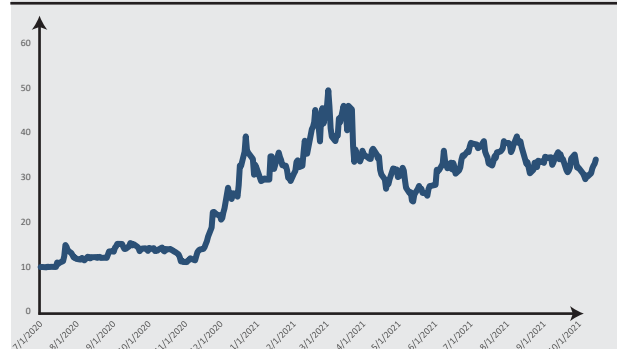


MP Materials Corp. (NYSE:MP): Rare Earth Shenanigans in Chamath Backed Company Will Likely Cost Investors Dearly

- Rare earth mining company MP Materials Corp came public on the NYSE in November 2020 through a SPAC reverse merger backed by “SPAC King” Chamath Palihapitiya.
- The company was able to sell itself to investors touting the fact that MP is the biggest rare earth producer in the western world, and the only feasible competitor to Chinese producers.
- In reality, we believe that this is nothing more than a smoke and mirrors show. We found that Shenghe, a related party that accounts for 99% of MP’s revenue, and a significant shareholder, can be traced back to the Chinese central government.
- Biden’s plan to bring back rare earths theoretically would lead to MP as they are the only American producer. However, our research shows that MP in reality remains under the control of the Chinese government.
- MP is the second iteration of the same mining venture (Molycorp) that previously ended in bankruptcy. However, Chamath and his friends were able to bring MP public again at a 300x valuation increase in only three years without significant business improvements.
- When comparing MP and Molycorp side by side, it appears that MP’s current plan is almost an identical copy of Molycorp’s failed Project Phoenix from almost 10 years ago.
- MP’s mine generates nowhere near the economic essence needed to support the current valuation due to the fact that MP mostly mines less valuable rare earth, namely Cerium and Lanthanum. It does not participate in the favorable trend in rare earth prices the same way competitors do.
- The projections that MP puts forth seem completely unattainable, and the company needs to incur capital expenditures that might lead it back into bankruptcy.

MP Stock Performance As of Oct 26th 2021



MP Trade Data As of Oct 26th 2021

Share Price	\$38.09
52 Week Low	\$10.80
52 Week High	\$38.58
Market Cap	\$6.77B
Average Volume	2.3M
Shares Outstanding	171M

- MP has been able to ride the green energy and Electric Vehicle hype by mischaracterizing its business and grouping itself with names like Tesla.
- MP’s core management team lacks natural resources credibility and consists of financial engineers. Management is not so confident in themselves either; as they have sold close to \$356M worth of stock since going public.
- The operations team in charge seems to be the same that led the company into bankruptcy in its previous iteration.
- Our research leads us to conclude that MP is a repacked failed business that was dumped on investors at elevated prices. The idea that MP is the only feasible competitor to Chinese producers seems like a complete charade given that its biggest client and significant shareholder is controlled by the Chinese Treasury Department.
- We see ~60% downside in the short to medium term once investors and regulators wake up to the company’s shenanigans.

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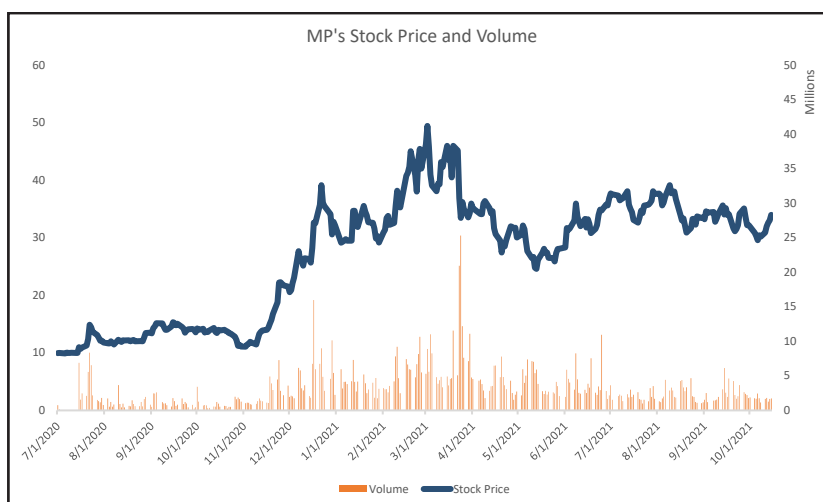
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Research Report on MP Materials Corp (NYSE: MP)

Rare Earth Investment Brought to You by Chamath Palihapitiya

MP Materials [completed](#) its business combination with the SPAC Fortress Value Acquisition Corp. (NYSE: FVAC) on November 17, 2020, and it started trading on the NYSE under the symbol “MP” on November 18, 2020. According to MP’s description, it is “the largest producer of rare earth materials in the Western Hemisphere”, and it “owns and operates Mountain Pass, an iconic American industrial asset, which is advertised as the only rare earth mining and processing site of scale in the Western Hemisphere and currently produces approximately 15% of global rare earth content.”

MP’s stock price has had a strong bull run since its business combination completion last November, when it was trading at sub-\$20 level. Now it is trading close to \$40 per share.



It is also worth noting that the “King of SPACs”, Chamath Palihapitiya, also co-led a \$200M PIPE into FVAC before its merger with MP Materials.



source: Twitter

We Were Not Surprised to See that Chamath Backed the SPAC that Brought MP Public Following His Involvement in DOJ Investigated Company \$CLOV.

Chamath’s involvement in MP (previous FVAC) brought a lot of investor attention to this company. His core thesis focused on MP’s potential to supply magnets within the EV space and how MP would allow a viable rare earths monopoly to be created in the Western Hemisphere (free of Chinese influence). This thesis was picked up by a variety of retail investors, amidst the 2020 election, and is the largest part of MP’s story.

In addition, the Department of Defense’s \$9.6M [technology investment](#) into MP’s effort to add value-add processing and separation capabilities was also viewed as a big positive for MP. However, to put this in context, we want to point out that the Department of Defense contributed to a much bigger amount of \$30.4M to Lynas USA LLC, whose parent company Lynas Rare Earth Ltd is not even an American company (it is an Australian company)!

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Rare Earth Investment Brought to You by Chamath Palihapitiya

Name of Selling Securityholder	Beneficial Ownership Before the Offering		Shares Offered		After the Shares Offered are Sold	
	Number of Shares	% (1)	Number of Shares	% (2)	Number of Shares	%
JHL Capital Group LLC and affiliated entities ⁽³⁾⁽⁸⁾	41,706,001	26.7	47,539,477	26.4	—	—
Fourth Avenue FF Opportunities LP—Series E ⁽⁴⁾⁽⁸⁾	10,142,787	6.5	11,561,473	6.4	—	—
QVT Financial LP and affiliated entities ⁽⁵⁾⁽⁸⁾	9,879,479	6.3	11,261,333	6.2	—	—
Fortress Acquisition Sponsor LLC ⁽⁶⁾	9,965,000	6.4	9,965,000	6.0	—	—
James Henry Litinsky, Trustee of James Henry Litinsky Revocable Trust u/a/d 10/19/2011 ⁽⁷⁾⁽⁸⁾	15,940,281	10.2	18,169,871	10.0	—	—
Aaron F. Hood	25,000	*	25,000	*	—	—
Alberta Investment Management Corporation ⁽⁹⁾	500,000	*	763,068	*	—	—
Alyeska Investment Group ⁽¹⁰⁾	1,835,463	1.2	1,658,466	*	335,463	*
Brian Kreiter	60,000	*	60,000	*	—	—
Carmen Policy	25,000	*	25,000	*	—	—
ChaChaCha 2019 Trust DTD 9/20/2019 ⁽¹¹⁾	2,500,000	1.6	2,500,000	1.4	—	—

source: company filings

A prospectus filed in December 2020, seems to indicate that Chamath immediately put his entire position up for sale just a month after the merger.

In fact, the two largest shareholders and members of management: JHL (and its affiliated entities including the CEO, James Henry Litinsky) and QVT (through QVT and Fourth Avenue Financial) also **offered up all their shares for sale**.

In later amendments to the prospectus, the number of shares offered changed but JHL and QVT still managed to cash out over \$356M.

MP filed an [8K](#) on September 16, 2021, stating that affiliates of MP’s early investors JHL Capital Group and QVT Financial, sold 4.25 million shares of MP at \$35.00 per share, with a 30-day option granted to the Underwriter to purchase up to an additional 637.5K shares.

On September 13, 2021, MP Materials Corp. (the “Company”) entered into an underwriting agreement (the “Underwriting Agreement”) with Morgan Stanley & Co. LLC, as underwriter (the “Underwriter”) and affiliates of JHL Capital Group and QVT Financial, the selling stockholders named in Schedule B thereto (collectively, the “Selling Stockholders”), relating to the public offering (the “Secondary Offering”) by the Selling Stockholders of 4,250,000 shares of common stock of the Company and a 30-day option granted to the Underwriter to purchase up to an additional 637,500 shares of common stock of the Company from the Selling Stockholders, at a price to the public of \$35.00 per share.

