



Energy Fact Sheet

The Process of Drilling a Well and New Technology in Oil and Gas Exploration

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EnCana Oil and Gas Inc.

- The company has over 2,800 producing wells in the Piceance Basin. This represents an average of 15 drilling rigs.
- The Piceance basin is one of EnCana's fastest growing and highest potential resource plays. Resource play is the term used by EnCana to describe an accumulation of hydrocarbons known to exist over a large aerial expanse and/or thick vertical section, which when compared to a conventional play, typically has a lower geological and/or commercial development risk and lower average decline rate.
- The Piceance basin is characterized by thick gas accumulations primarily in the Williams Fork formation. The nature and extent of these accumulations make this an ideal resource play — an area where technology can be methodologically applied to increase recovery and reduce costs.
- Approximately 400 million cubic feet of gas (MMCF) is produced by EnCana each day in the Piceance Basin.
- The drilling process:
 - The surface hole is drilled to a depth of about 500-1200 feet.
 - Surface casing is run into the hole. This is typically 8 5/8 inch steel casing (or pipe) that is placed in the hole to a depth of 500-1200 feet. The surface casing protects and isolates shallow groundwater from hydrocarbons associated with natural gas and non-potable water.
 - Cement is pumped in between the casing and the surface hole.
 - A bit drills to the total depth required for recovery.
 - The drill string and drill bit are pulled from the hole.
 - Electrical and neutron logging tools are lowered into the well to determine where the hydrocarbons are located.
 - The production casing is cemented into place.
 - Pumping starts and is monitored by a state-of-the-art computerized command center.
 - A cement bond log is run by lowering an acoustical tool in the well on a wireline. The cement bond log is a test that is run on the well to measure the quality of the cement bond between the borehole and the casing and determines how far up the hole the cement was displaced.

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- The well is completed by perforating the casing and hydraulic fracturing of the formation. Hydraulic Fracturing involves pumping a mixture of water and sand at high pressure through the perforations in the wellbore at a pressure high enough to crack the formation. The sand then acts as a propping agent to hold open the fractures to create pathways for the gas to flow.
- Once the well is placed on production, the gas is transferred by pipeline to a processing plant (located in Rifle) where the gas is cooled to -10 degrees. This liquifies the heavier hydrocarbons from the gas stream in order to meet gas quality requirements of downstream markets.
- The natural gas is then moved into other pipeline systems and delivered to markets for commercial and private energy needs.
- The natural gas liquids that are separated from the gas stream are stored in large tanks and trucked to other markets.

The Williams Companies, Inc.

Technology is changing the landscape of natural gas development. Williams was the first company to invest in technology called the FlexRig4, which helps tap new supplies, and can recover more gas using less surface space.

- Williams has eight FlexRig4 rigs in operation in Colorado.
- The FlexRig4's skid system allows rig movement in all directions – north, south, east and west.
- This movement allows up to 22 wells to be drilled from one pad without disassembling the rig.
- Natural gas production can occur on the same pad where wells are being drilled and completed.
- Drilling days per well are significantly reduced.
- This has also reduced the number of well pads by up to 75 percent.
- This new technology also results in fewer roads, less vehicle traffic, consolidation of operation, and reclamation, which occurs more quickly.

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