Shoaf Thomas R Form 4 October 29, 2010

FORM 4

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

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF

SECURITIES

OMB 3235-0287

OMB APPROVAL

Number: January 31, Expires:

2005 Estimated average

burden hours per response... 0.5

if no longer subject to Section 16. Form 4 or Form 5 obligations may continue.

Check this box

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1(b).

See Instruction

1. Name and Address of Reporting Person * 5. Relationship of Reporting Person(s) to 2. Issuer Name and Ticker or Trading Shoaf Thomas R Issuer Symbol NuStar Energy L.P. [NS] (Check all applicable) (Last) (First) (Middle) 3. Date of Earliest Transaction (Month/Day/Year) Director 10% Owner X_ Officer (give title Other (specify 2330 NORTH LOOP 1604 WEST 10/27/2010 below) Vice President & Controller (Street) 4. If Amendment, Date Original 6. Individual or Joint/Group Filing(Check Filed(Month/Day/Year) Applicable Line) _X_ Form filed by One Reporting Person Form filed by More than One Reporting SAN ANTONIO, TX 78248 Person (City) (State) (Zip)

| (City) | (State) | Table Table | e I - Non-D | erivative | Secur | ities Acq | uired, Disposed o | f, or Beneficial | ly Owned |
|------------------|---------------------|--------------------|-------------|------------|-----------|-------------|-------------------|------------------|--------------|
| 1.Title of | 2. Transaction Date | 2A. Deemed | 3. | 4. Securi | ties A | cquired | 5. Amount of | 6. Ownership | 7. Nature of |
| Security | (Month/Day/Year) | Execution Date, if | Transactio | on(A) or D | ispose | d of (D) | Securities | Form: Direct | Indirect |
| (Instr. 3) | | any | Code | (Instr. 3, | 4 and | 5) | Beneficially | (D) or | Beneficial |
| | | (Month/Day/Year) | (Instr. 8) | | | | Owned | Indirect (I) | Ownership |
| | | | | | | | Following | (Instr. 4) | (Instr. 4) |
| | | | | | (4) | | Reported | | |
| | | | | | (A) | | Transaction(s) | | |
| | | | Code V | Amount | or (D) | Price | (Instr. 3 and 4) | | |
| Common Units (1) | 10/27/2010 | | F | 51 | D | \$ 63.13 | 5,171 | D | |

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

Persons who respond to the collection of SEC 1474 information contained in this form are not (9-02)required to respond unless the form displays a currently valid OMB control number.

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

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| 1. Title of Derivative | 2. Conversion | 3. Transaction Date (Month/Day/Year) | | 4. Transactio | 5. orNumber | 6. Date Exerc Expiration D | | 7. Title at Amount of | | 8. Price of Derivative | 9. Nu Deriv |
|------------------------|---|--------------------------------------|------------------|------------------|---|-------------------------------|--------------------|--|-------------------------|------------------------|---|
| Security (Instr. 3) | or Exercise Price of Derivative Security | (monda, Day, Teal) | (Month/Day/Year) | Code (Instr. 8) | of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5) | (Month/Day/ | | Underlyin Securities (Instr. 3 a | ng s | Security (Instr. 5) | Secur Bene Owne Follo Repo Trans (Instr |
| | | | | Code V | (A) (D) | Date Exercisable | Expiration Date | or Title Nu of | nount umber uares | | |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | | | | |
|--------------------------------|---------------|-----------|-------------|-------|--|--|--|
| F- | Director | 10% Owner | Officer | Other | | | |
| Shoaf Thomas R | | | Vice | | | | |
| 2330 NORTH LOOP 1604 WEST | | | President & | | | | |
| SAN ANTONIO, TX 78248 | | | Controller | | | | |

Signatures

Matthew D. Willcox, as Attorney-in-Fact for Thomas R.
Shoaf

**Signature of Reporting Person

Date

Explanation of Responses:

- * If the form is filed by more than one reporting person, see Instruction 4(b)(v).
- ** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

"Common Units" reported are units not distributed to reporting person in order to satisfy the reporting person's tax obligations on the grant. The grant of phantom units (called "Restricted Units" under the plan under which the grant was made) was originally reported on 10/28/2005.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure. 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 number.

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