



October 31, 2012

Molycorp, Inc.
Corporate Headquarters
5619 DTC Parkway
Suite 1000
Greenwood Village, CO 80111

ATTN: Mark A. Smith, P.E. (President and Chief Executive Officer)

Dear Mr. Smith:

The U.S. Magnetic Materials Association (USMMA) congratulates Molycorp, Inc. on its expanded mining and mechanical concentration of rare earth minerals from the Mountain Pass mine. This is a positive step in the reestablishment of a global supply chain.

While the completion of Project Phoenix will be a significant step in bringing additional supply of certain rare earths to the commercial market, our Association remains concerned that these facilities, and those associated with Molycorp Canada (formerly Neo Material Technologies, Inc.), will not be able to meet the requirements of the defense industrial base and the Department of Defense (DOD).

Based on Molycorp Canada's SEDAR filings from March 2012, approximately 81% of its workforce is in China¹, and you indicated in a recent article that Molycorp's production of heavy rare earths for global supply chains now occurs at these facilities.² The Chinese government maintains a range of production and export restrictions on these products, with some of these restrictions now under review by the World Trade Organization.

The agencies responsible for a secure supply of strategic and critical materials to the defense industrial base and the DOD monitor several benchmarks: (a) material availability, (b) industrial capability & business-case assessment, and (c) geopolitical risk. As producers and prospective producers of rare earth magnetic materials, we pose the questions below to better understand your ability to meet the demand of the domestic rare earth magnet industry and broader national security requirements.

We would appreciate the courtesy of a reply so that our membership may better understand the prospects for a complete, competitive, and secure supply of rare earth magnetic materials.

Molycorp has claimed that Mountain Pass has “commercially significant quantities”³, “significant amounts”⁴, and “recoverable amounts”⁵ of heavy rare earths (REs). Yet, publicly available U.S.

¹ Neo Material Technologies, Inc., *Annual Information Form* (30 March 2012), pg. 21

² Mark A. Smith, “Heavy Rare Earth Rhetoric Translated To Today’s Reality,” Elementally Green Blog (22 October 2012), <http://www.molycorp.com/heavy-rare-earth-rhetoric-translated-to-todays-reality/>

³ Jim Sims, Presentation at *TREM 11* (22-23 March 2011)

⁴ Smith, “Heavy Rare Earth Rhetoric Translated To Today’s Reality”

Geological Survey data and private sector assessments uniformly indicate that the Mountain Pass resource contains very low percentages of heavy REs. What quantitative definition has Molycorp used to make the above statements?

The USMMA has followed with interest your statements concerning the heavy RE content of Mountain Pass. In looking specifically at the bastnäsite resources, which contain most of Mountain Pass’s REs, the U.S. Geological Survey⁶ has noted that light REs dominate the Mountain Pass ore body (98.8%), and heavy REs are a much smaller component (0.147%).

We believe this discrepancy may be resolved if, as mentioned in a recent article⁷, you contend that Molycorp’s production of europium should be considered as heavy RE production. However, neither the pre-eminent RE consultant Dudley Kingsnorth⁸ nor the U.S. Geological Survey⁹ consider europium a “heavy” RE. Instead, each labels europium either a medium or light RE.

Additionally, merely mining and concentrating ore is distinct from separating heavy REs from the light REs, and past correspondence from Molycorp to the U.S. Government suggests that the company has no intention, or possibly no capability, to separate certain

Lanthanide	Weight %	Appx. RE Oxide Content from Phase I Production (tonnes)
Lanthanum (La)	33.20%	6,324.6
Cerium (Ce)	49.30%	9,391.65
Praseodymium (Pr)	4.30%	819.15
Neodymium (Nd)	12.00%	2,286
Light REs or “Ceric”	98.8%	18,821.4
Samarium (Sm)	0.80%	152.4
Europium (Eu)	0.11%	20.955
Gadolinium (Gd)	0.18%	34.29
Medium REs	1.09%	207.645
Terbium (Tb)	0.016%	3.048
Dysprosium (Dy)	0.031%	5.9055
Holmium (Ho)	-	0
Erbium (Er)	-	0
Thulium (Th)	-	0
Ytterbium (Yb)	-	0
Lutetium (Lu)	-	0
Yttrium (Y)	0.10%	19.05
Heavy REs or “Yttric”	0.147%	28.0035
Scandium (Sc)	-	0

