

AA - AB

AAPG	American Association of Petroleum Geologists
AAPL	American Association of Petroleum Landmen
abaft	<ol style="list-style-type: none"> 1. toward the stern of a ship or mobile offshore drilling rig 2. behind. 3. farther than aft
abandon	<ol style="list-style-type: none"> 1. to cease efforts to produce oil or gas from a well, and to plug a depleted formation and salvage all material and equipment. 2. to cease producing oil and gas from a well when it becomes unprofitable. A wildcat well may be abandoned after it has proven nonproductive. Several steps are involved in abandoning a well; part of the casing may be removed and salvaged; one or more cement plugs are placed in the borehole to prevent migration of fluids between the different formations penetrated by the borehole; and the well is abandoned. In many states, it is necessary to secure permission from official agencies before a well may be abandoned.
abnormal pressure	pressure exceeding or falling below the normal pressure to be expected at a given depth. Normal pressure increases approximately 0.465 psi per foot of depth (10.5kPa per meter of depth). Thus, normal pressure at 10,000 feet is 4,650 psi; abnormal pressure at this depth would be higher or lower than 4,650 psi. See pressure gradient .
aboard	on or in a ship, offshore drilling rig, or helicopter
abrasion	wearing away by friction.
ABS	American Bureau of Shipping
absolute humidity	the amount of moisture present in the air, usually expressed in grains of water per 100 cubic feet of air (milligrams of water per cubic meter of air).
absolute permeability	a measure of the ability of a single fluid (such as water, gas, or oil) to flow through a rock formation when the formation is totally filled (saturated) with a single fluid. The permeability measure of a rock filled with a single fluid is different from the permeability measure of the same rock filled with two or more fluids. See effective permeability .
absolute porosity	the percentage of the total bulk volume of a rock sample that is composed of pore spaces or voids. See porosity .

absolute pressure	total pressure measured from an absolute vacuum. It equals the sum of the gauge pressure and the atmospheric pressure corresponding to the barometer (expressed in pounds per square inch).
absolute temperature scale	a scale of temperature measurement in which zero degrees is absolute zero. On the Rankine absolute temperature scale, in which degrees correspond to degrees Fahrenheit, water freezes at 273 degrees and boils at 373 degrees. See absolute zero .
absolute zero	a hypothetical temperature at which there is a total absence of heat. Since heat is a result of energy caused by molecular motion, there is no motion of molecules with respect to each other at absolute zero.
absorb, absorption	<p>1. To take in or make part of an existing whole.</p> <p>2. to recover liquid hydrocarbons from natural or refinery gas in a gas-absorption plant. The wet gas enters the absorber at the bottom and rises to the top, encountering a stream of absorption oil (a light oil) traveling downward over bubble-cap trays, valve trays, or sieve trays. The light oil removes, or absorbs, the heavier liquid hydrocarbons from the wet gas.</p> <p>3. to soak up as a sponge takes water.</p>
absorbent	also called absorption oil. See absorption oil .
absorber	a vertical, cylindrical vessel that recovers heavier hydrocarbons from a mixture of predominantly lighter hydrocarbons. Also called absorption tower. See absorb .
absorber capacity	the maximum volume of natural gas that can be processed through an absorber at a specified absorption oil rate, temperature, and pressure without exceeding pressure drop or any other operating limitation.
absorption	the process of sucking up; taking in and making part of an existing whole. Compare adsorption .
absorption gasoline	the gasoline extracted from natural gas by putting the gas into contact with oil in a vessel and subsequently distilling the gasoline from the heavier oil.
absorption oil	a hydrocarbon liquid used to absorb and recover components from natural gas before being processed.
absorption plant	a plant that processes natural gas with absorption oil
absorption-refrigeration cycle	a mechanical refrigeration system in which the refrigerant is absorbed by a suitable liquid or solid. The most commonly used refrigerant is ammonia; the most commonly used absorbing medium is water.
absorption tower	also called absorber. See absorber .

abyssal	of or relating to the bottom waters of the ocean.
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AC - AS

AC	alternating current
accelerator	a chemical additive that reduces the setting time of cement. See cement and cementing materials .
accumulate	to amass or collect. When oil and gas migrate into porous formations, the quantity collected is called an accumulation.
accumulator	a vessel or tank that receives and temporarily stores a liquid used in a continuous process in a gas plant. See drip accumulator. On a drilling rig, the storage device for nitrogen-pressurized hydraulic fluid, which is used in closing the blowout preventers. See blowout preventer control unit .
acetic acid	an organic acid compound sometimes used to acidize oilwells. It is not as corrosive as other acids used in well treatments. Its formula is $C_2H_4O_2$, or CH_3COOH .
acetylene welding	a method of joining steel components in which acetylene gas and oxygen are mixed in a torch to attain the high temperatures necessary for welding.
acid	any chemical compound, one element of which is hydrogen, that dissociates in solution to produce free hydrogen ions.
acid brittleness	low ductility of a metal due to its absorption of hydrogen gas. Also called hydrogen embrittlement.
acid fracture	to part or open fractures in productive, hard limestone formations by using a combination of oil and acid or water and acid under high pressure. See formation fracturing .
acid gas	a gas that forms an acid when mixed with water. In petroleum production and processing, the most common acid gases are hydrogen sulfide and carbon dioxide. They both cause corrosion, and hydrogen sulfide is very poisonous. See sour gas , sour corrosion .
acidity	the quality of being acid. Relative acid strength of a liquid is measured by pH. A liquid with a pH below 7 is acid. See pH value .
acidize	to treat oil-bearing limestone or other formations with acid for the purpose of increasing production. Hydrochloric or other acid is injected into the formation under pressure. The acid etches the rock, enlarging the pore spaces and passages through which the reservoir fluids flow. The acid is held under pressure for a period of time and then pumped

	out, after which the well is swabbed and put back into production. Chemical inhibitors combined with the acid prevent corrosion of the pipe.
acid stimulation	a well stimulation method using acid. See acidize .
acid treatment	a method by which petroleum bearing limestone or other formations are put into contact with an acid to enlarge the pore spaces and passages through which the reservoir fluids flow.
acoustic log	a record of the measurement of porosity done by comparing depth to the time it takes for a sonic impulse to travel through a given length of formation. The rate of travel of the sound wave through a rock depends on the composition of the formation and the fluids it contains. Because the type of formation can be ascertained by other logs, and because sonic transit time varies with relative amounts of rock and fluid, porosity can usually be determined in this way.
acoustic position references	a system consisting of a beacon positioned on the seafloor to transmit an acoustic signal, a set of three or four hydrophones mounted on the hull of a floating offshore drilling vessel to receive the signal, and a position display unit to track the relative positions of the rig and the drill site. Monitoring of the display unit aids in accurate position of the rig over the site.
acoustic signatures	the characteristic patterns for various degrees of cement bonding between the casing and the borehole that appear on an oscilloscope display when a sonic cement bond log is made.
acoustic survey	a well-logging method in which sound impulses are generated and transmitted into the formations opposite the wellbore. The time it takes for the sound impulses to travel through the rock is measured and recorded. Subsequent interpretation of the record (log) permits an estimation of the rock's porosity and fluid content to be made. The process is also called <i>sonic logging</i> . See sonic logging .
acoustic well logging	the process of recording the acoustic characteristics of subsurface formations, based on the time required for a sound wave to travel a specific distance through rock. The rate of travel of the sound wave depends on the composition of the formation, its porosity, and its fluid content.
acre-foot	a unit of volume often used in oil reservoir analysis, equivalent to the volume (as of oil or water) necessary to cover 1 acre to a depth of 1 foot.
across	over. The term usually relates conditions of fluid flow on one side of a piece of equipment to conditions on the opposite side (e.g., a pressure drop across a separator).
ACT	automatic custody transfer
activated charcoal	a form of carbon characterized by a high absorptive and adsorptive capacity for gases, vapors, and colloidal solids.