Name	Q1 2021 Sold (\$)	Q3 2021 Sold (\$)	Total Sold (\$)
JHL Capital Group	112,478,957	79,007,687	191,486,644
QVT Financial LLP	53,999,504	37,930,087	91,929,591
Litinsky James	42,990,509	30,197,226	73,187,735
Total			356,603,970

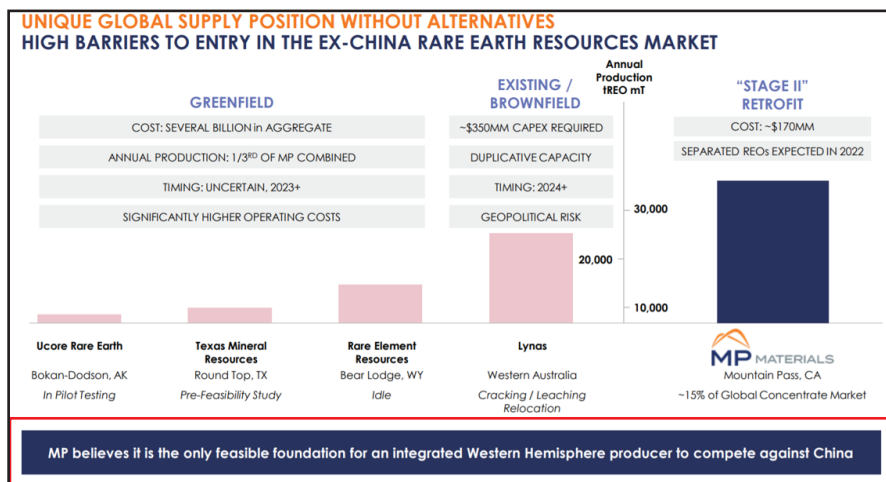
source: Form 4 filings

Upon further examining MP’s history, its business model, and its business relationships, we have concluded that the company is far too reliant on the Chinese government, which puts its entire business at risk due to national security risks and high political tension between the US and Chinese. Furthermore, our research suggests that the company is unlikely to succeed in providing quality rare earth materials to customers outside of its related parties in China.

While Chamath was Touting the Merits of MP, Insiders Were Quick to Look For an Exit. We Ask: How Many Shares Does Chamath Still Own?

Research Report on MP Materials Corp (NYSE: MP)

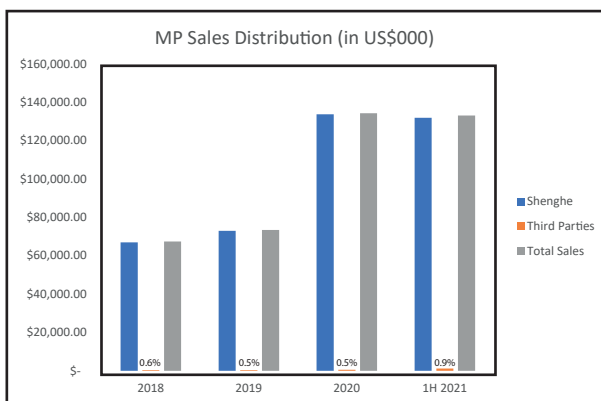
Biggest, Almost Exclusive Customer/Related Party “Shenghe” is Ultimately Controlled by China’s Treasury Department



According to MP, the company believes that it is the only feasible foundation for an integrated Western Hemisphere producer to compete against China.

MP and its bulls have constantly touted the fact that MP will be the only feasible foundation for an integrated Western Hemisphere producer that can break free of China’s rare earth dominance and compete against them.

With this in mind, we find it laughable and surprising that, according to MP’s own disclosure, 99% of its revenue comes from product sales to Shenghe, a Chinese company that is a shareholder and related party to MP.



In US\$000	FY 2018		FY 2019		FY 2020		H1 2021	
Product Sales - Shenghe	\$67,013	99.40%	\$73,017	99.50%	\$133,698	99.50%	\$131,875	99.10%
Product Sales - Third Parties	\$405	0.60%	\$394	0.50%	\$612	0.50%	\$1,214	0.90%
Total Product Sales	\$67,418	100.0%	\$73,411	100.00%	\$134,310	100.00%	\$133,089	100.0%

source: company filings

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Research Report on MP Materials Corp (NYSE: MP)

Biggest, Almost Exclusive Customer/Related Party “Shenghe” is Ultimately Controlled by China’s Treasury Department

MP’s agreement with Shenghe is not just a sales relationship. Shenghe and MP have a complicated A&R Offtake Agreement within which Shenghe has full control of MP’s top line, bottom line, and even supplies. This level of control from a foreign Chinese entity poses significant risks.

Specifically, MP has to pay a percentage of revenue from sales to companies other than Shenghe until a “prepayment funding balance” has been reduced to zero. Furthermore MP has to pay to Shenghe, on an annual basis, an amount equal to MP’s annual net income (excluding contributions by Shenghe’s purchase) until the “prepayment funding balance” has been reduced to zero. As of MP’s latest disclosure, that amount is \$78.4 million as of Sep 30, 2020. Considering MP generates 99% revenue from Shenghe, for the foreseeable future, MP essentially is operating on behalf of Shenghe.

Shenghe is also an early investor in MP, and currently still holds a significant ownership stake of ~7.7%.

In material part, the A&R Offtake Agreement:

- (i) modifies the definition of “offtake products” in order to remove from the scope of that definition lanthanum, cerium and other rare earth products that do not meet the specifications agreed to under the A&R Offtake Agreement;
- (ii) as to the offtake products subject to the A&R Offtake Agreement, provide **that if MPMO sells such products to a third party, then, until the prepayment funding balance has been reduced to zero, MPMO will pay an agreed percentage of its revenue from such sale to Shenghe Resources (Singapore) which is credited to the prepayment funding balance;**
- (iii) replaces the structure under the Original Offtake Agreement where Shenghe Resources (Singapore)’s actual costs and expenses would reduce its gross profits with a fixed monthly sales charge to cover certain of those costs and expenses;
- (iv) provides that the cash purchase price to be paid by Shenghe Resources (Singapore) for Mountain Pass facility rare earth products will be based on market prices (net of taxes, tariffs and certain other agreed charges) less applicable discounts (whereas the Original Offtake Agreement had based pricing on the cost of production);
- (v) **obliges MPMO to pay to Shenghe Resources (Singapore), on an annual basis, an amount equal to MPMO’s annual net income** (less income attributable to amounts recouped by Shenghe Resources (Singapore) through the market price discount reference above or otherwise) until the prepayment funding balance has been reduced to zero;
- (vi) **obliges MPMO to pay to Shenghe Resources (Singapore) MPMO’s net after-tax profits from any applicable sale of assets until the prepayment funding balance has been reduced to zero** (which obligation was contained previously in the TSA); and
- (vii) provides for certain changes to the payment, invoicing and delivery terms and procedures for products. The cash purchase price and other terms applicable to a quantity of offtake products are set forth in monthly purchase agreements between MPMO and Shenghe Resources (Singapore). As with the original Offtake Agreement, the A&R Offtake Agreement will terminate when Shenghe Resources (Singapore) has fully recouped all of its prepayment funding.

Who Is Shenghe?

According to MP’s disclosure, Shenghe’s full name is Shenghe Resources (Singapore) International Trading Pte. Ltd., which is “a majority-owned subsidiary of Leshan Shenghe Rare Earth Co., Ltd. (“Leshan Shenghe”) whose ultimate parent is Shenghe Resources Holding Co., Ltd., a leading global rare earth company listed on the Shanghai Stock Exchange”. Shenghe Resources Holding Co., Ltd. will be referred to as Shenghe Resources hereafter.

According to Reuters, Shenghe Resources Holding Co., Ltd. is a China-based company principally engaged in the mining, smelting and separation, and deep processing of rare earth. The Company’s main product portfolio consists of rare earth oxides, rare earth salts, rare earth metals, metal catalysts, and molecular sieves. The company distributes its products within the domestic market and overseas markets. Its stock ticker is “600392” and is listed on the Shanghai Stock Exchange.

According to [Shenghe Resources’ 2021 Half Year Report](#), it holds 70% equity interest in Shenghe. As of June 30, 2021, there is still about \$50M payment due from MP.

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Biggest, Almost Exclusive Customer/Related Party “Shenghe” is Ultimately Controlled by China’s Treasury Department

According to its [2020 annual report](#), Shenghe Resources, the publicly listed company in China, completed a restructuring in 2012 and the controlling shareholder became the General Mineral Utilization and Research Department of the Chinese Academy of Geological Sciences, which is controlled by the Chinese Treasury Department. This control structure remains in place to this day.

一、 释义		
在本报告书中，除非文义另有所指，下列词语具有如下含义：		
常用词语释义		
盛和资源、上市公司、本公司、公司	指	盛和资源控股股份有限公司（600392.SH）
太工天成	指	太原理工天成科技股份有限公司，本公司前身
综合研究所	指	中国地质科学院矿产综合利用研究所
巨星集团	指	四川巨星企业集团有限公司
沃本新材	指	赣州沃本新材料投资有限公司

Comprehensive Research Institute

其他	综合研究所	司的独立性。 本次重组完成后，综合研究所成为公司的控股股东，实际控制人为财政部。为避免未来与公司产生同业竞争，综合研究所就本次重组完成后的业务发展出具了《关于避免同业竞争及规范关联交易的承诺函》。承诺将采取有效措施避免同业竞争，减少并规范与上市公司将来可能产生的关联交易，确保与上市公司之间关联交易的公平、公正、公允。	2012年11月，长期	是	是
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Comprehensive Research Institute is ultimately controlled by the Chinese Treasury Department post the 2012 restructuring

This was particularly surprising as in MP’s disclosure, we were not able to find any information from MP stating that Shenghe is ultimately controlled by China’s Treasury Department. Quite the opposite, MP has been touting that it was the only feasible competitor to the Chinese.

