

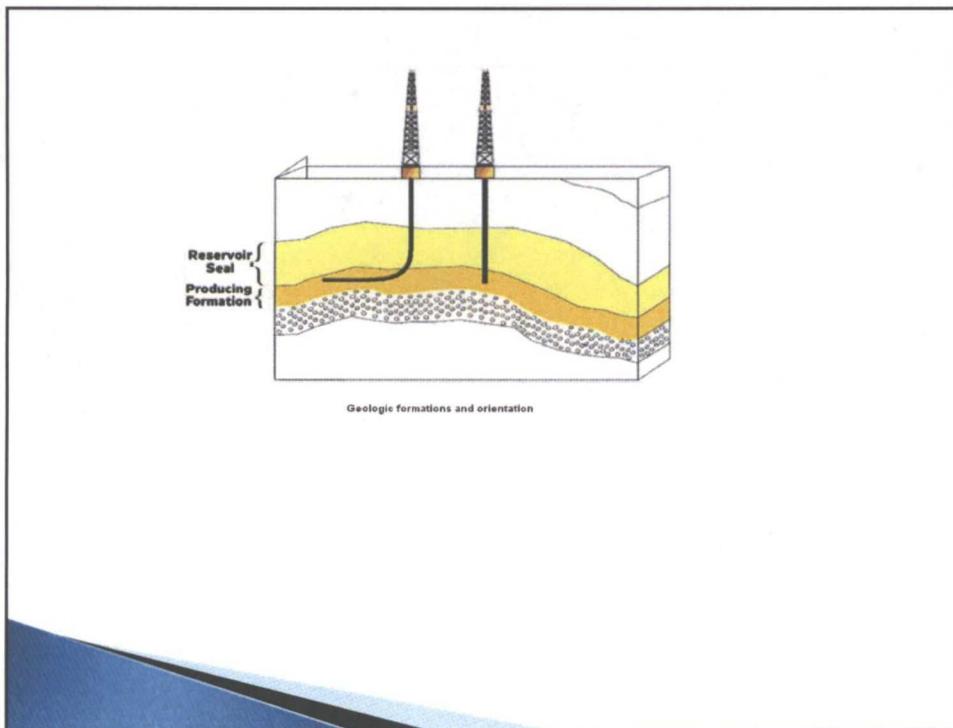
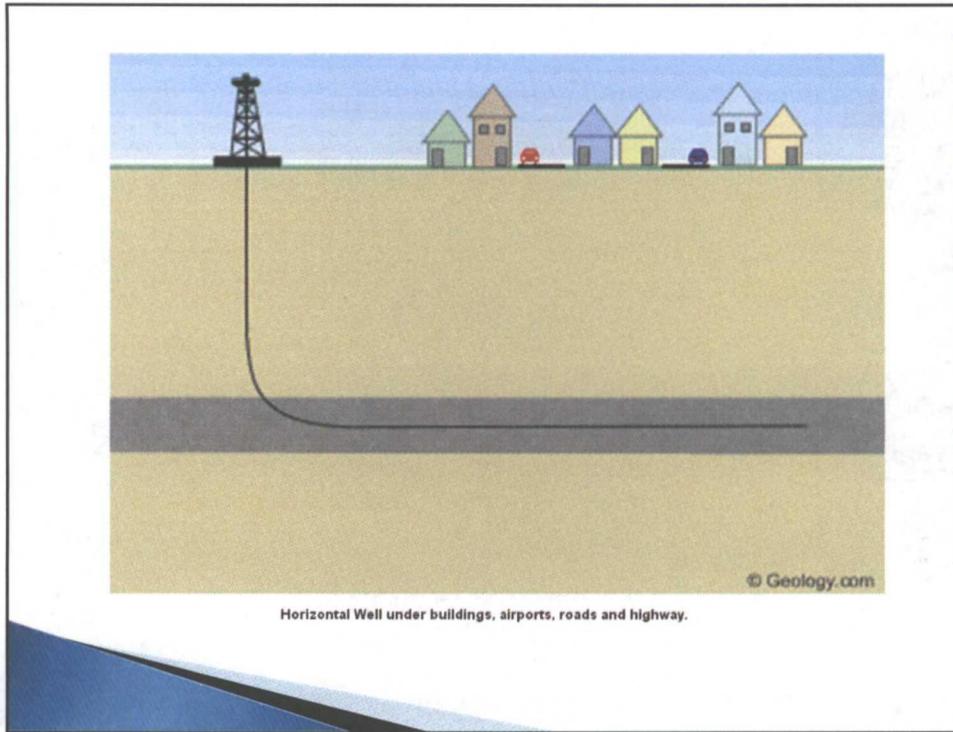
What is a horizontal well?

