



DIVISION OF  
CORPORATION FINANCE

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549-4628

July 2, 2010

Via U.S. Mail

Mr. Mark A. Smith  
President and Chief Executive Officer  
Molycorp, Inc.  
5619 Denver Tech Center Parkway, Suite 1000  
Greenwood Village, Colorado 80111

**Re: Molycorp, Inc.  
Amendment No. 2 to Registration Statement on Form S-1  
Filed June 21, 2010  
File No. 333-166129**

Dear Mr. Smith:

We have reviewed your response letter and amended filing, and we have the following 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. If 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.

General

1. Please fill in the blank portions of your prospectus as soon as practicable and allow sufficient time for staff review and comment. In addition, please continue to monitor the need to file exhibits, such as the underwriting agreement and a signed legal opinion.
2. Please be advised that we are still considering your response to prior comment one from our letter dated June 14, 2010, and we may issue further comments in that regard.

Risk Factors, page 27

3. We note the added disclosures on pages 15 and 27. Please also add risk factor discussion that, because you will need to find alternative funding for your modernization and expansion costs, investors may experience dilution in the event of equity financing, or you may be highly leveraged in the event of debt financing.

Principal and Selling Stockholders, page 102

4. We note your response to comment 17 from our letter dated June 14, 2010. With respect to the shares held by the Pegasus entities, you state that “Mr. Cogut” is the individual with voting and investment power. This appears to be a reference to Craig Cogut, the founder of Pegasus Capital Advisors. In future amendments, please reference Mr. Cogut’s full name at least once for purposes of proper identification.

Exhibit Index, page II-3

5. We note your response to prior comment 19, including your statement that the agreements relating to letters of credit or cash collateral provided by the members of Molycorp Minerals, LLC are not required to be filed because Molycorp, Inc. is not a party to those agreements. In light of the various corporate reorganizations undertaken since 2009, such as those describe on page 12, it appears that Molycorp, Inc. has succeeded to Molycorp Minerals, LLC’s obligations under these agreements or that Molycorp, Inc. otherwise has a beneficial interest in them. Please advise or file.

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:

- 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.

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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.

You may contact Suying Li at (202) 551-3335 or Chris White, Branch Chief, at (202) 551-3461 if you have questions regarding comments on the financial statements and related matters. You may contact Ken Schuler, Mining Engineer, at (202) 551-3718 with questions about engineering comments. Please contact John Lucas at (202) 551-5798 or, in his absence, Laura Nicholson at (202) 551-3584 with any other questions.

Sincerely,

H. Roger Schwall  
Assistant Director

cc: Via Facsimile  
Michael J. Solecki, Esq.  
Jones Day  
(216) 579-0212