

BCAFC
First Nations Offshore
Oil & Gas Workshop

December 11-12, 2003
Nisga'a Hall, Prince Rupert, BC



GLOSSARY OF TERMS USED IN THE PETROLEUM INDUSTRY:



Glossary of Terms Used in the Petroleum Industry:

Essentially these are the main terms used in land-based petroleum exploration, almost all of which are also used in Offshore Exploration and Production.

In addition please see the section in the BCAFC Briefing Book On Offshore Oil and Gas on the various types of apparatus used in offshore exploration and production.

Anticline:

Geological Term: A fold in layered rocks originating below the surface in the form of an elongated dome. Anticlines make excellent drilling prospects since any oil in the deposit will naturally rise to the highest point of the domed structure because oil always floats on top of the water.

Assay

To test a metal or an oil for purity or quality.

Associated gas:

Natural gas found in association with oil in a reservoir, either dissolved in the oil or as a cap above the oil.

Batch:

A measured amount in which crude oil and refined product shipments are sent through a pipeline. Essentially a "squirt" of product that travels at one time along a pipeline.

Batching Sequence:

The order in which squirts of petroleum product are sent through a pipeline.

Battery:

Holding facility that stores and/or processes crude oil.

Bcf:

Billion cubic feet. Measures petroleum.

B/D:

Barrels per Day. Usually used to quantify a refiner's output capacity or an oilfield's rate of flow.

Bitumen:

Heavy oil or petroleum in semi-solid or solid forms.

Block:

Applies to an area of land - main subdivision used for exploration and production acreage.

Blowouts:

Uncontrolled releases of fluids, solids, or gases.

British Thermal Unit (BTU):

The amount of heat required to increase the temperature of a pound of water 1 degree Fahrenheit. A BTU is the common measure of heating value for different fuels. Prices of different fuels and their units of measure (dollars per barrel of crude, dollars per ton of coal, cents per gallon of gasoline, cents per thousand cubic feet of natural gas) can be easily compared when expressed as dollars and cents per million BTUs.

Bunker C Fuel Oil: :

Heavy fuel used for ships. Generally refers to a No. 6 grade of residual fuel oil which has had limited refining.

Casing:

Lining a drilled hole with steel pipe. The pipe is cemented in place to prevent the hole caving in.

Casinghead Gas:

Gas present in an oil well that is removed when it flows to the surface at the well's casing.

Centrifugal pump:

A rotating pump, like a large screw, used for pushing large volumes of oil and gas through pipelines.

CF/D:

Cubic feet per day. Usually used to quantify the rate of flow of a gas well or pipeline.

Christmas tree:

The arrangement of pipes and valves at the wellhead which controls the flow of oil and gas and prevents blowouts.

Completion

The final installation of permanent equipment for the production of oil or gas.

Compressor station:

Stations located every 60-80 km along a gas pipeline which recompress gas to ensure an even flow.

Concession:

A defined license area granted to a company for the exploration of oil and/or gas under specific terms and conditions for a fixed period of time.

Condensate:

Any mixture of relatively light hydrocarbons which remain liquid at normal temperature and pressure. Condensate generally appears when gas is drawn from a well and its temperature and pressure change sufficiently for some of it to become liquid petroleum.

Conventional crude:

Liquid petroleum that is capable of flowing naturally without any processing.

Crown lands:

Government owned properties.

Crude Oil:

A mixture of hydrocarbons that exists as a liquid in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Crude is the raw material which is refined into gasoline, heating oil, jet fuel, propane, petrochemicals, and other products.

Cubic foot:

The amount of gas required to fill a volume of one cubic foot.

Cubic feet per day (cf/d):

The number of cubic feet of natural gas produced from a well over a 24 hour period, normally an average figure from a longer period of time.

Cushion Gas:

The amount of gas required in a storage pool to maintain sufficient pressure to keep the working gas moving so it can be recovered.

Daisy chain:

Term refers to the "chain" of linked sales and transfers by which a cargo of oil or oil products is sold many times before being delivered to the customer.

Density:

The gravity of crude oil. Density is measured in kilograms of large, carbon-rich molecules per cubic metre or degrees on the American Petroleum Institute (API) gravity scale.

Derrick:

Steel structure mounted over the bore hole to support the drill pipe and other equipment which is lowered and raised during drilling operations.

Development Well

A well drilled within the proved area of an oil or gas reservoir down far enough to reach the layers of rock which are known to produce petroleum products.

Diesel Fuel:

Distillate fuel oil used in compression-ignition engines. It is similar to home heating oil, but must meet a cetane number specification of 40 or more.

