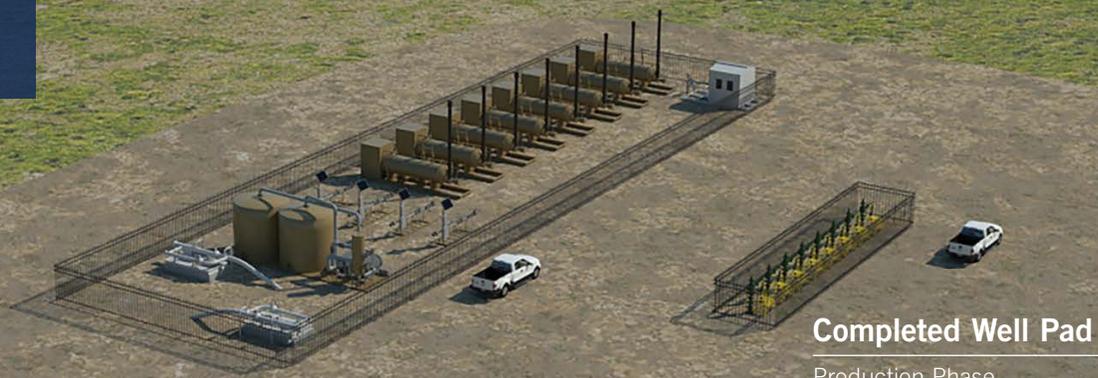




CRESTONE PEAK
RESOURCES

Drilling and Completions

FACT SHEET



Completed Well Pad

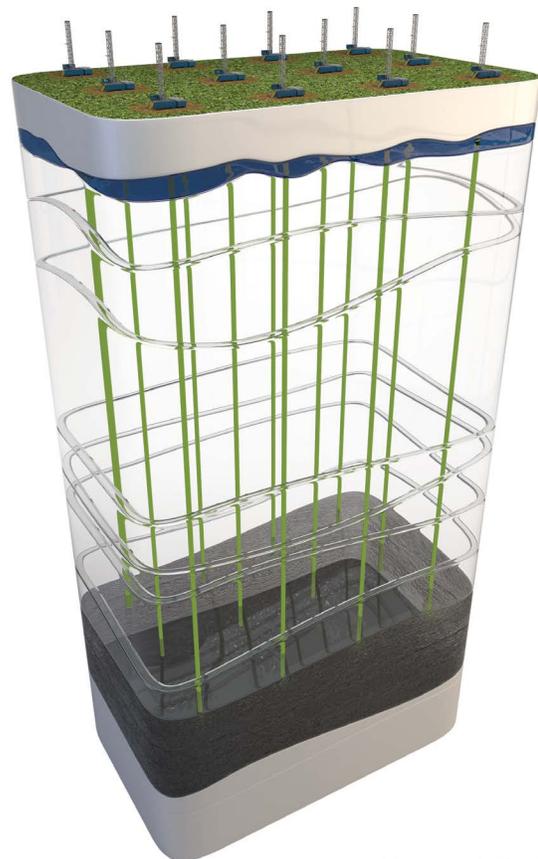
Production Phase

Horizontal vs Vertical Drilling

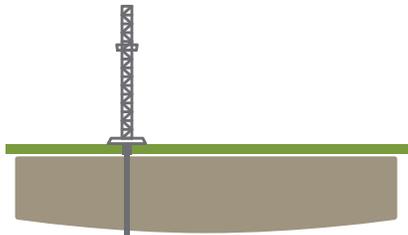
Horizontal drilling, or drilling at an angle parallel to the natural gas or oil zone, allows access to reservoirs that are less obtainable through vertical drilling, all while minimizing the number of wells drilled and surface disturbance above ground. This allows better resource extraction with decreased disturbance over time. Today horizontal wells can produce natural gas or oil up to 40 years.



Horizontal Drilling

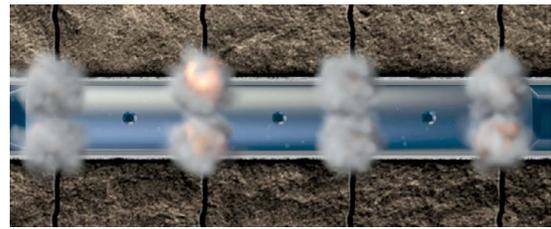


Vertical Drilling



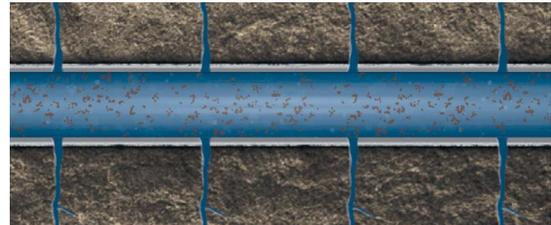
Why is hydraulic fracturing necessary?

