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New life for K-Fuel

Evergreen has new business model, executives and testing equipment at Fort Union mine

By **Laura Hancock**, News Record writer



NEWS RECROD PHOTO/STEVE REMICH

Kevin Milliman, vice president of engineering for Evergreen Energy Inc., poses with a pilot-scale coal processor at the Fort Union mine Monday. Although the Fort Union mine isn't currently producing coal, Denver-based Evergreen Energy recently purchased and installed a new coal processor for conducting tests to remove moisture from coal.

A coal refinement company with a 30-year history in the Powder River Basin, including once operating Fort Union mine, is again expanding — albeit cautiously. “We are looking to grow our capital but we are going to do so in a planned, deliberate fashion,” said Kevin Milliman, vice president of engineering for Denver-based Evergreen Energy Inc.

Milliman was in Gillette this week to discuss the company's newest piece of testing equipment: A processor that can refine 100 kilograms of coal using a combination of steam, high pressure and high temperature to reduce the water content of “low rank” or less valuable coal.

The coal processor is a mass of gauges, pipes and tanks. The coal that comes out can burn at a higher heating value at an electrical power plant than before it was refined.

The 100-kilogram processor joins a fleet of other testing coal processors at the Fort Union mine test facility north of Gillette. And it will be put to use.

“We are finishing up some testing of some Indonesian coals,” Milliman said.

Just three years ago, the company had a commercial refining facility, along with an entire coal mine — the KFx mine, as the Fort Union mine was known then — but Evergreen halted operations and laid off at least 50 people.

Last year, it sold the mine — which is considered by federal regulators as an active, non-producing mine and has dirt covering the pit but hasn't been reclaimed — to Synthetic Fuels LLC's subsidiary Green Bridge Holdings Inc. of Dallas, but leases a portion of the plant. Evergreen restarted the plant earlier this year with three full-time employees.

Evergreen is a coal technology company, not a mining company, and when it ran the Fort Union mine, it struggled with inefficiencies and railroad transport. The mine frequently shut down because it was a testing facility.

“The economics hasn't been favorable,” Milliman said.

New executives, new business model

Evergreen has launched a new business model, complete with new executives, a global focus and a new partnership.

Earlier this month, the Evergreen hired Judith Tanselle as president. She reports to Chairman Ilyas Khan, who was appointed in January. On July 1, Thomas H. Stoner Jr. resigned as CEO after two years, but remains on the board.

As for the new business model, Evergreen executives are looking for companies with experience in coal-mining.

“We're looking for the right partner and the partner is the coal resource-owner,” Milliman said.

The business model is different from Evergreen models in the past that included partnering with utility companies, operating the Fort Union mine from 2005-2008 and accepting public loans. In 2001, the company settled a lawsuit with the State of Wyoming after defaulting on a loan.

The new business model includes a joint venture with Australian coal and iron ore exploration WPG Resources Ltd. The venture is called Southern Coal Holdings. Over the summer, Evergreen analyzed core samples from the Penrhyn deposit in the state of South Australia, which contains low-rank sub-bituminous coals, and found it could remove moisture and improve the heating value. Southern Coal Holdings now is conducting a feasibility study to determine whether it is economical to start a mine and commercial refining facility using Evergreen's patented K-Fuel technology. "We would commercially produce it in Australia," Milliman said. "The transport economics would be too high" to commercially refine it at Fort Union.

K-Fuel process

In the coal processor, the temperature is about 500 degrees and the pressure is 500-600 pounds per square inch. The coal is crushed down to 2-inch pieces, the typical size to which all Powder River Basin coal mines crush.

In the Powder River Basin, coal contains about 30 percent moisture

"We will take that to 12-13 percent moisture," said Mike Schlegel, test facility manager at the Fort Union plant.

With lignites, which are considered a lower rank than the Powder River Basin's sub-bituminous because they contain about 50 percent moisture, Evergreen has decreased moisture content by half. The K-Fuel process also reduces mercury and nitric oxide. Marketing materials from a decade ago argue that K-Fuel was a clean coal technology.

"It wasn't designed into our process per se, but it definitely is an advantage," Milliman said.

Mercury is drained out at the end of the refinement process with solids containing coal.

In industrialized countries with air quality standards, the mercury is absorbed by the coal particles in the solids and can be buried in the mine pit, Milliman said.

But in foreign countries with less stringent air quality standards, Evergreen has been recommending adding it back into the refined coal product, Milliman said, to prevent waste and increase profits.

The company believes as coal becomes more in demand, especially in Asian countries that depend on it for electricity, utilities will begin burning more low-rank coal that has been refined to burn like a higher-rank coal, Milliman said.

"It's clear what our opportunity is now, to be suppliers to the coal industry," he said.