⁵ SRK Consulting, Inc. for Molycorp, Inc., “Engineering Study for Re-Start of the Mountain Pass Rare Earth Element Mine and Processing Facility Mountain pass, California,” *Issuer Free Writing Prospectus* (13 July 2010), pg. 5

⁶ James B. Hedrick, “2007 Minerals Yearbook,” *U.S. Geological Survey* (September 2009) as cited in Magdi Ragheb and Leferi Tsoukalas, “Global and USA Thorium and Rare Earth Elements Resources,” *Proceedings of the 2nd Thorium Energy Alliance Conference* (29-30 March 2010), pg. 8

⁷ Smith, “Heavy Rare Earth Rhetoric Translated To Today’s Reality”

⁸ Dudley J. Kingsnorth, “Rare Earths: Reducing our dependence on China,” *Metal Pages Rare Earths Conference* (September 2011), pg. 1

⁹ “This division between the LREE include the lanthanide elements from atomic number 57 (lanthanum) through atomic number 64 (gadolinium), and the HREE include the lanthanide elements from atomic number 65 (terbium) through atomic number 71 (lutetium). The division is based on the lanthanoid LREE having unpaired electrons in the 4f electron shell, and HREE having paired electrons in the 4f electron shell.” Joseph Gambogi and Daniel J. Cordier, “2010 Minerals Yearbook,” *U.S. Geological Survey* (September 2012), pg. 60.1

heavy REs at Mountain Pass at this time.¹⁰ Therefore, even if these materials are in the ground, albeit at very low percentages, will Molycorp be able to integrate them into a secure domestic supply chain?

As shown on the previous page¹¹, yttrium occurs at an order of magnitude greater than the other, more critical heavy REs, dysprosium and terbium. In Molycorp correspondence with the Department of Energy¹², company staff stated that Molycorp does not intend to produce any yttrium in Phase I or Phase II of Project Phoenix. Is this still accurate?

Similarly, Molycorp engineers also told the Environmental Protection Agency¹³ that “yttrium was never produced at Mountain Pass, but it was purchased to combine with the europium to make co-precipitates.” Though there may be approximately 28 tonnes RE oxide equivalent of heavy REs in the Phase I production of Mountain Pass, can the U.S. or European facilities of Molycorp actually manufacture these heavy RE oxides?

Molycorp has also indicated that it will utilize co-cracking of monazite ore at Mountain Pass to boost the potential output of heavy REs. Though monazite usually contains higher levels of heavy REs than bastnäsite, it is also more radioactive, partly due to higher levels of thorium. Most recent U.S. Geological Survey data focuses on the bastnäsite content only, and legacy data from the 1950s suggests that the Mountain Pass thorium content ranges between 0.02% ThO₂ and 6% ThO₂.¹⁴ However, the drilling and mining plan for Phase I and Phase II of Project Phoenix likely render much of this data obsolete, and, to the best of our knowledge, no other data has been publicly released. Does Molycorp intend to undertake or release an investment-grade resource assessment for the monazite content in the Molycorp’s tailings or provide updated information for Mountain Pass’s monazite ore to allay public concern?

Molycorp has stated its intent to deploy high-purity heavy RE separation operations outside of China in 2013/2014.¹⁵ Molycorp notes this technology will be deployed where there is an appropriate business case.¹⁶ What factors affect this business case analysis, and how does Molycorp anticipate justifying the relocation of production from the area of 84% global RE demand to a market dominated by light RE product consumption?¹⁷

¹⁰ See footnotes #12-13.

¹¹ All other variables held constant. RE Oxide content = 19,050 tonnes REO (planned Phase I production) x weight percent. Also see question #2.

