Methane to Market

Coalbed Gas Gets New Image

With characteristic low-key professionalism, The CONSOL Coal Group has become Virginia's largest gas producer. CONSOL produces more than 75 million cubic feet per day of pipeline quality gas known as methane.

“The real story here is that we are making CONSOL's Buchanan County, Virginia, mines much more productive and safer to operate, while recovering a valuable natural resource that's been traditionally wasted,” says Claude Morgan, manager - gas projects.

“Recovering methane for sale wouldn’t work everywhere,” notes Morgan, who oversees CONSOL's Buchanan County coalbed methane recovery operations. “Southwestern Virginia has just the right geological conditions and sufficient gas reserves to justify the huge investment this kind of operation requires.”

The goal is to gather and market coalbed methane previously vented to the atmosphere in conjunction with mining operations at the Buchanan Mine near Mavisdale, Virginia, and from the Virginia Pocahontas (V.P.) Mines, located northwest of the Buchanan Mine.

Gas is extracted from the 1,500-foot-deep Pocahontas No. 3 coal seam and overlying coal seams. It is captured, compressed, initially treated, and finally piped away for sale from the mine sites to an energy-hungry world.

In May 1992, the initial deliveries of gas were made to Columbia.

SURE line, while the other compressor station is in Mingo County, West Virginia, to feed the high-pressure Columbia Gas transmission line.

The projects are headquartered at Keen Mountain, Virginia, in a large converted mountain home. One look at the surrounding steep terrain, and it is hard to imagine just how it was possible for the approximately 200 miles of gathering pipelines involved.

Overseeing the projects at Keen Mountain is Randy Albert, superintendent - gas operations, who began his career with CONSOL in 1980 as an industrial engineer.

“The biggest part of my job was coordinating the tremendous teamwork effort between CONSOL and Conoco that went into the initial effort,” says Albert.

“The way we are structured,” he says, “The CONSOL Coal Group is responsible for drilling and operating (as well as monitoring for product conception to operation in just 18 months,” he notes.

At peak construction, says Albert, more than 500 contract personnel were involved on the original project alone. Construction required approval by 24 federal and state environmental agencies, as the project crossed 30 streams and 92 wetlands through the very rugged and heavily wooded Appalachian mountains.

“We're doing a lot more today than when we first began,” also observes Morgan. “At first we were drilling into the coal seam three to five years ahead of where mining would take place. We would fracture the seam with water and release steady volumes of gas from these 'frac' wells. We still do that. Also, we had experience in tapping methane from old, sealed mine gob areas — as well as from horizontal holes drilled into the coal seam where active mining was going on.

“Our CONSOL Research and Development people, especially Pramod Thakur and Rick Toothman of the Morgantown, West Virginia, office, were intimately involved with these techniques.

“In August 1992, however, we began tapping fresh gob areas created just after longwall mining has taken place.

“We are capturing huge volumes of gas from these newly mined areas — sometimes on the order of four million cubic feet a day from a single gob well,” says Morgan. “These large volumes are short-term, and we really have to stay on top of the operation to keep collection facilities located just above the rapidly moving underground longwall operation. As a result, we are constantly moving a lot of large compressor equipment from one place to another.”
Albert and his team constantly monitor and attend to the flow from the current 325-plus wells, utilizing some very sophisticated equipment such as gas chromatographs, computer-linked radio-telemetry signals from well sites, real-time computer readings, and personal well-site checks.

Morgan says the acquisition of additional gas operations in 1993 were a good fit with CONSOL’s operations. He pointed out that they had already shared in development of the system and that their main compressor stations were actually located on the same site.

The daily activities of the employees continue to be a mix of adjusting to the advance of mining operations, dealing with the rugged terrain and charting the future of this new aspect of CONSOL’s business. At the same time, it brings the satisfaction of knowing that capturing this methane is helping the environment and making the coal mines a safer place to work.

This is one of many gob wells spread over 200 miles of southwest Virginia hillsides where the gas is gathered and pumped to one of several compressor facilities.

From this control center: (l-r) Patrick “Rocky” Malamisura, production foreman; Randy Albert, superintendent; and Steve Breeding, central control operator; monitor real-time readings of flow of gas from each of the gob wells.

These compressors are mounted on skids so that as one area is completed they can be moved easily to the next area of operation.