



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

June 14, 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. 1 to Registration Statement on Form S-1
Filed May 25, 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. To the extent that you have relied on such reports in connection with the disclosure in your filing, please provide us with copies of the industry reports prepared for you by Roskill Consulting Group Limited and the Industrial Mines Company of Australia Pty Ltd.
2. We note your response to comment 4 from our letter dated May 13, 2010. Please also ensure that you revise the Code of Ethics, Corporate Governance Guidelines, and related sections beginning on page 85 to include updated disclosure once you have adopted the relevant governance documents.

Our Business, page 1

Mine-to-Oxides, page 1

3. We note your revised disclosure regarding the 98% recovery rate that you are currently achieving in your solvent extraction units. Please explain the meaning of the term “commercial scale” in this context.

Risk Factors, page 14

4. We note your disclosure at page 47 regarding the lanthanum market, your two customers for lanthanum, and your expectation that lanthanum and didymium oxide will make up a significant percentage of your total sales until you complete the modernization and expansion of the Mountain Pass facility. Please add related risk factor disclosure.
5. We note your revised disclosure at page 49 regarding your liquidity. Please add related risk factor disclosure.

“Because of the dangers involved in the mining of minerals . . .,” page 21

6. We note your response to comment 19 from our letter dated May 13, 2010. Please identify the specific risks related to your extraction and processing operations that you are not certain your insurance will cover, and otherwise clarify the limitations on coverage.

“Our operations may affect the environment . . .,” page 22

7. We note your response to prior comment 20 regarding environmental issues relating to the mine and its operations. With a view towards disclosure, please advise us regarding your potential liability with respect to the discharge of contaminated wastewater from the Mountain Pass mine to former evaporation ponds, including, without limitation, any obligation to contribute to expenses for remedial measures. Please advise us regarding the source of any such obligations, including environmental laws and relevant contracts. For example, we note your disclosure at page 67 that you did not acquire the ponds or the wastewater pipeline that ran from the Mountain Pass Facility to the Ivanpah lake bed, but we also note your disclosure at page 22 that the Mountain Pass facility is currently subject to an order by the Lahontan Regional Water Quality Control Board. In addition, please clarify in your filing why the Mountain Pass facility is subject to such order, and provide all material information regarding the environmental issues that relate to the remediation activities that you are undertaking.

Use of Proceeds, page 29

8. We note your response to comment 20 from our letter dated May 13, 2010. Please provide relevant updates to your risk factor at page 26 under the heading “Our board of directors and management will have broad discretion . . .” In addition, please ensure that when you finalize your financing plan and provide updated disclosure under “Use of Proceeds,” your revised disclosure reflects our prior comment 20.

Environmental, page 41

9. We note your response to prior comment 28. Please disclose how long you anticipate these ongoing remediation activities will last, and whether you anticipate any material increases or decreases in the amounts you will be required to spend on an annual basis to comply with these obligations.

Management’s Discussion and Analysis of Financial Condition and Results of Operations, page 36

Critical Accounting Policies and Estimates

Inventory, page 44

10. We note the additional disclosure you have provided in response to prior comment 30 and the analysis you have provided in response to prior comment 46 with regard to your accounting policy for your stockpiled concentrate inventory. Please address the following additional comments with regard to your policy:
- Your response to prior comment 46 states that the processing cost per pound of Bastnasite will decrease from the current cost of \$5.37 per pound to \$1.72 per pound after the completion of the modernization of the facilities at Mountain Pass. Please clarify how you estimate that you will achieve this reduction in processing costs.
 - We note that the estimated processing costs of the Bastnasite of \$1.72 per pound have not changed since your original estimate when you acquired the Mountain Pass facility. Please explain your processes for evaluating and updating your estimate of the processing costs of Bastnasite.
 - Explain how you evaluate your concentrate stockpile inventory to determine whether you have excess levels of inventory. Explain the assumptions that you used when determining that your stockpiled concentrates will be fully utilized in the production of your products. Clarify when you anticipate that the stockpiled concentrates will be fully utilized based on your current business plan.