¹² Department of Energy, *Critical Materials Strategy* (December 2011), pg. 85

¹³ Environmental Protection Agency, *Rare Earth Elements: A Review of Production, Processing, Recycling, and Associated Environmental Issues* (August 2012), C-2

¹⁴ D. R. Shawe, “Thorium Resource of the Mountain Pass District, San Bernardino County, California,” *U.S. Geological Survey*, Trace Elements Investigations Report 251 (March 1953); J. C. Olson et. al., “Rare-Earth Mineral Deposits of the Mountain pass District San Bernardino County California,” *U.S. Geological Survey*, Geological Survey Professional Paper 261 (1954); M. H. Staatz et. al., “Principal Thorium Resources in the United States,” *U.S. Geological Survey*, Geological Survey Circular 805 (1979)

¹⁵ Mark A. Smith, “Ramping Up U.S. Rare Earth Production: Implications for Manufacturing Supply Chains,” *Molycorp, Inc.* (October 2012), slide #18

¹⁶ Smith, “Heavy Rare Earth Rhetoric Translated To Today’s Reality”

¹⁷ Dudley J. Kingsnorth, “Rare Earth Supply security: Dream or Possibility,” *Strategische Rohstoffe – Risikovorsorge* (19-20 April 2012), slide # 9

Molycorp cited its acquisition of Molycorp Canada and its Chinese production capabilities as a successful method to secure a significant technological edge over its competition, including Chinese companies. However, an even greater advantage noted at the *TREM12* conference and in earlier presentations to shareholders was Molycorp Canada’s access to the largest and fastest growing RE market, China¹⁸. How does Molycorp intend to overcome the strong business case, succinctly described below by you, in redeploying heavy RE processing to the United States?

“Here are the facts to keep in mind. 70% of the market for rare earth products is in China today. I think we would all like it more if end-product manufacturers that use rare earth materials were in the U.S. or other countries, but after decades of attrition, it just isn’t really the case anymore. It’s not reality. Molycorp is already very well connected with the 30% of the market outside of China.”¹⁹

On a related note, the entire rare earth industry is concerned about prices that have fallen, on average, 50% from August 2011. Those REs which compose over 80% of Mountain Pass’s ore body have plummeted by over 80%, and a basic understanding of supply and demand indicates that additional production may push prices for the more plentiful light REs downwards further.²⁰ As Molycorp has already absorbed considerable debt and issued new equity to finance the acquisition of Molycorp Canada, is Molycorp in a position to initiate a potentially multi-million dollar “Phase III” of Mountain Pass, having barely completed Phases I and II?

RE Oxides	7-20-2010 (\$/kg)	8-25-2011 (\$/kg)	6-21-2012 (\$/kg)	Δ 2011 to 2012
La Oxide (FOB-99%)	\$ 8.40	\$ 130.00	\$ 19.00	-85.38%
Ce Oxide (FOB-99%)	\$ 7.44	\$ 120.00	\$ 23.50	-80.42%
Pr Oxide (FOB-99%)	\$ 34.25	\$ 248.50	\$ 115.00	-53.72%
Nd Oxide (FOB-99%)	\$ 36.25	\$ 337.50	\$ 115.00	-65.71%
Sm Oxide (FOB-99%)	\$ 4.50	\$ 128.50	\$ 67.50	-47.47%
Eu Oxide (FOB-99.9%)	\$ 530.00	\$ 5,070.00	\$ 2,010.00	-60.24%
Gd Oxide (FOB-99%)	\$ 10.35	\$ 202.50	\$ 102.50	-49.38%
Tb Oxide (FOB-99%)	\$ 515.00	\$ 4,210.00	\$ 1,900.00	-54.87%
Dy Oxide (FOB-99%)	\$ 265.00	\$ 2,290.00	\$ 1,010.00	-52.95%

As is noted in your article entitled “Heavy Rare Earth Rhetoric,” the heavy RE separation facilities of Molycorp Canada are located in the People’s Republic of China. Given the geopolitical sensitivity surrounding REs and other industrial minerals (see the Senkaku/Diaoyu Islands incidents of 2010 and 2012), has the Company conducted and will it discuss the results of any investigation into the practical portability of this heavy RE technology to another country?