adapter	a device to provide connection between two other parts.
adsorption	the accumulation of a thin layer of molecules of gas or liquid on a solid surface.
Air/Gas Lift	lifting of liquids by injection, directly into the well, of air or gas.
allowable	the amount of oil or gas that a well is permitted by State authorities to produce during a given period
annular space	1. the space surrounding a cylindrical object within a cylinder. 2. the space around a pipe in a wellbore, the outer wall of which may be the wall of either the borehole or the casing; sometimes termed the annulus .
annulus	also called annular space. See annular space .
anomaly	a deviation from the norm. In geology, the term indicates an abnormality such as a fault or dome in a sedimentary bed.
anticlinal trap	a hydrocarbon trap in which petroleum accumulates in the top of an anticline. See anticline .
anticline	an arched, inverted-trough configuration of folded and stratified rock layers.
appraisal well	a well drilled to further confirm and evaluate the presence of hydrocarbons in a reservoir that has been found by a wildcat well.
API	American Petroleum Institute. Headquarters: 1801 K Street, N.W., Washington, D.C. 20006. Division of Production: 300 Corrigan Tower, Dallas, Texas 75201.
API Gravity	a system for measuring density of a liquid to be tested which has been adopted as a standard by API.
apron ring	the first or lowest ring of plates in a tank.
arctic submersible rig	a mobile submersible drilling structure used in arctic areas. The rig is moved onto the drilling site and submerged during periods when the water is free of ice. All equipment below the waterline is surrounded by a caisson to protect it from damage by moving ice. The drilling deck has

	no square corners so that moving ice can better flow around it.
artificial lift	any method used to raise oil to the surface through a well after reservoir pressure has declined to the point at which the well no longer produces by means of natural energy. Sucker rod pumps, gas lift, hydraulic pumps, and submersible electric pumps are the most common forms of artificial lift.
associated gas	natural gas, commonly known as gas-cap gas, which overlies and is in contact with crude oil in the reservoir.

BA - BL

back-in unit	a portable servicing or workover rig that is self-propelled, using the hoisting engines for motive power. Because the driver's cab is mounted on the end opposite the mast support, the unit must be backed up to the wellhead. See carrier rig .
back pressure	the pressure resulting from restriction of full natural flow of oil or gas.
back-off	to unscrew.
back-up man	the person who holds one length of pipe while another length is being screwed into or out of it.
back-pressure	<ol style="list-style-type: none"> 1. the pressure maintained on equipment or systems through which a fluid flows. 2. in reference to engines, a term used to describe the resistance to the flow of exhaust gas through the exhaust pipe. 3. the operating pressure level measured downstream from a measuring device.
back-pressure valve	<ol style="list-style-type: none"> 1. a valve used to regulate back-pressure on equipment or systems through which a fluid flows. 2. a valve used to regulate automatically a uniform pressure on the inlet side of the valve.
backside	the area above a packer between casing ID and tubing OD
back up	to hold one section of an object such as pipe while another section is being screwed into or out of it.
backup element	a sealing ring on either side of the center packing element to limit its extrusion
backup ring	a cylindrical ring, usually vise-shaped, employed to back up (or assist) a sealing member against extrusion under temperature and pressure.

baffles	plates which change the direction of flow of fluids.
bail	<p>1. a curved steel rod on top of the swivel that resembles the handle, or bail, of an ordinary bucket, but is much larger. Just as an ordinary bucket is hung from a hook by its bail, the swivel is hung from the traveling block's hook by its bail. Sometimes, the two steel rods (the links) that attach the elevator to the hook are also called bails.</p> <p>2. to recover bottomhole fluids, samples, mud, sand, or drill cuttings by lowering a cylindrical vessel called a bailer to the bottom of a well, filling it, and retrieving it.</p>
bailer	a long, cylindrical container fitted with a valve at its lower end, used to remove water, sand, mud, drilling cuttings, or oil from a well in cable-tool drilling.
ball	a spherical object used to pump down the drill string or tubing to trip, release, or otherwise operate certain hydraulic-type tools.
ball and seat	the main parts of the valves in a plunger-type oil-well pump.
ball-and-seat valve	<p>a device used to restrict fluid flow to one direction. It consists of a polished sphere, or ball, usually of metal, and an annular piece, the seat, ground and polished to form a seal with the surface of the ball. Gravitational force or the force of a spring holds the ball against the seat. Flow in the direction of the force is presented, while flow in the opposite direction overcomes the force and unseats the ball.</p>
ball catcher	a tube placed around the retrieving neck of a retrievable bridge plug to "catch" debris.
ball-out	to plug open perforations by using ball sealers.
ball sealers	balls made of nylon, hard rubber, or both and used to shut off perforations through which excessive fluid is being lost.
ball up	<p>1. to collect a mass of sticky consolidated material, usually drill cuttings, on drill pipe, drill collars, bits, and so forth. A bit with such material attached to it is called a balled-up bit. Balling up is frequently the result of inadequate pump pressure or insufficient drilling fluid.</p> <p>2. in reference to an anchor, to fail to hold on a soft bottom, pulling out, instead, with a large ball of mud attached.</p>
ball valve	a flow-control device employing a ball with a rotating mechanism to open or close the tubing medium.
ballast	<p>1. for ships, water taken onboard into specific tanks to permit proper angle of repose of the vessel in the water, and to assure structural stability.</p> <p>2. for mobile offshore drilling rigs, weight added to make the rig more seaworthy, increase its draft, or sink it to the seafloor. Seawater is usually used for ballast, but sometimes concrete or iron is used additionally to lower the rig's center of gravity permanently.</p>

barefoot completion	see open-hole completion
barite	barium sulfate; a mineral frequently used to increase the weight or density of drilling mud. Its relative density is 4.2 (or 4.2 times denser than water). See barium sulfate , mud .
barite plug	a settled volume of barite particles from a barite slurry placed in the wellbore, usually to seal off a pressured zone.
barite slurry	a mixture of barium sulfate, chemicals, and water of a unit density between 18 and 22 pounds per gallon
barium sulfate	a chemical combination of barium, sulfur, and oxygen which forms a tenacious scale that is very difficult to remove. See barite .
barrel (bbl)	<p>1. a measure of volume for petroleum products in the United States. One barrel is the equivalent of 42 U.S. gallons or 0.15899 cubic meters (9,702 cubic inches). One cubic meter equals 6.2897 barrels.</p> <p>2. the cylindrical part of a sucker rod pump in which the piston-like plunger moves up and down. Operating as a piston inside a cylinder, the plunger and barrel create pressure energy to lift well fluids to the surface.</p>
barrels per day (bpd)	in the United States, a measure of the rate of flow of a well; the total amount of oil and other fluids produced or processed per day.
barrel equivalent	a laboratory unit used for evaluating or testing drilling fluids. One gram of material, when added to 350 milliliters of fluid, is equivalent to 1 pound of material when added to one 42-gal barrel of fluid.
barrel wrench	a friction wrench used in repairing oil-well pumps
baryte	variation of barite. See barite .
base	a substance capable of reacting with an acid to form a salt. A typical base is sodium hydroxide (caustic), with the chemical formula MOH. For example, sodium hydroxide combines with hydrochloric acid to form sodium chloride (a salt) and water.
base exchange	the replacement of cations associated with the clay surface by those of another species, e.g., the conversion of sodium clay to calcium clay.
basicity	pH value above 7 and the ability to neutralize or accept protons from acids
basket	a device employed to catch debris from drillable tools, perforators, and so on
basket grapple	an expandable, cylindrically shaped gripping mechanism that is fitted into an overshot to retrieve fish from the borehole. See grapple .
basket sub	a fishing accessory run above a bit or a mill to recover small, nondrillable pieces of metal or junk.
batch	a definite amount of oil, mud, acid, or other liquid in a tank or pipe.

batch treating	the process by which a single quantity of crude oil emulsion is broken into oil and water. The emulsion is gathered and stored in a tank or container prior to treating.
battery	1. an installation of identical or nearly identical pieces of equipment (such as a tank battery or a battery of meters). 2. an electricity storage device.
bbl	<i>abbreviation:</i> barrel
b/d	<i>abbreviation:</i> barrels per day; often used in drilling reports
beam	the walking beam of a pumping unit.
beam pumping unit	a machine designed specifically for sucker rod pumping. An engine or motor (prime mover) is mounted on the unit to power a rotating crank. The crank moves a horizontal member (walking beam) up and down to produce reciprocating motion. This reciprocating motion operates the pump. Compare pump jack
beam well	a well using a pumping unit and rods to lift fluid.
bean	a choke, used to regulate flow of fluid from a well. Different sizes of beans are used for different producing rates.
belching	a slang term to denote flowing by heads
bell hole	a bell-shaped hole dug beneath a pipeline to provide room for use of tools.
bell nipple	a short length of pipe (a nipple) installed on top of the blowout preventer. The top end of the nipple is flared, or belled, to guide drill tools into the hole and usually has side connections for the fill line and mud return line.
bentonite	a colloidal clay, composed primarily of montmorillonite, that swells when wet. Because of its gel forming properties, bentonite is a major component of water-based drilling muds. See gel , mud .
bent sub	a short cylindrical device installed in the drill stem between the bottom-most drill collar and a downhole motor. Its purpose is to deflect the downhole motor off vertical to drill a directional hole. See drill stem .
bicarb	see sodium bicarbonate
bird cage	to flatten and spread the strands in a wire rope.
bird-dog	to supervise another too closely or continuously
bit	the cutting or boring element used in drilling oil and gas wells. This bit consists of a cutting element and a circulating element. The circulating element permits the passage of drilling fluid and utilizes the hydraulic force of the fluid stream to improve drilling rates. In rotary drilling,

