

Public Comment of Daniel McGroarty

in response to
Notice of Request for Comments on
2021 Draft List of Critical Minerals
Docket No. DOI-2021-0013 (November 9, 2021)

Proposed 2021 Critical Minerals List

I welcome the opportunity to submit this Public Comment on the draft 2021 Critical Minerals List. While I have advised private companies engaged in resource development for two decades, have consulted to U.S. Government agencies on strategic and critical materials issues, and currently serve on the Independent Advisory Board of the Department of Energy's Critical Materials Institute, the comments offered here are mine alone.

While I commend USGS for expanding the 2021 Critical Minerals List from the 2018 “generic” or category references to Rare Earth Elements and Platinum Group Metals, given the widely varying and rapidly developing uses of individual Rare Earths and PGMs, as well as the inclusion of nickel and zinc on the 2021 Critical List, I focus my comment on the need to develop a protocol for de-Listing Criticals, in order to preserve the positive public policy objectives served by the creation of the Critical Minerals List and subsequent codification into federal law.

While much of the reporting on the 2021 List has focused on its expansion from 35 to 50 Critical Minerals, four 2018 “Criticals” are de-Listed, while a fifth – uranium – has been removed for procedural reasons. While USGS notes in its methodology that criticality should be viewed as a “continuum¹” and not as a sharp either/or designation, the Critical List's value as a market signal to private sector minerals and metals developers and private capital warrants careful attention to the way in which minerals and metals are dropped from the List equal to the attention given those added to it.

Market Signals and a Critical De-Listing Protocol

¹ As USGS notes, lower supply risk scores and subsequent de-Listing are a reflection that the while U.S. net import reliance may remain high, production of a given commodity “was either not highly concentrated [in a single country] or

was concentrated in countries that were rated favorably on the Ability to Supply Index or the Willingness to Supply Index.”

As an advisor to companies developing critical minerals and metals, I can attest that the Critical Minerals List functions as signal to private sector resource developers and allocators of private capital that a Listed mineral or metal has elevated and even strategic significance. That is especially true in regard to Critical Minerals that are not mined in their own right but as co-products of mining for established or mainstay metals and minerals. Producing these coproduct materials often involves pioneering recovery methods and processing innovations – advances that can be accelerated by the fact that the material is deemed Critical by the U.S. Government.

Clearly, new developments that remedy shortfalls or deep import dependencies of a Critical mineral or metal should be recognized, and can warrant de-listing. A major new U.S. source for a Critical that shifts import dependence from 50% or more to zero or near-zero - or a new non-U.S. source of supply from an allied nation merits a recalibration that can result in dropping a mineral or metal from the Critical List. But in the case of three of the de-Listed Criticals – rhenium, strontium and potash -- each of which fall fractionally below the USGS methodological cut-off, no such shift has taken place from 2018 to 2021.¹

Rhenium import-dependency in the year prior to the promulgation of the 2018 Critical Minerals List was 81%; it was 76% in 2020 – during COVID’s first wave and the broad shutdown of the national economy – and 84% in 2019. Domestic rhenium production was 2% higher in 2019 than 2018, but 5% lower in 2020.

Strontium import-dependency, 100% as the 2018 Critical Mineral List was developed, remains at 100% today.² While China is the world’s leading strontium producer (China and Iran account for roughly 40% of worldwide strontium production), Mexico provides the bulk of the strontium required by U.S. industries, without undue supply risk.

Potash import-dependency decreased marginally from 92% to 90%, with Canada continuing to serve as the U.S.’s primary supplier.

In each case, production rates and import-dependency have not changed between 2018 and 2021 to the degree that U.S. access to these materials is appreciably improved. And while the choice to de-list these materials may seem bureaucratically benign, de-Listing can have significant chilling effects on domestic development that is the only durable path to providing surety of supply.

¹ I offer no comment on helium, the fourth Critical to be de-listed in 2021, as it is the subject of specific U.S. legislation (notably the 2013 Helium Stewardship Act) and, as recognized by the USGS’s supply risk metric, presents essentially zero risk of supply disruption.

² Strontium was last produced in the U.S. in 1959.

Removal of rhenium from the Critical List when it continues to be an essential material for aerospace and evolving energy applications can send a market signal that it is no longer significant, discouraging investment and innovation in domestic recoveries.

Removal of strontium from the list may serve to disincentivize progress in recycling, recovery and reuse of strontium in oil and gas extraction. In that regard, de-listing strontium reinforces its status as a post-industrial hazardous waste material, imposing economic costs and environmental impacts associated with its safe disposal.³

In the case of the de-Listing of potash, even as this Public Comment deadline approaches, news reports indicate that American farmers are petitioning the U.S. Justice Department to investigate increases in fertilizer pricing, citing the fact that two companies account for 93% of all U.S. potash production.⁴ It is reasonable to assume that the de-Listing of potash as a Critical will be referenced as the Justice Department reviews this request.

A “Near-Critical Watch List”

With these impacts in mind, I respectfully recommend that USGS establish a step-down category or “Near-Critical Watch List” for minerals and metals falling marginally below the methodological cutoff, where those minerals and metals can be carried for the Critical List’s next 3-year life cycle. Without such a watch list, the prospect of minerals and metals near the cutoff moving on and off the Critical List over 3-year periods undercuts the value of a consistent signal to private industry that these materials matter, and warrant the application of capital – both intellectual and financial – to develop new ways to extract, recycle and reclaim them.

The wild card variables determining whether new sources of “Criticals” are brought into production are technology development and advances in materials science. Neither must be “noticed” to government bodies, both are deeply proprietary and therefore can produce new applications that strain supply without warning.

Part of the challenge in making the connection between Critical Minerals and the applications they enable is a perception that what have long been called the “minor metals” are of marginal importance. That perception has been overtaken by events, and needs to be retired immediately. The hallmark of 21st Century technology – evidenced in the expanding Critical Minerals List itself – is that the so-called minor metals play a major role in technological progress. For this reason, a clear protocol on how Criticals are removed from the Critical List is every bit as important as how minerals and metals are added to it.

³ <https://cen.acs.org/environment/water/Wastewater-fracking-Growing-disposal-challenge/97/i45>

⁴ <https://www.agweek.com/news/government-and-politics/7315134-Farmers-ask-U.S.-Justice-Department-to-investigate-fertilizer-price-spikes>

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