



DIVISION OF  
CORPORATION FINANCE

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

September 16, 2010

Mr. Stanley W. Farmer  
Vice President, Chief Financial Officer,  
Treasurer and Corporate Secretary  
SulphCo, Inc.  
4333 W. Sam Houston Pkwy. N., Suite 190  
Houston, TX 77043

**Re: SulphCo, Inc.**  
**Registration Statement on Form S-3**  
**Filed August 26, 2010**  
**File No. 333-169062**

Dear Mr. Farmer:

We have limited our review of your registration statement to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. Where you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Mr. Stanley W. Farmer  
SulphCo, Inc.  
September 16, 2010  
Page 2

Form S-3

Outside Front Cover of the Prospectus

1. Please include the information required by Instruction 7 to General Instruction I.B.6 of Form S-3.

We may be delisted from the NYSE Amex LLC resulting in a more limited market for our common stock, page 12

2. Please ensure that you continue to provide updated disclosure regarding the potential delisting of your stock from the NYSE Amex.

Use of Proceeds, page 13

3. We note that the proceeds from this offering may be used for acquisitions. Please tell us whether you have any current plans, proposals, or arrangements, written or otherwise, to acquire another entity in the near future.

Exhibits Index, page 25

4. Please confirm that you will file the applicable warrant agreement prior to the issuance of any warrants.

Exhibit 5.1

5. Please obtain and file a new legality opinion that opines on the legality of the warrants. In this regard, counsel must opine that the warrants will be legal, binding obligations of the registrant under the state contract law governing the warrant agreement.
6. Please confirm that you will file a clean legality opinion with each shelf takedown.

Closing Comments

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

Mr. Stanley W. Farmer  
SulphCo, Inc.  
September 16, 2010  
Page 3

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Sean Donahue at (202) 551-3579, or in his absence, Timothy Levenberg, Special Counsel at (202) 551-3707 with any questions.

Sincerely,

H. Roger Schwall  
Assistant Director