In light of these findings MP’s entire story it sold to investors seems like a charade:

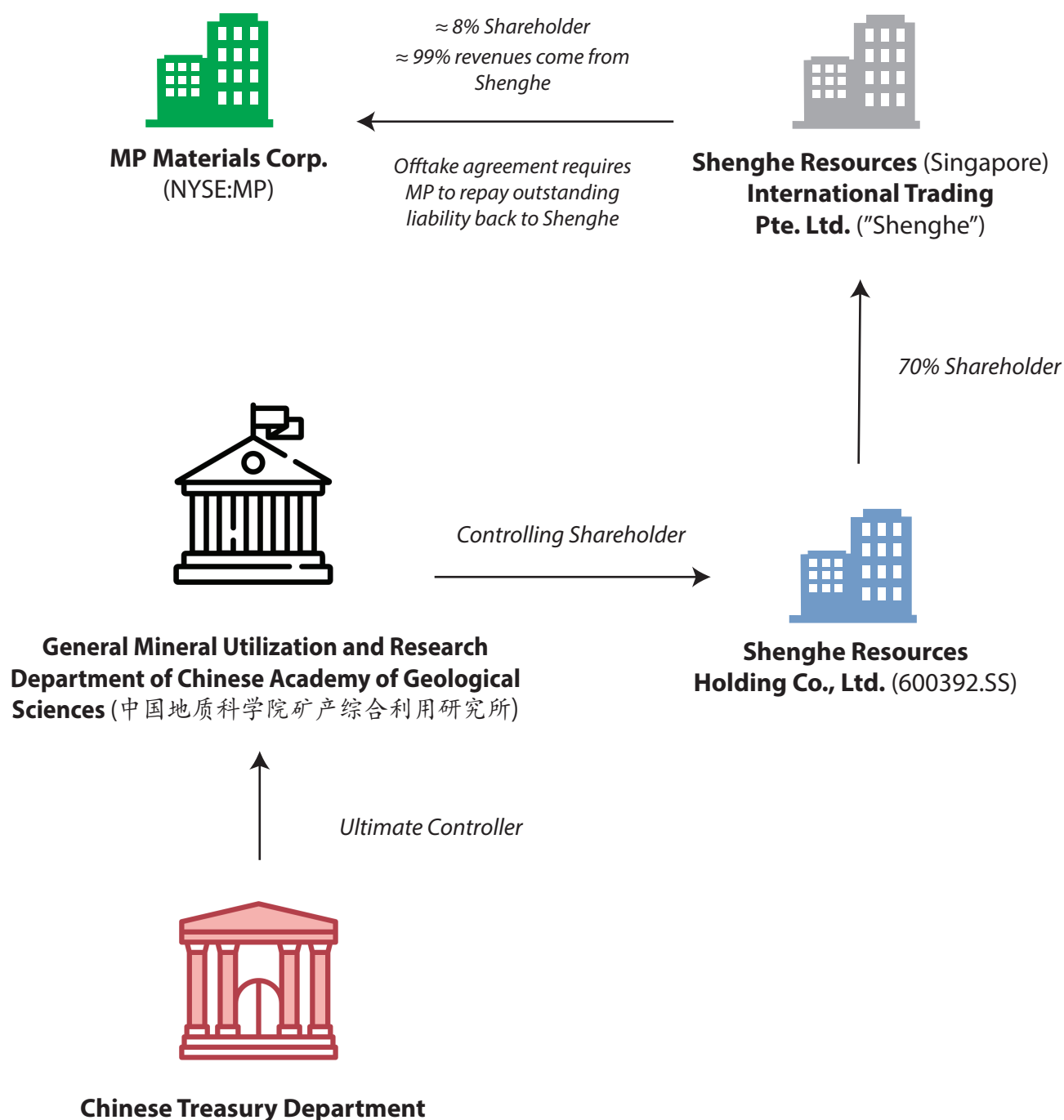
- A Chinese Treasury Department-controlled Chinese public company, through its majority-owned subsidiary in Singapore (70%), participated in the purchase of then bankrupted Mountain Pass rare earth mine as a minority shareholder in 2017.
- This same China Treasury Department-controlled company, namely Shenghe Resources, has been funding the production resumption of Mountain Pass mine for hundreds of millions of USD, has been purchasing Mountain Pass’ low-priced rare earth products (mostly Cerium and/or Lanthanum), has been its 99%+ customer since 2018, AND
- It is still funding Mountain Pass’ stage II project development, AND
- Currently, the China Treasury Department-controlled company’s holding of MP shares are worth over \$1 billion, accounting for ~10% of the total outstanding shares of MP.

**And the Story that MP Sells to Its Shareholders is:
“MP Believes it is the Only Feasible Foundation for an Integrated Western Hemisphere Producer to Compete Against China???”**

Research Report on MP Materials Corp (NYSE: MP)

Biggest, Almost Exclusive Customer/Related Party “Shenghe” is Ultimately Controlled by China’s Treasury Department

Below is the chart to illustrates the relationship between MP and other entities in China.



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Research Report on MP Materials Corp (NYSE: MP)

Biggest, Almost Exclusive Customer/Related Party “Shenghe” is Ultimately Controlled by China’s Treasury Department

We have a few questions for MP and also the regulators:

- Did MP ever disclose that Shenghe is ultimately controlled by China’s Treasury Department?
- Did the Department of Defense know that MP’s 99%+ revenue customer and ~10% shareholder Shenghe is ultimately controlled by China’s Treasury Department?
- Did the regulator(s) approve the \$20.5 million Mountain Pass mine purchase back in 2017 knowing that Shenghe is ultimately controlled by China’s Treasury Department?
- Since the United States needs to import rare earth products, why does MP sell 99%+ of its products to Shenghe which eventually sells to other end customers in China?
- It appears MP is allowed to sell its products to customers other than Shenghe, why does Shenghe still account for 99%+ of MP’s revenues in recent quarters?

We strongly believe that investors and regulators should be notified of Shenghe’s relationship with China’s Treasury Department. MP, the company that is supposedly the only feasible competitor to Chinese producers, seems to be entirely dependent on the Chinese Treasury department.

The potential risk this brings about should not be hard to comprehend. In April 2020, the Department of Energy (DOE) told government scientists not to collaborate with MP Materials due to the involvement of a Chinese Investor and the heavy reliance on Chinese sales and technical know-how.

Considering that the involvement of Chinese Treasury Department is not widely known, we highlight the severe risks MP is facing given DOE’s concerns.

Close Observers of the Company Know About Shenghe’s Involvement in MP, But Nobody Seems to Point Out That Shenghe is Ultimately Controlled by the Chinese Central Government.

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MP Is a Failed Repacked Business with Ridiculous Projections

A Repackaged Failed Mining Business

MP was actually a public company before (in the form of Molycorp). Molycorp went public in 2010 with an offering price of \$14 per share. Later on, in May 2011 the stock price topped \$75 which gave the company a market cap of over \$5 billion. About 4 years later, in 2015, Molycorp filed for bankruptcy after pouring billions of dollars into its rare earth business.

According to court documents, the stated reasons for Molycorp's bankruptcy include:

- Rare Earth price negative trend in recent years (reference year was 2015) due to various factors, including the impact of Chinese competition.
- Delays in the Mountain Pass Mine ramp-up.

4. Molycorp, Inc. is a Delaware corporation and is a direct or indirect parent of the Debtors and each of the Debtors' nondebtor affiliates (collectively, "Molycorp"). Molycorp is a leading global rare earths and rare metals producer with a workforce of approximately 2,530 employees at locations on three continents. Molycorp has in excess of \$1.7 billion in outstanding secured and unsecured debt obligations. Molycorp operates a vertically integrated, global supply chain that combines a world-class rare earths resource with manufacturing facilities that can produce a wide variety of custom engineered, advanced rare earth materials. The products produced by Molycorp are critical inputs in many existing and emerging applications, including hybrid and electric vehicles, wind power turbines, mobile devices, fiber optics, lasers, hard disk drives, guidance and control systems, global positioning systems and advanced water treatment technology.

6. Molycorp has been cash flow negative in recent years as it made significant capital expenditures to modernize and expand its production capabilities at the Mountain Pass facility. Rare earth pricing has trended negative in recent years due to a variety of factors, including the impact of Chinese competition. Delays in the Mountain Pass ramp-up and these pricing trends caused Molycorp to experience liquidity pressures from time to time, most recently beginning in mid-2014. While a September 2014 financing with affiliates of and funds managed by Oaktree Capital Management L.P. ("Oaktree") gave Molycorp additional liquidity to continue its ramp-up, Molycorp concluded that it would need a more fulsome restructuring of its liabilities.

source: bankruptcy court case 15-11357-CSS Molycorp, Inc.

Molycorp Went Bankrupt After Investing Billions in the Mountain Pass Mine. However, There Was Not Much Interest In the Mine During Bankruptcy Proceedings, and the Mine Ultimately Sold For Only \$20.5 Million.

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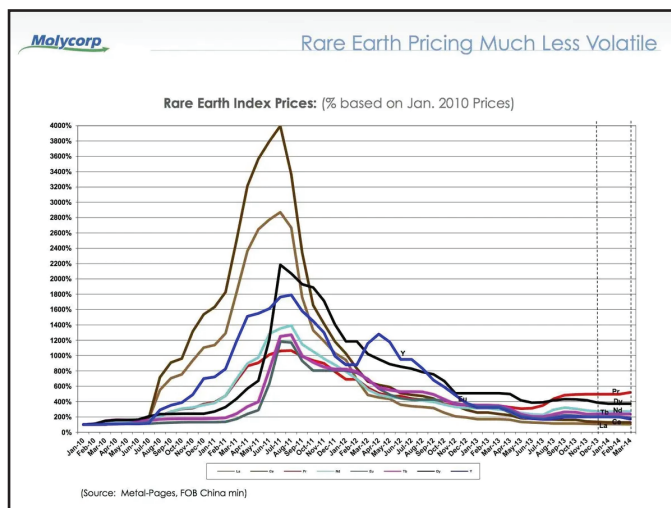
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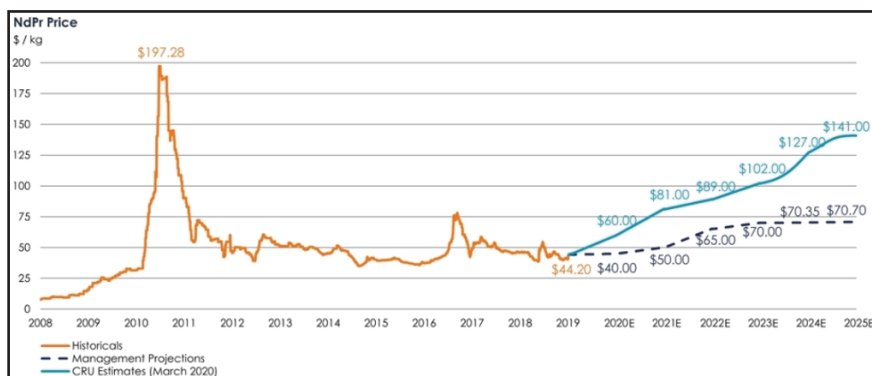
Research Report on MP Materials Corp (NYSE: MP)

MP Is a Failed Repacked Business with Ridiculous Projections

Rare earth prices went on a roller-coaster between 2010 and 2014, see the picture below.



source: <https://i.insider.com/54184eff69bedd666485259c?width=1200>



source: company filings

Note that Molycorp invested a total of roughly \$1.7 billion, and still had to enter bankruptcy.

