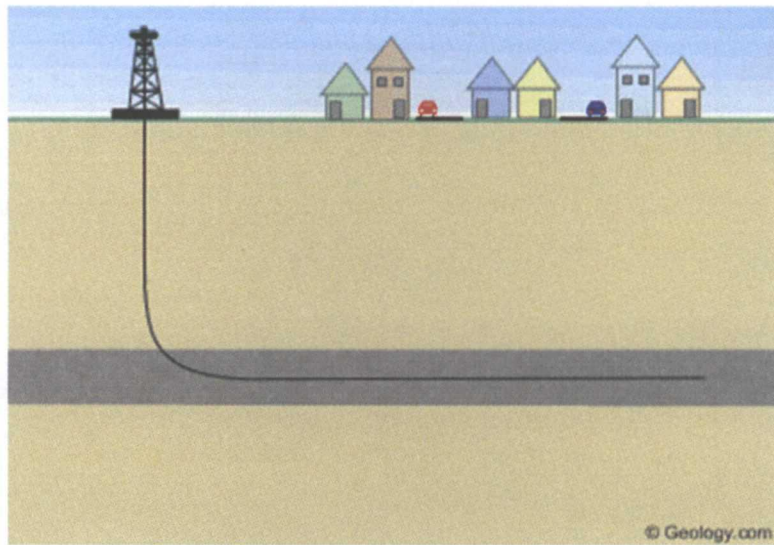


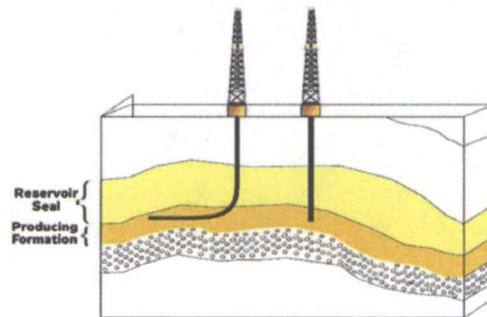
What is a horizontal well?

“Horizontal well” means a directional well bore with one or more laterals that extend a minimum of 100 feet horizontally in the target zone. A well with multiple laterals from a common wellbore in the same or different target zones or formations shall be considered one well.

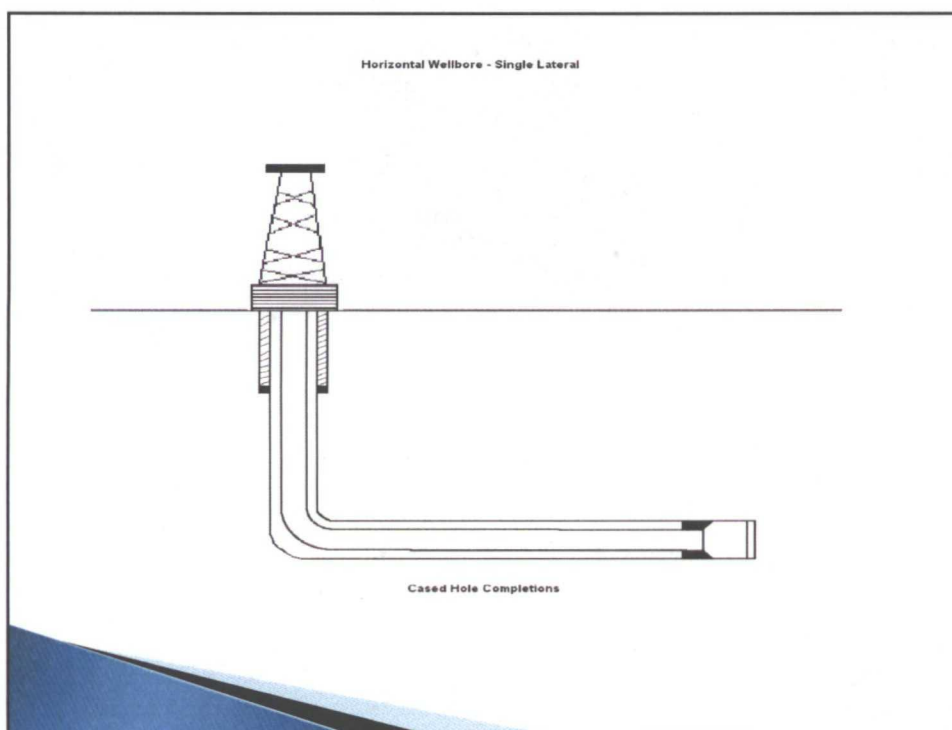
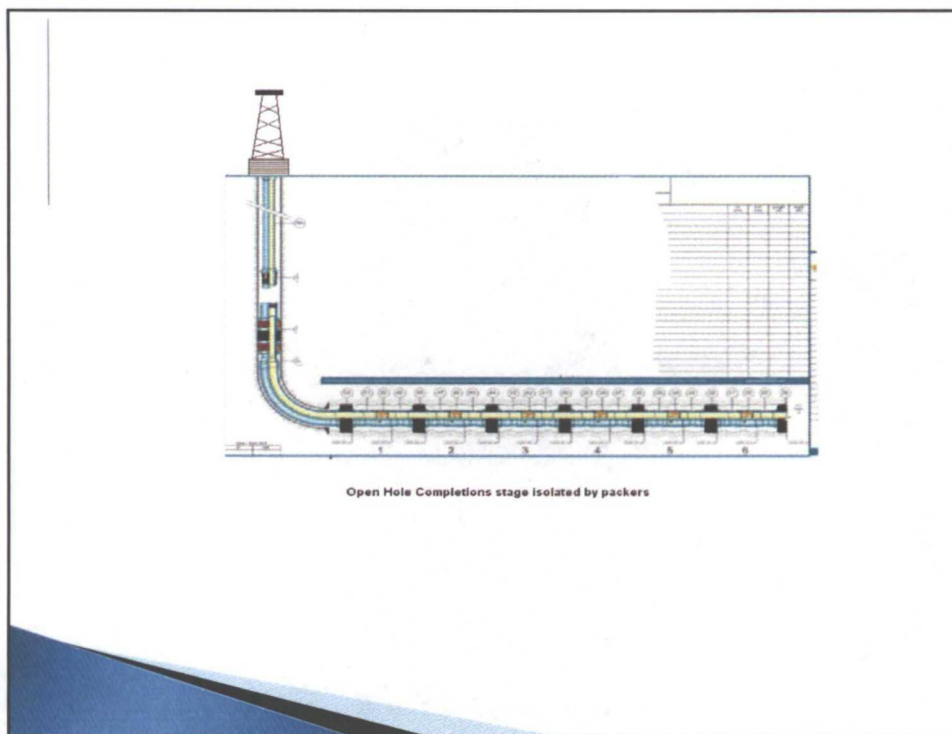
Simplified Examples of Horizontal Wells