Hydraulic fracturing is essential to the successful development of North America's abundant unconventional natural gas and oil resource. Shale rock has natural gas and oil resources trapped in its pores smaller than the width of a hair, through the use of hydraulic fracturing, a controlled network of small fissures is created in the rock to release the gas and oil into the wellbore. Once all of the blasting and fracking is complete, the plugs are then drilled out so that natural gas and oil may begin flowing to the surface.



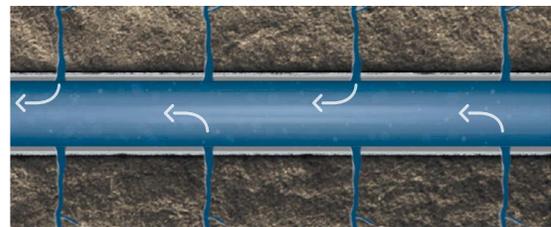
01

Perforating: Once the path is complete, a perforating gun is inserted into the well and electrical charges are ignited along the way, creating a series of holes through the casing, cement, and rock formation.



02

Fracking: After the holes have been blasted, a mixture of water, sand, and fluid additives are pumped down the production tubing, forcing it through the cracks and creating tiny fissures in the rock. This process is called fracking, and allows gas and oil to flow more easily into the well.



03

Production Pathway: After fracking, the cracks allow the gas and oil to flow from very low permeability reservoirs toward the wellbore.

Gas & Oil Deposits

Niobrara: 6,800 - 7,100 ft

Codell: 7,100 - 7,300 ft



Questions

Isn't hydraulic fracturing relatively new & untested?

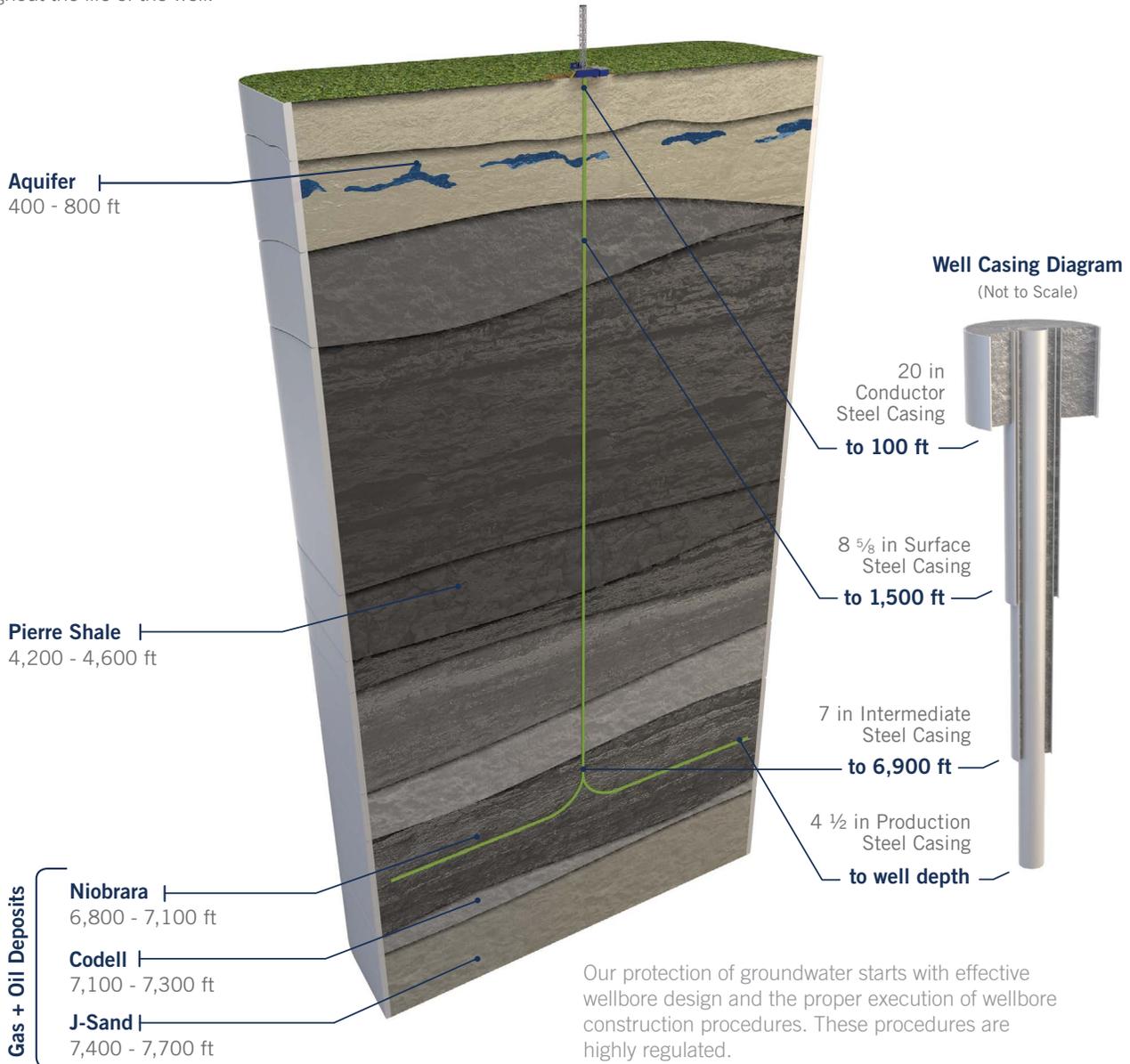
Answer: Hydraulic fracturing is a well-proven technology that has been used for more than 60 years. The first commercial hydraulic fracturing treatment was performed in 1949, and by 1988 it had been applied more than one million times. Today, operators hydraulically fracture approximately 35,000 wells each year in the United States.

