



Powell Barnett Shale Newsletter

News, Research, & Analysis

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Barnett Shale Haynesville Shale Marcellus Shale Fayetteville Shale Eagle Ford Shale

PERIOD: FEBRUARY 16 TO FEBRUARY 22, 2010



*Drilling The Dale Operating / Fourth Street 'A' Gas Unit #1H, East Downtown Fort Worth, Texas
October, 2006, Courtesy of Dale Operating, Photo by Mike Fuentes*

The purpose of the *Powell Barnett Shale Newsletter* of news and research is to provide a source for management and individual review of current information on the rapidly improving technology and events in the **Barnett, Haynesville, Marcellus, Fayetteville, and Eagle Ford** shales. The information contained in the *Powell Barnett Shale Newsletter* is for information purposes only. None of the information should be considered as legal, financial, consulting or any other professional advice. Consult your attorney, financial advisor or other professional consultants to determine how various topics may affect your company and/or you individually. Highlights, **bold** and blue type are for emphasis by **Gene Powell**, Editor or **Will Brackett**, Managing Editor. Shale Ventures, LLC is d/b/a the *Powell Barnett Shale Newsletter*.

MICHAEL E. (GENE) POWELL, JR.
PUBLISHER / EDITOR
CELL: (817) 614-6979
mepowell@barnettshalenews.com

P. O. Box 470157
FORT WORTH, TEXAS, 76147-0157
OFFICE: (817) 924-1900
FAX: (817) 231-0707

WILL BRACKETT
MANAGING EDITOR
DIRECT: (817) 886-9915
wrb@barnettshalenews.com

Chesapeake Withdraws Plans for NY Disposal Well

Chesapeake Energy has withdrawn its plan to convert an abandoned gas well in Pulteney, New York into a saltwater disposal well, according to the *Elmira Star-Gazette*. In letters withdrawing its permit applications to the U.S. Environmental Protection Agency and the state Department of Environmental Conservation, Chesapeake said it had changed plans not because of public opposition but because it had found better options.

"This decision is based primarily on the fact that the state will not allow completion of Marcellus shale wells until the Supplemental Generic Environmental Impact Statement is completed," Chesapeake stated in its letters. "In addition, since initiating this project, we have advanced our operational capacity to reuse/recycle water produced in other areas of the Marcellus Shale, greatly reducing our current need for additional disposal facilities in New York."

Chesapeake's plan stirred public opposition in Pulteney, partly due to the proposed disposal well's proximity to Keuka Lake. The company caused some confusion among local officials after it said last week that it probably wasn't going to pursue the plan, but did not immediately revoke its permit applications.

Chesapeake's decision was applauded by state **Sen. George Winner**, who had encouraged the company to seek other wastewater disposal options.

"It's the right decision, and I'm pleased that company officials have been more than willing to listen and give every consideration to the concerns of local leaders and local residents," Winner said in a released statement.

Source: *Elmira Star-Gazette* 2/16/2010 *Chesapeake withdrawing Pulteney wastewater site plans*

<http://www.stargazette.com/article/20100216/NEWS01/100216013/Chesapeake+withdrawing+Pulteney+wastewater+site+plans>

DRBC to Consider Two Permit Applications for Stone Energy

The Delaware River Basin Commission will consider two water permit applications submitted by Stone Energy for its operations in Wayne County, Pennsylvania, according to the *Scranton Times-Tribune*. The DRBC will take up Stone's requests with a public hearing scheduled for Feb. 24.

While Stone has received drilling permits from the state **Department of Environmental Protection**, the company still must obtain the DRBC's approval to withdraw water and use it for hydraulic fracturing operations. Stone's applications to the DRBC have been stalled since the summer of 2008.

Specifically, Stone is seeking a permit to withdraw up to 700,000 gallons of water per day from the West Branch of the Lackawaxen River in Mount Pleasant Township for use in hydraulic fracturing at its drill site in Clinton Township. Stone's second permit request is to allow the hydraulic fracturing of its gas wells at the site.