Downstream sector:

Refers to all of the linked businesses which refine and market petroleum including pipeline systems, refineries, gas distribution, and petrochemical companies.

Drilling mud:

A mixture of clays, water, and chemicals used in drilling operations to lubricate and cool the drill bit. Mud carries drilling wastes to the surface, and by its pressure, prevents the walls of the well from collapsing, keeping the upward flow of oil or gas under control.

Drill string:

Steel pipes roughly 10m long joined together to form single pipe from the drill bit to the drilling platform. It is rotated during drilling and is also the conduit for the drilling mud.

Dry gas:

Gas containing no water vapor, same as lean gas.

Dry hole:

An unsuccessful well, drilled without finding commercial quantities of oil or gas.

Enhanced oil recovery (EOR):

The recovery of oil from a reservoir other than by the use of natural reservoir pressure. This can involve increasing the pressure (secondary recovery) or heating or increasing the pore size of the reservoir (tertiary recovery).

Exploratory well:

A well in an area where petroleum has not been previously found or one targeted for formations above or below known reservoirs.

Farm-in:

An outside party paying a land owner all or a percentage of the drilling costs of a well in order to obtain a working interest in the land or well.

Farm-out:

The land owner gives a percentage of his land or a portion of his working interest in a well in order to allow an outside party to drill or explore on his property. This generally reduces risk as capital is provided by the company farming-in.

Fault:

A geological structure consisting of a fracture in the rock along which there has been an observable amount of displacement.

Feedstock:

The supply of crude oil, natural gas liquids, or natural gas to a refinery or petrochemical plant or the supply of some refined fraction of intermediate product to some other manufacturing process.

Field:

The surface area above a petroleum formation.

Flaring:

The controlled and safe burning of gas which cannot be used for commercial or technical reasons. This usually occurs at the point of production, and during processing.

Fractionation:

The process whereby saturated hydrocarbons from natural gas are separated into distinct parts or "fractions" such as propane, butane, ethane,

Fuel Oil:

Refined petroleum products used as a fuel for home heating and industrial and utility boilers. Fuel oil is divided into two broad categories, distillate fuel oil, also known as No. 2 fuel, gasoil, or diesel fuel; and residual fuel oil, also known as No. 6 fuel, or outside the United States, just as fuel oil. No. 2 fuel is a light oil used for home heating, in compression ignition engines, and in light industrial applications. No. 6 oil is a heavy fuel used in large commercial, industrial, and electric utility boilers.

Gas cap:

In a field containing both gas and oil, some gas will often collect at the top of the reservoir in a single deposit known as a gas cap.

Gas field:

A field or group of reservoirs of hydrocarbons containing natural gas but insignificant quantities of oil.

Gasoline, Straight-Run:

Also known as raw gasoline. Gasoline which is obtained directly from crude oil by fractional distillation. Straight-run gasoline generally must be upgraded to meet current motor fuel specifications.

Gathering lines:

Pipelines that move petroleum from wells to processing or transmission facilities.

Geophones:

Sensors used in seismic surveys capable of detecting the velocity of energy waves.

Gross:

Used to refer to acres or wells, refers to the total acres or wells in which a company, individual, trust, or foundation has a working interest.

Heating Oil:

No. 2 fuel oil, a distillate fuel oil used either for domestic heating or in moderate capacity commercial-industrial burners.

Heavy crude:

Oil with a gravity below 28 degrees API. Recovery generally involves an application of heat and steam. Canadian pipelines generally require oil to have a gravity of at least 21.2 degrees API. Heavier crudes must be blended with condensate or NGLs to be shipped by pipeline.

Horizontal drilling:

Drilling at an angle instead of straight down. This drilling technique permits the operator to contact and intersect a larger portion of the petroleum producing horizon than conventional vertical drilling techniques. It can increase production rates and yield more hydrocarbons from a single area.

Hydrocarbon:

Any compound or mix of compounds, solid, liquid or gas, comprised of carbon and hydrogen (e.g., coal, crude oil, and natural gas).

Independent Producer:

Term generally applies to a non-integrated oil or natural gas company, usually active in only one or two sectors of the industry. An independent marketer buys petroleum products from major or independent refiners and resells them under his own brand name or buys natural gas from producers and resells it. There are also independents which are active exclusively either in oil or gas production or refining.

Infill drilling:

Drilling more wells into the same pool so that oil does not have to travel as far through the rock.

Injection well:

A well used for injecting fluids into a formation in an attempt to increase force the petroleum out of the rock more efficiently.