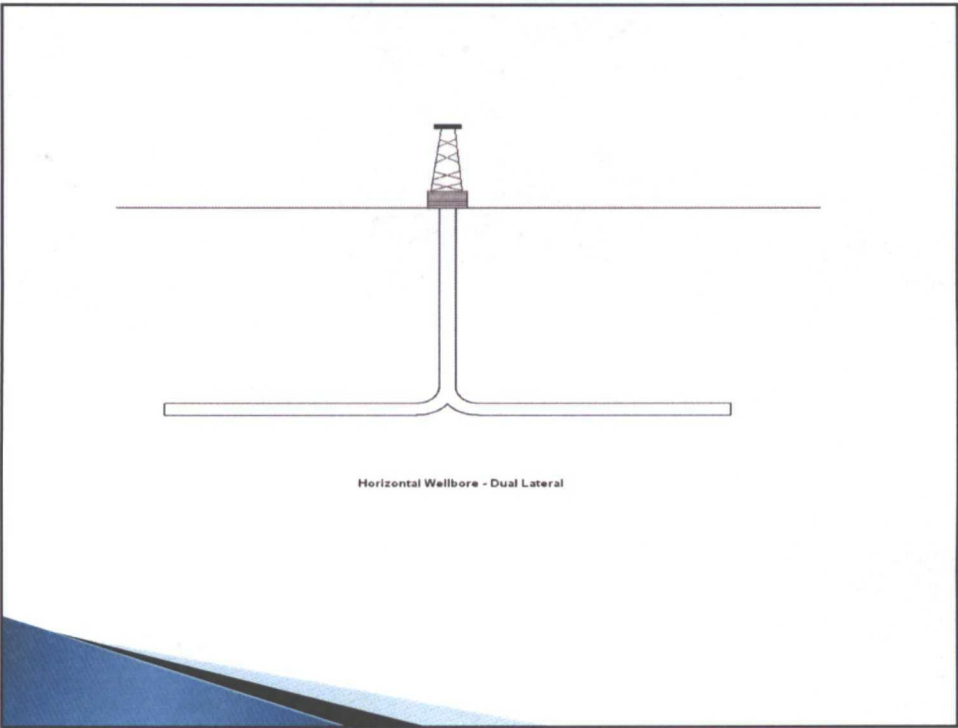
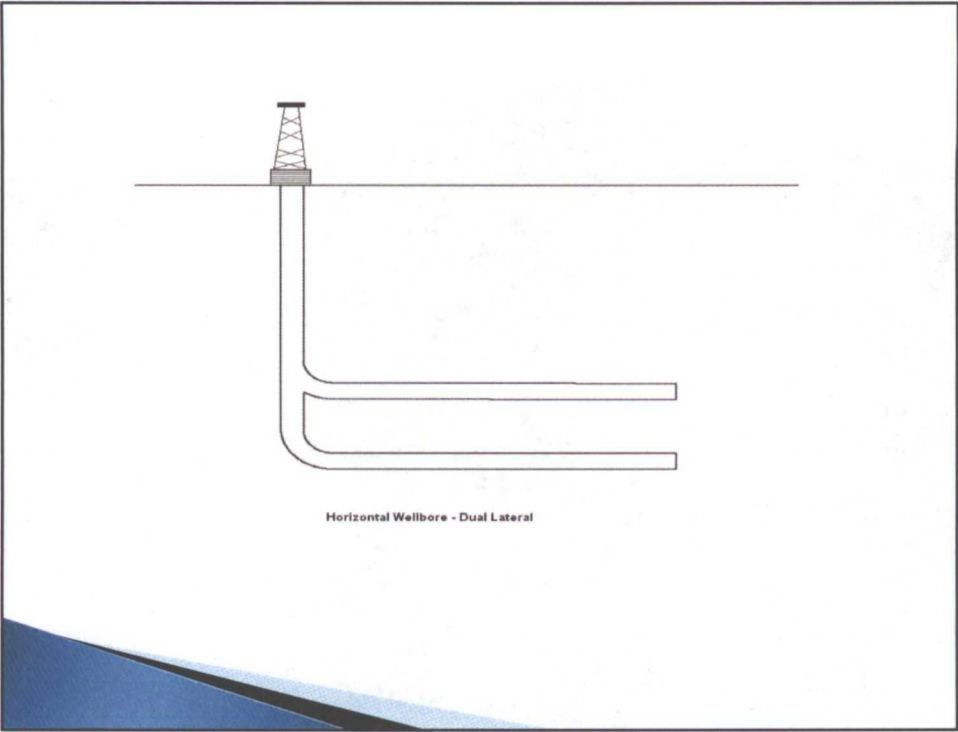