DRBC spokeswoman **Kate O'Hara** says the commission will consider the merits of the applications and whether they should be revised after receiving public comments.

The DRBC has become a serious roadblock to natural gas producers operating in Wayne County, as the agency has yet to approve a single application to withdraw or use water for natural gas production purposes.

Source: Scranton Times-Tribune 2/14/2010 *Wayne County gas permits topic of upcoming hearing* by Steve McConnell <http://thetimes-tribune.com/news/wayne-county-gas-permits-topic-of-upcoming-hearing-1.617541>

Talisman Proposes Water Withdrawal Facility in NE PA

Talisman Energy USA has proposed to construct a water withdrawal facility in Terry Township, Pennsylvania, according to *The Daily Review* (Towanda, PA). The Bradford County facility would allow up to eight tanker trucks at a time to be filled with water from the Susquehanna River.

The facility is not intended to be permanent, and will be used as long as Talisman is conducting gas drilling operations in the area.

Talisman will be required to obtain several permits to construct the facility, including one from the Pennsylvania Department of Environmental Protection, a water withdrawal permit from the Susquehanna River Basin Commission, and a highway occupancy permit from the Pennsylvania Department of Transportation. Furthermore, in accordance with state regulations, the Bradford County Planning Commission has been asked to inform the DEP whether the proposed facility is "consistent" with the county's comprehensive plans.

Source: The Daily Review 2/16/2010 *Water withdrawal site for Marcellus shale drilling is proposed for Terry Twp.* by James Loewenstein <http://thedailyreview.com/news/water-withdrawal-site-for-marcellus-shale-drilling-is-proposed-for-terry-twp-1.621286>

Municipal Authority Looking for Partner to Construct Wastewater Treatment Facility

The Clearfield Municipal Authority in Clearfield County, Pennsylvania is looking for a partner from the private sector to construct a facility to treat wastewater from gas drilling, according to *The Progress* (Clearfield County). The CMA is looking to upgrade its wastewater treatment plant and hopes to find a partner which will allow it to add the capability of treating flowback and produced water from natural gas drilling.

Clearfield County's centralized location makes it a good spot for a wastewater treatment facility. The CMA is interested in treating the drilling brine as a means of raising additional revenue.

Source: The Progress 2/17/2010 *CMA may partner to treat 'frack' water* by Jeff Corcino
<http://www.theprogressnews.com/default.asp?read=21267>

NY Landowners Groups Fighting Back Against Environmentalists

Landowners groups in New York State are fighting back against calls by environmentalists for greater restrictions on gas drilling and their pollution concerns, according to *Reuters*. The property owners are calling on the state to end its moratorium on Marcellus Shale drilling permits soon and allow the state to realize the expected economic benefits from gas drilling.

A landowners' group in the Binghamton area recently held a rally to support Marcellus Shale development and to attack environmentalists, who they say are creating hysteria based on lies and distortions about gas drilling. **Dan Fitzsimmons**, the leader of the group called the **Joint Landowners' Coalition**, says the area badly needs the economic benefits and believes that with education of the facts, more of his fellow New York residents will not give in to the environmentalists' fear-mongering.

"This is a very depressed area and this is something that will turn this whole community around," Fitzsimmons said. "If people are educated with the facts and not with environmental scare rhetoric, I think this thing will move along very quickly."

Landowners such as Fitzsimmons who wish to lease their property for gas drilling continue to be frustrated with state officials, who took over a year to develop proposed regulations for Marcellus Shale drilling and have yet to finalize the rules and permit Marcellus Shale activity to resume in New York. The property owners' frustration also is amplified by the robust Marcellus Shale activity taking place across the state line in Pennsylvania.

For their part, many environmentalists insist that they are not anti-drilling, but they want it done in what they consider to be a responsible and safe manner. Environmental groups have criticized the state's proposed regulations and urged the moratorium be kept in place until the state comes up with stricter rules.

