

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

SCHEDULE 13D

**Under the Securities Exchange Act of 1934
(Amendment No. _____)***

NATURAL GAS SERVICES GROUP, INC.

(Name of Issuer)

Common Stock, \$.001 par value

(Title of Class of Securities)

63886 Q109-Common Stock
63886 Q117 - Warrants

(CUSIP Number)

Gregory J. Sergesketter, Gardere Wynne Sewell LLP,
1000 Louisiana, Suite 3400, Houston, Texas 77002, 713.276.5500

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

August 4, 2004

(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 §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box .

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §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 disclosures provided in a prior cover page.

The information required on 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 (the "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).

SCHEDULE 13D

CUSIP NOS. 63886 Q109
63886 Q117

1 NAMES OF REPORTING PERSONS.
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (entities only)

Charles L. Barney

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (see instructions)
(a)
(b)

3 SEC USE ONLY

4 SOURCE OF FUNDS (see instructions)

WC

5 CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) or 2(e)

6 CITIZENSHIP OR PLACE OF ORGANIZATION

United States of America

7 SOLE VOTING POWER

0

NUMBER OF
SHARES
BENEFICIALLY
OWNED BY
EACH
REPORTING
PERSON
WITH

8 SHARED VOTING POWER

870,774

9 SOLE DISPOSITIVE POWER

0

10 SHARED DISPOSITIVE POWER

870,774

11 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

870,774

12 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES

13 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.87%

14 TYPE OF REPORTING PERSON (see instructions)

IN

CUSIP NOS. 63886 Q109
63886 Q117

1 NAMES OF REPORTING PERSONS.
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (entities only)

CBarney Investments, Ltd.
76-0664660

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (see instructions)

(a)
(b)

3 SEC USE ONLY

4 SOURCE OF FUNDS (see instructions)

WC

5 CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) or 2(e)

6 CITIZENSHIP OR PLACE OF ORGANIZATION

Texas

7 SOLE VOTING POWER

0

NUMBER OF
SHARES
BENEFICIALLY
OWNED BY
EACH
REPORTING
PERSON
WITH

8 SHARED VOTING POWER

597,274

9 SOLE DISPOSITIVE POWER

0

10 SHARED DISPOSITIVE POWER

597,274

11 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

597,274

12 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES

13 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

9.78%

14 TYPE OF REPORTING PERSON (see instructions)

PN

CUSIP NOS. 63886 Q109
63886 Q117

1 NAMES OF REPORTING PERSONS.
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (entities only)

Mark X Energy Company
73-1398206

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (see instructions)

(a)
(b)

3 SEC USE ONLY

4 SOURCE OF FUNDS (see instructions)

WC

5 CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) or 2(e)

6 CITIZENSHIP OR PLACE OF ORGANIZATION

Oklahoma

7 SOLE VOTING POWER

0

NUMBER OF
SHARES
BENEFICIALLY
OWNED BY
EACH
REPORTING
PERSON
WITH

8 SHARED VOTING POWER

273,500

9 SOLE DISPOSITIVE POWER

0

10 SHARED DISPOSITIVE POWER

273,500

11 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

273,500

12 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES

13 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

4.39%

14 TYPE OF REPORTING PERSON (see instructions)

CO

Item 1. Security and Issuer.

State the title of the class of equity securities to which this statement relates and the name and address of the principal executive offices of the issuer of such securities.

Natural Gas Services Group, Inc. (the "Company")
Common Stock, \$.001 par value
2911 SCR 1260
Midland, Texas 79706

Item 2. Identity and Background.

(a) Name of Persons Filing (the "Reporting Persons"):

Charles L. Barney
CBarney Investments, Ltd.
Mark X Energy Company

(b) Business address of Reporting Persons:

952 Echo Lane, Suite 364
Houston, Texas 77024

(c) Charles L. Barney's principal occupation is as the sole owner, directly or indirectly, of companies that invest in securities, oil and gas working interests, and real estate. All of such entities addresses are 952 Echo Lane, Suite 364, Houston, Texas 77024.

Both CBarney Investments, Ltd. and Mark X Energy Company invest in securities, oil and gas working interests, and real estate.

(d) During the last five years, none of Charles L. Barney, CBarney Investments, Ltd., Mark X Energy Company or their affiliates has been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).