	several drill collars are joined to the bottom end of the drill pipe column, and the bit is attached to the end of the string of drill collars. Most bits used in rotary drilling are roller cone bits, but diamond bits are also used extensively.
blank casing	casing without perforations
blank flange (also a blind flange)	a solid disc used to dead end a companion flange.
blank joint	a heavy wall sub placed opposite flowing perforations.
blank liner	a liner without perforations.
blank-off	to close off, such as with a blank flange or bull plug.
blast joint	a tubing sub made of abrasion-resistant material. It is used in a tubing string where high-velocity flow through perforations may cause external erosion.
bleed	to drain off liquid or gas, generally slowly, through a valve called a bleeder. To bleed down, or bleed off, means to release pressure slowly from a well or from pressurized equipment.
bleed into	to cause a gas or liquid to mingle slowly with another gas or liquid usually by pressure.
bleed line	a pipe through which pressure is bled, as from a pressurized tank, vessel, or other pipe.
bleed off or bleed down	reduce pressure by letting oil or gas escape at a low rate.
bleeder	a valve or pipe through which bleeding is done.
blender	a device used to blend slurries or gels, usually mobile equipment.
blind ram	an integral part of a blowout preventer, which serves as the closing element on an open hole. Its ends do not fit around the drill pipe but seal against each other and shut off the space below completely. See ram
block	an assembly of pulleys on a common framework; in mechanics, one or more pulleys, or sheaves, mounted to rotate on a common axis. The crown block is an assembly of sheaves mounted on beams at the top of the derrick. The drilling line is reeved over the sheaves of the crown block alternately with the sheaves of the traveling block, which is raised and lowered in the derrick by the drilling line. When elevators are attached to a hook on the traveling block and drill pipe latched in the elevators, the pipe can be raised or lowered. See crown block and traveling block .
blocks	heavy lifting mechanism used on rigs to provide a mechanical pulling and running advantage.

blooey line	the discharge pipe from a well being drilled by air drilling. The blooey line is used to conduct the air or gas used for circulation away from the rig to reduce the fire hazard as well as to transport the cuttings a suitable distance from the well.
blowdown	1. the emptying or depressurizing of material in a vessel. 2. the material thus discarded.
blowout	an uncontrolled flow of gas, oil, or other well fluids into the atmosphere or into an underground formation. A blowout, or gusher, can occur when formation pressure exceeds the pressure applied to it by the column of drilling fluid.
blowout preventer	one of several valves installed at the wellhead to prevent the escape of pressure either in the annular space between the casing and drill pipe or in open hole (i.e., hole with no drill pipe) during drilling completion operations. Blowout preventers on land rigs are located beneath the rig at the land's surface; on jackup or platform rigs, at the water's surface; and on floating offshore rigs, on the seafloor.
blowout preventer control panel	controls, usually located near the driller's position on the rig floor, that are manipulated to open and close the blowout preventers. See blowout preventer .
blowout preventer control unit	a device that stores hydraulic fluid under pressure in special containers and provides a method to open and close the blowout preventers quickly and reliably. Usually, compressed air and hydraulic pressure provide the opening and closing force in the unit. See blowout preventer .
blowout preventer drill	a training procedure to determine that rig crews are completely familiar with correct operating practices to be followed in the use of blowout prevention equipment. A "dry run" of blowout preventative action.
blowout preventer operating and control system	the assembly of pumps, valves, lines, accumulators, and other items necessary to open and close the blowout preventer equipment. Also called closing unit .
blowout preventer rams	the closing and sealing components of a preventer, like the gate in a gate valve.
blowout preventer stack	the assembly of well-control equipment including preventers, spools, valves, and nipples connected to the top of the wellhead.

BO - BY

bob tail	any short truck.
body lock ring	an internal mechanism employed in certain tools to lock cones to the mandrel
boiler	a closed pressure vessel with a furnace to burn coal, oil, or gas, used to generate steam from water.

boilerhouse	to make up or fake a report without actually doing the work.
boll weevil	any inexperienced worker or "hand".
bomb	a thick-walled container, usually steel, used to hold devices that determine and record pressure or temperature in a wellbore. See bottomhole pressure .
bomb hanger	a device set in tubing, particular collars, to facilities the landing of pressure bombs (recorders).
bonnet	the part of a valve that packs off and encloses the valve stem.
boomer	a link and lever mechanism which is used to tighten a chain holding a load on a truck.
boot	<p>1. a tubular device placed in a vertical position, either inside or outside a larger vessel, and through which well fluids are conducted before they enter the larger vessel. A boot aids in the separation of gas from wet oil.</p> <p>2. a large pipe connected to a process tank to provide a statis head that can absorb surges of fluid from the process tank.</p>
boot basket	see boot sub
boot sub	a device made up in the drill stem above the mill to collect bits of junk ground away during a milling operation. During milling, drilling mud under high pressure forces bits of junk up the narrow space between the boot sub and the hole wall. When the junk reaches the wider annulus above the boot sub and pressure drops slightly, the junk falls into the boot sub. A boot sub also can be run above the bit during routine drilling to collect small pieces of junk that may damage the bit or interfere with its operation.
BOP	<i>abbreviation:</i> blowout preventer.
bopd	<i>abbreviation:</i> barrels of oil per day.
BOPE	<i>abbreviation:</i> blowout preventer equipment
BOP stack	the assembly of blowout preventers installed on a well
borehole	a hole made by drilling or boring; a wellbore.
borehole pressure	total pressure exerted in the wellbore by a column of fluid and/or back-pressure imposed at the surface.
bottleneck	an area of reduced diameter in pipe caused by excessive longitudinal strain or by a combination of longitudinal string and the swagging action of a body. A bottleneck may result if the downward motion of the drill pipe is stopped with the slips instead of the brake.

bottle-type submersible rig	a mobile submersible drilling structure constructed of several steel cylinders, or bottles. When the bottles are flooded, the rig submerges and rests on bottom; when water is removed from the bottles, the rig floats. The latest designs of this type of rig drill in water depths up to 100 feet (30.5 meters). See submersible drilling rig .
bottom water	water occurring in a producing formation below the oil or gas in that same formation.
bottomhole choke	a device with a restricted opening placed in the lower end of the tubing to control the rate of flow. See choke .
bottom-hole pressure	the pressure at the bottom of a well.
bottomhole pressure bomb	a pressure-tight container (bomb) used to record the pressure in a well at a point opposite the producing formation
bottomhole pressure gauge	a device to measure bottomhole pressure. See bottomhole pressure bomb .
bottomhole pressure test	a test that measures the reservoir pressure of the well, obtained at a specific depth or at the midpoint of the producing zone. A flowing bottomhole pressure test measures pressure while the well continues to flow; a shut-in bottomhole pressure test measures pressure after the well has been shut in for a specified period of time. See bottomhole pressure , bottomhole pressure gauge .
bottom sub	the lowest extremity of the tool to which accessories or other tools can be coupled.
bottoms up	a complete trip from the bottom of the wellbore to the top
bottom-supported offshore drilling rig	a type of mobile offshore drilling unit that has a part of its structure in contact with the seafloor when it is on site and drilling a well. The remainder of the rig is supported above the water. The rig can float, however, allowing it to be moved from one drill site to another. Bottom-supported units include submersible rigs and jackup rigs. See mobile offshore drilling unit .
bottom water	water found below oil and gas in a producing formation
Bourdon tube	a pressure-sensing element consisting of a twisted or curved tube of non-circular cross section, which tends to straighten when pressure is applied internally. By the movements of an indicator over a circular scale, a Bourdon tube indicates the pressure applied.
bowl	a device into which fit the slips or wedges which support tubing.
box	the female section of a connection. See tool joint .
box tap	old-style tap with longitudinal grooves across the threads. See tap , taper tap .
bpd or BPD	<i>abbreviation:</i> barrels per day.

