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): December 10, 2010 (December 10, 2010)

GASTAR EXPLORATION LTD.

(Exact Name of Registrant as Specified in its Charter)

ALBERTA, CANADA (State or other jurisdiction of incorporation)

001-32714 (Commission File Number) 98-0570897 (IRS Employer Identification No.)

1331 LAMAR STREET, SUITE 1080 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):

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

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SECTION 7 - REGULATION FD

Item 7.01 Regulation FD Disclosure

On December 10, 2010, the Company issued a press release announcing that the underwriters of its previously announced underwritten public offering of common shares have exercised in full their option to purchase an additional 1,800,000 common shares of the Company's common stock at a public offering price of \$4.00 per share. The Company expects to issue and deliver all 13,800,000 common shares on December 13, 2010, subject to customary closing conditions. A copy of the Company's press release, dated December 10, 2010, including such information is furnished herewith 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 Exhibit 99.1 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, 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 or the Securities Exchange Act of 1934, each as amended.

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 Description of Document

No.

99.1 Press release dated December 10, 2010.

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 EXPLORATION LTD.

Date: December 10, 2010 By: /s/ J. RUSSELL PORTER

J. Russell Porter

President and Chief Executive Officer

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EXHIBIT INDEX

Exhibit Description of Document No.

Press release dated December 10, 2010.

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