

GASTAR EXPLORATION LTD  
Form SC 13D/A  
August 31, 2010

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CUSIP No. 367299104

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

OMB APPROVAL  
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SCHEDULE 13D

Under the Securities Exchange Act of 1934

(Amendment No. 6)\*

Gastar Exploration Ltd.

(Name of Issuer)

Common Shares, no par value

(Title of Class of Securities)

367299104

(CUSIP Number)

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(Name, Address and Telephone Number of Person  
Authorized to Receive Notices and Communications)

August 30, 2010

(Date of Event Which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of sections 240.13d-1(e), 240.13d-1(f) or 140.13d-1(g), check the following box. [ X ]

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See section 240.13d-7 for other parties to whom copies are to be sent.

\* 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.

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).

Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

1. Names of Reporting Persons

Palo Alto Investors, Inc.

2. Check the Appropriate Box if a Member of a Group (See Instructions)
- (a)
- (b) X

3. SEC Use Only

4. Source of Funds (See Instructions) AF

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) \_\_\_\_\_

6. Citizenship or Place of Organization California

Number of	7.	Sole Voting Power	0
Shares	8.	Shared Voting Power	3,564,594
Beneficially	9.	Sole Dispositive Power	0
Owned by	10.	Shared Dispositive	3,564,594
Each Reporting	Power		
Person With			

11. Aggregate Amount Beneficially Owned by Each Reporting Person 3,564,594

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11) 7.1%

14. Type of Reporting Person (See Instructions) CO, HC

1. Names of Reporting Persons

Palo Alto Investors, LLC

2. Check the Appropriate Box if a Member of a Group (See Instructions)  
 (a)  
 (b) X

3. SEC Use Only

4. Source of Funds (See Instructions) AF

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) \_\_\_\_\_

6. Citizenship or Place of Organization California

Number of	7.	Sole Voting Power	0
Shares	8.	Shared Voting Power	3,564,594
Beneficially	9.	Sole Dispositive Power	0
Owned by	10.	Shared Dispositive	3,564,594
Each Reporting	Power		
Person With			

11. Aggregate Amount Beneficially Owned by Each Reporting Person 3,564,594

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11) 7.1%

14. Type of Reporting Person (See Instructions) IA, OO

1. Names of Reporting Persons

William Leland Edwards

2. Check the Appropriate Box if a Member of a Group (See Instructions)
- (a)
- (b) X

3. SEC Use Only

4. Source of Funds (See Instructions) AF

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) \_\_\_\_\_

6. Citizenship or Place of Organization U.S.A.

Number of	7.	Sole Voting Power	28,000
Shares	8.	Shared Voting Power	3,564,594
Beneficially	9.	Sole Dispositive Power	28,000
Owned by	10.	Shared Dispositive	3,564,594
Each Reporting	Power		
Person With			

11. Aggregate Amount Beneficially Owned by Each Reporting Person 3,592,594

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) \_\_\_\_\_

13. Percent of Class Represented by Amount in Row (11) 7.1%

14. Type of Reporting Person (See Instructions) IN, HC

1. Names of Reporting Persons

Anthony Joonkyoo Yun, MD

2. Check the Appropriate Box if a Member of a Group (See Instructions)
- (a)
- (b) X

3. SEC Use Only

4. Source of Funds (See Instructions) AF

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) \_\_\_\_\_

6. Citizenship or Place of Organization U.S.A.

Number of	7.	Sole Voting Power	0
Shares	8.	Shared Voting Power	3,564,594
Beneficially	9.	Sole Dispositive Power	0
Owned by	10.	Shared Dispositive	3,564,594
Each Reporting	Power		
Person With			

11. Aggregate Amount Beneficially Owned by Each Reporting Person 3,564,594

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11) 7.1%

14. Type of Reporting Person (See Instructions) IN, HC

1. Names of Reporting Persons

Palo Alto Small Cap Master Fund, L.P.

2. Check the Appropriate Box if a Member of a Group (See Instructions)
- (a)
- (b) X

3. SEC Use Only

4. Source of Funds (See Instructions) AF

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) \_\_\_\_\_

6. Citizenship or Place of Organization Cayman Islands

Number of	7.	Sole Voting Power	0
Shares	8.	Shared Voting Power	2,485,022
Beneficially	9.	Sole Dispositive Power	0
Owned by	10.	Shared Dispositive	2,485,022
Each Reporting	Power		
Person With			

11. Aggregate Amount Beneficially Owned by Each Reporting Person 2,485,022

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11) 4.9%

14. Type of Reporting Person (See Instructions) PN

1. Names of Reporting Persons

Palo Alto Small Cap Fund, L.P.