brackish water	water that contains relatively low concentrations of soluble salts. Brackish water is saltier than fresh water but not as salty as salt water.
bradenhead	an obsolete term for a casinghead.
bradenhead gas	commonly called casinghead gas; gas that is produced with oil or from the casing head of an oil well.
bradenhead squeeze	a process used to repair a hole in the casing by pumping cement down tubing or drill pipe. First, the casinghead, or bradenhead, is closed to prevent fluids from moving up the casing. Then the rig's pumps are started. Pump pressure moves the cement out of the tubing or pipe and, since the top of the casing is closed, the cement goes into the hole in the casing. The tubing or pipe is pulled from the well and the cement allowed to harden. The hardened cement seals the hole in the casing. Although the term "bradenhead squeezing" is still used, the term "bradenhead" is obsolete. See annular space , casinghead , squeeze .
brake band	a part of the brake mechanism consisting of a flexible steel band lined with a material that grips a drum when tightened. On a drilling rig, the brake band acts on the flanges of the drawworks drum to control the lowering of the traveling block and its load of drill pipe, casing, or tubing.
break circulation	to start the mud pump for restoring circulation of the mud column. Because the stagnant drilling fluid has thickened or gelled during the period of no circulation, high pump pressure is usually required to break circulation.
breaking down	unscrewing the drill stem into single joints and placing them on the pipe rack. The operation takes place on completion of the well, or in changing from one size of pipe to another.
break out	to loosen a tight joint as in line pipe or sucker rods.
breakout cathead	a device attached to the catshaft of the drawworks that is used as a power source for unscrewing drill pipe; usually located opposite the driller's side of the drawworks. See cathead .
bridge	<ol style="list-style-type: none"> 1. an obstruction in the borehole, usually caused by the caving in of the well or the borehole or by the intrusion of a large boulder. 2. a tool place in the hole to retain cement or other material; it may later be removed, drilled out, or left permanently.
bridge over	a phenomenon that sometimes occurs when a well blows out. Rocks, sand, clay, and other debris clog the hole and stop the blowout.
bridge plug	a downhole tool, composed primarily of slips, a plug mandrel, and a rubber sealing element, that is run and set in casing to isolate a lower zone while an upper section is being tested or cemented.
bridging materials	the fibrous, flaky, or granular material added to a cement slurry or drilling fluid to aid in sealing formations in which lost circulation has occurred. See lost circulation , lost circulation material .
brine	water that has large quantity of salt, especially sodium chloride, dissolved in it, salt water.

bring in a well	to complete a well and put it on producing status.
broaching	blowing out of formation fluids outside the casing and under the rig
bromine value	the number of centigrams of bromine that are absorbed by 1 gram of oil under certain conditions. This is a test for the degree of unsaturatedness of a given oil.
Brownian movement	the random movement exhibited by microscopic particles when suspended in liquids or gases. It is caused by the impact of molecules of fluid surrounding the particle.
BS or BS&W	basic sediment, or basic sediment and water.
buck up	to tighten a threaded connection.
buffer	any substance or combination of substances that, when dissolved in water, produces a solution that resists a change in its hydrogen ion concentration on the addition of acid or base.
bullet perforator	a tubular device that, when lowered to a selected depth within a well, fires bullets through the casing to provide holes through which the formation fluids may enter the wellbore.
bullheading	<ol style="list-style-type: none"> 1. forcing gas back into a formation by pumping into the annulus from the surface. 2. any pumping procedure in which fluid is pumped into the well against pressure.
bull plug	a threaded nipple with a rounded, closed end used to stop up a hole or close off the end of a line.
bump down	to have too long a length of rods between the pumping unit and the pump seat so that the pump hits bottom on the down stroke.
bumper jar	a device made up in the drill string that, when actuated, delivers a heavy downward blow to the string. A bumper jar has a hollow body that moves upward when the drill string is picked up. When the string is dropped quickly, the jar body produces a sharp downward blow on the tubing or pipe made up below the jar. If downward blows can free a fish, a bumper jar can be very effective.
bumper sub	a percussion tool run on a fishing string to jar downward or upward on a stuck fish to knock it free. The bumper sub body moves up and down on a mandrel.
Bund-N	a nitrile rubber used throughout the oilfield as an elastometer seal, i.e., in O-rings, V-rings.
buoyancy	the apparent loss of weight of an object immersed in a fluid. If the object is floating, the immersed portion displaces a volume of fluid the weight of which is equal to the weight of the object.
burn shoe	a milling device attached to the bottom of washpipe that mills or drills debris accumulated around the outside of the pipe being washed over.

	usually, a burn shoe has pieces of very hard tungsten carbide embedded in it. Also called a rotary shoe . See washpipe .
burn over	to use a mill to remove the outside area of a permanent downhole tool.
bury barge	a vessel used to bury pipeline beneath the seafloor. The barge moves itself forward by means of anchors. A jet sled is lowered over the pipeline, and as the barge pulls it over the pipe, high-pressure jets of water remove soil from beneath the pipe, allowing the pipe to fall into the jetted-out trench.
bushing	<ol style="list-style-type: none"> 1. a pipe fitting on which the external thread is larger than the internal thread to allow two pipes of different sizes to be connected. 2. a removable lining or sleeve inserted or screwed into an opening to limit its size, resist wear or corrosion, or serve as a guide.
butane	a paraffin hydrocarbon, a gas in atmospheric conditions but is easily liquefied under pressure. It is a constituent of liquefied petroleum gas. See commercial butane , field-grade butane , normal butane .
button up	to secure the wellhead or other components.
button slip	a slip employing tungsten-carbide "buttons" in lieu of conventional wicker-type teeth to set tools in very hard casing.
butress	a special threaded connection
bypass	<ol style="list-style-type: none"> 1. a pipe connection around a valve or other control mechanism that is installed to permit passage of fluid through the line while adjustments or repairs are being made on the control. 2. a delivery of gas to a customer by means of a pipeline other than that customer's traditional supplier. For example, delivery of gas to an end user directly off a transmission pipeline without moving the gas through the end user's traditional local distribution company supplier.

C

cable-tool drilling	a drilling method in which the hole is drilled by dropping a sharply pointed bit on bottom. The bit is attached to a cable, and the cable is repeatedly dropped as the hole is drilled.
cage	the part of a pump valve which holds the ball to limit its movement.
cage wrench	a special wrench designed for use in connecting the cage of a sucker rod pump to the sucker rod string.
caisson	<ol style="list-style-type: none"> 1. one of several columns made of steel or concrete, which serves as the foundation for a rigid offshore platform rig, such as the concrete gravity platform rig.

	2. a steel or concrete chamber that surrounds equipment below the waterline of an arctic submersible rig, thereby protecting the equipment from damage by moving ice.
caisson-type platform rig	a rigid offshore drilling platform that stands on steel caissons and is used to drill development wells. The caissons are firmly affixed to the seafloor, and the drilling and production decks are laid on top of them. The platform is used in certain arctic waters, where the caissons are needed to protect equipment from moving ice. See platform rig .
cake	see filter cake .
cake consistency	the character or state of the drilling mud filter cake. From API RP 13B: notations such as "hard," "soft," "tough," "rubbery," and "firm" may be used to convey some idea of cake consistency.
cake thickness	the thickness of drilling mud filter cake
calcium	one of the alkaline earth elements with a valence of 2 and an atomic weight of about 40. Calcium compounds are a common cause of water hardness. Calcium is also a component of lime, gypsum, and limestone.
calcium carbonate	a chemical combination of calcium, carbon, and oxygen. It is the main constituent of limestone. It forms a tenacious scale in water-handling facilities and is a cause of water hardness.
calcium chloride	a moisture-absorbing chemical compound, or desiccant used to accelerate setting times in cement and as a drying agent.
calcium contamination	dissolved calcium ions in sufficient concentration to impart undesirable properties, such as flocculation, reduction in yield of bentonite, and increased fluid loss, in a drilling fluid. See also calcium carbonate , calcium sulfate , gypsum .
calcium hydroxide	the active ingredient of slaked (hydrated) lime, and the main constituent in cement (when wet). Referred to as "lime" in field terminology.
calcium sulfate	a chemical compound of calcium, sulfur, and oxygen. Although sometimes considered a contaminant of drilling fluids, it may at times be added to them to produce certain properties. Like calcium carbonate it forms scales in water-handling facilities, which may be hard to remove. See gypsum .
calcium-treated mud	a freshwater drilling mud using calcium oxide (lime) or calcium sulfate (gypsum) to retard the hydrating qualities of shale and clay formation, thus facilitating drilling. Calcium-treated muds resist scale and any anhydrite contamination but may require further treatment to prevent gelation (solidification) under the high temperatures of deep wells.
caliper	an instrument with two legs or jaws that can be adjusted for measuring linear dimensions, thicknesses, or diameters.
caliper log	a record showing variations in wellbore diameter by depth, indicating undue enlargement due to caving in, washing, or other causes. The caliper log also reveals corrosion, scaling, or pitting inside tubular goods.