(e) During the last five years, none of Charles L. Barney, CBarney Investments, Ltd., Mark X Energy Company or their affiliates was a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

(f) Citizenship:

Charles L. Barney is a citizen of the United States of America.
CBarney Investments, Ltd. is a Texas limited partnership.
Mark X Energy Company is an Oklahoma corporation.

Item 3. Source and Amount of Funds or Other Consideration.

On August 4, 2004, in a private placement transaction pursuant to a Securities Purchase Agreement, dated as of July 20, 2004 between the Company and CBarney Investments, Ltd. (a portion of which was assigned to Mark X Energy Company) (the "Securities Purchase Agreement"), CBarney Investments, Ltd. and Mark X Energy Company purchased from the Company 549,574 and 100,000 shares, respectively, of the Company's common stock for an aggregate purchase price of \$5,000,000 (or approximately \$7.69735 per share). The source and amount of funds for the purchase of these shares was (i) for CBarney Investments, Ltd., approximately \$1,871,000 from working capital through previous sales of marketable securities and approximately \$2,359,000 from working capital through distributions received on account of its other ownership interests and (ii) for Mark X Energy Company, approximately \$330,000 from working capital through previous sales of marketable securities and approximately \$440,000 from working capital through distributions received on account of its other ownership interests.

More than 60 days prior to the preceding transaction, open market purchases of (i) 5,000 shares of the Company's common stock and warrants to purchase 168,500 shares of the Company's common stock were made by Mark X Energy Company and (ii) warrants to purchase 47,700 shares of the Company's common stock were made by CBarney Investments, Ltd. Together with the shares purchased pursuant to the Securities Purchase Agreement, these shares and warrants represent the total holdings of the Reporting Persons in the Company's securities. The warrants are exercisable until October 20, 2006 at an exercise price of \$6.25 per share of the Company's common stock (the "Warrants"). Any funds needed for any anticipated exercise of the Warrants are expected to come from working capital reserves.

CBarney Investments, Ltd. and Mark X Energy Company are the holders of the Company's securities. The sole general partner of CBarney Investments, Ltd. is Celby & Co., LLC, a Texas limited liability company. Its sole owner is Barney Properties I, Inc., a Texas corporation, of which Charles L. Barney is the sole shareholder. The sole limited partner of CBarney Investments, Ltd. is Mark Holding Company, Inc., a Delaware corporation. Its sole stockholder is Charles L. Barney. The sole shareholder of Mark X Energy Company is Kim Lake, Inc. a Texas corporation, of which Charles L. Barney is the sole shareholder.

Item 4. Purpose of Transaction.

The Reporting Persons acquired and continue to hold the securities reported herein for investment purposes. Depending on market conditions and other factors that the Reporting Persons may deem material to their investment decision, the Reporting Persons may purchase additional securities of the Company in the open market or in private transactions. Depending on these same factors, the Reporting Persons may sell all or a portion of the securities of the Company that they now own or hereafter may acquire on the open market or in private transactions.

Pursuant to the Securities Purchase Agreement, the Company granted the Reporting Persons board observation rights.

Except as set forth in this Item 4, the Reporting Persons have no present plans or proposals that relate to or that would result in any of the actions specified in Item 4 of Schedule 13D, but the Reporting Persons reserve the right to propose or undertake or participate in any such actions in the future.

Item 5. Interest in Securities of the Issuer.

CBarney Investments, Ltd. is the owner of 549,574 shares of the Company's common stock and Warrants to purchase 47,700 shares of the Company's common stock.. These shares and Warrants

represent approximately 9.78% of the Company's common stock computed in accordance with Rule 13d-3. CBarney Investments, Ltd. has shared voting and dispositive power with Charles L. Barney with respect to these shares and Warrants.

Mark X Energy Company is the owner of 105,000 shares of the Company's common stock and Warrants to purchase 168,500 shares of the Company's common stock. These shares and Warrants represent approximately 4.39% of the Company's common stock computed in accordance with Rule 13d-3. Mark X Energy Company has shared voting and dispositive power with Charles L. Barney with respect to these shares and Warrants.

