

GASTAR EXPLORATION LTD  
Form SC 13G/A  
February 10, 2010  
CUSIP NO. 367299104

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

SCHEDULE 13G/A  
Under the Securities Exchange Act of 1934

Gastar Exploration Ltd.  
(Name of Issuer)

Common Stock, without par value  
(Title of Class of Securities)

367299104  
(CUSIP Number)

December 31, 2009  
(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)

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.

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The information required in 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).

(1)	Name of Reporting Person I.R.S. Identification No. of Above Person	Chesapeake Energy Corporation 73-1395733
(2)	Check the Appropriate Box if a Member of a Group (See Instructions)	(a) [ ] (b) [x]
(3)	SEC Use Only	
(4)	Citizenship or Place of Organization	Oklahoma
Number of Shares	(5) Sole Voting Power	6,781,767
Beneficially Owned By Each Reporting Person With:	(6) Shared Voting Power	-
	(7) Sole Dispositive Power	6,781,767
	(8) Shared Dispositive Power	-
	(9) Aggregate Amount Beneficially Owned by Each Reporting Person	6,781,767
	(10) Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)	[ ]
	(11) Percent of Class Represented by Amount in Row (9)	13.56%*
	(12) Type of Reporting Person (See Instructions)	CO

\* Based upon 50,030,819 shares of Common Stock issued and outstanding reported in Gastar's Form 10-Q filed November 5, 2009.

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Item 1.

(a) Name of Issuer

This Schedule 13G relates to the common stock, without par value (the “Common Stock”), of Gastar Exploration Ltd., an Alberta, Canada corporation (“Gastar”).

(b) Address of Issuer's Principal Executive Offices

Gastar’s principal executive offices are located at 1331 Lamar Street, Suite 1080, Houston, Texas 77010.

Item 2.

(a) Name of Person Filing

This statement is filed by Chesapeake Energy Corporation, an Oklahoma corporation (“Chesapeake”).

(b) Address of Principal Business Office or, if None, Residence

Chesapeake’s principal executive offices are located at 6100 North Western Avenue, Oklahoma City, Oklahoma 73118.

(c) Citizenship

Chesapeake is a corporation organized under the laws of the state of Oklahoma.

(d) Title of Class of Securities

Chesapeake beneficially owns shares of Gastar’s Common Stock, without par value.

(e) CUSIP Number

The CUSIP for Gastar’s Common Stock is 367299104.

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:

Not applicable.

Item 4. Ownership

(a) Amount beneficially owned:

Chesapeake beneficially owns 6,781,767 shares of Gastar Common Stock.

(b) Percent of class:

Chesapeake owns 13.56% of Gastar's outstanding Common Stock.

(c) Number of shares as to which Chesapeake has:

- (i) Sole power to vote or direct the vote: 6,781,767
- (ii) Shared power to vote or direct the vote: 0
- (iii) Sole power to dispose or to direct the disposition of: 6,781,767
- (iv) Shared power to dispose or to direct the disposition of: 0

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 reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following [  ].

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

Not applicable.

Item 8. Identification and Classification of Members of the Group

Not applicable.

Item 9. Notice of Dissolution of Group

Not applicable.

Item 10. Certification

Not applicable.

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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.

DATED: February 10, 2010

CHESAPEAKE ENERGY  
CORPORATION

By: /s/ JENNIFER M. GRIGSBY  
Jennifer M. Grigsby  
Senior Vice President, Treasurer &  
Corporate Secretary