

ALABAMA HAT TRICK

Field extension work in the Black Warrior Basin, a developing area in the Cahaba Basin, and a nascent play in the Floyd Shale offer a triumvirate of potential for new gas reserves in northwest Alabama.

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Alabama's natural gas production peaked at 1.25 billion cubic feet (Bcf) of gas per day in 1994, when state volumes were buoyed by prolific offshore and burgeoning coalbed-methane (CBM) production. Since those heady days, production has slid steadily downward.

In 2004, Alabama wells made 933 million per day, and according to the state's oil and gas board, the 2005 average is estimated at 863 million per day. Close to 40% of that volume is retrieved from northwest Alabama, and that's the part of the Yellowhammer State where operators are identifying additional potential.

■ Coalbed Methane
Production
■ Conventional
Production

Coalbed-methane and shale plays are the focus of renewed industry interest in northwestern Alabama's natural gas potential.

Black Warrior Basin

CBM from the Black Warrior Basin is the backbone of northwest Alabama's production. The basin, which stretches from Alabama into northeastern Mississippi, hosts thick Lower Pennsylvanian coals in the Pottsville formation.

Remarkably, since 1994 Black Warrior CBM wells have consistently produced in the vicinity of 310- to 325 million cubic feet of gas per day, combined. Operators have been able to pull off this decline-busting feat through steady drilling, adding hundreds of wells a year at average costs of around \$350,000 each and recoveries of up to 400 million cubic feet of gas each.

Dominion Exploration & Production Inc. entered the Black Warrior in 1993 and has worked the basin ever since. The Houston-based company produces 60 million gross cubic feet per day from its Alabama CBM fields, and recently celebrated production from its 1,000th well in the play.

Its investment in Tuscaloosa County was "the initial watershed to today's watershed" in the CBM business, president and chief executive Duane Radtke said at a recent company meeting in Alabama.

In 2004, Dominion and partner ConocoPhillips drilled 63 wells, and this past year they drilled 75. "We always targeted the Black Warrior area, and there is still a lot to do. I like to refer to this milestone as 'the first' 1,000 wells because Dominion plans to remain active in the basin."

Houston-based El Paso Exploration & Production Co. is another principal operator in the Black Warrior. The subsidiary of El Paso Corp. owns 160,000 net acres of leases, of which 78,000 are undeveloped. Last year, it drilled 115 wells in the play, and it has an additional 667 identified locations.

Reducing cycle time has been a major effort of the company. In the Black Warrior, its elapsed time from well spud to first sales averaged 87 days in 2004. Last year, El Paso cut that cycle time to 64 days.

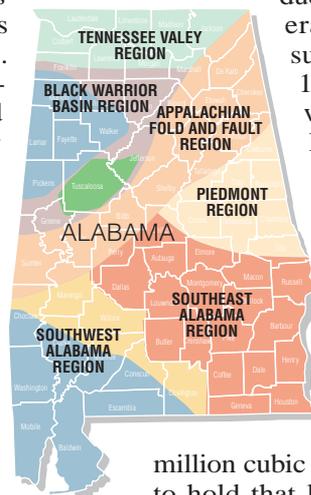
Its production stands at 62 million cubic feet of gas per day, and it expects to hold that level basically flat in 2006. The company's drilling program is centered in Short Creek in Jefferson County, in Blue Creek in Tuscaloosa County, and in White Oak Creek Field in Tuscaloosa and Walker counties. This year, it has budgeted \$44 million for the Black Warrior, and plans to launch a new CBM pilot on some undeveloped acreage.

Birmingham-based Energen Resources Corp. also mounts an active program. It has budgeted \$32 million to drill 85 to 90 wells in the basin this year, more than three times the \$10 million it spent during 2005.

"We're drilling in an area in and around our other properties, doing a combination of infill and field-extension work," says Julie Ryland, vice president of investor relations.

Cahaba Basin

While Black Warrior operators are doing their best to stem declines, a couple of other



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Dominion Exploration & Production Inc. employees at the company's 1,000th well in the Black Warrior Basin. (Photo courtesy Dominion E&P.)

firms are working a blossoming area that looks to provide some meaningful production growth. The narrow Cahaba Basin lies southeast of the Black Warrior, in the Appalachian fold and fault province. This 65-mile-long sedimentary wedge, which extends through parts of Bibb, Shelby, Jefferson and St. Clair counties, is the site of a hefty development push in the Pottsville coals.