Jet Fuel:

Kerosene-type; high-quality kerosene product used primarily as fuel for commercial turbojet and turboprop aircraft engines.

Joint venture:

An investment undertaken by a consortium, usually with one member acting as the operator.

Light crude:

Oil with a gravity of 28 degrees API or higher. High-quality light crude has a gravity of 40 degrees or higher.

Liquefied natural gas (LNG):

Natural gas that has been liquefied for ease of transport by cooling the gas to -162°C. Natural gas has 600 times the volume of LNG.

Liquefied Petroleum Gas (LPG):

Propane, butane, or propane-butane mixtures derived from crude oil refining or natural gas fractionation. For convenience of transportation, these gases are liquefied through pressurization.

Major

A term broadly applied to those multinational oil companies which by virtue of size, age, or degree of integration are among the preeminent companies in the international petroleum industry.

Market capitalization:

Calculated by multiplying the number of outstanding shares by the current stock price. This represents the market's valuation of the company at that specific time.

Maximum rate limit (MRL):

The maximum rate at which a well is legally permitted to produce, imposed by the regulator, such as the Alberta Energy and Utilities Board.

Maintenance:

Routine repairs needed throughout the life of a well, usually required more for oil than for gas wells.

Mcf:

Thousand cubic feet.

Mercaptans:

Strong smelling compounds of carbon, hydrogen, and sulphur found in gas and oil. Sometimes added to natural gas for safety reasons.

Methane:

The principal constituent of natural gas.

Middle Distillate:

Hydrocarbons that are in the so-called "middle boiling range" of refinery distillation. Examples are heating oil, diesel fuels, and kerosene.

MMBtu:

One million British Thermal Units, one dekatherm. Approximately equal to a thousand cubic feet (Mcf) of natural gas.

Naphtha:

A volatile, colorless product of petroleum distillation. Used primarily as a paint solvent, cleaning fluid, and blendstock in gasoline production.

Naphthenes:

One of the three basic hydrocarbon classifications found naturally in crude oil. Naphthenes are widely used as petrochemical feedstocks.

Natural Gas:

A naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in porous rock formations. Its principal component is methane.

Natural Gas Liquids (NGL):

A general term for all liquid products separated from natural gas in a gas processing plant. NGLs include propane, butane, ethane, and natural gasoline.

Netback:

The amount of money a company receives per barrel of oil equivalent produced, after subtracting operating costs, royalties, and general and administrative costs.

Net debt:

Long-term debt plus working capital.

Non-associated Gas:

Natural gas in a reservoir which contains no crude oil.

Net production:

Petroleum production that is owned by a company, individual, trust, or foundation, less royalties and production due others.

Oil

Crude oil or condensate.

Oil in place:

The estimation of the real amount of oil in a reservoir.

OPEC:

Organization of Petroleum Exporting Countries.

Operator:

The individual, company, trust, or foundation responsible for the operation of the project. It applies in either exploration, development, and production of an oil or gas well or lease.

Permeability:

The capacity of a reservoir rock to transmit fluids.

Petrochemical:

An intermediate chemical derived from petroleum, hydrocarbon liquids, or natural gas, such as ethylene, propylene, benzene, toluene, and xylene.

Petroleum:

A natural mixture of hydrocarbons in gaseous, liquid, or solid form.

Pinnacle reef:

A conical formation in the subsurface rocks where hydrocarbons may be trapped.

Pipeline:

A pipe through which oil or natural gas is pumped between two points, either offshore or onshore.

Pool:

A natural underground reservoir that either contains or appears to contain petroleum.

Porosity:

The amount of open space within a rock, similar to a sponge.

Possible reserves:

An estimate of possible oil and/or gas reserves based on geological and engineering data from undrilled or untested areas.

Probable reserves:

An estimate of oil and/or gas reserves based on penetrated structures, but needing more advanced confirmation to be classified as proven reserves.

Processing:

The separation of oil, gas, and natural gas liquids and the removal of impurities.

Proven reserves:

The quantity of oil and gas estimated to be recoverable from known fields under existing economic and operating conditions. Determined on the basis of drilling results, production, and historical trends.

Raw natural gas:

Natural gas containing impurities and unwanted substances that have to be removed.

Recompletion:

The completion for production of an existing well bore in another formation . Only applies where the formation being drilled into is different from the formation where the well was previously completed.

Recoverable reserves:

The proportion of hydrocarbons that can be recovered from a reservoir using existing techniques.

Refinery:

A complex of facilities where crude oil is separated into light or heavy fractions which are then converted into useable products.

Reserves:

means proven reserves.