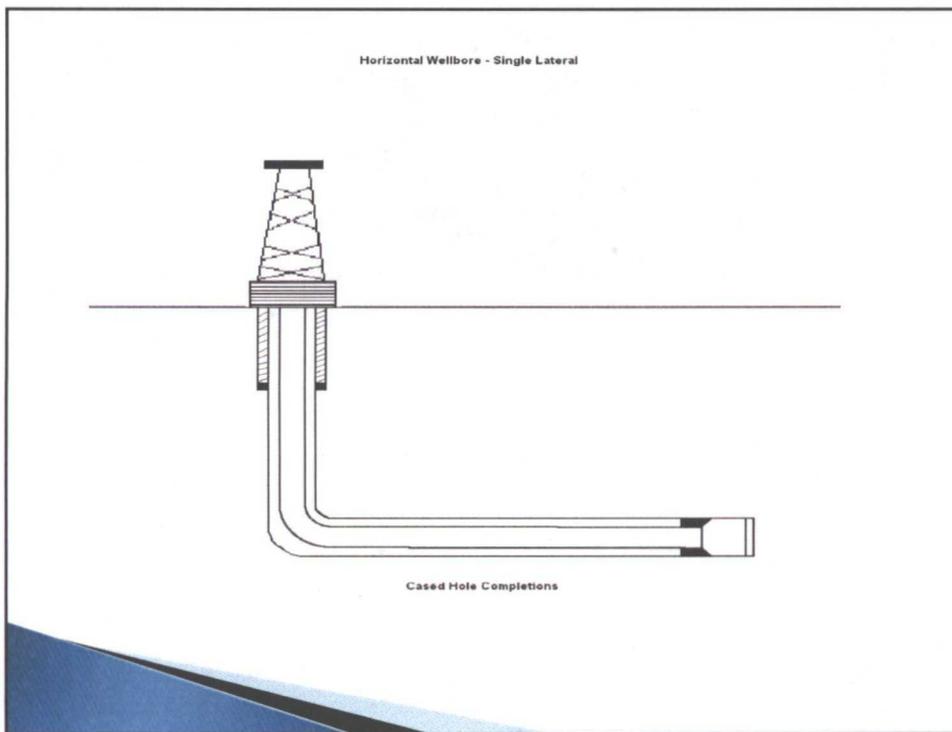
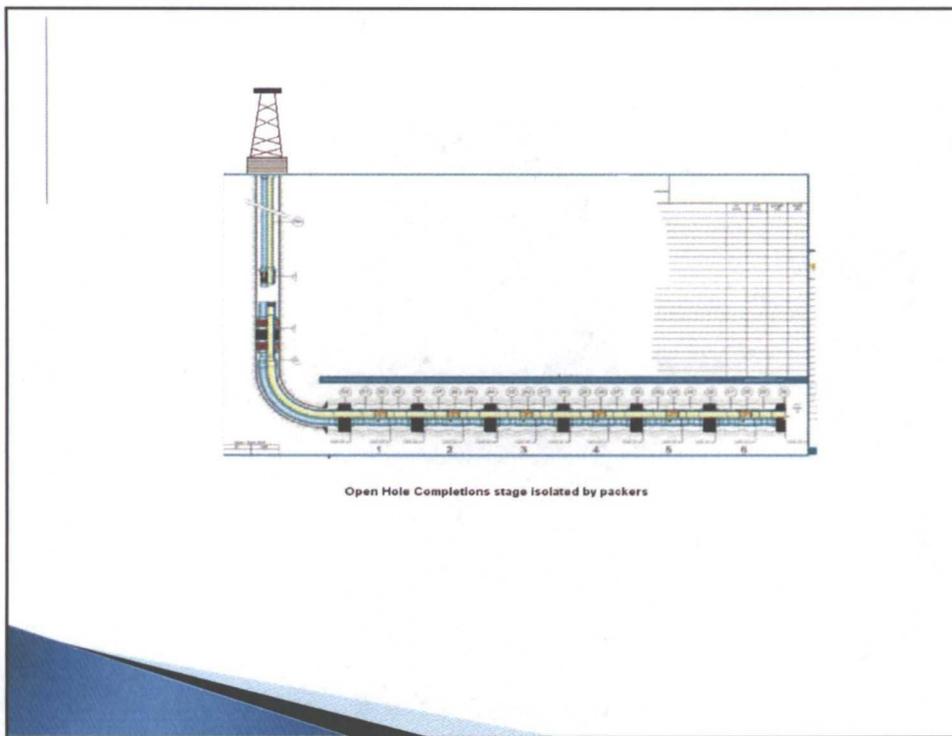
“Horizontal well” means a directional well bore with one or more laterals that extend a minimum of 100 feet horizontally in the target zone. A well with multiple laterals from a common wellbore in the same or different target zones or formations shall be considered one well.

