Pea Ridge Mine
Developer: MFC Industrial Ltd., Alberici Constructors
Location: Washington County, Missouri
Prepared January 2018

Background
Located in southeastern Missouri near the town of Sullivan, a mining project has been proposed that would reopen an old iron mine for the purposes of extracting rare earth metals and thorium. Known as the Pea Ridge Mine, this project would extract rare earth elements that are located in the breccia pipes that crosscut the mine. Breccia is a kind of rock that is made up of broken fragments of minerals or rock fused together by finer-grain materials. The minerals that compose the breccia pipes within the Pea Ridge Mine are monazite, xenotime, and minor bastnasite and britholite. Rare earth elements comprise at least some of the chemical make-up for all of these minerals, making them some of the most common sources of rare earth elements. Additionally, the U.S. Bureau of Mines has shown that rare earth elements are present in these pipes at considerably dense concentrations, making them particularly attractive for extraction (mindat).

In addition to rare earth element extraction, the Pea Ridge Mine may also mine thorium. Thorium is almost always found in rare earth element deposits due to its compositional similarity to the alkaline igneous rocks in which they are both found. This means that thorium is almost always a byproduct of rare earth element mining. Thorium is a moderately radioactive cousin of uranium whose mining requires special processing and cleanup due to this radioactivity. These added processes are costly and are often deterrents for other prospective rare earth element mining projects.

Rare earth element and thorium mining is new for southeastern Missouri which historically was known as the “Lead Belt”. Southeast Missouri used to be home of the largest lead deposit in the world. Over the past 100 years, Missouri has been responsible for 90% of the lead produced in America. While lead mining is still doing well in other parts of Missouri, such as further west in the state in what is known as the “New Lead Belt,” the industry is struggling in southeastern Missouri where the Pea Ridge Mine is located. Despite a marked decline in mining in recent decades, mining still remains deeply ingrained in the culture of the area surrounding Sullivan. Residents of the area describe an “overwhelming pride in the legacy of the lead-mining industry” and “often [ground] their identity in relation to lead extraction” (Hoste, 2016).

Currently, the Pea Ridge Mine is closed. The Canadian commodities supply chain corporation, MFC Industrial Ltd., co-owns the mine with Saint Louis based Alberici Constructors. The previous owner, Wings Enterprises, still owns 70% of the mine’s REE reserves and is attempting to convince the new owners of the mine to reopen it (Scher Zagier, 2013).

Policy Context
As previously mentioned, mining has been an integral part of Missouri’s economy for centuries. This is still true today. Nonfuel mineral production in Missouri is estimated to have had a value of $2.41 billion while also employing over 5,000 Missourians in 2013 (USGS, 2016). Because of this, along with the desire for economic revitalization in the Old Lead Belt, the reopening of the mine has received a
positive response from local and state representatives and agencies.

Perhaps the largest political consideration pertaining to the Pea Ridge Mine is the need for legislation regarding thorium mining and storage. Currently it is very difficult to receive permission for these activities due to the radioactivity of thorium. Proponents of thorium mining and the Pea Ridge Mine argue that the current legislation does not consider the nuances in radioactivity between elements, meaning that slightly radioactive thorium is included in the same legislative restrictions as highly radioactive elements such as uranium. Wings Enterprises believes that thorium mining can be done in a safe and responsible way that would not endanger workers or the surrounding environment (Boyle, 2011).

Additionally, supporters of the Pea Ridge Mine and thorium mining hope to increase support for thorium as an alternative energy source. Thorium is more abundant in nature than uranium and can be used in thorium salt reactors which could potentially reduce fossil fuel consumption in the United States. Thorium has 200 times the energy potential as uranium and thorium energy production creates significantly fewer radioactive waste products (Boyle, 2010).

Even though thorium has many benefits, there are still many obstacles to overcome before it becomes a viable alternative energy source. First, legislation around thorium must radically change. Second, the infrastructure to produce thorium powered energy plants does not currently exist in the United States and would need to be constructed. This would be an enormously expensive task.

Public Response

Public response to the Pea Ridge Mine has largely been positive. Many mining jobs in Missouri have moved west meaning that businesses are leaving the region and poverty levels are on the rise. According to Wings Enterprises, the previous owner of the mine, reopening the mine would create about 300 permanent jobs with an additional 700 temporary construction jobs (eMissourian, 2010).

Local public responses suggest that the economic revitalization that could come to the area as a result of the mine seem to outweigh its potential environmental impacts. Some have expressed concern that iron and lead from the mine could leak into the nearby Big River watershed, which would eventually lead into the Mississippi River. This contamination could harm fish, wildlife, and humans in the area. The region has already struggled with lead contamination for years because of previous mining operations.

No environmental review has occurred for the Pea Ridge Mine because actual operations at the mine site have not been pursued. If the current owners of the mine decide to reopen it, the environmental review and permitting processes would begin.

Conclusion

The Pea Ridge Mine has support on local, state, and national levels. Public response to the mine has been favorable largely due to the economic revitalization that the mine could bring to the area. Despite this the future of the mine is still based on decisions yet to be made by state and federal policymakers about thorium mining and storage, as well as the economic viability of the mine itself once all obstacles are out of the way.
Works Cited


Photo Sources
1https://www.bestplaces.net/city/missouri/sullivan