- Please expand your critical accounting policies and estimates disclosure to describe in greater detail how you evaluate concentrate stockpile inventory to ensure it is properly valued at the lower of cost or market. Disclose how you determine the estimate realizable value of the concentrate stockpiles, including the nature and amount of processing costs that are necessary to convert the stockpile concentrate into saleable products. Ensure your disclosure addresses how the significant reduction in the estimated processing costs impacts the value of the stockpile inventory. In addition, disclose when you anticipate that the stockpiled concentrates will be fully utilized based on your current business plan.
11. We have reviewed your analysis provided in response to prior comment 47. Please explain whether the cost and/or market price information provided in your response includes the additional estimated processing costs that are necessary to convert the Dysprosium Oxide work in progress into finished goods.
 12. Your response to prior comment 46 states that sales of Dysprosium oxide are expected to commence during the second half of 2010. Please clarify when you anticipate the work in progress recorded as of December 31, 2009 will be converted to finished goods and sold.
 13. Your disclosure states that finished goods inventories that exceed a two year supply generally require write-downs to net realizable value. Please clarify how you determined that a two year supply level is the appropriate benchmark to evaluate excess inventory levels for your rare earth metals.

Off-Balance Sheet Arrangements, page 50

14. We note your revised disclosure with regard to your agreement to compensate your initial investors for providing collateral relating to your bonding obligations. Your disclosure states, in part, that after completion of the offering, you intend to terminate this agreement with these members. Please further revise your disclosure to clarify how you plan to replace the cash collateral that is currently provided by your members.

The Mountain Pass Facility, page 65

15. We note your responses to comments 34 and 35 from our letter dated May 13, 2010. We also note your revised disclosure at page 66 that chemical processing was suspended in 1998 “primarily due to issues with a wastewater pipeline that transported waste salt water to evaporation ponds on the Ivanpah dry lake bed.” Please describe the “issues” to which you refer. For example, we note the article entitled “Clean Energy’s Dirty Little Secret,” which is available on your website at http://www.molycorp.com/04_16_09_clean_energy.asp. This article states, “In 1998, chemical processing at the mine was stopped after a series of wastewater leaks. Hundreds of thousands of gallons of water carrying radioactive waste spilled into and around Ivanpah Dry Lake.”

Executive Compensation, page 91

Director Compensation, page 94

16. We note your reference to non-employee directors that are “currently nominated” by your stockholders. Such disclosure suggests that such individuals do not presently serve on your board of directors. However, it appears from their biographies under “Directors” that each such individual has served on your board of directors since September 2008. Please clarify whether such individuals presently serve on your board.

Principal and Selling Stockholders, page 98

17. Please revise to disclose the natural person(s) with voting or investment control over the shares beneficially owned by the shelling shareholders that are not natural persons.

(5) Acquisition of Mountain Pass Facility, page F-13

18. We note your response to prior comment number 50, which addresses the manner in which you valued the mineral properties acquired in connection with the Mountain Pass Facility acquisition. Please address the following additional questions with respect to your response:
- Your response indicates that you did not adjust revenues for future anticipated fluctuations in market prices. Please clarify how you considered the guidance in FASB ASC Topic 930-805-30-2 which requires an entity to include the effects of anticipated fluctuations in the future market price of minerals in determining the fair value of mining assets in a purchase price allocation in a manner that is consistent with the expectations of marketplace participants.

- Explain whether your fair value model incorporated adjustments for anticipated fluctuations in estimated future development and production costs.
- Your response indicates that you discounted the estimated cash flows attributable to the mineral properties by 35%. Explain how you determined that it was appropriate to discount the cash flows by 35%. Please explain why any uncertainty in estimating the future market prices for REOs and the resulting revenues was not incorporated into the excess cash flow model by adjusting for probability.

Exhibit Index

19. Please file all material contracts. For example, and without limitation, please file any agreements that relate to funding commitments from your existing stockholders or collateral provided by the members of Molycorp Minerals, LLC. See Item 601(b)(10) of Regulation S-K.
20. We note that several of your recently filed exhibits appear to omit certain schedules and exhibits. For example and without limitation, we note that you have omitted Exhibit A of the Contribution Agreement, Schedule 1 of the Stockholders Agreement, and Schedule 1 of the Registration Rights Agreement. Please refile these exhibits in full or file a request for confidential treatment covering the omitted portions as soon as possible. Please note that it will take additional time to process any confidential treatment request, and our review of this filing will not be complete until a decision is made on the application for confidential treatment.

Engineering Comments

Rare Earth Reserves and Non-Reserve Deposits, page 69

21. We note your response to comment 58 and your disclosure concerning your proven and probable reserve, your REO percentage grade, and the recoverable pounds. Please modify your proven and probable reserve statements to also include your ore tonnage associated with your ore grade. In addition, please clarify that what is termed as “recoverable” pounds REO are actually the “contained” pounds in the ore. While the contained pounds are all potentially recoverable, not all REO pounds are recovered due to many different reasons, such as oxidation state, as indicated by your 63% metallurgical recovery.

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.

Mr. Mark A. Smith
Molycorp, Inc.
June 14, 2010
Page 7

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.

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