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Wyoming bentonite industry keeps pace through diversity

By RANDOLPH NOLEN

Because of the wide variety of uses for its product, Casper's Black Hills Bentonite Co. has not been affected as severely by the current economic slowdown as some of the other energy-related businesses.

Black Hills President Thomas A. Thorson says that bentonite production is currently around 70 percent of production levels in 1981, bentonite's peak year.

Bentonite is a sedimentary mineral, a volcanic ash deposited more than 100 million years ago and modified by nature into a highly absorbent aluminum silicate clay.

It occurs in shallow beds along the flanks of uplift mountains such as the Big Horns and the Black Hills. Seventy percent of the world's supply of high-grade bentonite is found in Wyoming, with major deposits in the Big Horn Basin, near Kaycee, Greybull and Tensleep, and along the Northern Black Hills near Upton and Colony, giving Wyoming a virtual monopoly on bentonite production.

Bentonite's major uses have been in drilling mud and as a binder in iron ore production, steel making, and foundry uses. The decline in the steel and oil industries has hurt business, Thorson says, and the bentonite industry is "having to downsize."

PRODUCTION of bentonite in 1982 was 3 million tons, down significantly from 4.5 million tons in 1981. Eight companies produce bentonite, and no one company has more than about 20 percent of the available market.

Thorson predicts that this balance should enable all of the bentonite producers to survive the recession with the appropriate business adjustments.

Another recent stumbling block has been a year-and-a-half "dialogue" with the Department of Environmental Quality over mining regulations and their application to the bentonite industry.

Unlike coal and other minerals that are dug up and hauled away, bentonite is field-dried and stockpiled at the mine site. Bentonite occurs in shallow beds 20-30 feet deep with veins 4-6 feet deep and 100-300 feet across.

It is mined in shallow open-pit mines. Freshly-mined bentonite has a high moisture content and is therefore field-dried at the mine, reducing processing energy costs significantly.

The field-dried bentonite is stockpiled in various grades at the mine until it is needed, providing better inventory control and allowing more orderly mining of various grades of bentonite.

THE PROBLEM with this system is that bentonite mined during winter months can't be dried until summer, and having various piles of bentonite in the field slows mine reclamation somewhat.

Thorson points out that the differences between regulations proposed by the state and by the producers are small and a new set of regulations has been worked out and awaits the governor's signature.

Black Hills Bentonite was founded in Moorcroft, Wyo. in 1947 by Harry Thorson, father of the present company president.

Harry Thorson was a bentonite contractor who was renting a number of bentonite properties. When his sales fell off, he decided to form his own production company and in 1947 formed a partnership with Al Harding, which lasted 29 years until Thorson's death in 1976.

Black Hills Bentonite's Casper plant was opened in 1964, and the original Moorcroft plant closed in 1965. In 1974 a second office was opened in Worland.

Today, Black Hills Bentonite employs 30 people, down from a peak workforce of 45. Twenty-five of those employees work at the Casper plant, the rest at mine sites in Kaycee, Tensleep and Worland.

BLACK HILLS Bentonite also employs a number of others, such as truck drivers, on a contract basis.

The Casper plant operates 24 hours a day, seven days a week, with four workers per eight-hour shift. Hopper-carloads of field-dried bentonite are dried, crushed and bagged at the Casper facility and loaded onto trucks and freight cars for distribution all over the world, both under the company's own Tower-Gel trademark and under the brand names of various other industrial chemical companies.

The Casper office sends out more than 24 truckloads a day, and has an annual payroll of more than $600,000.

Thorson sees a bright future for the bentonite industry. Bentonite has been called "the clay of 1,000 uses" and as one use becomes obsolete, another is found.

Pioneers used the slick gel that results when bentonite is mixed with water as wagon-wheel grease, windmill lubricant and roof sealant. Indians used it for soap.

In the 1920s oil drilling became a major industry, and bentonite's gelatinous consistency made it perfect for drilling muds, still one of its major applications.

In the 1930's, most of the high-grade iron ore in the United States was exhausted, and bentonite came into use as a binding agent in processing of taconite — a low-grade iron ore. Bentonite is also used as a clarifying agent in wine and vinegar making, as an emulsifier in paints and cosmetics, as a binder in cattle and poultry feeds, in foundry casting operations and in numerous other industrial applications.

THORSON SEES pollution control as the major application of the future.

Because of its extreme absorbance (bentonite swells to 15 times its original volume when wetted) a layer of crushed bentonite placed beneath the earth floor of pollution-control dikes and settling ponds forms an impervious seal and prevents pollutants from migrating into the water table.

Black Hills Bentonite Spotlighted

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