



United States Efforts to Support Domestic Supplies of Critical Minerals

Philip V Egidi
U.S. Environmental Protection Agency
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Disclaimer



- The opinions presented here are those of the author, and do not represent the official position of the EPA or any other agency or organization I am affiliated with.
- The purpose is to communicate and facilitate discussion.
- The author has no conflicts of interest.
- The list of actions here is not complete, but rather an example of U.S. efforts

Background



- 40 years of a globalized approach to supply chains
 - International sources of raw materials
 - “Just-In-Time” inventory and
 - Downsizing of a trained and knowledgeable workforce
- U.S. policy is now changing back to a supply chain for critical minerals that relies largely on domestic sources (and with partners who share our values).

Critical minerals



- Critical minerals, including rare earths, are crucial to numerous industries and national defense.
- NORM is an issue that must be considered.
- Executive Orders have been issued by both the Trump and Biden Administrations to develop and ensure the reliability of domestic supplies of critical minerals (and with partners who share our values).
- Due to domestic and international changes in business arrangements and political pressure by China on commodity prices.

Base Case



- The U.S. currently has one operating rare earths mine that sends its ore to China for processing.
- Numerous rare earth projects are in the pipeline but will take time to ramp up.
- A uranium mill in Utah is now processing monazite under its current radioactive materials license into a concentrate that is sent to Europe for processing.

Executive Actions



Do not require Congressional action

- December 20, 2017, President Trump issued Executive Order (EO) 13817.
 - **Policy to reduce the United States' vulnerability to disruptions in the supply of critical minerals.**
- June 4, 2019, U.S. Department of Commerce “**A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals,**” was released by the as an agreed upon federal coordinated effort to reduce the nation’s reliance on foreign supplies of critical minerals.
- July 22, 2019, President Trump signed **Presidential Determinations** (in accordance with Section 303 of the Defense Production Act of 1950 (DPA)).
 - Provide production capability for the REMs and REEs as essential to the national defense
 - Two contracts were announced in April 2020:
 - Lynas Corporation (likely with Blue Line Corporation of Hondo, TX), and
 - MP Materials’ Mountain Pass Mine in California.
 - There was consternation over funding Mountain Pass due to a Chinese firm holding a stake in the new company. In July 2020 both projects were funded.

More Executive Actions



- September 2020, President Trump signed Executive Order 13953, **“Addressing the Threat to the Domestic Supply Chain from Reliance on Critical Minerals from Foreign Adversaries and Supporting the Domestic Mining and Processing Industries”**,
 - Which required progress reports from various agencies on progress to secure a domestic supply of critical minerals.
- November 2020, DOD issued **“Rare Earth Element Awards to Strengthen Domestic Industrial Base”**.
 - \$2.3 Million to TDA Magnetics of Rancho Dominguez, CA, and \$860 thousand to Urban Mining Company of San Marcos, TX.
 - Also to MP Minerals (next slide)

Mountain Pass Redux



- DOD included \$9.6 Million to MP Minerals (Mountain Pass) to develop light rare earth processing,
- DOD awarded another \$35 million to them to design and build a facility to process heavy rare earth elements (HREE).
- MP is now funded over \$40 Million to develop both light and heavy rare earth elements at Mountain Pass.

Bipartisan Infrastructure Bill...



- November 15, 2021, President Biden signed the **Infrastructure Investment and Jobs Act** (IIJA, P.L. 117-58).
- Huge infrastructure bill with many parts.
- A portion of the bill is directed at energy and minerals issues. It has provisions for:
 - Supporting geological and geophysical data preservation,
 - A USGS energy and minerals research facility, and
 - A rare earth elements demonstration facility.
- These total \$140 million.
- Critical minerals mining and recycling research is also funded at \$100 million
- Additionally, there are numerous provisions for improvements to battery technology.

More Executive Actions



- February 24, 2021, President Biden issued EO 14017, **Executive Order on America's Supply Chains**.
 - Addressed many supply chain issues (this was in the middle of the pandemic and supply chain issues were front and center).
 - It took an all-of-government-approach
 - Required coordination among federal agencies and required numerous progress reports.
 - Provisions to increase recycling and to invest in sustainable international sources via partnering with our allies.
- DOE issued **"America's Strategy to Secure the Supply Chain for a Robust Clean Energy Transition."**
 - The report lists "...challenges and opportunities facing the energy supply chain along with key strategies to secure America's position as a clean energy superpower in the years and decades to come"

More Recent Activity



- February 24, 2022, USGS updated the critical minerals list
 - Dropped uranium (fuels are not considered critical minerals) and
 - Listed the individual rare earths,
 - Making other changes such that the list now has 50 critical minerals listed.
- March 30, 2022, DOI issued a request for information, to inform the **Interagency Working Group on Mining Regulations, Laws and Permitting.**
 - Will gather information and develop recommendations for improving Federal hardrock mining regulations, laws, and permitting processes, and
 - Is inviting public comments to help inform the efforts of the working group

More Recent Activity



- March 31, 2022, the White House issued **“Memorandum on Presidential Determination Pursuant to Section 303 of the Defense Production Act of 1950, as amended.”**
- Focused on critical minerals needed for new battery technologies.
- It states in part: “ It is the policy of my [the Biden] Administration that ensuring a robust, resilient, sustainable, and environmentally responsible domestic industrial base to meet the requirements of the clean energy economy, such as the production of large-capacity batteries, is essential to our national security and the development and preservation of domestic critical infrastructure.”
- It went further to state: “...sustainable and responsible domestic mining, beneficiation, and value-added processing of strategic and critical materials for the production of large-capacity batteries for the automotive, e-mobility, and stationary storage sectors are essential to the national defense”.

Private Sector Money



Just a couple of examples

- Energy Fuels Resources also announced in December 2021 that it had entered into a strategic venture with Nanoscale Powders to develop innovative rare earth metal-making technology.
 - They are also considering funding a new plant that could process individual rare earth elements.
- NioCorp in Elk Creek, Nebraska is trying to raise \$1Billion for a rare earth mine and processing plant.
- MP Materials will invest up to \$700 million at Mountain Pass to develop processing capabilities.

Summary



- Numerous efforts by the Trump and Biden Administrations have been put forth to support and stimulate a domestic critical minerals sector that includes rare earths.
 - Tens of millions of dollars are allocated
- In addition to Executive Branch orders, Congress passed a massive infrastructure bill that includes over \$200 million in funding for critical minerals
- The private sector is also investing hundreds of millions of dollars in U.S. rare earths capabilities
- This is an evolving situation