625% Series A Cumulative Preferred Stock, par value \$0.01 per share, and 10.75% Series B Cumulative Preferred Stock, par value \$0.01 per share, commenced trading on the OTCQB over-the-counter market under the trading symbols “GSTC,” “GSTPA” and “GSTPB,” respectively.

## 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:

<u>Exhibit No.</u>	<u>Description of Document</u>
99.1	Press Release issued September 7, 2018.
99.2	Press Release issued September 7, 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.

Date: September 10, 2018

**GASTAR EXPLORATION INC.**

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

Senior Vice President and Chief Financial Officer

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## NEWS RELEASE

Contacts:  
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Michael A. Gerlich, Chief Financial Officer  
713-739-1800 / mgerlich@gastar.com

Investor Relations Counsel:  
Lisa Elliott / lelliott@DennardLascar.com  
Dennard-Lascar Investor Relations: 713-529-6600

### **Gastar Exploration Commences Trading on OTCQB**

HOUSTON, September 7, 2018 – Gastar Exploration Inc. (OTCQB: GSTC) (“Gastar” and the “Company”) today announced that the Company’s common stock will commence trading on the OTCQB over-the-counter market under the trading symbol “GSTC”. Opening of over-the-counter trading in the Company’s two preferred stock issues has been delayed pending resolution of certain technical listing issues. The Company anticipates the two preferred stock issues will be listed on the over-the-counter market once the listing issues are resolved.

Investors can find quotes for the Company’s common stock on [www.otcmarkets.com](http://www.otcmarkets.com).

#### **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](http://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

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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](http://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.

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## NEWS RELEASE

Contacts:  
 Gastar Exploration Inc.  
 Michael A. Gerlich, Chief Financial Officer  
 713-739-1800 / mgerlich@gastar.com

Investor Relations Counsel:  
 Lisa Elliott / lelliott@DennardLascar.com  
 Dennard-Lascar Investor Relations: 713-529-6600

### Gastar Exploration's Two Preferred Stock Issues Commences Trading on OTCQB

HOUSTON, September 7, 2018 – Gastar Exploration Inc. (OTCQB: GSTC) (“Gastar” and the “Company”) today announced that its two preferred stock issues have commenced trading on the OTCQB over-the-counter market under the trading symbols listed below.

<b>Ticker Symbol</b>	<b>Issue Description</b>
GSTPA	8.625% Series A Cumulative Preferred Stock, par value \$0.01 per share
GSTPB	10.75% Series B Cumulative Preferred Stock, par value \$0.01 per share

Investors can find quotes for the Company's common stock and two preferred issues on [www.otcm Markets.com](http://www.otcm Markets.com).

#### 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](http://www.gastar.com).

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