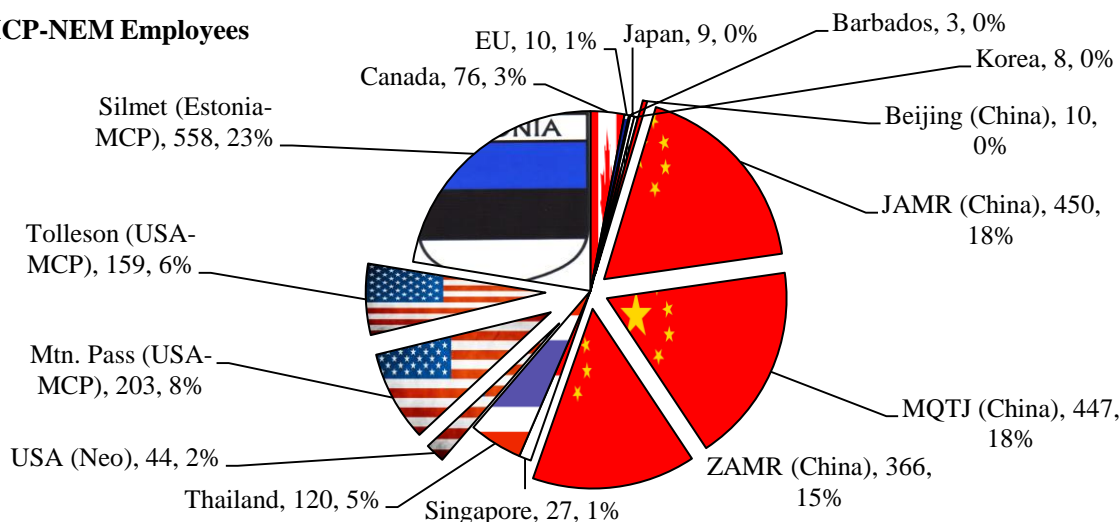
¹⁸ Mark A. Smith, Constantine E. Karayannopoulos, James S. Allen, and Michael F. Doolan, “Molycorp Acquisition of Neo Material Technologies,” *Molycorp, Inc.* (March 2012), slide #14-15

¹⁹ Mark A. Smith, Oral remarks accompanying “Molycorp Update,” *TREM12* (13-14 March 2012)

²⁰ Indicative prices from *Metal-Pages*

There are relatively few university-level courses which address RE metallurgy and associated fields. As such, there are many RE companies who have a handful of older employees with decades of experience and a group of younger employees with only a few years' experience — without much in between. We believe this human resource challenge is at the heart of redeploying the heavy RE separations technology to the United States. This challenge perhaps is best quantified by a break-down of the permanent employee base for Molycorp: 51% China, 23% Estonia, 16% USA^{21, 22, 23}. With this in mind, how does Molycorp intend on locating and retaining adequately-experienced personnel to initiate and sustain a heavy RE separation plant in the United States?

MCP-NEM Employees



Personnel issues aside, RE mining and separation is highly capital-intensive, and heavy RE separation requires even greater levels of investment. Taking into account the debt obligations incurred by Molycorp during Project Phoenix and the acquisition of Molycorp Canada, does Molycorp believe that it will be

²¹ Employees for Molycorp Canada (formerly Neo Material Technologies, Inc.) exclude employees of its Ingal-Stade and Buss & Buss Spezialmetalle GmbH joint ventures and its recently built South Korean facility. Molycorp Canada employee data is retrieved from Neo Material Technologies, Inc., *Annual Information Form* (30 March 2012), pg. 21. This is current as of 31 December 2011.