As the sole indirect owner of CBarney Investments, Ltd. and Mark X Energy Company, Charles L. Barney is the beneficial owner of 654,574 shares of the Company's common stock and Warrants to purchase 216,200 shares of the Company's common stock. These shares and Warrants represent approximately 13.87% of the Company's common stock computed in accordance with Rule 13d-3. Charles L. Barney has shared voting and dispositive power with (i) CBarney Investments, Ltd. with respect to the shares and Warrants it owns and (ii) Mark X Energy Company with respect to the shares and Warrants it owns, due to his ownership control of those entities.

CBarney Investments, Ltd. and Mark X Energy Company are the holders of the Company's securities. The sole general partner of CBarney Investments, Ltd. is Celby & Co., LLC, a Texas limited liability company. Its sole owner is Barney Properties I, Inc., a Texas corporation, of which Charles L. Barney is the sole shareholder. The sole limited partner of CBarney Investments, Ltd. is Mark Holding Company, Inc., a Delaware corporation. Its sole stockholder is Charles L. Barney. The sole shareholder of Mark X Energy Company is Kim Lake, Inc. a Texas corporation, of which Charles L. Barney is the sole shareholder.

The calculation of the percentages of beneficial ownership of Common Stock set forth above are based upon 5,412,135 shares of Common Stock outstanding, as disclosed in the Securities Purchase Agreement, plus 649,574 shares issued pursuant to the Securities Purchase Agreement, and assume the exercise of the Warrants (which are exercisable for shares of Common Stock) held by the Reporting Persons.

The determination of beneficial ownership of each of the Reporting Persons is based solely on the current right of each Reporting Person to acquire beneficial ownership of the number of shares of Common Stock set forth above as being beneficially owned by each Reporting Person by the exercise of Warrants (which are exercisable for shares of Common Stock) issued to each Reporting Person by the Company.

For a description of the transactions in the class of securities reported on that were effected during the past sixty days by the Reporting Persons, see Item 3, "Source and Amount of Funds or Other Consideration".

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer.

Pursuant to the terms of the Securities Purchase Agreement, the Company agreed to:

- (a) Board observation rights for the Reporting Persons.
- (b) Register the shares of the Company's common stock purchased under the Securities Purchase Agreement.

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- (c) Not use the proceeds from the sale of the Company's common stock under the Securities Purchase Agreement to (i) pay dividends; (ii) pay for any increase in executive compensation or make any loan or other advance to any officer, employee, shareholder, director or other affiliate of the Company, without the Reporting Persons' approval; (iii) subject to certain exceptions, purchase debt or equity securities of any entity (including redeeming the Company's own securities) or (iv) make any investment not directly related to the current business of the Company.

Item 7. Material to be Filed as Exhibits.

1. The Securities Purchase Agreement, dated as of July 20, 2004, between the Company and CBarney Investments, Ltd. (incorporated by reference to Exhibit 4.1 to the Company's Statement on Form 8-K dated July 20, 2004 and filed with the Commission on July 27, 2004).
2. An Agreement for Joint Filing pursuant to Rule 13d-1(k)(i) under the Securities Exchange Act of 1934.

Signatures

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: August 13, 2004

MARK X ENERGY COMPANY

By: /s/ Charles L. Barney

Charles L. Barney
Chairman

AGREEMENT FOR JOINT FILING PURSUANT TO RULE
13d-1(k)(1) UNDER THE SECURITIES EXCHANGE ACT OF 1934

Pursuant to 17 CFR 240.13d-1(k)(1) under the Securities Act of 1934, the undersigned, by their respective signatures affixed hereto, do hereby agree in writing that this Schedule 13D be and is filed on behalf of each of them. The undersigned further recognize that each of them is responsible for the timely filing of this Schedule 13D and any amendments hereto, and for the completeness and accuracy of any information concerning them contained herein. The undersigned further constitute and appoint Mark X Energy Company as lawful attorney-in-fact and agent to execute and file this Schedule 13D and any amendments hereto on their behalf.

Dated as of this 13th day of August, 2004.

CBARNEY INVESTMENTS, LTD.

**By: Celby & Co., LLC
Its General Partner**

By: /s/ Charles L. Barney

Charles L. Barney
Chairman

MARK X ENERGY COMPANY

By: /s/ Charles L. Barney

Charles L. Barney
Chairman

/s/ Charles L. Barney

Charles L. Barney