A couple of years later in 2017, the Mountain Pass Mine that Molycorp used to have was sold for \$20.5 million to an American-led consortium that has a Chinese rare earth miner Leshan Shenghe Rare Earth Co. holding a non-voting minority interest, according to the [report](#) from mining.com.

The purchase of Mountain Pass did raise national security concerns when the consortium led by JHL Capital Group and QVT Financial as well as Shenghe won the bid over ERP Strategic Minerals, a U.S.-consortium led by Tom Clarke, a Virginia-based entrepreneur, and coal industry veteran, according to the report by The Hill in 2019.

Eventually, the deal went through, and the Mountain Pass Mine was sold for \$20.5m. Fast forward only three years later and MP Materials, now the 100% owner of Mountain Pass Mine, went public through the SPAC deal valued at \$1.47 billion in November 2020. Only three years after the buyer consortium purchased the asset for \$20.5 million, **the value increased by a whopping 71.7x!**

Shenghe is Ultimately Controlled by the Chinese Treasury Department, A fact that Was Undisclosed When They Allowed the Acquisition of the Mountain Pass Mine.

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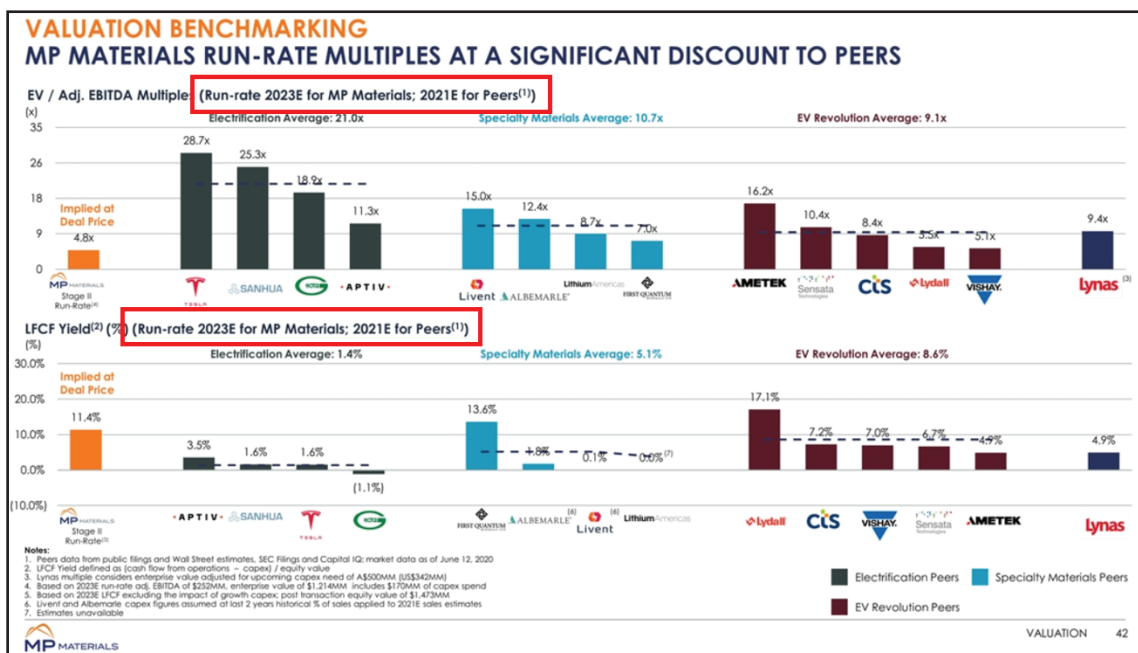
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MP Is a Failed Repacked Business with Ridiculous Projections

Sold to Investors at A Ridiculous Valuation

Rare earth products can be used in many strategically important areas, such as EV motors and electronics. MP has been making subtle hints to its participation in the EV hype. For example, MP comped itself to Tesla and other EV companies.

However, **it is ludicrous for MP, at best an upstream provider, to put its company's valuation with other companies such as Tesla to justify its transaction valuation.** In addition, we find this comparable analysis very disingenuous because MP is using the much more uncertain 2023 valuation multiples (i.e. EV/Adj. EBITDA, LFCF) to compare to those metrics of other "peers" from 2021. Essentially, not only did they select the wrong set of comps in our opinion, they also selected the wrong time frame. The valuation analysis that MP presented to investors hugely misleading in our opinion.



source: investor presentation

When comparing MP against its more direct competitor, Lynas Rare Earths Limited (LYC.AX), who is also a major rare earth producer outside of China, it is obvious that MP is trading at much higher valuation multiples compared to Lynas. This is assuming the optimistic case that MP would be able to complete the stage II plan by the end of 2022 and start selling NdPr oxides for the full year of 2023.

It is important to note that MP is already producing and selling NdPr oxides.

Rare Earth Producers		Price		Market Cap	EBITDA Margin				EV/EBITDA				Revenue Growth			
Company Name	Rating	Price	Target	(\$MM)	2022E	2023E	2024E	2025E	2022E	2023E	2024E	2025E	2022E	2023E	2024E	2025E
MP Materials Corp	Outperform	\$ 33.72	\$ 50.00	\$5,994	49%	62%	64%	64%	36.6x	16.9x	14.8x	13.9x	7%	64%	5%	-
Lynas Rare Earths Ltd	Outperform	\$ 6.42	\$ 10.00	\$4,228	69%	68%	70%	70%	8.1x	7.0x	5.6x	4.8x	19%	5%	5%	0%
China Northern Rare Earth Group	Uncovered	\$ 49.07	-	\$27,546	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Average	-	-	-	-	59%	65%	67%	67%	22.4x	11.9x	10.2x	9.3x	13%	34%	5%	0%

source: Bloomberg, Cowen and Company

We Find it Ludicrous That MP Compares Its 2023 Valuation Multiples to 2021 Multiples of So-called "Peers" Like Tesla.

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Research Report on MP Materials Corp (NYSE: MP)

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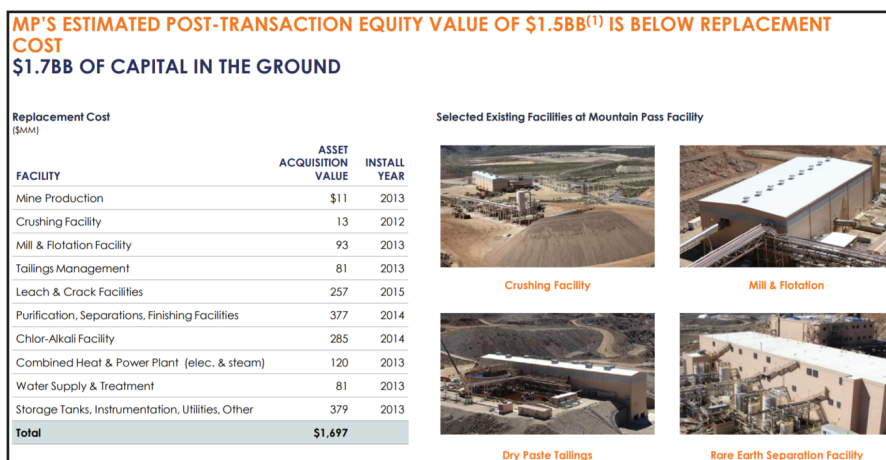
We also compared MP to other mining companies, unsurprisingly, MP also appears to be extremely expensive. Here are the results:

Comparables	Kirkland Lake*	Kinross*	MP Materials Corp
Market Cap	\$11.5B	U\$7.2B	\$6.0B
Revenue per Annum	\$2.4B	\$4.2B	U \$100-\$130M
Price-to-Sales Ratio	4.61	1.67	19.88
Cash on Hand	\$847M	\$1.21B	\$500M
EV/EBITDA	6.55	2.99	50.8
Price-to-Earnings Ratio	13.91	5.56	35.52
Last Quarterly FCF	\$232M	\$382M	Negative
Total Liquidity	\$847M	U\$2.8B	\$500M

* pay dividends, KL buyback during 2020

We find no objective metric that could possibly justify the 300x valuation bump in just 3 years.

One of the justifications that the company offered for the high valuation was that its post-transaction equity value is below the replacement cost of their production assets. However, we note that these assets were installed prior to bankruptcy and were only sold for less than \$20.5 million, largely reflecting the fair value of the facilities. We find this notion of comparing equity value/enterprise value with replacement cost to be highly misleading, especially if there is a recent market transaction price that is considerably lower.



source: company filings

We also want to point out that Molycorp invested roughly \$1.7 billion into the Mountain Pass Mine and still had to enter bankruptcy. This compares to only about \$450M that MP has available to achieve the lofty projections it puts forth.

We also note that MP had to row back on even more aggressive projections in its offering documents after it received SEC comment letters.