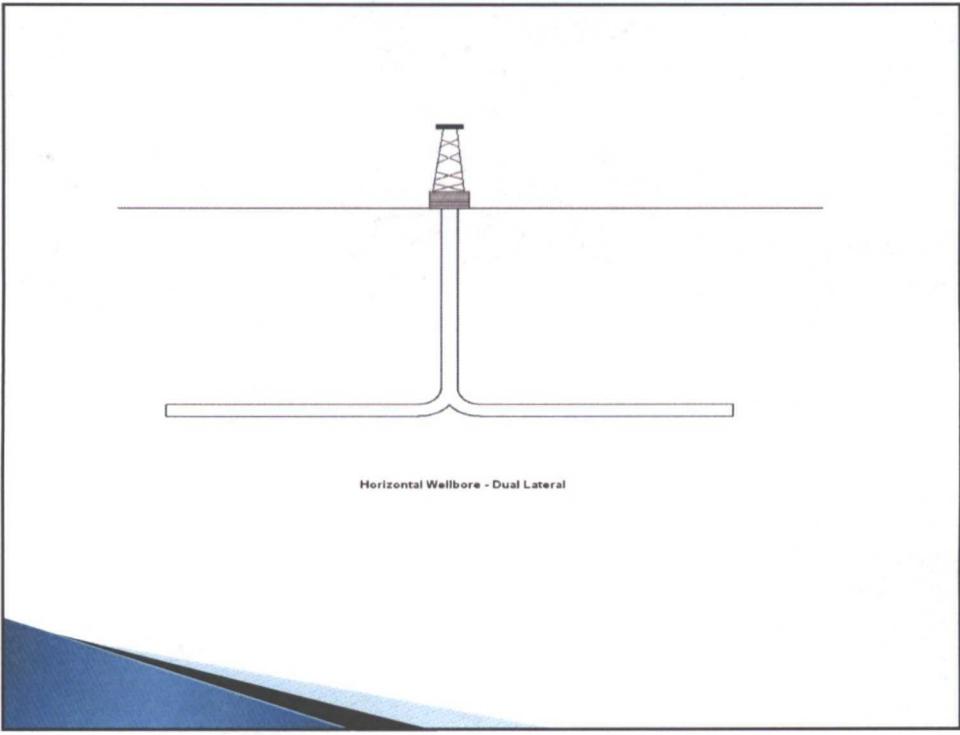
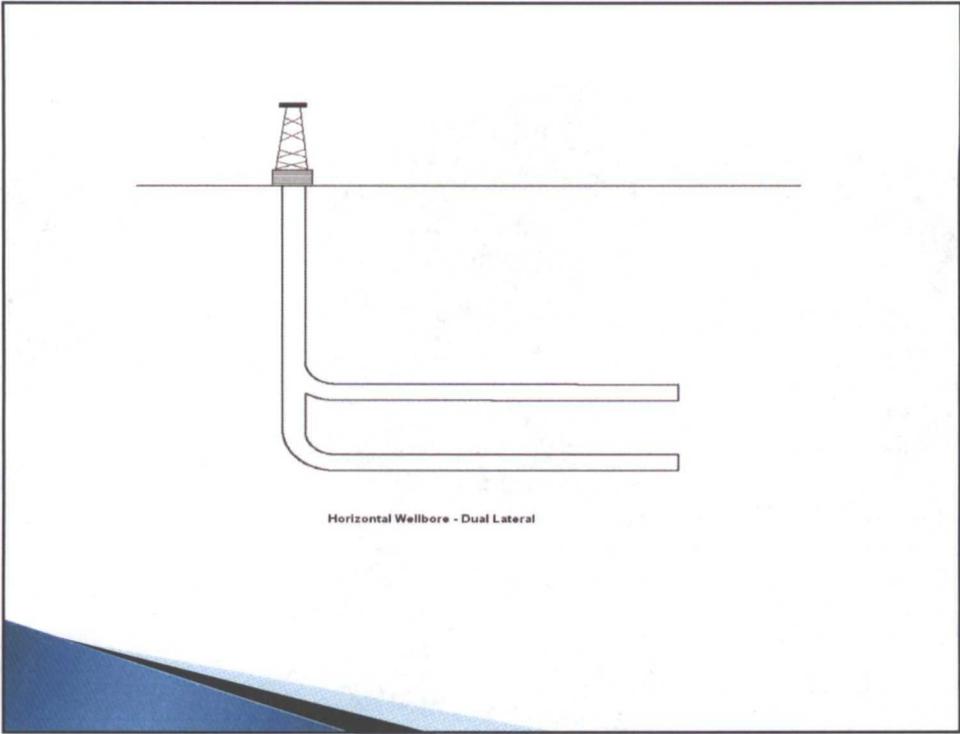
Simplified Examples of Horizontal Wells