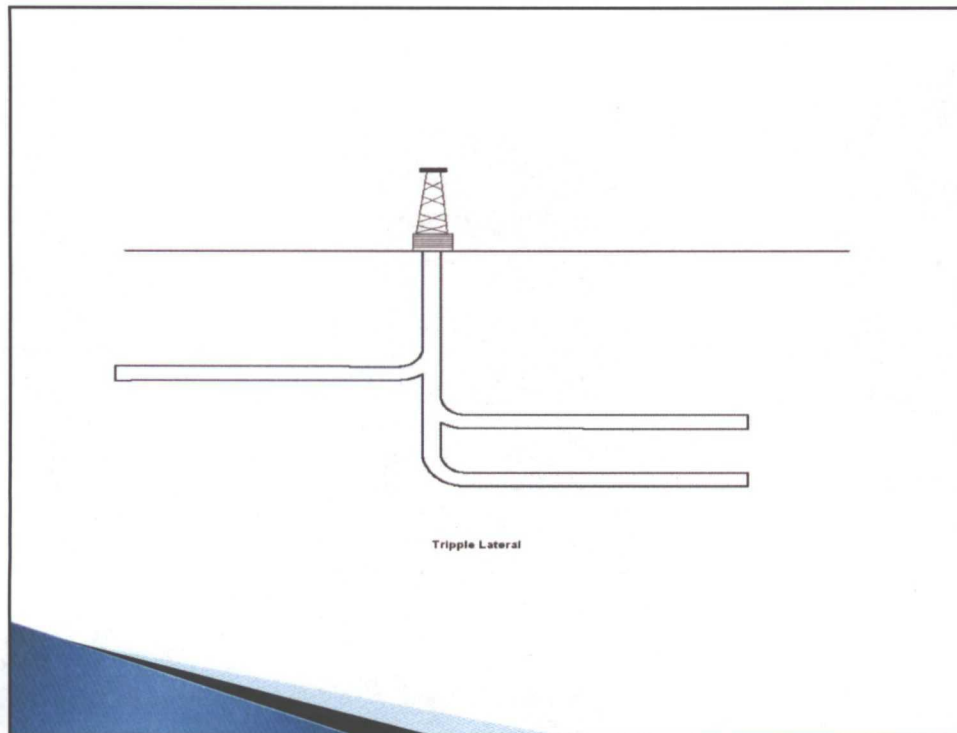
Horizontal Well under buildings, airports, roads and highway.