"New York State, because of its great environmental laws, has a tremendous opportunity to be a national leader in how this process evolves," said **James Simpson**, a staff attorney at environmental group **Riverkeeper**.

Source: Reuters 2/17/2010 *Gas drillers find a welcome mat in New York state* by Edith Honan
<http://www.reuters.com/article/idUSN1711892220100217>

MSC Statement Condemning Disregard for Pennsylvania's Environmental Laws

Marcellus Shale Coalition President and Executive Director Kathryn Klaber issued the following statement regarding the guilty pleas of two individuals who illegally poured 200,000 gallons of brine fluid from a shallow well drilling operation down an abandoned well in McKean County:

"On behalf of the members of the Marcellus Shale Coalition, we are appalled by the actions of these two people and their disregard for Pennsylvania's environmental laws. Companies engaged in oil and natural gas development activity in Pennsylvania must meet the regulatory requirements of the Commonwealth, which extends to the businesses that support those operators in planning, drilling and completing wells.

"The MSC applauds the government agencies involved in the investigation of this crime and the efforts to bring these two people to justice, and trust they will be suitably punished for their disregard of Pennsylvania's environmental laws."

"The members of the Marcellus Shale Coalition are committed to using the best management practices in the industry to comply with all state regulations to protect the environment and the people of Pennsylvania."

Source: PR Newswire 2/17/2010 *Marcellus Shale Coalition Condemns Disregard for Pennsylvania Environmental Laws*
<http://www.foxbusiness.com/story/marcellus-shale-coalition-condemns-disregard-pennsylvania-environmental-laws/>

Group Looking for more Members to Help Tioga County Prepare for Gas Drilling

A group promoting the development of the Marcellus Shale in Tioga County, Pennsylvania is looking for more members as drilling activity increases in the area, according to the *Williamsport Sun-Gazette*. The Marcellus Shale Community Education Team is seeking more members to help Tioga County's residents manage the economic and social impacts that will come from gas drilling.

The MSCET was started by Ed Trask, who along with promoting the development of the Marcellus Shale in Tioga County, also plans to construct a 300-unit housing development for gas field workers on property owned by his family. Before the advent of the Marcellus Shale, Trask says Tioga County was "slowly dying."

However, "Now," he says, "I think we are going to become 'enriched rural.'"

Trask's views are backed up by Jack Showers, a representative of East Resources. Showers says his firm has leased about 225,000 acres in the county, and plans to drill between 6,000 and 7,000 gas wells on the acreage in the next several years. That activity will create plenty of jobs, Showers said, some of which will be filled by locals while other positions will be for people who will be moving to Tioga County with their families.

Source: *Williamsport Sun-Gazette* 2/18/2010 *New ventures in natural gas may take Tioga County from 'rags to riches'* by Cheryl R. Clarke <http://www.sungazette.com/page/content.detail/id/539535.html?nav=5014>

NY State Senator Calls on NYC to Compensate Mineral Owners in City's Watershed

New York State Sen. John Bonacic, R-C- Mount Hope, is challenging New York City to compensate mineral owners in the city's watershed if it wants a total ban on drilling in the area, according to the *Times Herald-Record* (Hudson Valley, NY). New York City officials and environmental groups are calling on the state to make the city's watershed in the Catskills permanently off-limits to gas drilling.

However, the state **Department of Environmental Conservation** has resisted the calls to ban drilling in the watershed, saying that 70% of the acreage is privately owned, making such a ban illegal.

Bonacic, who says gas drilling is safe, is challenging those favoring the ban, partly because he believes the environmental groups have the ulterior motive of using it as a first step in banning gas drilling statewide. As a result, Bonacic is challenging the city to compensate mineral owners in the watershed whose natural gas will not be developed if the city and the anti-drilling groups get their way.