We Believe Only Through a SPAC Transaction In Today's Market Could the Old Mountain Pass Mine Achieve a Valuation In Excess of \$6 Billion

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Research Report on MP Materials Corp (NYSE: MP)

MP Set Up For Failure Again: Leadership Lack Mining Experience, Operating Team All Come From Bankrupt Molycorp

LEADERSHIP






James Litinsky – Chairman & CEO
 Mr. Litinsky is the Founder, Chief Executive Officer and Chief Investment Officer of JHL Capital Group LLC. Before founding JHL in 2006, Mr. Litinsky was a member of the Drawbridge Special Opportunities Fund at Fortress Investment Group. Prior to Fortress, he was a Director of Finance at Omnicom Group, and he worked as a merchant banker at Allen & Company. Mr. Litinsky received a B.A. in Economics from Yale University, cum laude, and a J.D./M.B.A. from the Northwestern University School of Law and the Kellogg School of Management. He was admitted to the Illinois Bar. Mr. Litinsky serves on the Boards of AbilityLab and the Museum of Contemporary Art Chicago.

Michael Rosenthal – Chief Operating Officer
 Mr. Rosenthal will serve as the Chief Operating Officer of the Company upon closing of the business combination with FVAC. Mr. Rosenthal co-founded the Company and has been managing the Mountain Pass operation since the Company took control of the site in 2017. Before joining MP Materials, he was a Partner at QVT Financial, an investment firm. At QVT, Mr. Rosenthal concentrated on investments in the global automotive sector and in China. Prior to joining QVT, he worked as a senior high yield credit analyst for Sherkmann Capital Management. Mr. Rosenthal graduated from Duke University with an A.B. degree in Economics and Comparative Area Studies.


Ryan Corbett – Chief Financial Officer
 Mr. Corbett joined the Company as Chief Financial Officer in 2019. He joined JHL Capital Group LLC as a Managing Director to focus on the firm's investment in MP Materials. Prior to joining JHL, he was an Analyst at Brahma Capital Corp. and King Street Capital Management, both alternative asset managers based in New York, where he focused on special situations investments across the capital structure. Mr. Corbett started his career in investment banking at Morgan Stanley & Co. He graduated magna cum laude from the Wharton School of the University of Pennsylvania with a concentration in Finance.

Drew McKnight – Chief Executive Officer of FVAC
 Mr. McKnight is a Managing Partner of the Credit Funds Business at Fortress based in San Francisco, CA. Mr. McKnight heads the liquid strategies and serves on the investment committee for the Credit Funds and is a member of the Management Committee of Fortress. Mr. McKnight is also the Co-CIO of the Drawbridge Special Opportunities Fund, Fortress Lending Fund and Fortress Credit Opportunities Fund V. In addition, Mr. McKnight is currently the CEO of Fortress Value Acquisition Corp.


6

All individuals from the C-level management team are from the finance industry, and none of them have any professional experience in running a mining company. Considering the complexity of the technology involved in mining and separating rare earth elements and products, it is hard for us to believe that the management team could lead the company through its more advanced stages in the coming future.


Leadership




JAMES LITINSKY
Chairman and Chief Executive Officer



MICHAEL ROSENTHAL
Chief Operating Officer



RYAN CORBETT
Chief Financial Officer



ELLIOT HOOPS
General Counsel

Michael Rosenthal is a Founder and the Chief Operating Officer of MP Materials (NYSE:MP). He has managed the Mountain Pass operation since the Company acquired the site in 2017. Before MP Materials, he was a Partner at QVT Financial, an investment management firm. At QVT, Mr. Rosenthal concentrated on investments in the global automotive sector and in China. Prior to joining QVT, he worked as a senior high yield credit analyst for Sherkmann Capital Management. Mr. Rosenthal graduated from Duke University with an A.B. degree in Economics and Comparative Area Studies.

MP's COO, Michael Rosenthal's prospectus and website bio mentions that "Before joining MP Materials, he was a partner at QVT Financial, an investment firm".

On [QVT's About Us Page](#), Michael Rosenthal is still listed as a partner and Senior Investment Analyst. We wonder where his focus lies.

Website

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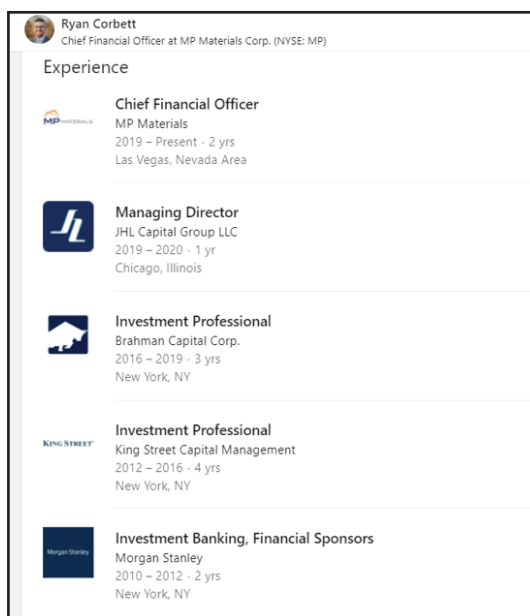
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MP Set Up For Failure Again: Leadership Lack Mining Experience, Operating Team All Come From Bankrupt Molycorp

On top of this, for a public company of this size, MP's CFO is 32-year-old Ryan Corbett. For someone so young to be in a position, we expected an accounting wunderkind. To our surprise, **Mr. Corbett has never worked in an accounting capacity at a public or private company. In fact, he does not even possess an active (or expired) CPA.**



source: LinkedIn

This lack of experience, and management's connections to shareholders that have sold \$356M tell us these are financial opportunists rather than an experienced management team that will be able to execute their vision.

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
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On top of an inexperienced management team, our research indicates that the core operation team of MP used to work at MP’s bankrupt predecessor, Molycorp.

MP MATERIALS
OPERATIONAL LEADERSHIP

Peter Landi – Manager, Process Technology and Engineering
Mr. Landi has over 9 years of experience in the rare earth industry, primarily at Mountain Pass. He has served in various leadership roles supporting process engineering, plant operations, process and product development, and project engineering. He also led the development of the site-wide material and energy balances for production planning and reporting. Mr. Landi graduated from the University of Colorado, Boulder with a B.S. in Chemical Engineering. Mr. Landi will oversee Process Engineering for the Stage II project.

Joseph Pascoe – Principal Engineer
Mr. Pascoe leads the Process Engineering and Development group. He has worked in the rare earth industry for 13 years in various roles at Mountain Pass and as a consultant to other rare earth projects globally. Mr. Pascoe began his career in product development and holds several patents pertaining to applications of rare earths. He is a leading subject matter expert in rare earth processing and separation. Mr. Pascoe graduated from the State University of New York at Buffalo with a B.S. in Chemical Engineering and studied Physics at the University of Wales Swansea (United Kingdom). For the Stage II projects, Joe is the key subject matter expert for the drying, roasting, leaching, SX and product finishing design phases.

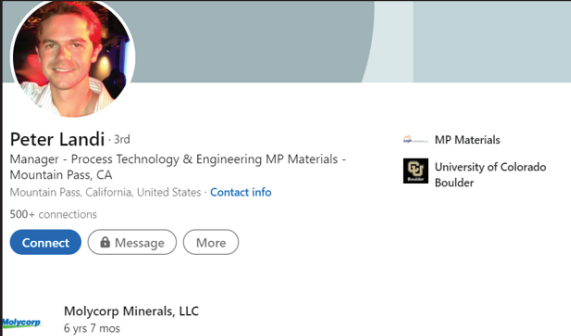
Robby Ruesch – Manager, Mining and Ore Delivery
Mr. Ruesch has 34 years of experience in leadership roles in open pit mining operations. Before joining MP Materials, he served as General Manager, Mine Technical Services Manager, and Mine Manager of KGHM International Ltd., Nevada Mining Company, a subsidiary of KGHM Polska Miedz, extracting copper, gold, silver and molybdenum. Mr. Ruesch also held senior mining and engineering roles at Barrick Gold. Additionally, he served on the Board of Directors for the Nevada Mining Association and is a member of Society of Mining, Metallurgy and Exploration. Mr. Ruesch received his secondary education at Great Basin Community College while working in the mining industry.

Nick Perrine – Manager, Operations and Assets
Mr. Perrine oversees approximately 150 employees in the Plant Operations, Maintenance, Maintenance Planning, Electrical, Mobile Maintenance, and Shipping & Warehouse departments. He has led operations through MP Materials’ Stage I recommissioning efforts, resulting in record production at the Mountain Pass facilities and world-class reliability metrics. Nick has 12 years of experience in the rare earth industry, beginning his Operations career at Mountain Pass in 2008 when he led the Commissioning and Optimization teams before his appointment as General Foreman of the rare earth Separations & Finishing facilities.

SUPPLEMENTAL MATERIALS 48

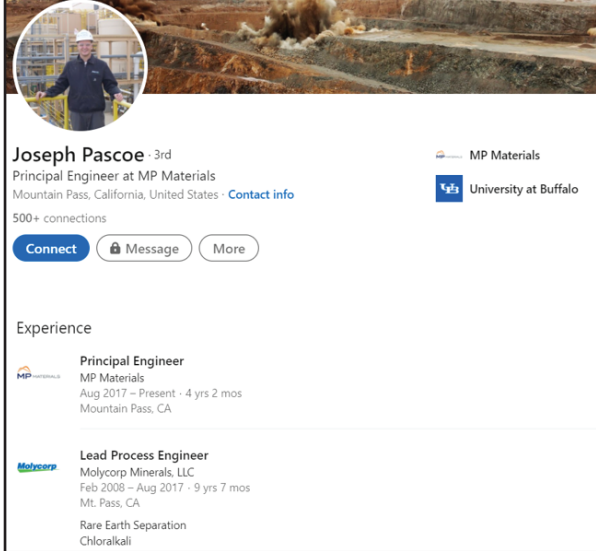
source: company filings

According to the LinkedIn profiles of these 4 operation team leaders, 3 of them are from the same Molycorp that went bankrupt in 2015. How would any investor believe “this time is different” in terms of MP’s technology and product ramp-up capability?