How is hydraulic fracturing regulated?

Answer: Hydraulic fracturing is highly regulated by state agencies and Crestone Peak Resources not only meets but strives to exceed the requirements where possible. This includes participating in fracfocus.org, a disclosure registry sponsored by the Ground Water Protection Council and IOGCC that provides information on the composition of hydraulic fracturing fluid utilized on a well by well basis.

Protecting Groundwater

Crestone, other industry operators, regulators, and residents alike want to ensure that underground drinking water sources are not impacted by the drilling and completion processes. Every well has an engineered steel casing system that is cemented externally to prevent any fluids from moving from the wellbore to groundwater aquifers. The casing design and cementing program conform to a written, engineered design, which is specific to each well. This design is prepared by Crestone and installed by independent qualified specialist contractors. The integrity of the casing and cement system are evaluated through field inspection and wellbore logging throughout the life of the well.



Questions

Are you fracturing close to groundwater?

Answer: Gas and oil extraction occurs thousands of feet below the deepest aquifer, which is where the hydraulic fracturing occurs. Groundwater protection starts with effective drill hole, or “wellbore,” design. The casing and cementing program, like the one detailed above is engineered by Crestone specifically for each site and installed by qualified specialist contractors under Crestone supervision.

How is groundwater protected?

Answer: Protecting groundwater is priority one during all of Crestone drilling operations. Layers of steel casing and cement prevent extracted gas from escaping, with up to 6 combined layers of steel and cement between groundwater and the wellbore annulus. Proper wellbore design, and intense collaboration between geologists and drilling teams ensures groundwater is protected throughout the process.



CRESTONE PEAK
RESOURCES

Five Phases of a Well

FACT SHEET



Site Preparation

Engineers, geologists, and land professionals work with landowners and other interested parties to determine the best location for the well based on several factors such as environmental impacts, land use, and production capability.



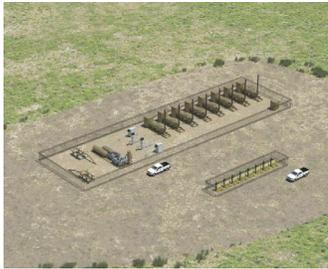
Drilling

This stage typically lasts 15 to 20 days per well depending on the well depth. Drilling operations are 24/7 until the well reaches its total depth. Crestone Peak utilizes the latest drilling technologies available to maximize the amount of time involved in drilling each well.



Completions

Once the well is drilled, the completion process begins. This phase can last 10 to 15 days per well. The completion process includes running production casing; simulating and fracturing the well; and installing equipment to facilitate the flow of natural gas and oil out of the well.



Initial Production

Next, the natural gas and oil rises up the tubing through the wellhead and is then transferred to adjacent equipment where the multiple streams of natural gas, oil and produced liquids are separated. Natural gas is transferred to a nearby gathering line where it is sent to a refinery, while the liquids are stored in storage tanks on location or transferred via a pipeline network to a centralized liquids handling facility. Stored liquids are transported via truck to nearby refinery. Produced water is treated for reuse or disposed of per regulations.



Reclamation

Once the well is producing, re-contouring and reseeding the well pad may occur. Landowner agreements and/or regulatory standards guide the well pad reclamation process. Each location is unique.

1 SITE PREP 4-8 weeks

2 DRILLING 14-23 weeks*

3 COMPLETIONS 8-18 weeks*

4 INITIAL PRODUCTION 3-4 weeks

MAIN PRODUCTION 20-30 years

5 RECLAMATION time varies ▶▶▶▶

*timing varies depending on number of wells on location