

Mining demand for rare earths

Molycorp to dig for big business at Mountain Pass

Tiffany Ray, Riverside Press-Enterprise, 12-18-10

If the drive along Interstate 15 through eastern San Bernardino County looks a little barren, look again.

That rocky terrain is one of the world's richest sources of rare earths, a collection of elements that have become essential ingredients in the manufacture of everything from fighter jets to hybrid cars to cellular phones.

For more than a half century, rare earths, also called lanthanides, were extracted from the earth at Mountain Pass, an open-pit mine about an hour's drive southeast from Las Vegas that, in its heyday, was the world's foremost supplier. But mining ceased in 2002 in the wake of environmental problems and low-cost competition from China.

This month, Colorado-based Molycorp Minerals is launching a \$531 million plan to build a state-of-the-art new processing facility and resume digging to tap into the growing market for rare earths and make Mountain Pass once again a major player in rare earths production.

According to Molycorp estimates, the world consumes about 125,000 metric tons of rare earths a year and demand could grow to more than 200,000 tons by 2015.

About 97 percent of the world's supply of rare earths comes from China. But as global demand grows, China in recent years has pulled back on exports, causing prices for rare earths to skyrocket and creating what Molycorp executives estimate is already a 20,000 ton-per-year supply gap.

Christopher Reed, distinguished professor of chemistry at UC Riverside, said modern technology is creating enormous need for mined materials, and mining operations that weren't profitable a few decades ago might now become viable businesses. And with China holding onto much of its own product, demand will only grow, he said.

"It's hard to think of any technology that doesn't exploit some lanthanide now ... Everybody's got them in their car and their home now. They are a commodity that's going to be with us a long time," Reed said.

New facility

Bastnasite ore, which contains rare earths, was discovered in eastern San Bernardino County by uranium prospectors in 1949. Mining operations began in 1952, supplying rare earths for flints used in lighters, among other things. Operations ramped up in the 1960s when europium provided the red phosphor for color televisions. Union Oil of California bought the mine in 1977, and it became part of Chevron Corp. in 2005.

By the late 1990s, environmental problems had surfaced. Ruptures in a pipeline carrying wastewater from the mine into evaporation ponds miles away leaked hazardous waste onto the desert floor. A federal investigation

found that about 600,000 gallons of waste had been spilled between 1984 and 1998, when the pipeline was shut down.

Mark Smith, Molycorp's CEO, said the new processing facility will eliminate the need for collection ponds or a pipeline by reusing the wastewater generated from operations. That and other technological innovations will also cut costs; the company estimates it will be able to process rare earths at half the cost of China's facilities.

"We went through the times here when China put a lot of product on the market and flooded the market and prices deteriorated quite rapidly," Smith said. "We don't want to be in that position again unless we are the low-cost producer."

Erik Melchiorre, a geology professor at Cal State San Bernardino who has conducted independent research at the Mountain Pass mine, said Molycorp is operating in one of the most heavily regulated environments in the country, and the facility should serve as an example of best practices. "It's as close to perfect as you can expect," he said.

Melchiorre said rare earth mining is important not only for green technology in the U.S., but for defense. "It is important that we are mineralogically independent, especially for elements that are so important to defense and our future energy supply."

'Unbelievable' response

To fund the new venture, Molycorp went public in July, raising nearly \$380 million. And last week, Tokyo-based Sumitomo Corp. announced it would provide \$130 million in financing for the project -- \$100 million to purchase Molycorp shares and a \$30 million loan -- to ensure rare earths shipments to Japan starting in February.

Molycorp also has applied for a \$280 million low-interest loan from the U.S. Department of Energy. Smith said the first phase of the application was submitted in June, and the company is working on the second phase now. The company has no debt currently, he said.

Molycorp is not the only outfit looking to claim a share of the growing market. An Australian company, Lynas Corp., plans to have a facility online next year with a capacity of about 22,000 tons per year. Other efforts are under way around the world.

Mark Smith said the company will sell to buyers in the U.S., Europe and Japan. Smith said response from customers has been "unbelievable." Molycorp has more than 20 letters of intent from buyers around the world, and a quarter of them have been converted into bankable contracts, he said.

As part of the company's new business strategy, Molycorp has patented its own water treatment product made from mined materials, and it plans to also expand its supply chain to become a producer of rare earths magnets, which are used in hybrid vehicles, wind turbines and other products.

Smith said Molycorp is seeking a partnership with a magnet producer for that portion of the project. Just where the magnets are produced will depend on the terms of any deal, but Smith said the work will be done in the U.S.

Mining to resume '11

Mountain Pass processes about 3,000 tons of rare earths a year from stockpiles. At full capacity, the renovated mine will produce 20,000 tons of rare earths each year, more than the total current U.S. demand.

Smith said Molycorp has approval to produce up to 40,000 tons per year, but any decisions to increase production to that level will be made later based on demand. Doubling production would take another year to 18 months and \$100 million to \$200 million, he said.

Construction work on the new facility already is under way. It is expected to take 18 months to build and to provide about 700 construction jobs each day.

Active mining will resume in 2011, and the mine will employ up to 300 or so permanent workers once production is in full swing, Smith said. The company intends to rely on local sources as much as possible for jobs, services and other needs, he said, drawing much of the workforce from Inland Southern California and the Las Vegas area, regions that have both been hit hard by the recession. Thirteen jobs advertised in May drew 2,000 applicants. "We think we're in a wonderful geographic position right now to provide a lot of jobs and there's a lot of people that want to work. It's a good combination."

Rocky Smith, plant manager for the Molycorp mine and no relation to the CEO, said there are about 140 employees working at the site today, most of them from the Las Vegas area.

In its first half-century, Mountain Pass mining created a 55-acre pit that extends about 400 feet into the earth. Rocky Smith said that will grow to about 115 acres over the next 30 years and digging will go 1,000 feet deep. The mine sits on 2,200 acres, and the company controls the mining rights to another 6,500 acres, he said. "We'll be exploring in our own backyard for a long time."