Peter Landi · 3rd
Manager - Process Technology & Engineering MP Materials - Mountain Pass, CA
Mountain Pass, California, United States · [Contact info](#)
500+ connections
[Connect](#) [Message](#) [More](#)

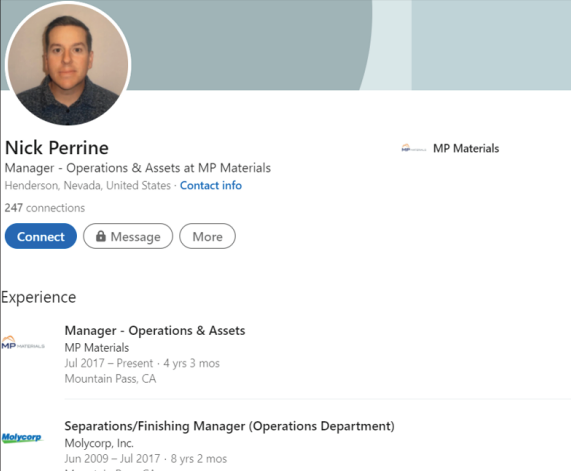
Molycorp Minerals, LLC
6 yrs 7 mos



Joseph Pascoe · 3rd
Principal Engineer at MP Materials
Mountain Pass, California, United States · [Contact info](#)
500+ connections
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Experience

- Principal Engineer**
MP Materials
Aug 2017 – Present · 4 yrs 2 mos
Mountain Pass, CA
- Lead Process Engineer**
Molycorp Minerals, LLC
Feb 2008 – Aug 2017 · 9 yrs 7 mos
Mt. Pass, CA
Rare Earth Separation
Chloralkali



Nick Perrine
Manager - Operations & Assets at MP Materials
Henderson, Nevada, United States · [Contact info](#)
247 connections
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Experience

- Manager - Operations & Assets**
MP Materials
Jul 2017 – Present · 4 yrs 3 mos
Mountain Pass, CA
- Separations/Finishing Manager (Operations Department)**
Molycorp, Inc.
Jun 2009 – Jul 2017 · 8 yrs 2 mos
Mountain Pass, CA

source: LinkedIn

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MP Set Up For Failure Again: Rare Earth Deposit of Mountain Pass Seems Misrepresented

Even if the Mountain Pass mine changed hands from Molycorp to MP, the geographical deposits within the mine are the same. However bullish investors are quick to point out that the increase in rare earth prices should put MP in a more favorable position. Yet a closer examination of the mine yields the insight that the mine might be completely uneconomical, partly because the specific rare earths that are mined are not that rare, and does not participate in the favorable price trends of the rare earth broader index.

Many mining industry experts pointed out that Mountain Pass mine’s rare earth deposit might not be as exciting as it seems. For example, the president of Three Consulting, James Kennedy said in a Financial Times [article](#) that:

“The geochemistry of the Mountain Pass deposit does not enable MP Materials to produce on a commercial scale the heavy rare earths, such as terbium and dysprosium, required for military-grade magnets in the F35 or drones.”

In an [article](#) published back in 2015, it appears that most of Mountain Pass mine’s rare earth elements are Cerium and Lanthanum.

“Unfortunately for Molycorp, the most abundant rare earths in its formation—cerium and lanthanum—fetch the lowest prices. Cerium goes into automotive catalytic converters and is used to polish the glass screens on electronic devices. Lanthanum is used in fuel cells, batteries, and catalysts for refining petroleum.”

According to the data presented by USGS, 33.8% of the Mountain Pass mine is Lanthanum, 49.6% of it is Cerium. In other words, 83.4% of the Mountain Pass mine are Lanthanum and Cerium and just 11.2% is Neodymium, which is the key rare earth used in the EV industry.

Table 5. Distribution of rare earth elements in selected rare earth elements deposits.

[Rare earth elements listed in order of increasing atomic number; yttrium (Y) is included with these elements because it shares chemical and physical similarities with the lanthanides]

Rare earth element	Average upper crustal abundance (percent) Wedepohl (1995)	Bastnasite Mountain Pass, USA (percent) Castor (2008)	Bastnasite Bayan Obo, China (percent) Hedrick (2004)	Monazite Green Cove Spring, USA (percent) Hedrick (2004)	Xenotime Lehat, Malaysia (percent) Hedrick (2004)	High Y REE laterite Longnan, China (percent) Hedrick (2004)	Low Y REE laterite Xunwu, China (percent) Hedrick (2004)	Bulk ore Bear Lodge, USA (percent) Castor (2008)	Bulk ore Strange Lake, Canada (percent) Castor (2008)
Lanthanum	19.3	33.8	23.0	17.5	1.2	1.8	43.4	30.4	4.6
Cerium	39.2	49.6	50.0	43.7	3.1	0.4	2.4	45.5	12.0
Praseodymium	3.8	4.1	6.2	5.0	0.5	0.7	9.0	4.7	1.4
Neodymium	15.5	11.2	18.5	17.5	1.6	3.0	31.7	15.8	4.3
Samarium	2.8	0.9	0.8	4.9	1.1	2.8	3.9	1.8	2.1
Europium	0.6	0.1	0.2	0.2	Trace	0.1	0.5	0.4	0.2
Gadolinium	1.7	0.2	0.7	6.6	3.5	6.9	3.0	0.7	2.5
Terbium	0.3	0.0	0.1	0.3	0.9	1.3	Trace	0.1	0.3
Dysprosium	1.7	0.0	0.1	0.9	8.3	6.7	Trace	0.2	8.2
Holmium	0.4	0.0	Trace	0.1	2.0	1.6	Trace	0.0	1.7
Erbium	1.3	0.0	Trace	Trace	6.4	4.9	Trace	0.0	4.9
Thulium	0.2	0.0	Trace	Trace	1.1	0.7	Trace	<0.01	0.7
Ytterbium	0.9	0.0	Trace	0.1	6.8	2.5	0.3	0.5	4.0
Lutetium	0.2	Trace	Trace	Trace	1.0	0.4	0.1	<0.01	0.4
Yttrium	12.3	0.1	Trace	2.5	61.0	65.0	8.0	<0.01	52.8

source: USGS Scientific Investigations Report 2010–5220, p12

Below is some background on these above mentioned rare earth elements. In a nutshell, although many elements are categorized into the rare earth area, the differences in scarcity and pricing of these different rare earth elements are very big. For example, according to a [report](#) from U.S. Geological Survey in 2017, Cerium is more common in the earth’s crust than even copper and lead.

“Most of the REEs are not as rare as the group’s name suggests. They were named “rare-earth” elements because most were identified during the 18th and 19th centuries as “earths” (originally defined as materials that could not be changed further by the sources of heat), and, in comparison with other “earths,” such as lime or magnesia, they were relatively rare. Cerium is the most abundant REE (table O1), and it is actually more common in Earth’s crust than is copper or lead (Lide, 2004, p. 17).”

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MP Set Up For Failure Again: Rare Earth Deposit of Mountain Pass Seems Misrepresented

Hence, the prices for these different rare earth elements vary widely. The table below summarizes the prices of 7 different rare earth elements in the unit of dollars per kilogram. This chart is sourced from U.S. Geological Survey, [Mineral Commodity Summaries, 2020](#) (p. 132). We can see that in 2019, Cerium was selling at \$2 per kilogram, and Lanthanum was also selling at \$2 per kilogram. However, Terbium was selling at \$510 per kilogram and Dysprosium was selling at \$240 per kilogram.

Salient Statistics—United States:	2015	2016	2017	2018	2019*
Production, bastnaesite concentrates ¹	5,900	—	—	18,000	26,000
Imports: ²					
Compounds	9,160	11,500	11,000	10,800	14,000
Metals:					
Ferrocerium, alloys	356	268	309	301	310
Rare-earth metals, scandium, and yttrium	385	404	524	527	590
Exports: ²					
Ores and compounds	4,980	590	1,740	16,800	26,000
Metals:					
Ferrocerium, alloys	1,220	943	982	1,210	1,400
Rare-earth metals, scandium, and yttrium	60	103	55	28	100
Consumption, apparent ³	9,550	10,500	9,060	11,600	13,000
Price, dollars per kilogram, average: ⁴					
Cerium oxide, 99.5% minimum	3	2	2	2	2
Dysprosium oxide, 99.5% minimum	279	198	187	179	240
Europium oxide, 99.99% minimum	344	74	77	53	35
Lanthanum oxide, 99.5% minimum	3	2	2	2	2
Mischmetal, 65% cerium, 35% lanthanum	7	5	6	6	6
Neodymium oxide, 99.5% minimum	48	40	50	50	45
Terbium oxide, 99.99% minimum	564	415	501	455	510
Employment, mine and mill, annual average	351	—	24	190	220
Net import reliance ⁵ as a percentage of apparent consumption: ⁶					
Compounds and metals	38	100	100	100	100
Mineral concentrates	XX	XX	XX	E	E

source: U.S. Geological Survey, *Mineral Commodity Summaries, 2020*

We also observe that the price trends for the rare earths that MP produces trend unfavorably compared to other rare earth categories. The price projections for Cerium and Lanthanum are even worse in the coming years. For example, certain research firms have projected pricing of Cerium and Lanthanum at \$1.70 throughout 2025.

Key Assumptions	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
Prices (\$)								
NdPr	50.07	44.13	44.88	75.00	85.00	92.50	95.00	100.00
Lanthanum	2.19	1.88	1.65	1.70	1.70	1.70	1.70	1.70
Cerium	2.15	1.90	1.67	1.70	1.70	1.70	1.70	1.70

source: grizzly research; Cowen

Although MP keeps claiming itself as the biggest producer of rare earth materials in the Western Hemisphere and that it currently produces approximately 15% of the global rare earth content, what MP did not say is that most of its rare earth deposits are Cerium and Lanthanum whose prices are bottoming. Although MP touts itself as the company that will help US break free from China’s dominance in rare earths, MP simply does not have the type of rare earth that is needed to support their valuation.