Cameron gauge	generically, a pressure gauge usually used in lines or manifolds. Many companies make pressure gauges. Cameron, now Cooper Oil Tools, makes many types of gauges.
cantilever	a beam or beams that project outward from a structure and are supported only at one end.
cantilevered jackup	a jackup drilling unit in which the drilling rig is mounted on two cantilevers that extend outward from the barge hull of the unit. The cantilevers are supported only at the barge end.
cap a well	to control a blowout by placing a very strong valve on the wellhead. See <i>blowout</i> .
caprock	1. a disk-like plate of anhydrite, gypsum, limestone, or sulfur overlying most salt domes in the Gulf Coast region. 2. impermeable rock overlying an oil or gas reservoir that tends to prevent migration of oil or gas out of the reservoir.
carboxymethyl cellulose	a non-fermenting cellulose product used in drilling fluids to combat contamination from anhydrite (gypsum) and to lower the water loss of the mud.
carrier rig	a large, specially designed, self-propelled workover rig that a person drives directly to the well site. Power from a carrier rig's hoist engine or engines also propels the rig on the road. While a carrier rig is primarily intended to perform workovers, it can also be used to drill relatively shallow wells. A carrier rig may be a back-in type or a drive-in type. See back-in unit , drive-in unit .
cased	pertaining to a wellbore in which casing has been run and cemented. See casing .
cased hole	a wellbore in which casing has been run.
casing	steel pipe placed in an oil or gas well as drilling progresses to prevent the wall of the hole from caving in during drilling, to prevent seepage of fluids, and to provide a means of extracting petroleum if the well is productive.
casing burst pressure	the amount of pressure that, when applied inside a string of casing, causes the wall of the casing to fail. This pressure is critically important when a gas kick is being circulated out, because gas on the way to the surface expands and exerts more pressure than it exerted at the bottom of the well.
casing centralizer	a device secured around the casing at the regular intervals to center it in the hole. Casing that is centralized allows a more uniform cement sheath to form around the pipe.
casing coupling	a tubular section of pipe that is threaded inside and used to connect two joints of casing.
casing gun	a perforating gun run in on the casing string.

casing hanger	a circular device with a frictional gripping arrangement of slips and packing rings used to suspend casing from a casinghead in a well
casing pressure	gas pressure built up between the casing and tubing.
casinghead	a heavy, flanged steel fitting connected to the first string of casing. It provides a housing for slips and packing assemblies, allows suspension of intermediate and production strings of casing, and supplies the means for the annulus to be sealed off. Also called a spool .
casinghead gas	(oil well gas) is associated and dissolved gas produced along with crude oil from oil completions.
casinghead gasoline	(obsolete) natural gasoline.
casing overshot	see casing-patch tool
casing pack	a means of cementing casing in a well so that the casing may, if necessary, be retrieved with minimum difficulty. A special mud, usually an oil mud, is placed in the well ahead of the cement after the casing has been set. Non-solidifying mud is used so that it does not bind or stick to the casing in the hole in the area above the cement. Since the mud does not gel for a long time, the casing can be cut above the cemented section and retrieved. Casing packs are used in wells of doubtful or limited production to permit reuse of valuable lengths of casing.
casing-patch tool	a special tool with a rubber packer or lead seal that is used to repair casing. When casing is damaged downhole, a cut is made below the damaged casing, the damaged casing and the casing above it are pulled from the well, and the damaged casing is removed from the casing string. The tool is made up and lowered into the well on the casing until it engages the top of the casing that remains in the well, and a rubber packer or lead seal in the tool forms a seal with the casing that is in the well. The casing-patch tool is an over-shot-like device and is sometimes called a casing overshot.
casing pressure	the pressure in a well between the casing and the tubing or the casing and the drill pipe.
casing protector	a short threaded nipple screwed into the open end of the coupling and over the threaded end of casing to protect the threads from dirt accumulation and damage. It is made of steel or plastic. Also called thread protector .
casing roller	a tool composed of a mandrel on which are mounted several heavy-duty rollers with eccentric roll surfaces. It is used to restore buckled, collapsed, or dented casing in a well to normal diameter and roundness. Made up on tubing or drill pipe and run into the well to the depth of the deformed casing, the tool is rotated slowly, allowing the rollers to contact all sides of the casing and restore it to roughly its original condition.
casing scraper	blade tool used to scrape away junk or debris from inside casing; run on pipe or tubing.

casing seal receptacle	a casing sub containing a seal bore and a left-handed thread, run as a crossover between casing sizes, to provide a tubing anchor.
casing seat	the location of the bottom of a string of casing that is cemented in a well. Typically, a casing shoe is made up on the end of the casing at this point.
casing seal test	a procedure whereby the formation immediately below the casing shoe is subjected to a pressure equal to the pressure expected to be exerted later by a higher drilling fluid density or by the sum of a higher drilling fluid density and back-pressure created by a kick.
casing shoe	see guide shoe
casing string	the entire length of all the joints of casing run in a well. Most casing joints are manufactured to specifications established by API, although non-API specification casing is available for special situations. Casing manufactured to API specifications is available in three length ranges. A joint of range 1 casing is 16 to 25 feet long; a joint of range 2 casing is 25 to 34 feet long; and a joint of range 3 casing is 34 to 48 feet long. The outside diameter of a joint of API casing ranges from 4 1/2 to 20 inches.
casing tongs	large wrench used for turning when making up or breaking out casing. See tongs .
cat	a crawler-type tractor.
cat walk	the narrow walkway on top of a tank battery.
catcher	a device fitted into a junk basket and acting as a trap door to retain the junk
catch samples	to obtain cuttings for geological information as formations are penetrated by the bit. The samples are obtained from drilling fluid as it emerges from the wellbore or, in cable-tool drilling, from the bailer. Cuttings are carefully washed until they are free of foreign matter, dried, and labeled to indicate the depth at which they were obtained.
cathead	a spool-shaped attachment on a winch around which rope is wound for hoisting and pulling.
catline	a hoisting or pulling line operated from a cathead.
catwalk	1. the ramp at the side of the drilling rig where pipe is laid to be lifted to the derrick floor by the catline or by an air hoist. 2. any elevated walkway
caustic soda	sodium hydroxide. Used to maintain an alkaline pH in drilling mud and in petroleum fractions.
cave-in	the collapse of the walls of the wellbore.

cavernous formation	a rock formation that contains large open spaces, usually resulting from the dissolving of soluble substances by formation waters that may still be present. See vug .
caving	collapsing of the walls of the wellbore. Also called sloughing .
cavitation	the formation and collapse of vapor- or gas-filled cavities that result from a sudden decrease and increase of pressure. Cavitation can cause mechanical damage to adjacent surfaces in meters, valves, pumps, and pipes at locations where flowing liquid encounters a restriction or change in direction.
CBHT	<i>abbreviation:</i> circulating bottomhole temperature
CBL	<i>abbreviation:</i> cement bond log.
cc	<i>abbreviation:</i> cubic centimeter
CCL	casing collar log
cellar	a hole dug, usually before drilling of a well, to allow working space for the casinghead equipment.
cement	a powder, consisting of alumina, silica, lime, and other substances that hardens when mixed with water. Extensively used in the oil industry to bond casing to the walls of the wellbore.
cement bond survey	an acoustic survey or sonic logging method that records the quality or hardness of the cement used in the annulus to bond the casing and the formation. Casing that is well bonded to the formation transmits an acoustic signal quickly; poorly bonded casing transmits a signal slowly. See acoustic survey , acoustic well logging .
cementer	a generic term used to describe a retrievable service squeeze tool; used in remedial cementing.
cementing	the application of a liquid slurry of cement and water to various points inside or outside the casing. See primary cementing , secondary cementing .
cementing head	an accessory attached to the top of the casing to facilitate cementing of the casing. It has passages for cement slurry and retain chambers for cementing wiper plugs.
cementing materials	a slurry of portland cement and water and sometimes one or more additives that affect either the density of the mixture or its setting time. The portland cement used may be high early strength common (standard), or slow setting. Additives include accelerators (such as calcium chloride), retarders (such as gypsum), weighting materials (such as barium sulfate), lightweight additives (such as bentonite), or a variety of lost circulation materials (such as mica flakes).

