Background

In 2008, the mineral exploration company U.S. Rare Earths, Inc. began aggressively surveying mining claims in Lemhi Pass along the Idaho-Montana border. The Texas-based company formerly known as Colorado Rare Earths, Inc sought to extract certain rare earth elements (REE) and thorium from the Pass arguing that the mine would boost the local economy while also contributing to America’s resource sovereignty and helping to satisfy increasing demands from defense, energy and technology industries for rare earth elements.

Lemhi Pass is of geologic note because of the presence of highly concentrated thorium and rare earth element deposits below the surface. Lemhi Pass has one of the largest and most concentrated thorium deposits in the world with an estimated 64,000 metric tons of thorium oxide. Additionally, the geologic composition of Lemhi Pass is particularly unique because of the relatively balanced ratios between thorium and REEs. In most other REE mining projects, thorium concentrations tend to be too low for their production to be profitable (USGS, 2009).

In addition to geological interest, Lemhi Pass is of particular historic and cultural significance. First, the Pass is a part of the ancestral lands of the Shoshone-Bannock tribes. Lemhi Pass has historic and spiritual importance as it is the resting place for their ancestors (Lemhi-Shoshone). Secondly, Lemhi Pass was a significant location during Lewis and Clark’s expedition and, as the site of a National Historic Landmark, attracts large amounts of tourists.

The lifestyles of residents in the Lemhi Pass area have been defined by its unique historic and natural features. Eastern Idaho and western Montana is mostly rural and boasts distinctive natural beauty and a robust outdoor recreation economy (Lemhi County). The area also has a history of ranching, which plays a large role in the local economy. While the Lemhi Pass area has experienced mining projects in the past, thorium and REE extraction are completely new endeavors.

Despite high levels of interest and activity in and around the Pass from 2008 to 2015, the Lemhi Pass mine failed to come to fruition due to a variety of factors. Those factors will be explored in the Policy Context and Environmental Assessment and Public Response sections.

Policy Context

Rare earth elements and thorium have been topics of political debate recently for many reasons. First, rare earth elements are used in numerous US military, technology, and civilian green industry applications. For example, the mineral deposits of Lemhi Pass contain significant amounts of neodymium, which is crucial in the production of wind turbines (Biello, 2010). Because of this, the demand for REEs has skyrocketed in recent years and is projected to only grow. Additionally, China currently dominates the world’s supply of REEs which gives it massive political clout to control export trade. The Lemhi Pass mine would help mitigate the United States’ dependence on China’s rare earth resources. Finally, thorium, which is often found alongside rare earth element deposits, is a radioactive element that has tremendous advantages in energy production over uranium. Thorium is more abundant than uranium in the Earth’s crust, is 200 times more potent, is cheaper, and produces less radioactive waste. Despite this, demand for thorium
in the United States is low, regulations surrounding thorium extraction are strict, and actually separating the thorium from ore and REEs is time-consuming and expensive (DeHaemer, 2014).

**Environmental Assessment and Public Response**

Because the Lemhi Pass mine never progressed further than the exploration stage, a public release of an Environmental Assessment through the National Environmental Protection Act (NEPA) was never necessary. However, this does not mean that the potential environmental impacts of the mine were not examined or that the public did not respond to the proposed mine. The Lemhi Pass Mine faced opposition and apprehension on a number of environmental topics.

One concern voiced by the public was that radioactive dust from the mine could potentially reach nearby grazing fields, harm cattle, and hurt the area’s ranching economy. In addition, many expressed concern over the potential contamination of surface water and groundwater along with exposure to radiation. Many questioned whether U.S. Rare Earths, Inc would take necessary precautionary measures (Stewart, 2012).

Another concern pertained to sensitive plants and wildlife in the area, namely Sage Grouse, Penstemon Lemhiensis (or “Beardtongue”) and Chinook Salmon. The Sage Grouse populations of Lemhi Pass heavily rely on the vegetational composition of the area (ISGAC, 2014); Penstemon Lemhiensis is endemic to the greater Lemhi Pass region and is also designated by the Forest Service as a sensitive species (Moseley, et al. 1990); and the Chinook Salmon is an endangered species. Activity from the mine, such as construction, and potential radioactive contamination had the possibility of negatively impacting habitat and population size for all three of these species.

The Shoshone-Bannock tribes also expressed concerns about the proposed mine. As mentioned earlier, Lemhi Pass is the site of Shoshone-Bannock tribes’ ancestral lands, which the tribes argued were under attack. Members of the tribes still lived at and regularly visit one of the proposed mine sites where their ancestors are buried. The tribes also cite the significance of Lewis and Clark’s historic journey through the Pass and the harm the mine might bring upon the tourism economy of the area.

Despite these concerns, there are still those that recognize the economic benefits that the mine could bring to the rural area. Past mining, mainly for molybdenum, used to support the local economy more than it does today and some stakeholders wish to see a revitalization in that sector (Taggart, 2015).

**Conclusion**

The Lemhi Pass mine has embroiled in a classic mine-proposal debate in which jobs and the economy were pitted against human health, natural environment and culture. It is unclear how these two opposing sides may eventually reconcile with each other due to more the more powerful forces of the global economy. Currently, the Lemhi Pass mine was determined to not be a profitable endeavor and so the mine has not been built. Should global markets change, developments could begin again. This is yet another testament to the power and volatility of our global economy, which calls into question the practicality of any REE developments in the United States.
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