Reserve life index:

The number of years it would take to deplete proven reserves at the current production rate.

Reserve replacement ratio:

The quantity of added reserves for every barrel of oil equivalent produced.

Reservoir:

Porous permeable rock containing petroleum.

Rich gas:

Gas which is predominately methane but with a relatively high proportion of other hydrocarbons.

Royalty

An interest in an oil and gas lease that gives the owner of the interest the right to receive a portion of the production from the leased acreage (or of the proceeds of the sale of production). Generally does not require the owner to pay any portion of the costs of drilling or operating the wells on the leased acreage. Royalties may be either landowner's royalties, which are reserved by the owner of the leased acreage at the time the lease is granted, or overriding royalties,

which are usually reserved by an owner of the leasehold in connection with a transfer to a subsequent owner.

Royalty holiday:

Some jurisdictions or regulators grant royalty free wells in certain situations. For instance, In Alberta, the first 70,000 boe produced from a horizontal well are generally royalty free.

Seismic: 2-D or 3-D

Using sound waves traveling through rock, the operator produces either two-dimensional or three-dimensional computer assisted pictures of the sedimentary structures underground. These Seismic tests show the subsurface structures and help determine where a drilling program might be most successful.

Solution gas:

Natural gas which is dissolved in the crude oil within the reservoir.

Sour or Sweet Crude:

Industry terms which denote the relative degree of a given crude oil's sulfur content. Sour crude refers to those crudes with a comparatively high sulfur content, 0.5% by weight and above; sweet refers to those crudes with sulfur content of less than 0.5%.

Sour gas:

Contain large amounts of hydrogen sulphides or sulphur. In order to become sweet gas, the sulphur must be removed. Hydrogen sulphide is extremely poisonous, almost instantly fatal if inhaled. This makes it difficult to transport without some processing.

Spot market:

An international market in which oil or oil products are traded for immediate delivery at the current price.

Spud:

The commencement of drilling operations.

Sweet Gas:

Petroleum which contains little or no hydrogen sulphate and as a result requires little processing.

Syncline:

A fold in layered rock in the form of a dip or bowl

Tar sands:

Mixture of sand, water, and heavy hydrocarbons, where the petroleum which can be extracted requires expensive processing..

Terminal:

An onshore transit facility that receives and stores crude oil and products from offshore production facilities via pipeline and/or tankers.

Tertiary Recovery:

Enhanced recovery methods for the production of oil or gas. Enhanced recovery of crude oil requires a means for displacing oil from the reservoir rock, modifying the properties of the fluids in the reservoir and/or the reservoir rock to cause movement of oil in an efficient manner, and providing the energy and drive mechanism to force its flow to a production well. Chemicals or energy is injected as required for displacement and for the control of flow rate and flow pattern in the reservoir, and a fluid drive is provided to force the oil toward a production well.

Transmission pipeline:

A network of pipelines distributing any petroleum product from a station, via compressor stations, to storage centres or distribution points.

Underbalanced drilling:

Occurs when the operator of the site uses specialized mud or gas while drilling to allow for formation fluids to rise to the surface and thus prevent damage to the prospective formation.

Unitization:

Owners of adjoining properties pool reserves together to form a single producing unit in which each has an interest.

Upstream: In the daisy chain of petroleum production, all the activities that occur from exploration through to production of raw product at the wellhead. If no processing occurs on site, the upstream sector includes the first transportation links to the refinery.

Upstream industry:

Produces petroleum, also referred to as upstream sector; namely, exploration and development companies, seismic, and drilling contractors, service rig operators, engineering firms.

Viscosity:

The resistance to flow or "stickiness" of a fluid.

Wellhead:

The control equipment fitted to the top of the well consisting of outlets, valves, blowout preventors, etc.

Wet Gas:

Natural gas containing condensable hydrocarbons.

Wildcat:

A well drilled in an unexplored area.

Working capital:

Current assets minus current liabilities, shows a company's ability to meet its short-term obligations.

Working Interest

an interest in an oil and gas lease that gives the owner of the interest the right to drill for and produce oil and gas on the leased acreage and requires the owner 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, with the balance of the production accruing to the owners of royalties. For example, the owner of a 100% working interest in a lease burdened by a landowner's royalty of 12.5% would be required to pay 100% of the costs of a well but would be entitled to retain 87.5% of the production.

Workovers:

Major repairs or modifications which restore or enhance production from a well.

Compiled from several sources including:**Provincial Government Web Site:**

Various Industry publications, Texas A&M University and the valued assistance of Dr. A.T. Anderson Napa, California.