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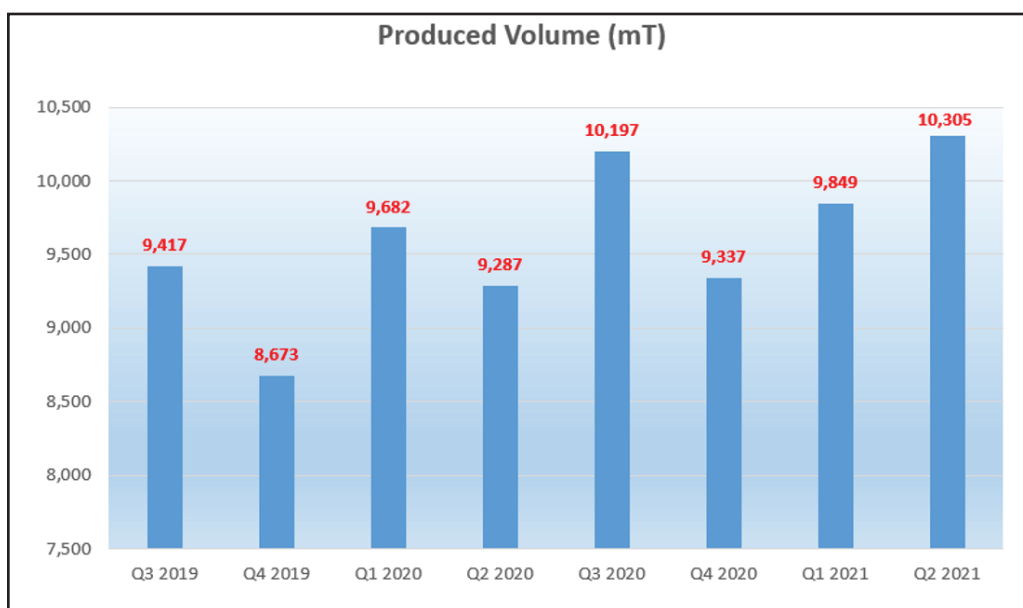
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MP Set Up For Failure Again: Production Ramp Up Still Seems Like a Major Issue

Be reminded that one of the main reasons that Molycorp went into bankruptcy is that it had the problem of ramping up production. Based on the production volume provided by MP itself, it appears that after many years the production volume is still pretty much the same as the Molycorp era.

The table below summarizes the production volume in metric-ton (mT) since Q3 2019, and we can see that on a quarterly basis, there is no clear production ramp even in 2021 when the company raised hundreds of millions in cash.



source: MP disclosure

Based on the available data provided by MP, since Q3 2019 after almost 2 years of ramping up, MP had a “record” production volume quarter in Q2 2021. Despite this claim, the percentage growth is less than impressive. This record production volume is only ~9.4% higher than MP’s volume from Q3 2019. Be reminded that MP completed the business combination in November 2020, but for the first half of 2021, we still have not seen any meaningful production ramp-up.

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MP Set Up For Failure Again: Stage Two And Stage Three Are Not Promising as They Seem to Be

MP has put forth ambitious plans (namely Stage II and Stage III) to be able to conduct separated REO production and become a fully integrated western hemisphere supplier of rare earth magnets. However, we found out that Mountain Pass mine had endured a very similar story told by Molycorp, which ultimately failed terribly.

According to MP, "The completion of our Stage II optimization plan and any development of Stage III is expected to be capital intensive. We expect to invest approximately \$170 million to complete our Stage II optimization plan..."

In fact, the very similar story was sold to Molycorp investors years ago. Molycorp was involved in the ambitious project called Project Phoenix, an optimization "Mine-to-Magnets" project that led Molycorp into bankruptcy after failing to reach the desired improvements. Molycorp spent over \$1 billion on Project Phoenix, which is way more than MP announced it would need to succeed in stage II and Stage III. Remember that the operations team in charge of execution is essentially the same as it was when Molycorp failed. On top of this, Molycorp's CEO was an experienced mining executive. On the other hand, MP's CEO is a hedge fund manager.

Project Phoenix, in many ways, is similar to MP's current plans. At the time, Molycorp bullishly claimed that it could compete with (or even underprice) China's near-monopoly in REE. However, due to the immaturity of the company's mineral separation technology, the high barriers to entry and the lingering threat of the Chinese monopoly to manipulate prices at will, Project Phoenix only ended up putting financial burden on the company.

We demonstrate below precisely how similar MP and Molycorp is.

Molycorp Project Phoenix	MP Material's Optimization Plan
When Phase 1 of Project Phoenix is completed, Molycorp's manufacturing assets will comprise the world's first fully integrated rare earth manufacturing supply chain , producing high-purity rare earth oxides, metals, alloys, and neodymium-iron-boron (NdFeB) permanent magnets, widely used in transportation, high tech, clean energy, defense, and other industries.	Conduct Separated REO production and become a fully integrated western hemisphere supplier of rare earth magnets.
We are currently pursuing joint venture opportunities to integrate downstream into NdFeB magnet manufacturing in the United States. This downstream integration would make us the only fully integrated producer of NdFeB magnets outside of China, helping to secure rare earth supply for the Rest of World.	Upon completion of the Stage II optimization plan, we expect to be a cost-competitive, high-volume producer of separated REO. We believe we will then be in position to consider opportunities to integrate further downstream into the business of upgrading NdPr into metal alloys and magnets, ultimately expanding our presence as a global source for rare earth magnetics .
The Pentagon's decision to back the Molycorp project in 2010, resulting in a spectacular bankruptcy in 2015 , poisoned the investment well for this sector.	Department of Defense is again backing MP , but MP is selling the same plan that now-defunct Molycorp sold to the Pentagon back in 2010.
Molycorp touted the potential drivers of rare earth demand are wind turbines and electric vehicles.	MP touted the potential drivers of rare earth demand are wind turbines and electric vehicles.
Molycorp failed during a time when cerium and lanthanum, neodymium and praseodymium were at historical high prices .	MP is now generating 99% revenue from cerium and lanthanum, which are trading 90% lower than they were during Molycorp's era.

Note: A typical NdFeB magnet contains about one-third neodymium, a light rare earth. Some of that neodymium can be replaced by another light rare earth, praseodymium (Pr). As such, NdFeB magnets are also referred to as NdPr magnets.

Of Course, MP Says It Has a "Mine To Magnet" Strategy, But It is the Exact Same Plan That the Now-Defunct Molycorp Sold to the Pentagon and Investors In 2010. --- Quote from Defense One

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MP Set Up For Failure Again: Stage Two And Stage Three Are Not Promising as They Seem to Be

At the time, Wall Street and even the Pentagon supported the project. Similarly, the stock is now the darling of many Wall Street analysts and supposedly the Department of Defense. However, the project and the innovative technologies failed to stick and did not generate significant revenue, or even work as designed. By 2013, the company also went through an SEC investigation that questioned the company’s financials, which led to the CEO Mark Smith stepping down and [a new CEO, Constantine Karayannopoulos](#), coming on board.

Notably, Constantine seemed to be no better. He was the CEO of a company called Neo Materials that Molycorp had acquired when it was still abundant in cash. According to [a report](#), as the company dwindled, the new CEO transferred much of Molycorp’s profitable assets to the Chinese-linked Neo Materials. The majority of Neo Materials’ revenue-producing operations are now in China. Conveniently, Neo Materials also left out Mountain Pass. We wonder why.

Stage II is Facing Either Cost Increase or Time Delay

According to the management in Q2 2021 earnings conference call, they already hinted that there could be either CAPEX increase or project delay:

“As we work towards completion, we may ultimately have to make decisions between cost and schedule as issues and change orders come up. Overall though, we are optimistic as Stage II is already visibly taking shape at Mountain Pass and we believe our goal to achieve production levels of 6,075 metric tons of NdPr in 2023 remains on track.”

We suspect there would be CAPEX increases in the coming future. And this was not the first time MP has increased its CAPEX for Stage II.

In MP’s [prospectus](#) filing dated August 2020, it stated that:

“We expect to invest approximately \$170 million to complete our Stage II optimization plan and reach anticipated production rates for the separation of REOs by the end of 2022, and our estimated costs or estimated time to completion may increase, potentially significantly, due to factors outside of our control.”

Then in its Q4 2020 earnings presentation, \$30 million Design Improvements cost of \$30 million for Chlor-Alkali showed up in the Stage II Spending and it was increased to \$40 million.

	July Est.	Contracted
Stage II Construction	\$170M	\$170M
Chlor-Alkali → Design Improvements (net)	\$30M	\$40M
Net Stage II Spend	~\$200M	~\$210M

source: <https://s25.q4cdn.com/570172628/files>

We were not able to find the \$30 million design improvement cost for Chlor-Alkali as part of the Stage II CAPEX plan, which means in Q4 2020, MP added \$40 million additional CAPEX for Stage II, which is a 23.5% increase compared to the original \$170 million CAPEX schedule for Stage II.

Based on the implication from the management in the Q2 2021, as we mentioned above, we foresee there will be further CAPEX increase in the coming future for MP’s Stage II plan.

Research Report on MP Materials Corp (NYSE: MP)

MP Set Up For Failure Again: Stage Two And Stage Three Are Not Promising as They Seem to Be

Stage III is a Fluffy Dream Down the Road

It appears that the Stage III downstream expansion plan might just be a selling point to investors. To get into the downstream magnets business, MP needs to be able to produce commercially viable volumes of heavy rare earth elements such as dysprosium and terbium. Unfortunately, according to our research, this is highly unlikely to happen.

Below are some notes from Sell Side Report:

Nd-Fe-B magnets are comprised mainly of neodymium, iron and boron, and may also contain other rare earths like praseodymium, or minor concentrations of heavy rare earths like dysprosium and terbium, as well as other metals like copper, cobalt or niobium. Dysprosium, in particular, has historically been used for high-temperature grades of Nd-Fe-B magnets, but due to its high cost (see Exhibit 30) relative to other rare earths, magnet producers have developed methods to lower Dy concentrations without compromising high temperature resistance.