Geologic formations and orientation







Advantages of Horizontal Wells

- Multiple Laterals to exploit different pools (or sources of supply)
- Exploitation of thin oil-rim reservoirs
- Exploitation of deep shale reservoirs
- Recovery of hydrocarbons under buildings, roads, highways, airports, and other surface obstructions
- Reduce surface impacts at least 50% to 75% of the time
- Preserve Endangered Species Habitats such as Sand Dune Lizards, and the Lesser Prairie Chicken
- Production factor can be enhanced as much as 15 to 20 times to 1 as compared to vertical wells
- Can be used as an Enhanced Oil Recovery (EOR) method by primary depletion
- Recovers more of the Original Oil In Place (OOIP) than vertical wells

Disadvantages of Horizontal Wells

- Cost more than vertical wells
- Cost factor can be as much as 2 or 3 times to 1 as compared to a vertical well.

However, with recent advances in horizontal well technology these costs are drastically being reduced.

PRODUCING INTERVAL

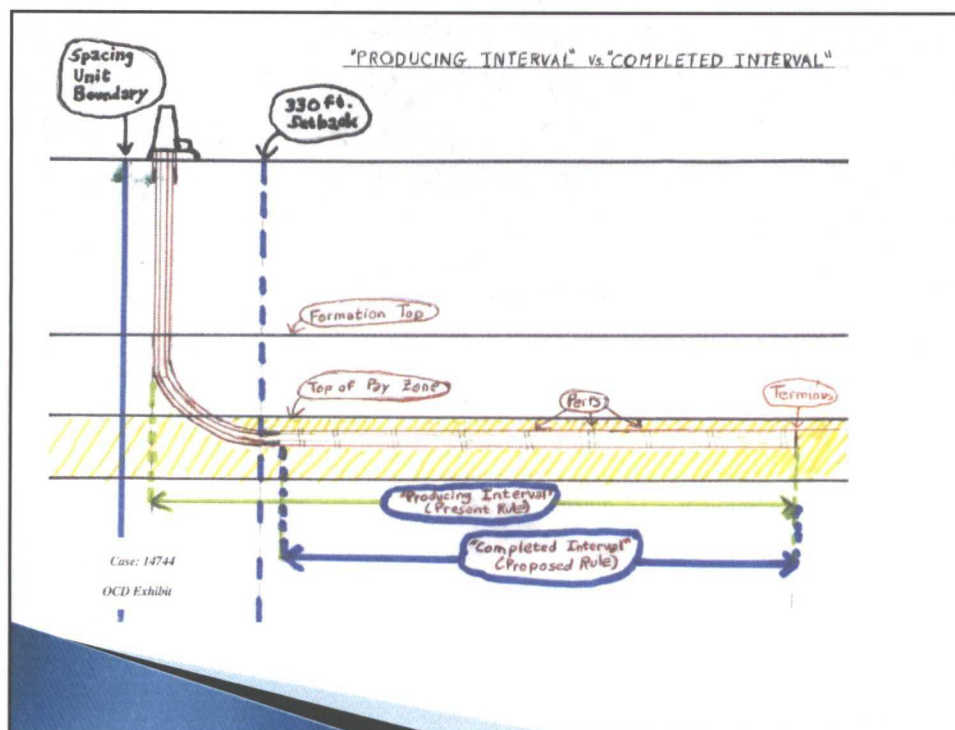
vs.

COMPLETED INTERVAL

Completed Interval

"Completed interval" means that portion of a wellbore or lateral that is:

- (1) cased, cemented and perforated;
- (2) an open hole; or
- (3) isolated by a packer or other non-permeable means and open to the formation



Concept of Completed Interval

- May be more than 330 feet for oil setbacks, and 660 feet for gas setbacks
- Principally to protect Correlative Rights
- Applies to all Laterals
- Allows the operators design and plan their horizontal wells

Limitations on the Number of Wells Producing from a Spacing Unit or Project Area

- Limits to the number of wells per spacing unit or project area are not appropriate for horizontal wells
- A horizontal well can have multiple laterals in any direction
- The laterals can be drilled into different sources of supply
- The laterals may have several stages of completion
- A single horizontal well has as much potential to drain offset acreage as many vertical wells
- Production factor for horizontal wells can be enhanced as much as 15 to 20 times to 1 as compared to vertical wells
- Horizontal wells are different from vertical wells in technology, performance and cost
- Operators will not necessarily drill a multi-million dollar horizontal well
- Due process will be exercised in any case of conflict

The Amendments to the Rules are Developed to Prevent Waste and Protect Correlative Rights

- Set back requirements
- Completed interval
- Oil proration schedules and gas-oil ratio limitations
- Gas reservoirs are not affected by accelerated production

Estimated ultimate recoveries will be achieved