The AusIMM Uranium Conference 2021

Abstract

"Bringing Back Critical Mineral Supply Chains to the USA"

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For several decades, the United States has ceded control of many critical mineral mining and processing capabilities to other countries, mainly China and Russia.

This talk will describe how one facility, Energy Fuels' White Mesa Mill near Blanding, Utah, USA, is reversing this trend by restoring significant mining and processing capabilities to recover uranium, vanadium and many of the rare earth elements (primarily Nd, Pr, Dy and Tb). This 40-year-old facility has survived the test of time through innovation, tenacity and technical excellence.

The White Mesa Mill has a long and successful history producing and recycling both uranium and vanadium. Now, this facility is quickly emerging as an opportunity to be one of the world's largest processors of rare earth elements outside of China. In fact, just this past April, the mill began ramping-up commercial production on an intermediate rare earth product, and Energy Fuels is moving forward with plans to move farther down the rare earth value chain in the coming years, including production of separated rare earth oxides, metals, alloys, and/or powders. Rare earth production at the Mill is conducted to the highest world standards for environmental protection and social responsibility, and it is expected to be both cost competitive on a CAPEX and OPEX basis.

The talk will center around how the company's long history of uranium production may now provide a "once in a lifetime" opportunity to recover both high grade uranium and rare earth elements from monazite sands recovered as a byproduct of heavy mineral sand (HMS) production. Monazite is considered problematic to HMS operators due to the presence of natural uranium, thorium and other radionuclides. The White Mesa Mill is turning this problem into a significant opportunity to restore critical rare earth element production to the USA, while also recovering uranium (and possibly thorium).