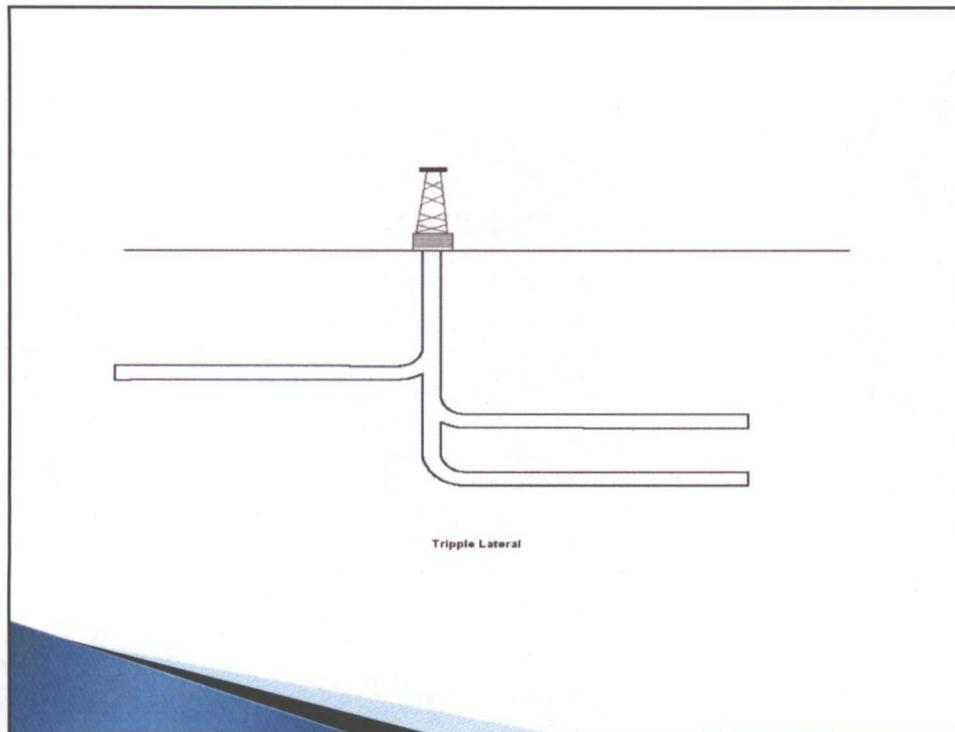
Case: 14744

OCD Exhibit 13









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

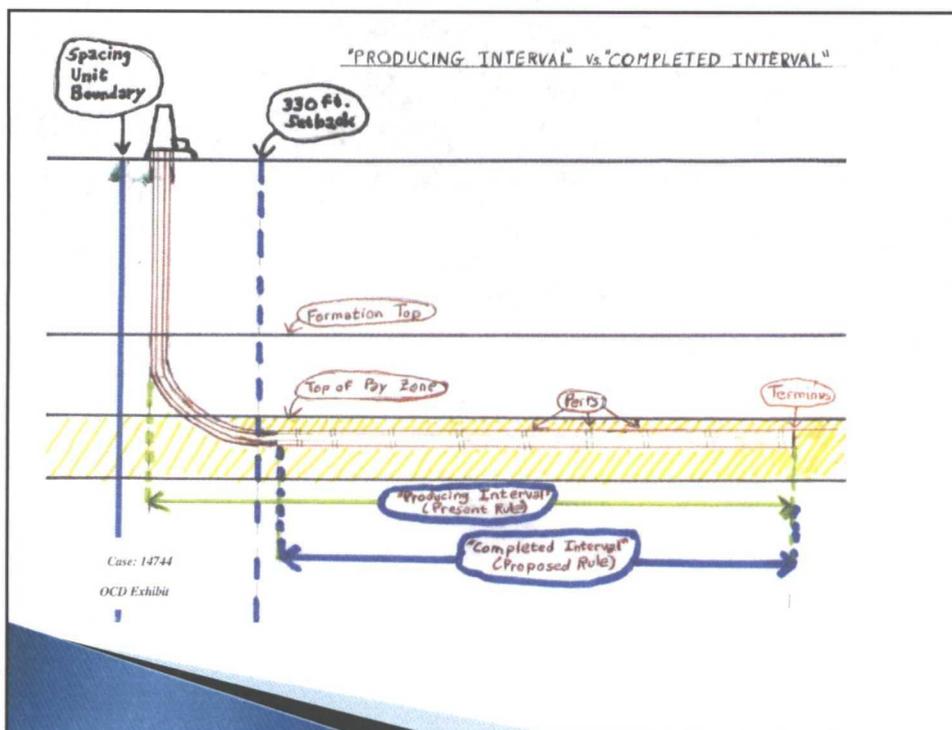
vs.

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