cement plug	a portion of cement placed at some point in the wellbore to seal it. See cementing .
cement retainer	a tool set temporarily in the casing or well to prevent the passage of cement, thereby forcing it to follow another designated path. It is used in squeeze cementing and other remedial cementing jobs.
centipoise	one-hundredth of a poise; a measure of a fluid's viscosity, or resistance to flow.
centralizer	see casing centralizer
centrifugal pump	a pump with an impeller or rotor, an impeller shaft, and a casing, which discharges fluid by centrifugal force.
centrifuge	a shake-out or grind-out machine. Samples of oil are placed in the machine and whirled at high speed to settle out sediment.
certs	certifications of materials on physical and chemistry properties.
chain drive	a mechanical drive using a driving chain and chain gears to transmit power. Power transmissions use a roller chain, in which each link is made of side bars, transverse pins, and rollers on the pins. A double roller chain is made of two connected rows or links, a triple roller chain of three, and so forth.
chain tongs	a hand tool consisting of a handle and chain that resembles the chain on a bicycle. In general, chain tongs are used for turning pipe or fittings of a diameter larger than that which a pipe wrench would fit. The chain is looped and tightened around the pipe or fitting, and the handle is used to turn the tool so that the pipe or fitting can be tightened or loosened.
change house	a small building, or doghouse, in which members of a drilling rig or roustabout crew change clothes, store personal belongs, and so on.
change rams	to take rams out of a blowout preventer and replace them with rams of a different size or type. When the size of a drill pipe is changed, the size of the pipe rams must be changed to ensure that they seal around the pipe when closed (unless variable-bore pipe rams are in use).
chase threads	to straighten and clean threads of any king.
cheater	a length of pipe used to increase.
check valve	a valve that permits flow in one direction only. if the gas or liquid starts to reverse, the valve automatically closes, preventing reverse movement. Commonly referred to as a one-way valve.
chemical barrel	a container in which various chemicals are mixed prior to addition to drilling fluid.
chemical cutoff	a method of severing steel pipe in a well by applying high-pressure jets of a very corrosive substance against the wall of the pipe. The resulting cut is very smooth.

chemicals	in drilling-fluid terminology, a chemical is any material that produces changes in the viscosity, yield point, gel strength, fluid loss, and surface tension.
chicksan	flexible coupling used in high-pressure lines.
chisel tongs	pipe tongs that grip the pipe with a chisel-like insert in the jaw of the wrench.
choke	a device inserted in a flow line to regulate the rate of flow.
choke bean	a device placed in a choke line that regulates the flow through the choke. Flow depends on the size of the opening in the bean; the larger the opening, the greater the flow.
choke flow line	an extension from the blowout preventer assembly used to direct control the flow of well fluids from the annulus to the choke.
choke line	a pipe attached to the blowout preventer stack out of which kick fluids and mud can be pumped to the choke manifold when a blowout preventer is closed in on a kick.
choke manifold	an arrangement of piping and special valves, called chokes. In drilling, mud is circulated through a choke manifold when the blowout preventers are closed. In well testing, a choke manifold attached to the wellhead allows flow and pressure control for test components downstream.
choke pressure	see back-pressure
Christmas tree	the control valves, pressure gauges, and chokes assembled at the top of a well to control the flow of oil and gas after the well has been drilled and completed.
chromate	a compound in which chromium has a valence of 6. Chromate may be added to drilling fluids either directly or as a constituent of chrome lignites or chrome lignosulfonates. In certain areas, chromate is widely used as a corrosion inhibitor, often in conjunction with lime.
chrome lignite	mined lignite, usually leonardite, to which chromate has been added or has reacted. The lignite can also be causticized with either sodium or potassium hydroxide.
circulate	to pass from one point throughout a system and back to the starting point. For example, drilling fluid is circulated out of the suction pit, down the drill pipe and drill collars, out the bit, up the annulus, and back to the pits while drilling proceeds.
circulate-and-weight method	see concurrent method
circulating components	the equipment included in the drilling fluid circulating system of a rotary rig. Basically, the components consist of the mud pump, rotary hose, swivel, drill stem, bit, and mud return line.
circulating head	an accessory attached to the top of the drill pipe or tubing to form a connection with the mud system to permit circulation of the drilling mud.

	In some cases, it is also a rotating head.
circulating pressure	the pressure generated by the mud pumps and exerted on the drill stem
circulating rate	volume flow rate of circulating drilling fluid expressed in gallons or barrels per minute
circulation	movement of drilling fluid from mud pits, down drill stem, up annulus, and back to mud pits.
circulation squeeze	a variation of squeeze cementing for wells with two producing zones in which (1) the upper fluid sand is perforated; (2) tubing is run with a packer, and the packer is set between the two perforated intervals; (3) water is circulated between the two zones to remove as much mud as possible from the channel; (4) cement is pumped through the channel and circulated; (5) the packer is released and picked up above the upper perforation, a low squeeze pressure is applied, and the excess cement is circulated out. The process is applicable where there is communication behind the pipe between the two producing zones because of channeling of the primary cement or where there is essentially no cement in the annulus.
circulation valve	an accessory employed above a packer, to permit annulus-to-tubing circulation or vice versa.
clabbered	(slang) commonly used to describe moderate to severe flocculation of mud due to various contaminants.
clay	<ol style="list-style-type: none"> 1. a term used for particles smaller than 1/256 millimeter (4 microns) in size, regardless of mineral composition. 2. a group of hydrous aluminum silicate minerals (clay minerals) 3. a sediment of fine clastics.
clay extender	any of several substances--usually organic compounds of high molecular weight--that, when added in low concentrations to a bentonite or to certain other clay slurries, will increase the viscosity of the system. See low-solids mud .
clean out	to remove sand, scale, and other deposits from the producing section of the well to restore or increase production.
CLFP	<i>abbreviation:</i> choke-line friction pressure.
clip	a U-bolt or similar device used to fasten parts of a wire cable together.
close in	<ol style="list-style-type: none"> 1. to shut in a well temporarily that is capable of producing oil or gas. 2. to dose the blowout preventers on a well to control a kick. The blowout preventers close off the annulus so that pressure from below cannot flow to the surface.

close nipple	a very short piece of pipe having threads over its entire length.
closed-in	a well capable of producing oil or gas, but temporarily shut in.
closing ratio	the ratio between the pressure in the hole and the operating-piston pressure needed to close the rams of a blowout preventer.
closing unit	the assembly of pumps, valves, lines, accumulators, and other items necessary to open and close the blowout preventer equipment.
closing-up pump	an electric or hydraulic pump on an accumulator that pumps hydraulic fluid under high pressure to the blowout preventers so that they may be closed or opened.
CMC	abbreviation: see sodium carboxymethyl cellulose, coagulation, flocculation.
coalescence	<ol style="list-style-type: none"> 1. the change from a liquid to a thickened, curd-like state by chemical reaction. 2. the combining of globules in an emulsion caused by molecular attraction of the surfaces.
cohesion	the attractive force between the same kinds of molecules (i.e., the force that holds the molecules of a substance together)
coiled tubing	see reeled tubing
coiled-tubing workover	a workover performed with a continuous steel tube, normally 3/4 inch to 1 inch outside diameter, which is run into the well in one piece inside the normal tubing. Lengths of the tubing up to 16,000 feet are stored on the surface on a reel in a manner similar to that used for wireline. The unit is rigged up over the wellhead. The tubing is injected through a control head that seals off the tubing and makes a pressure-tight connection. A unique feature of the unit is that it allows continuous circulation while it is being lowered into the hole.
collar	a pipe coupling threaded on the inside.
collar locator	a logging device used to determine accurately the depth of a well; the log measures and records the depth of each casing collar, or coupling, in a well. Since the length of each joint of casing is written down, along with the number of joints of casing that were put into the well, knowing the number and depth of the collars allows an accurate measure of well depth
collet	a finger-like device used to lock or position certain tool components by manipulating the tubing string or downhole tool
colloid	<ol style="list-style-type: none"> 1. a substance whose particles are so fine that they will not settle out of suspension or solution and cannot be seen under an ordinary microscope. 2. the mixture of a colloid and the liquid, gaseous, or solid medium in