"Let them buy the development rights," he says. "For those landowners who want to sell their gas rights, let the city pay the same market rate to keep the land undeveloped. We buy agricultural development rights for tracts of land we want to preserve. Let those who oppose the lawful exploration and extraction of gas in the Catskills (do the same)."

New York City's Department of Environmental Protection has pointed out that it has already invested \$541 million to buy acreage in the watershed, but it has not responded to Bonacic's challenge.

Bonacic, who is a Manhattan native, says the proposed ban on drilling in the watershed represents another example of New York City's insensitivity to the rights of Upstate residents.

"If New York City can stop development of energy sources in the Catskills," he said, "they can diminish the value of people's land without compensation."

Source: Times Herald-Record 2/18/2010 *Bonacic, NYC in face-off over gas-drilling ban* by Steve Israel
<http://www.recordonline.com/apps/pbcs.dll/article?AID=/20100218/NEWS/2180318>

DISH, Texas Mayor Takes Message to NY, PA

Calvin Tillman, the mayor of tiny DISH, Texas took his story of his battle with the natural gas industry to New York and Pennsylvania this past week, according to several news reports. Tillman appeared before mostly friendly audiences, but his assertions were rebutted by an official of Chief Oil & Gas at one event in northeast Pennsylvania.

Tillman encouraged New York and Pennsylvania to proceed slowly with Marcellus development and to make sure strict regulatory measures are in place first. Tillman

encouraged communities to be prepared and suggested they learn from what he asserts are the mistakes made in Texas.

However, at a an event in Susquehanna County, Pennsylvania, **Terry Bossert**, Vice President of Governmental Affairs for Chief Oil and Gas, responded to Tillman's claims. Bossert, a former chief counsel for the **Pennsylvania Department of Environmental Protection**, said Pennsylvania and federal regulations already set strict standards to control airborne emissions from natural gas production.

Bossert pointed out as an example, Pennsylvania law already requires the natural gas industry to reduce the emissions of volatile organic compounds from dehydrators by 85%, requires emissions-reducing technology to be incorporated into compressors, and mandates that odors be prevented from travelling off-site.

Furthermore, Bossert explained that the natural gas produced in the northeastern part of the Marcellus Shale is what is known as "dry gas," that is almost pure methane and does not contain the liquids responsible for emissions of benzene and other pollutants.

"We don't have even the risk of hazardous air pollutant emissions from processing this gas," Bossert said.

Tillman's speaking tour of the Marcellus Shale has produced a significant share of critics, who have questioned his motives and note that he has allied himself with environmental groups opposed to the development of shale gas. One fellow mayor, **William Stanley**, of Farmington, New Mexico, summed up the criticism when he accused Tillman of being "on a crusade to stop gas drilling in New York."

While Tillman has drawn mostly friendly audiences in the Northeast, gas drilling supporters have attended his speaking events as well. **Dan Fitzsimmons**, the leader of a landowners' coalition which is looking to lease its acreage for gas drilling, acknowledged that Tillman makes some interesting points, but said that he remains skeptical of Tillman's claims, noting that Tillman ignores the fact that there are many other sources of airborne emissions of benzene, such as filling stations.

Source: Scranton Times-Tribune 2/20/2010 *Small town Texas mayor tells of dangers of gas drilling* by Laura Legere

<http://thetimes-tribune.com/news/small-town-texas-mayor-tells-of-dangers-of-gas-drilling-1.630120>

Source: Press & Sun-Bulletin 2/19/2010 *Texas mayor offers warning about natural gas drilling* by Tom Wilber

<http://www.pressconnects.com/article/20100218/NEWS01/2180426/Texas+mayor+offers+warning+about+natural+gas+drilling>

Broome County to Create Natural Gas Development Team

In her state of the county address, **Broome County Executive Barbara Fiala** announced that the county was creating a natural gas development team to better help inform the public on drilling issues, according to local television reports. **Fiala said Marcellus Shale gas drilling - once New York State officials lift the moratorium currently in place - will be an import driver of economic growth in Broome County in the years to come.**

"I have stated from the beginning the development of the Marcellus Shale can be done in Broome County and other places in New York to help spur much needed economic growth," Fiala said.

