

A&M turns coal to gas

By BERNIE FETTE
Battalion Reporter

Texas A&M University petroleum engineers are experimenting with a process that would allow them to acquire energy from underground lignite without disturbing the earth's surface.

Conventional strip mining extracts lignite only to a depth of about 250 feet. To get coal from farther down, the Texas A&M engineers are experimenting with a process known as UCG (underground coal gasification). Ron Brimhall, one of the petroleum engineers working on the project, said the primary advantage of this process is that "it will allow the extraction of an energy resource that otherwise could not be extracted."

The UCG process works like this: A series of wells is drilled into the lignite seam and the coal is ignited through one of the wells.

Air is forced into the burn well, which regulates the burn.

The gas, which contains carbon monoxide, hydrogen and methane, is piped to the surface through other wells.

About 15 percent of the gas is burned to gasify the remainder for extraction, said Dr. James Jennings, another Texas A&M petroleum engineer, who is supervising the experiments at a site near Rockdale.

The Rockdale site is a only research plant, Brimhall said, and not a pilot plant for commercial production. Brimhall said the first stage of the UCG experiments was conducted by University engineers at a site near Easterwood Airport in 1977.

"I've only been with A&M since January of this year," Brimhall said. "I came here primarily as a member of the faculty but I knew A&M had this program going and it's something I've been wanting to do."

The top of the lignite seam at the Rockdale site is 227 feet below the surface, and is 14 feet thick.

There are some 10 billion tons of lignite underground in Texas and there's a tremendous amount of energy in this lignite," Brimhall said. "What we're trying to do is develop a technology that may be useful in extracting it."

"We're trying to do two things; first, we're looking at the technological process itself to see if we can develop a process which is applicable to Texas lignite. The second thing is to study the effects of the UCG process on the environment, as well as the effects of the environment on the process."

There are environmental effects of strip mining that people don't like."

They have yet to determine whether the UCG

process will have any adverse effects on the environment, Brimhall said.

"The energy market has indicated that this type of process could make a contribution to the energy picture," Brimhall said. But he doesn't believe the process will solve any energy problems in the near future.

The experiment has uncovered problems as well as progress.

One of the problems is with well completions due to the high temperatures the pipes and other materials have to withstand. Brimhall said they are working with changes in design to remedy the problem.

"Another problem we've experienced is the influx of water underground," he said. "It's like trying to burn a match underwater."

But since water produces a positive effect as well as a negative one, some water must be injected into the well. It is needed for its hydrogen content to produce the methane gas. Too much water cools the process though, which results in a lower quality gas.

The gas acquired from the producing wells has not been of the quality expected. The engineers were hoping for gas with a heat rating of 120 BTU (British thermal units), but so far the gas has averaged 65 BTU. Gas with that heating value is not suitable for industrial use.

Brimhall said he believes that injecting a mixture of oxygen and steam instead of compressed air into the wells might result in a higher grade gas. This may be tried in a future stage of the experiment, he said.

"We're just about to phase out the project for this year," he said. "We've been out at Rockdale since June and it's been a 24-hour-a-day project."

Although the experiments are rather new to Texas, they have been performed elsewhere.

Brimhall said the Texas A&M experiment is trying to perfect a technology that originated in the U.S.S.R. and apply it to Texas lignite. He said Russian engineers and chemists have been working on the process for more than 40 years.

Work on the process is also being done in West Virginia and Wyoming. Arco, Gulf Oil and Texas Utilities are all involved with the research.

"We have about eight or 10 commercial sponsors that are supporting our research," Brimhall said. "But we don't get any government funds other than what we get from the state to support some of the work."

The ultimate goal of the project is to develop the process for commercial production, Brimhall said. The realization of that goal is about 20 years in the future, he said.

'Gators thriving, endanger dogs

United Press International
PORT ARTHUR — Alligators are an endangered species, but residents of southeast Texas would like a 'gator hunting season to thin them out.

Some hunters, like Jimmy Borel, say the problem is so bad they're losing their hunting dogs to the alligators.

"I picked up a brick and hit that 'gator square in the head but it never fazed him," said Borel in recalling the death of his Labrador retriever that had jumped into the canal to cool off.

The Port Arthur resident has an ally in his campaign to open alligator season — Bob LeBlanc, Port Arthur's Pleasure Island commissioner.

During the early teal duck season in September, LeBlanc was hunting between High Island and Sabine Pass. He sent his dog to look for a crippled teal that had splashed down in the nearby grass.

A large alligator ambushed the dog within 30 yards of LeBlanc's duck blind. Fortunately, the elderly dog's skin was loose enough that it managed to tear free from the alligator, which had clamped steel-trap jaws around the dog's midsection.

With duck season opening Nov. 8 in most of Texas, hunters fear an increase in confrontations between alligators and hunting dogs in coastal counties.

Although the alligator is an endangered species officially, the Texas Parks and Wildlife Department says the reptile is anything but endangered, at least along the upper Texas coast.

"Our studies since 1977 show that Orange, Jefferson and Chambers counties may have an alligator population exceeding 100 gators per square mile," says Bill Brownlee, TP&W program director for endangered species.

"At least half of the state's alligator population is located south of Interstate 10 in that three-county area, and that's a conservative estimate. The figure could possibly go

as high as 70 percent," Brownlee reports.

Last year's TP&W census revealed 35,000 to 38,000 alligators in Jefferson, Orange and Chambers counties.

Since Jefferson County has the most prime marshland, Brownlee said it contains the highest alligator population in Texas — although densities in Orange and Chambers counties may be just as high.

The J.D. Murphree Wildlife Management Area, virtually within the Port Arthur city limits, is home to as many as 2,000 adult alligators and possibly an equal number of juvenile 'gators in the 8,400 acre public waterfowl hunting area.

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