However, according to a [Class Action lawsuit](#) on Molycorp in 2012, Mountain Pass mine does not really have commercial volume of dysprosium and terbium.

*"Further, defendants maintained their rouse by failing to inform investors that in August 2011, joint-venture discussions with Hitachi Metals to manufacture magnets utilizing HREEs – pursuant to the Company's purported **"mine-to-magnets" strategy – collapsed because Hitachi Metals had concluded that there were not commercial volumes of HREEs at Mountain Pass.**"*

*"NdFeb magnets are utilized for hybrid electric, plug-in hybrids and pure electric vehicle motors. The HREE dysprosium is an important ingredient in these magnets enabling electrical vehicle motors to continue to provide efficient power as the magnets reach service temperature of 160 degrees Celsius (320 degrees Fahrenheit). The HREE terbium is also utilized in NdFeb magnets for cooling and efficiency purposes. **Whether dysprosium and terbium actually existed at Mountain Pass, therefore, was critical to the success of the Company's "mine-to-magnets" strategy and, thus, to the Company's investors.**"*

*Unfortunately, **however, the capabilities of Mountain Pass, as repeatedly touted by defendants, were little more than hype.** As prices for REEs skyrocketed in 2011, customers began switching to viable substitutes, which Molycorp had repeatedly assured investors did not exist. Even more importantly, and in complete contradiction to defendants' Class Period assurances, the Mountain Pass ore body **did not contain commercially viable quantities of the highly-valued HREEs dysprosium and terbium.***

...The Insider Selling Defendants also reaped their unlawful insider trading proceeds prior to November 2011, when news entered the market that Molycorp did not have commercially viable amounts of HREEs at Mountain Pass and that these elements would not be produced during the first two phases of Project Phoenix...

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Research Report on MP Materials Corp (NYSE: MP)

The Rare Earth Supply Story – Undersupplied and Over-demanded, Yet Rare Earth Prices Still On a Roller Coaster

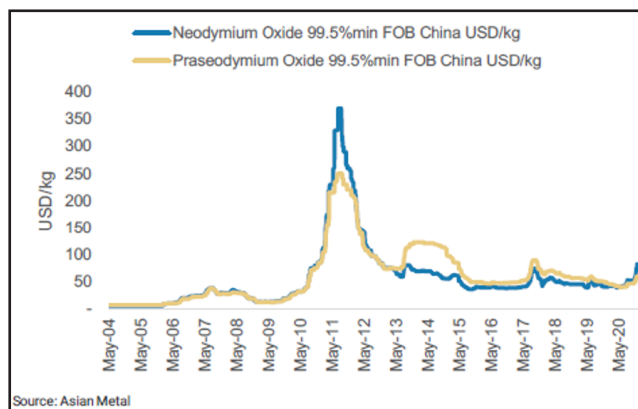
An investor presentation dated 2011 from Molycorp also used Hybrid and Electric Vehicles and Wind Turbine as rare earth's demand drivers.

source: <https://www.slideshare.net/RareEarthsRareMetals/molycorp-corporate-presentation-jan-2011>

Ironically, almost a decade later, MP is showing the exact same demand drivers. Again, Deja vu.

source: company filings

And of course, the global rare earths are always undersupplied and over-demanded. However, we can see that the price of rare earths has dropped significant during this “undersupplied and over-demanded period”.



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The Rare Earth Supply Story – Undersupplied and Over-demanded, Yet Rare Earth Prices Still On a Roller Coaster

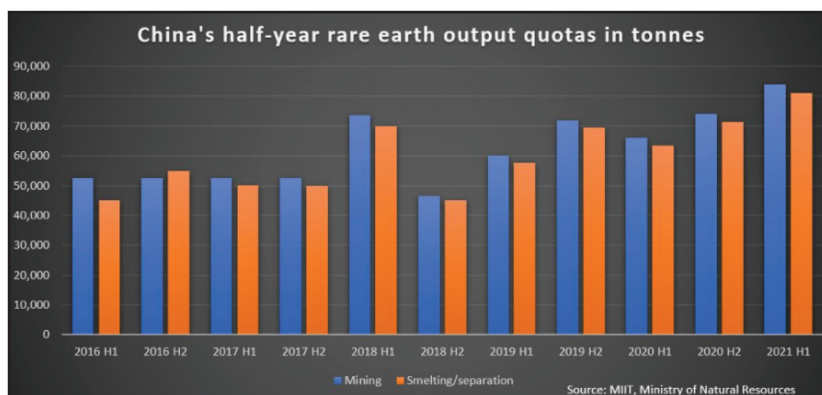
Fast forward to today, analysts and certain companies in the rare earth industry are again starting to cite EVs and Wind Turbines as the drivers for rare earth (including NdPr) demand.

Global NdPr S/D Summary	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Total Oversupply/(Undersupply)	-7%	-4%	-7%	-8%	-10%	-7%	-11%	-15%	-19%	-23%	-28%
Total Supply (NdPr kta)	31	33	34	35	35	38	38	38	38	38	38
Total Demand	34	35	36	38	39	41	43	45	47	50	53
Supply Summary											
China	19	20	19	19	19	19					
USA	5	5	6	6	6	6					
Lynas (Aus)	5	6	7	7	8	10					
Rest of World	2	2	2	3	3	3					
Recycling	-	-	-	-	-	-					
Total Supply	31	33	34	35	36	38	38	38	38	38	38
Demand Summary											
Total Passenger EV Demand	3	3	4	4	5	6	8	10	12	15	18
Wind Turbine Demand	4	5	5	5	5	6	6	6	6	6	6
Conventional Vehicles	11	11	11	11	11	11	11	10	10	10	9
Other	16	16	17	17	18	18	18	19	19	20	20
Total Demand (NdPr kta)	33	35	36	38	39	41	43	45	47	50	53

source: grizzly research; Cowen

However, price in rare earth seldom is as simple as supply-demand dynamics, as we simply cannot ignore the risk of China’s potential rare earth export quota increase. Be reminded that the last time when Molycorp went bankrupt, one of the reasons was the increased supply of rare earth from China that resulted in a dramatic drop in prices.

According to a Reuters’ [report](#), China has increased its half-year 2021 rare earth output quotas to a record level, an 27% increase from the same period last year. When companies and analysts are all hyped on the undersupply and over-demand scenario for rare earth, people need to remember that dramatic increase of rare earth output quotas from China could easily fulfill those hyped-up demands touted by companies and analysts.



source: <https://www.reuters.com/article/us-china-rareearth>

In addition, investors should be aware that auto companies are seeking other ways to decrease their reliance on rare earth for their auto production, which could eventually curb the supply and demand scenario that analysts are painting. For example, it was [reported](#) in 2018 that Toyota developed a new magnet for electric motors that uses much less neodymium (Nd) and uses no terbium (Tb) or dysprosium (Dy). Furthermore, Bentley Motors is even [reportedly](#) looking into utilizing rare earth-free magnets for its electric vehicle architectures.

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Lifetime of Mountain Pass Under Current Production Volume Is In Question?

We found discrepancies in the reported mine-life between Molycorp and MP about the exact same Mountain Pass Mine.

"At this point, we all know that Molycorp is looking to produce 40,000 tons per annum for a 15 year mine life. The sell-side analysts have built their models using that assumption. And there has been speculation, including by yours truly, that around 2015 Molycorp would look to acquire a second project that could feed its facilities once Mountain Pass ran out."

Current sell-side research reports surprisingly state there is still 20 more years of mine-life for Mountain Pass at the same production volume of 40,000 tons per year. Did MP make any exploration? Or did the company give misleading information to the sell-side?

At last reserve report, Mountain Pass showed 803 ktonns of recoverable rare earth oxides at an attractive grade of 7.8% on average. Without further exploration, the current reserves equate to approximately a 20 year mine life, though we would expect some exploration initiatives over the next few years to expand the resource base.

Reserves	Resource Tonnes	tREO %Grade	tREO Tonnes	Recoverable Tonnes
Proved	214,786	9.0%	19,331	19,331
Probable	14,431,568	7.8%	1,128,549	789,984
Total	14,646,354	7.8%	1,147,880	809,315

source: grizzly research; Cowen

Molycorp Minerals, LLC
Engineering Study for Re-Start of the Mountain Pass Mine and Processing Facility Page 57

Table 6.8: Proven and Probable Reserves for the Mountain Pass Project (Effective February 6, 2010)

Category	REO %	kt	REO (Mlbs)
Proven	9.38	480	88
Probable	8.20	13,108	2,122
Proven and Probable	8.24	13,588	2,210

1. Full mining recovery is assumed (100%).
2. Mine reserves are fully diluted.
3. A historical CoG of 5% REO was used within the pit design.
4. Average REO mill recovery estimated at 65%.
5. 1997 surface topography used for volume control of reserves.
6. Values have been rounded to nearest significant number, to reflect the accuracy of the estimate.

source: <https://www.sec.gov/Archives/edgar/data/1489137/000095012310065239/d74323fwfwp.htm>

Conclusion

Contrary to what MP has investors believe, the company is highly controlled by none other than the Treasury department of China, who holds Chinese domestic interest above the interest of MP and MP investors. There are major political risks as 99% of MP's revenue is from the Chinese shareholder company Shenghe. Furthermore, we observe recurring patterns when comparing MP to its predecessor Molycorp, and note that the so called "optimization plan" of today is just a rehash of "Project Phoenix". We note that Stage II is already delayed and will likely require further funding to be completed, and Stage III is near impossible considering the mine appears to not even possess the needed rare earth materials.

We conclude that MP sold a great story of rare earth independence and prosperity to US investors, but upon a deeper look it turns out that there are major fallacies to the business. We are not surprised to see a company like this go public through a Chamath-backed SPAC.

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