

## OIL & GAS GLOSSARY

### Anticline (Geology)

An arch-shaped fold in rock in which rock layers are upwardly convex. The oldest rock layers form the core of the fold, and outward from the core progressively younger rocks occur. Anticlines form many excellent hydrocarbon traps, particularly in folds with reservoir-quality rocks in their core and impermeable seals in the outer layers of the fold. A syncline is the opposite type of fold, having downwardly convex layers with young rocks in the core.

### Breccia Pipe (Geology)

A cylindrical shape averaging 100-300 feet in diameter that originated in the Karst at the top of the Mississippian and extends vertically upward. Formation of the pipe was triggered by solution and removal of carbonate material by circulating waters (through the porous Karst surface).

### Cap Rock (Geology) Synonym: Top Seal

A relatively impermeable rock, commonly shale, anhydrite or salt, that forms a barrier, cap or seal above and around reservoir rock so that fluids cannot migrate beyond the reservoir. The permeability of a cap rock capable of retaining fluids through geologic time is ~10<sup>-6</sup>-10<sup>-8</sup> darcies.

### Dry Hole (Drilling)

A wellbore that has not encountered hydrocarbons in economically producible quantities. Most wells contain salt water in some zones. In addition, the wellbore usually encounters small amounts of crude oil and natural gas. Whether the well is a "duster" depends on many factors of the economic equation, including proximity to transport and processing infrastructures, local market conditions, expected completion costs, tax and investment recovery conditions of the jurisdiction and projected oil and gas prices during the productive life of the well.

### Giant (Oil Field Production Classification)

Oil field that produces 500 million – 1 billion barrels of oil.

### Hydrocarbons (Geology)

A naturally occurring organic compound comprising hydrogen and carbon. Hydrocarbons can be as simple as methane [CH<sub>4</sub>], but many are highly complex molecules, and can occur as gases, liquids or solids. The molecules can have the shape of chains, branching chains, rings or other structures. Petroleum is a complex mixture of hydrocarbons. The most common hydrocarbons are natural gas, oil and coal.

### Live Oil

1. *n.* [Geology]: Oil that contains some gas in solution.
2. *n.* [Well Completions]: Oil containing dissolved gas that may be released from solution at surface conditions. Live oil must be handled and pumped under closely controlled conditions to avoid the risk of explosion or fire.

### Major (Oil Field Production Classification)

Oil field that produces 100–500 million barrels of oil.

### Net Revenue Interest

The working interest's share of production after satisfaction of all royalty, overriding royalty, oil payment or non-operating interests. For example, for a lease burdened by 1/8 royalty and 1/8 overriding royalty, the net revenue interest of the lessee is 3/4 of production.

### Oil Seeps

Many oilfields have been found by the presence of oil seeping to the surface. Oil is literally seeping out of the ground.

### Paleontology (Geology)

The study of fossilized, or preserved, remnants of plant and animal life. Changes in the Earth through time can be documented by observing changes in the fossils in successive strata and the environments in which they formed or were preserved. Fossils can also be compared with their extant relatives to assess evolutionary changes. Correlations of strata can be aided by studying their fossil content, a discipline called biostratigraphy.

### Production (Geology)

The phase that occurs after successful exploration and development and during which hydrocarbons are drained from an oil or gas field.

### Reservoir Rock (Geology)

A subsurface body of rock having sufficient porosity and permeability to store and transmit fluids. Sedimentary rocks are the most common reservoir rocks because they have more porosity than most igneous and metamorphic rocks and form under temperature conditions at which hydrocarbons can be preserved. A reservoir is a critical component of a complete petroleum system.

### Source Rock (Geology)

A rock rich in organic matter which, if heated sufficiently, will generate oil or gas. Typical source rocks, usually shales or limestones, contain about 1% organic matter and at least 0.5% total organic carbon (TOC), although a rich source rock might have as much as 10% organic matter. Rocks of marine origin tend to be oil-prone, whereas terrestrial source rocks (such as coal) tend to be gas-prone. Preservation of organic matter without degradation is critical to creating a good source rock, and necessary for a complete petroleum system.

### Structural Trap (Geology)

*See also: Anticline*

A variety of sealed geologic structure capable of retaining hydrocarbons, such as a fault or a fold. Stratigraphic traps form where changes in rock type can retain hydrocarbons.

### Working Interest

An interest in oil and gas lease that provides the right to drill for and produce oil and gas on the leased acreage and requires the owner of the interest to pay a share of the costs of drilling and production operations. The share of production to which a working interest owner is entitled will always be smaller than the share of costs that the working interest owner is required to bear. The balance of the production accrues to the owners of royalties. For example, the owner of a 100% working interest in a lease burdened by a landowner's royalty of 25% would be required to pay 100% of the costs of a well but would be entitled to retain 75% of the production. An owner of less than a 100% working interest in a lease would be entitled to a proportionately reduced net revenue interest.