²² Employees for Molycorp, Inc. were calculated from unionization data: “As of December 31, 2011, we had a total of 920 employees. ... As of December 31, 2011, 122 employees, or approximately 60% of the workforce at our Molycorp Mountain Pass facility, were represented by the United Steelworkers of America. Our contract with the United Steelworkers of America expires in 2015. As of December 31, 2011, 186 employees, or approximately 33% of the workforce at our Molycorp Sillamäe facility, were unionized employees. Our contract with the labor union in Estonia is renewed annually by the end of February. There were no unionized employees at our Molycorp Tolleson facility as of December 31, 2011.” Therefore, there are approximately 203 Mountain Pass employees, 564 Sillamäe employees, and 153 Tolleson employees. Molycorp Inc., *10-K* (28 February 2012), pg. 10-11.

²³ In its latest quarterly filing, Molycorp had increased employment at Mountain Pass and Sillamäe. Based on unionization data, 203 employees or 60% are unionized at Mountain Pass (343 total) and 174 employees or 30% (586 total) are unionized at Sillamäe. This data was not utilized because there is no corresponding adjustment for any other operating segment for this same reporting period. Molycorp, Inc., *10-Q* (9 August 2012), pg.28



able to generate sufficient earnings from Phase I and Phase II of Project Phoenix to sustain any new obligations for heavy RE separation at a U.S. facility from the bench scale, through to a pilot plant and full-rate production?

Finally and as noted in the introduction to this letter, the Chinese government has implemented industry controls on RE materials, such as production quotas and stockpiling, and a range of export controls, including quotas, value-added taxes, and licensing requirements.²⁴ This has effectively created a two-tiered pricing structure for REs in the global market, where cheaper prices within China's borders have encouraged companies to relocate or expand operations there.²⁵ The Chinese government has also manipulated export controls for REs and other products to coerce U.S. allies around the globe.²⁶ Considering the great efforts undertaken by the Chinese government to attract high value-added manufacturing to China and the history of retaliatory action by government officials, has Molycorp weighed the political risk with technology transfer from China to the United States?

The U.S. Magnetic Materials Association has been advocating on behalf of the rare earth and magnetics supply chain of the United States and its allies since 2007. Our paramount concern remains the creation and maintenance of a reliable and predictable supply to the United States of those materials critical to national security. In part due to efforts by the Association, the DOD is in the midst of setting risk mitigation plans for several heavy rare earths²⁷, and the House of Representatives has also expressed its desire that any heavy rare earths retrieved from U.S. Government property not be shipped to non-U.S. allies for processing.²⁸

Molycorp has an important role in the development of a secure supply chain for many rare earth products in the defense industrial base, but given the gravity of this collective responsibility, it is essential that actual business plans and operations, not rhetoric alone, match the needs of the Department.

We appreciate your consideration of this letter and look forward to your written reply.

Sincerely,

A handwritten signature in black ink, appearing to read "Ed Richardson".

Ed Richardson
President, United States Magnetic Materials Association

²⁴ Pui-Kwan Tse, "China's Rare-Earth Industry," *U.S. Geological Survey*, Report 2011-1042 (2011)

²⁵ Keith Bradsher, "Chasing Rare Earths, Foreign Companies Expand in China," *New York Times* (24 August 2011)

²⁶ Wayne M. Morrison and Rachel Tang, "China's Rare Earth Industry and Export Regime: Economic and Trade Implications for the United States," *Congressional Research Service*, R-42510 (30 April 2012), pg. 31-32; Andrew Higgins, "In Philippines, banana growers feel effect of South China Sea dispute," *Washington Post* (10 June 2012); Andreas Fuchs and Nils-Hendrik Klann, "Paying a Visit: The Dalai Lama Effect on International Trade," *Center for European Governance and Economic Development*, Research Paper No. 1113 (27 April 2011).

²⁷ Defense Logistics Agency, *2012 Director's Guidance* (April 2012), pg. 27

²⁸ Committee on Armed Services House of Representatives, *H.R. 4310, National Defense Authorization Act for Fiscal Year 2013* (11 May 2012), House Report 112-479, pg. 286