Fiala addressed the environmental concerns being expressed about gas drilling, saying drilling supporters and critics need to work together to ensure that the county realizes the badly-need economic boost while at the same time protecting the environment and the health of the public.

"Building this new industry and protecting our environment are not, I repeat NOT, mutually exclusive," Fiala said.

Fiala said she hopes the new development team will be the answer to educate the public about gas drilling while also helping to ensure the responsible development of the Marcellus Shale in Broome County.

Source: WICZ-TV 2/18/2010 *Fiala: Tough Times Still Ahead for County* by Chris Whalen

<http://www.wicz.com/news2005/viewarticle.asp?a=12835>

Source: WBNG-TV 2/18/2010 *State of Broome County Address*

<http://www.wbng.com/news/local/84755352.html>

MARCELLUS SHALE COMPANY NEWS

Anadarko, Mitsui form JV to Develop Marcellus Shale

Anadarko Petroleum Corporation announced a joint-venture agreement with Mitsui E&P USA LLC, an affiliate of Mitsui & Co., Ltd., whereby Mitsui will participate with Anadarko as a 32.5-percent partner in Anadarko's Marcellus Shale assets, primarily located in north-central Pennsylvania, for approximately \$1.4 billion. Mitsui will earn approximately 100,000 net acres in exchange for funding 100 percent of Anadarko's share of development costs in 2010, and 90 percent of these costs thereafter, with an estimated completion of all obligations by 2013. In addition, Mitsui will have the opportunity to purchase a 32.5-percent share of Anadarko's existing wells and additional acreage acquisitions by reimbursing a proportionate share of Anadarko's prior expenditures, currently estimated to be approximately \$100 million.

"We are very pleased to have Mitsui as a partner in the Marcellus Shale," Anadarko Chairman and CEO Jim Hackett said. "This transaction reflects the significant value of Anadarko's fairway position in the Marcellus Shale, which has a gross unrisks resource potential of more than 30 Tcf (trillion cubic feet) of natural gas and spans more than 715,000 gross acres. We continue to ramp up our activities in the Marcellus and anticipate drilling more than 4,500 wells over the coming years. We have successfully partnered with Mitsui in other parts of the world and look forward to working with them and our other partners in the Marcellus, as we continue to develop and deliver these domestically produced, clean-burning natural gas resources to American consumers."

The joint-venture agreement is effective Jan. 1, 2010. Closing of the transaction is subject to applicable regulatory approvals and other contractual conditions, and is anticipated on March 15, 2010.

Source: Business Wire 2/16/2010 *Anadarko Announces Joint Venture with Mitsui in the Marcellus Shale*
http://www.businesswire.com/portal/site/home/permalink/?ndmViewId=news_view&newsId=20100215006267&newsLang=en

New Steel Tubulars Plant to Be Built in OH

Large European steel producer Vallourec SA announced that it plans to construct a \$650 million plant in Youngstown, Ohio which will produce steel tubulars for the oil and gas industry, according to the *Cleveland Plain Dealer*. The new plant is expected to create about 350 jobs.

Vallourec's plan is to construct the tubulars plant next to an existing steel mill. The plant's location is strategic given its proximity to the Marcellus Shale play.

The company said in a statement that the plant is a response to increasing demand for steel tubulars due to the expanding shale development in North America.

"Thanks to new technologies lowering extraction costs (shale) has become a sustainable source of gas supply," Vallourec said.

Source: Cleveland Plain Dealer 2/15/2010 *Youngstown area to get 350 more jobs when new steel tube plant opens*
http://www.cleveland.com/business/index.ssf/2010/02/youngstown_area_to_get_350_mor.html

Closing of Sale of Triad Resources to Magnum Hunter Announced

Barrier Advisors, a nationally recognized middle-market restructuring, operations improvement and special situations investment banking firm, announces the closing of the sale of Triad Resources Inc. to Magnum Hunter Resources Corporation of Houston, under a plan of reorganization.