	which it is dispersed.
colloidal	pertaining to a colloid, i.e., involving particles so minute (less than 2 microns) that they are not visible through optical microscopes. Bentonite is an example of a colloidal clay.
colloidal composition	a colloidal suspension containing one or more colloidal constituents
colloidal suspension	finely divided particles of ultramicroscopic size swimming in a liquid.
come-along	a stretching or tightening device that crawls along a length of chain.
come out of the hole	to pull the drill stem out of the wellbore to change the bit, to change from a core barrel to the bit, to run electric logs, to prepare for a drill stem test, to run casing, and so on. Also called <i>trip out</i> .
commercial butane	a liquefied hydrocarbon consisting chiefly of butane to butylenes and conforming to the GPA specification for commercial butane defined in GPA Publication 2140.
commercial production	oil and gas production of sufficient quantity to justify keeping a well in production.
company representative	an employee of an operating company whose job is to represent the company's interests at the drilling location.
complete a well	to finish work on a well and bring it to productive status. See well completion .
completion	refers to the installation of permanent equipment for the production of oil or gas.
completion fluid	low-solids fluid or drilling mud used when a well is being completed. It is selected not only for its ability to control formation pressure, but also for the properties that minimize formation damage.
compressability	the change in volume per unit of volume of a liquid caused by a unit change in pressure at constant temperature
compressability factor	the ratio of the actual volume of gas at a given temperature and pressure to the volume of gas when calculated by the ideal gas law.
computer	<ol style="list-style-type: none"> 1. a device capable of solving problems by accepting data, performing prescribed operations on the data, and supplying the results of these operations. Various types of computers are calculators, digital computers, and analog computers. 2. in information processing, usually an automatic stored program computer.
computer control	a system whereby the end devices in the field (switches, valves, gauges, alarms, etc.) are controlled by a program placed in the computer.

computer program	a plan or routine for solving a problem on a computer.
concentric piston	tubing pressure acting on the net piston area and causing a force to be exerted on a mandrel.
concentric tubing workover	a workover performed with a small-diameter tubing work string inside the normal tubing. Equipment needed is essentially the same as that for a conventional workover except that it is smaller and lighter.
concrete gravity platform rig	a rigid offshore drilling platform built of steel-reinforced concrete and used to drill development wells. The platform is floated to the drilling site in a vertical position, and at the site tall caissons that serve as the foundation of the platform are flooded so that the platform submerges and comes to rest on bottom. Because of the enormous weight of the platform, the force of gravity alone keeps it in place. See platform rig .
concurrent method	a method for killing well pressure in which circulation is commenced immediately and mud weight is brought up in steps, or increments, usually a point at a time. Also called circulate-and-weight method.
condensate	hydrocarbons which are in the gaseous state under reservoir conditions but which become liquid either in passage up the hole or at the surface.
conductor casing	generally, the first string of casing in a well. It may be lowered into a hole drilled into the formations near the surface and cemented in place; or it may be driven into the ground by a special pile drive (in such cases, it is sometimes called drive pipe); or it may be jetted into place in offshore locations. Its purpose is to prevent the soft formations near the surface from caving in and to conduct drilling mud from the bottom of the hole to the surface when drilling starts. Also called conductor pipe .
conductor pipe	a short string of large-diameter casing used to keep the wellbore open and to provide a means of conveying the upflowing drilling fluid from the wellbore to the mud pit.
connate water	water inherent to the producing formation; or fossil sea water trapped in the pore spaces of sediments during their deposition.
connection	the joining of two length of pipe.
consistometer	a thickening-time tester having a stirring apparatus to measure the relative thickening time for mud or cement slurries under predetermined temperatures and pressures. See API-RP 10B.
conductivity	<ol style="list-style-type: none"> 1. the ability to transmit or convey (as heat or electricity). 2. an electrical logging measurement obtained from an induction survey, in which eddy currents produced by an alternating magnetic field induce in a receiver coil a voltage proportionate to the ability of the formation to conduct electricity.
conductor casing	generally, the first string of casing in a well. It may be lowered into a hole drilled into the formations near the surface and cemented in place; it may be driven into the ground by a special pile driver (in such cases, it is sometimes called drive pipe); or it may be jetted into place in offshore locations. Its purpose is to prevent the soft formations near the surface from caving in and to conduct drilling mud from the bottom of the hole to

	the surface when drilling starts. Also called conductor pipe.
conductor line	a small-diameter conductive line used in electric wireline operations, such as electric well logging and perforating, in which the transmission of electrical current is required. Compare <i>wireline</i> .
conductor pipe	1. see conductor casing 2. a boot, or flume.
cone	a component of a downhole tool, such as a packer, used to wedge slips into the casing wall.
coning	see water coning .
connate water	water retained in the pore spaces, or interstices, of a formation from the time the formation was created.
connection gas	the relatively small amount of gas that enters a well when the mud pump is stopped for a connection to be made. Since bottomhole pressure decreases when the pump is stopped, gas may enter the well.
consistency	the cohesion of the individual particles of a given material (i.e., its ability to deform or its resistance to flow).
constant choke-pressure method	a method of killing a well that has kicked, in which the choke size is adjusted to maintain a constant casing pressure. This method does not work unless the kick is all or nearly all salt water. If the kick is gas, this method will not maintain a constant bottomhole pressure, because gas expands as it rises in the annulus. In any case, it is not a recommended well-control procedure.
constant pit-level method	a method of killing a well in which the mud level in the pits is held constant while the choke size is reduced and the pump speed slowed. It is not effective, and therefore, is not recommended, because casing pressure increases to the point at which the formation fractures or casing ruptures, and control of the well is lost.
contact area	gas-oil or oil-water interface in a reservoir.
contamination	the presence in a drilling fluid of any foreign material that may tend to produce detrimental properties of the drilling fluid.
continuous phase	the liquid in which solids are suspended or droplets of another liquid are dispersed; sometimes called the external phase. In a water-in-oil emulsion, oil is the continuous phase.
contour map	a map constructed with continuous lines connecting points of equal value, such as elevation, formation thickness, and rock porosity
control head	an extension of a retrievable tool, i.e., a retrievable bridge plug, used to set and release the tool.
control panel	part of a computer system that contains manual controls--switches and devices to start, stop, measure, monitor or signal what is taking place.

controlled aggregation	a condition in which clay platelets remain stacked by a polyvalent cation, such as calcium, and are deflocculated by use of a thinner.
controlled directional drilling	See <u>directional drilling</u> .
control line	a small hydraulic line used to communicate fluid from the surface to a downhole tool, such as a subsurface safety valve.
conventional completion	a method for completing a well in which tubing is set inside 4-1/2-inch or larger casing.
conventional gravel pack	a type of gravel pack where the wells production packer is removed and a service packer is run in with the gravel pack assembly. After packing, the service tool is retrieved and the production packer rerun.
conventional mud	a drilling fluid containing essentially clay and water; no special or expensive chemicals or conditioners are added.
copolymer	a substance formed when two or more substances polymerize at the same time to yield a produce which is not a mixture of separate polymers but a complex having properties different from either polymer alone. See <i>polymer</i> . Examples are polyvinyl acetate-maleic anhydride copolymer (day extender and selective and selective flocculant), acrylamide-carboxylic and copolymer (total flocculant).
core	<i>n</i> : a cylindrical sample taken from a formation for geological analysis. Usually a conventional core barrel is substituted for the bit and procures a sample as it penetrates the formation. <i>v</i> : to obtain a formation sample for analysis.
core analysis	laboratory analysis of a core sample to determine porosity, permeability, lithology, fluid content, angle of dip, geological age, and probably productivity of the formation.
core barrel	a tubular device, usually from 10 to 60 feet (3 to 18 meters) long, run at the bottom of the drill pipe in place of a bit and used to cut a core sample.
coring	the process of cutting a vertical, cylindrical sample of the formations encountered as an oilwell is drilled. The purpose of coring is to obtain rock samples, or cores, in such a manner that the rock retains the same properties that it had before it was removed from the formation.
corkscrew	the buckling of tubing in a large-diameter pipe or casing.
correlate	to relate subsurface information obtained from one well to that of others so that the formations may be charted and their depths and thicknesses noted. Correlations are made by comparing electrical well logs, radioactivity logs, and cores from different wells.
corrosion	any of a variety of complex chemical or electrochemical processes, e.g., rust, by which metal is destroyed through reaction with its environment.
corrosion inhibitor	a chemical substance that minimizes or prevents corrosion in metal equipment.