2. Check the Appropriate Box if a Member of a Group (See Instructions)
- (a)
- (b) X

3. SEC Use Only

4. Source of Funds (See Instructions) AF

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) \_\_\_\_\_

6. Citizenship or Place of Organization Delaware

Number of	7.	Sole Voting Power	0
Shares	8.	Shared Voting Power	2,198,002
Beneficially	9.	Sole Dispositive Power	0
Owned by	10.	Shared Dispositive	2,198,002
Each Reporting	Power		
Person With			

11. Aggregate Amount Beneficially Owned by Each Reporting Person 2,198,002

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11) 4.4%

14. Type of Reporting Person (See Instructions) PN

This Amendment No. 6 (this “Amendment No. 6”) amends and supplements the Schedule 13D originally filed with the Securities and Exchange Commission on November 9, 2009, as amended by Amendment No. 1 on December 11, 2009, Amendment No. 2 on December 14, 2009, Amendment No. 3 on January 14, 2010, Amendment No. 4 on January 19, 2010 and Amendment No. 5 on May 17, 2010 (the “Amended Statement”) (the Amended Statement, together with this Amendment No. 6, are collectively referred to herein as the “Statement”), by William Leland Edwards, Palo Alto Investors, LLC, Palo Alto Investors, Inc., Palo Alto Small Cap Master Fund, L.P., Palo Alto Small Cap Fund, L.P., and Anthony Joonkyoo Yun, MD (collectively, the “Filers”). Except as set forth in this Amendment No. 6, all information set forth in the Amended Statement remains unchanged and capitalized terms used but not defined in this Amendment No. 6 shall have the meanings ascribed to such terms in the Amended Statement.

#### Item 5. Interest in Securities of the Issuer

(c) Listed below are all the transactions in the Stock by the Filers during the last 60 days. The sales were effected in open market transactions. There were no other transactions in the Stock by the Filers during such period.

Filer	Date	Transaction	Purchased or Sold	Average Price Per Share
PAI, LLC	7/20/2010	Sale	1,300 \$	3.79
PAI, LLC	7/21/2010	Sale	400 \$	3.88
PAI, LLC	7/22/2010	Sale	3,700 \$	3.83
PAI, LLC	7/23/2010	Sale	7,000 \$	3.98
PAI, LLC	7/26/2010	Sale	2,900 \$	4.00
PAI, LLC	7/27/2010	Sale	3,000 \$	3.99
PAI, LLC	7/28/2010	Sale	1,500 \$	3.90
PAI, LLC	7/29/2010	Sale	2,300 \$	3.99
PAI, LLC	7/30/2010	Sale	1,800 \$	4.04
PAI, LLC	8/2/2010	Sale	6,000 \$	4.05
PAI, LLC	8/3/2010	Sale	2,600 \$	4.07
PAI, LLC	8/4/2010	Sale	1,500 \$	4.03
PAI, LLC	8/5/2010	Sale	1,700 \$	4.02
PAI, LLC	8/6/2010	Sale	3,600 \$	3.99
PAI, LLC	8/9/2010	Sale	1,700 \$	3.95
PAI, LLC	8/10/2010	Sale	4,000 \$	3.76
PAI, LLC	8/25/2010	Sale	16,900 \$	3.03
PAI, LLC	8/26/2010	Sale	16,800 \$	3.01
PAI, LLC	8/27/2010	Sale	33,600 \$	3.02
PAI, LLC	8/30/2010	Sale	40,900 \$	2.89
Small Cap Master	7/20/2010	Sale	3,100 \$	3.79
Small Cap Master	7/21/2010	Sale	900 \$	3.88
Small Cap Master	7/22/2010	Sale	8,500 \$	3.83
Small Cap Master	7/23/2010	Sale	15,900 \$	3.98
Small Cap Master	7/26/2010	Sale	6,700 \$	4.00



Small Cap Master	7/27/2010	Sale	7,100 \$	3.99
Small Cap Master	7/28/2010	Sale	3,600 \$	3.90
Small Cap Master	7/29/2010	Sale	5,000 \$	3.99
Small Cap Master	7/30/2010	Sale	4,200 \$	4.05
Small Cap Master	8/2/2010	Sale	13,800 \$	4.05
Small Cap Master	8/3/2010	Sale	6,250 \$	4.07
Small Cap Master	8/4/2010	Sale	3,600 \$	4.03
Small Cap Master	8/5/2010	Sale	3,800 \$	4.02
Small Cap Master	8/6/2010	Sale	8,200 \$	3.99
Small Cap Master	8/9/2010	Sale	3,900 \$	3.95
Small Cap Master	8/10/2010	Sale	9,400 \$	3.76
Small Cap Master	8/25/2010	Sale	38,600 \$	3.03
Small Cap Master	8/26/2010	Sale	38,600 \$	3.01
Small Cap Master	8/27/2010	Sale	77,200 \$	3.02
Small Cap Master	8/30/2010	Sale	94,400 \$	2.89

SIGNATURES

After reasonable inquiry and to the best of my knowledge, I certify that the information set forth in this statement is true, complete and correct.

Dated: August 31, 2010

PALO ALTO INVESTORS, INC.

PALO ALTO INVESTORS, LLC

By: /s/ Mark  
Shamia  
Mark Shamia, Chief Operating Officer

By: /s/ Mark  
Shamia  
Mark Shamia, Chief Operating Officer

PALO ALTO SMALL CAP MASTER FUND, PALO ALTO SMALL CAP FUND, L.P.  
L.P.

By: Palo Alto Investors, LLC, General  
Partner  
By: Palo Alto Investors, Manager  
By: /s/ Mark  
Shamia  
Mark Shamia, Chief Operating Officer

By: Palo Alto Investors, LLC, General  
Partner  
By: Palo Alto Investors, Manager  
By: /s/ Mark  
Shamia  
Mark Shamia, Chief Operating Officer

/s/ Anthony Joonkyoo  
Yun  
Anthony Joonkyoo Yun, MD

/s/ William Leland  
Edwards  
William Leland Edwards