The transaction, valued at about \$81 million, includes Triad's oil and gas property interests in approximately 2,000 operated wells, a natural gas pipeline, salt water disposal facilities, three drilling rigs, workover rigs and other oilfield equipment located in Kentucky, Ohio and West Virginia. In addition, **Magnum Hunter acquired roughly 50,000 net mineral acres in the emerging Marcellus Shale play**, giving the company one of the most cost effective ownership positions in the Appalachian Basin. The complex transaction calls for Houston-based Magnum Hunter to pay cash, refinance Triad's senior debt, and issue convertible preferred stock at closing.

Based in Marietta, Ohio, Triad Resources filed for Chapter 11 protection on December 31, 2008 due primarily to the precipitous drop in energy prices. In January 2009, Barrier Advisors was engaged as Triad's restructuring advisor to assist in the sale and reorganization of the company.

"Barrier came through for us and structured a reorganization plan that allows Triad to develop its valuable properties in the Marcellus Shale," said **Rocky Roberts**, president of Triad Resources Inc. "Emerging from bankruptcy with Magnum Hunter Resources, Triad now has the financial strength to complete the projects that will position us as leaders in the Appalachian Basin."

Source: Business Wire 2/16/2010 *Barrier Advisors Announces Closing of Triad Resources Sale to Magnum Hunter*
http://www.businesswire.com/portal/site/home/permalink/?ndmViewId=news_view&newsId=20100216005556&newsLang=en

Chesapeake Energy Operational Update - Marcellus Shale

Chesapeake Energy Corporation provided an update on its operational activities. For the 2009 fourth quarter, Chesapeake's daily production averaged 2.618 billion cubic feet of natural gas equivalent (bcfe), an increase of 135 million cubic feet of natural gas equivalent (mmcfe), or 5%, over the 2.483 bcfe produced per day in the 2009 third quarter and an increase of 302 mmcfe, or 13%, over the 2.316 bcfe produced per day in the 2008 fourth quarter. Adjusted for the company's voluntary production curtailments due to low natural gas prices (approximately 26 mmcfe per day during the 2009 fourth quarter), the company's volumetric

production payment transactions (which combined averaged approximately 96 mmcfe per day during the 2009 fourth quarter) and the estimated impact from various divestitures (which would have averaged approximately 49 mmcfe per day during the 2009 fourth quarter), Chesapeake's sequential and year-over-year production growth rates would have been 5% and 17%, respectively, after making similar adjustments to prior quarters. Chesapeake's 2009 fourth quarter average daily production of 2.618 bcfe consisted of 2.440 billion cubic feet of natural gas (bcf) and 29,750 barrels of oil and natural gas liquids (bbbls). The company's 2009 fourth quarter production of 241 bcfe was comprised of 225 bcf (93% on a natural gas equivalent basis) and 2.7 million barrels of oil and natural gas liquids (mmbbls) (7% on a natural gas equivalent basis).

The company's daily production for the 2009 full year averaged 2.481 bcfe, an increase of 178 mmcfe, or 8%, over the 2.303 bcfe of daily production for the 2008 full year. Adjusted for the company's voluntary production curtailments due to low natural gas prices (approximately 47 mmcfe per day during the 2009 full year), the company's volumetric production payment transactions (which combined averaged approximately 157 mmcfe per day during the 2009 full year) and the estimated impact from various divestitures (which would have averaged approximately 193 mmcfe per day during the 2009 full year), Chesapeake's year-over-year daily production growth rate would have been 19%, after making similar adjustments to the 2008 full year. Chesapeake's average daily production for the 2009 full year of 2.481 bcfe consisted of 2.287 bcf and 32,301 bbls. The company's 2009 full year production of 906 bcfe was comprised of 835 bcf (92% on a natural gas equivalent basis) and 11.8 mmbbls (8% on a natural gas equivalent basis). The 2009 full year was Chesapeake's 20th consecutive year of sequential production growth. Chesapeake anticipates delivering full-year production growth of approximately 8-10% in 2010 and 15-17% in 2011, net of property divestitures.