The 360-square-mile basin lacks conventional production. However, coal gas has been produced since 1990, when Gurnee Field was discovered in its southern part. Production peaked in 1991, at an average of 1.8 million cubic feet per day. By 2001, it was shut in.

That spelled opportunity for GeoMet Inc., based in Birmingham. The company, one of the original CBM operators in the Black Warrior Basin, was sold and restructured in 2000. It subsequently divested its traditional production to focus on fresh CBM projects.

The Gurnee Field area was one of its targets. The company kicked off a drilling program on 40,000 acres of leases in 2002. As of December 1, 2005, GeoMet had drilled 137 wells and was producing approximately 5 million cubic feet per day in the Cahaba Basin. Last year, it drilled 40 net wells in the basin; this year, it will drill 75.

Costs run about \$525,000 a well, including allocated costs for gathering lines and roads, and each hole recovers up to 1 Bcf. Vertical wells are the preferred development tool, as the basin hosts six coal groups and each group contains up to four seams. The multiple, thin seams are best completed with multistage fracs, and GeoMet typically fracs seven to 12 stages per well.

Nonetheless, this year the firm also plans to drill one or more horizontal laterals in areas that may be suited to the technology. "We're going to test horizontal drilling because it might surprise us," says president Darby Seré.

Privately held CDX Gas LLC is also busy in the Cahaba Basin. In the past year, the Dallas-based firm sold a portion of its mature CBM assets in the Black Warrior play. "The properties were completely developed with no additional locations to drill, and it was a good time to

sell," says Doug Wight, vice president of corporate development.

CDX has turned to the Cahaba, where it has a 60,000-acre position and is gearing up a major drilling program. It liked the area because the Cahaba coals, which occur between 700 and 4,000 feet deep, are more abundant, and appear to be thicker and gassier than their neighbors in the traditional CBM area.

The company has already laid a 20-mile production line, and has acquired a gathering system and water lines. During 2005, it drilled 44 wells, and expects to drill more than 100 wells a year for the next four years. "We have about 600 wells to drill there," says Wight.

Although CDX is well known for its Z-pin-nate wells, in the Cahaba it has been drilling vertical wells. It is permitting a horizontal well, however, to continue to fine-tune techniques for the area.

Floyd Shale

An unproven but exciting new Alabama play could potentially yield a natural gas bonanza. The Floyd is a Mississippian shale, equivalent in age to the Barnett Shale in the Fort Worth Basin and the Fayetteville Shale in the Arkoma Basin, that occurs throughout the Black Warrior.

The Floyd is found at depths between 4,000 and 6,000 feet and reaches a thickness between 100 and 200 feet. Like portions of the Barnett Shale, it is bracketed by a couple of carbonate beds that could act as frac barriers. Counties that have been involved in leasing sweeps include Pickens, Lamar, Fayette and Marion.

Companies interested in the Floyd include Houston-based Edge Petroleum Corp., Carrizo Oil & Gas Inc. and Noble Energy Corp.; El Dorado, Arkansas-based Murphy Oil Corp.; and Tulsa, Oklahoma-based Samson Resources, says John White, an E&P analyst for Natexis Bleichroeder Inc.

Edge has picked up 27,000 acres and plans to drill a test well this year. The company has stated that total organic content, thermal maturity and gas content of the Floyd Shale appear similar to values recorded in the Barnett and Fayetteville shales.

The pioneering driller has been Murphy Oil. The firm has spudded three tests in southern Pickens County, according to the state's oil and gas board. Murphy's #1 O'Bryant 6-15 was drilled to a total depth of 7,407 feet, perforated between 7,018-33 feet, fraced, and is cleaning up. The #1 Exum Trust 6-16 has been drilled to 7,250 feet and is waiting on orders. And, the #1 Smith 18-12 is drilling at a depth of 6,790 feet.

Noble Energy has also drilled a well in Pickens County. The #1 Gulf States 29-11 reached a depth of 5,267 feet in mid-2005. It has been perforated between 5,010-5,111 feet and is waiting on orders.

Whether the Floyd Shale play works, it shows that northwest Alabama still holds some surprises. This just could be a winning score for this old, reliable area. □