With approximately 1.6 million net acres, Chesapeake is the largest leasehold owner in the Marcellus Shale play that spans from northern West Virginia across much of Pennsylvania into southern New York. The company's joint venture partner, **Statoil**, owns approximately 590,000 additional net acres of Marcellus leasehold. Chesapeake remains the most active driller in the play. Since January 1, 2008, Chesapeake has drilled and completed 56 company-operated horizontal wells in the Marcellus. During the 2009 fourth quarter, Chesapeake's average daily net production of approximately 45 mmcfe in the Marcellus increased approximately 26% over the 2009 third quarter and approximately 530% over the 2008 fourth quarter. Chesapeake is currently producing a company record monthly average of approximately 65 mmcfe net per day (115 mmcfe gross operated) from the Marcellus and anticipates reaching approximately 270 mmcfe net per day (515 mmcfe gross operated) by year-end 2010 and approximately 450 mmcfe net per day (855 mmcfe gross operated) by year-end 2011.

To further develop its 1.6 million net acres of Marcellus leasehold, Chesapeake is currently drilling with 24 operated rigs and anticipates operating an average of approximately 32 rigs in 2010 to drill approximately 175 net wells. During 2009, approximately \$162 million of Chesapeake's drilling costs in the Marcellus were paid for by STO. During 2010 through 2012,

75% of Chesapeake's drilling costs in the Marcellus will be paid for by STO, or approximately \$2.0 billion over the next three years.

Chesapeake's leasehold investment in the Marcellus has been approximately \$1.8 billion, of which \$1.3 billion, or 70%, has been recouped by selling a 32.5% interest in the company's leasehold to STO. The company's net investment in its Marcellus leasehold is now approximately \$330 per net acre on average.

Three notable recent wells completed by Chesapeake in the Marcellus are as follows:

- The White 2H in Susquehanna County, PA achieved a peak 24-hour rate of 8.7 mmcf per day;
- The White 5H in Susquehanna County, PA achieved a peak 24-hour rate of 8.6 mmcf per day; and
- The Benscoter 3H in Susquehanna County, PA achieved a peak 24-hour rate of 8.4 mmcf per day.

Source: Business Wire 2/16/2010 *Chesapeake Energy Corporation Provides Operational Update*
http://www.businesswire.com/portal/site/home/permalink/?ndmViewId=news_view&newsId=20100216007328&newsLang=en

Petroleum Development Reports Operating Results

Petroleum Development Corporation reported 2009 key operating results which were in line with the Company's prior estimates.

During 2009 the Company made important strides in the emerging Marcellus Shale program. PDC's focus in the Marcellus Shale was to solidify its existing acreage position, raise developmental capital through the formation of **PDC Mountaineer**, a joint venture with an equity partner, and evaluate the play's potential through implementation of a vertical well drilling program. Seven vertical wells were drilled in West Virginia, and one delineation well is currently being drilled in Pennsylvania. The technical results of the vertical wells were encouraging and support the drilling of the first horizontal Marcellus test, scheduled to commence this month. A total of three horizontal tests are planned for the first half of 2010. The JV is also preparing a Marcellus midstream strategy which should be finalized by mid-year 2010.

Source: PR Newswire 2/17/2010 *Petroleum Development Corporation Reports 2009 Key Operating Results; Expanded 2010 Capital Budget; 250% Increase in 2010 Planned Drilling Activity*
<http://www.pnewswire.com/news-releases/petroleum-development-corporation-reports-2009-key-operating-results-expanded-2010-capital-budget-250-increase-in-2010-planned-drilling-activity-84635862.html>