coupling	<p>1. in piping, a metal collar with internal threads used to join two sections of threaded pipe.</p> <p>2. in power transmission, a connection extending longitudinally between a driving shaft and a driven shaft. Most such couplings are flexible and compensate for minor misalignment of the two shafts.</p>
coupon	small metal strip which is exposed to corrosive systems for the purpose of determining nature and severity of corrosion.
crack a valve	to barely open a valve so that it leaks just a little.
crater	(slang) to cave in; to fail. After a violent blowout, the force of the fluids escaping from the wellbore sometimes blows a large hole in the ground. In this case, the well is said to have cratered. Equipment craters when it falls.
creaming of emulsions	the settling or rising of the particles of the dispersed phase of an emulsion. Identifiable by a difference in color shading of the layers formed. Creaming can be either upward or downward, depending on the relative densities of the continuous and dispersed phases.
created fracture	fracture induced by means of hydraulic or mechanical pressure exerted on the formation.
crew	<p>1. the workers on a drilling or workover rig, including the driller, derrickman, and rotary helpers</p> <p>2. any group of oilfield workers.</p>
crew chief	the driller or head well puller in charge of operations on a well servicing rig that is used to pull sucker rods or tubing
critical velocity	that velocity at the transitional point between laminar and turbulent types of fluid flow. This point occurs in the transitional range of Reynolds numbers of approximately 2,000 to 3,000.
crooked hole	a wellbore that has been unintentionally drilled in a direction other than vertical. It usually occurs where there is a section of alternating hard and soft strata steeply inclined from the horizontal.
crossover	the section of a drawworks drum grooved for angle control and in which the wire rope crosses over to start a new wrap. Also called an angle-control section.
crossover joint	a length of casing with one thread on the field end and a different thread in the coupling, used to make a changeover from one thread to another in a string of casing.
crown block	an assembly of sheaves, mounted on beams at the top of the derrick, over which the drilling line is reeved. See block .
crude oil	a mixture of hydrocarbons that existed in the liquid phase in natural phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities.

crude oil production	the volume of liquids statistically reported as crude oil, which is produced from oil reservoirs during given period of time.
crude oil - productive capacity	estimates of productive capacities of crude oil developed by the American Petroleum Institute Committee on Reserves and Productive Capacity represent the maximum daily rates of production which can be attained under specified conditions on March 31 of any given year.
crude oil - proved reserves	proved reserves of crude oil as of December 31 of any given year are the estimated quantities of all liquids statistically reported as crude oil, which geological and engineering data demonstrate with reasonable certainty to be recoverable in the future from known reservoirs under existing economic and operating conditions.
cubic foot (cu ft)	the volume of a cube, all edges of which measure 1 foot. Natural gas in the United States is usually measured in cubic feet, with the most common standard cubic foot being measured at 60 degrees Fahrenheit and 14.65 pounds per square inch absolute, although base conditions vary from state to state.
cup packer	a device made up in the drill stem and lowered into the well to allow the casing and blowout preventers to be pressure-tested. The sealing device is cup-shaped and is therefore called a cup.
cup test	see packer test .
cup-type elements	rubber seals that energize by pressure only, not mechanical force; plugs and wash tools
custodian	also called a lease operator or pumper. See pumper
cut drilling fluid	well-control fluid that has been reduced in density or unit weight as a result of entrainment of less-dense formation fluids or air
cut oil	oil that contains water.
cuttings	the fragments of rock dislodged by the bit and brought to the surface in the drilling mud. Washed and dried cuttings samples are analyzed by geologists to obtain information about the formations drilled.
cyclone	<p>1. a low-pressure area, around which wind flow is counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere. The term is sometimes used to describe storms occurring in the atmosphere; in the Indian Ocean it is used to designate a tropical cyclone.</p> <p>2. a device for the separation of various particles from a drilling fluid, most commonly used as a desander. The fluid is pumped tangentially into a cone, and the fluid rotation provides enough centrifugal force to separate particles by mass weight.</p>

D

darcy	n: a unit of measure of permeability. A porous medium has a permeability of 1 darcy when differential pressure of 1 atmosphere across a sample 1 centimeter long and 1 square centimeter in cross
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	section will force a liquid of 1 centipoise of viscosity through the sample at the rate of 1 cubic centimeter per second. The permeability of reservoir rocks is usually so low that it is measured in millidarcys.
dart	a device, similar to a pumpdown ball, used to manipulate hydraulically operated downhole tools.
dart-type inside blowout preventer	a dart-shaped drill pipe inside blowout preventer installed on top of the drill stem when the well is kicking through the drill stem. It is stabbed in open then closed against pressure.
dead man	a piece of wood or concrete, usually buried, to which a wire guy line is attached for bracing a mast or tower.
dead well	a well that will not flow.
debug	to detect, locate and remove mistakes from a routine or malfunctions from a computer.
deflection	a change in the angle of a wellbore. In directional drilling, it is measured in degrees from the vertical
deflocculation	the dispersion of solids that have stuck together in drilling fluid, usually by means of chemical thinners. See <i>flocculation</i>.
defoamer	any chemical that prevents or lessens frothing or foaming in another agent.
degasser	the device used to remove unwanted gas from a liquid, especially from drilling fluid.
dehydrate	to remove water from a substance. Dehydration of crude oil is normally accomplished by treating with emulsion breakers. The water vapor in natural gas must be removed to meet pipeline requirements; a typical maximum allowable water vapor content is 7 pounds per million cubic feet per day.
dehydration	the removal of water or water vapor from gas or oil
deliquescence	the liquefaction of a solid substance due to the solution of the solid by absorption of moisture from the air.
density	the mass or weight of a substance per unit volume. For instance, the density of a drilling mud may be 10 pounds per gallon (ppg), 74.8 pounds per cubic foot (lb/ft ³), or 1,198.2 kilograms per cubic meter (kg/m ³). Specific gravity, relative density, and API gravity are other units of density.
depletion	A deduction allowed in computing the taxable income from oil and gas wells.

depletion allowance	a reduction in US taxes for owners of an economic interest in minerals in place to compensate for the exhaustion of an irreplaceable capital asset. This economic interest includes mineral interest, working interest in a lease, royalty, overriding royalty, production payment interest, and net profits interest.
depreciation	<p>1. decrease in value of an asset such as a plant or equipment due to normal wear or passing of time; real property (land) does not depreciate.</p> <p>2. an annual reduction of income reflecting the loss in useful value of capitalized investments by reason of wear and tear. The concept of depreciation recognizes that the purchase of an asset other than land will benefit several accounting cycles (periods) and should be expensed periodically over its useful life.</p>
depthometer	a device used to measure the depth of a well or the depth at a specific point in a well (such as to the top of a liner or to a fish) by counting the turns of a calibrated wheel rolling on a wireline as it is lowered into or pulled out of the well.
derrick	a large load-bearing structure, usually of bolted construction. In drilling, the standard derrick has four legs standing at the corners of the substructure and reaching to the crown block. The substructure is an assembly of heavy beams used to elevate the derrick and provide space to install blowout preventers, casingheads, and so forth. Because the standard derrick must be assembled piece by piece, it has largely been replaced by the mast, which can be lowered and raised without disassembly.
derrickman	the crew member who handles the upper end of the drill string as it is being hoisted out of or lowered into the hole. He is also responsible for the circulating machinery and the conditioning of the drilling fluid.
desander	a centrifugal device for removing sand from drilling fluid to prevent abrasion of the pumps. It may be operated mechanically or by a fast-moving stream of fluid inside a special cone-shaped vessel. Compare desilter .
desilter	a centrifugal device for removing very fine particles, or silt, from drilling fluids to keep the amount of solids in the fluid at the lowest possible point. Usually, the lower the solids content of mud, the faster is the rate of penetration. The desilter work on the same principle as a desander. Compare desander .
development well	<p>1. a well drilled in proven territory in a field to complete a pattern of production.</p> <p>2. an exploitation well. See exploitation well.</p>
deviation	departure of the wellbore from the vertical, measured by the horizontal distance from the rotary table to the target. The amount of deviation is a function of the drift angle and hole depth. The term is sometimes used to indicate the angle from which a bit has deviated from the vertical during drilling. See drift angle .
deviation survey	an operation made to determine the angle from which a bit has deviated from the vertical during drilling. There are two basic deviation-survey, or drift-survey, instruments: one reveals the drift angle; the other indicates

	both the angle and the direction of deviation.
diameter	the distance across a circle, measured through its center. In the measure of pipe diameters, the inside diameter is that of the interior circle and the outside diameter that of the exterior circle.
diatomaceous earth	an earthy deposit made up of the siliceous cell walls of one-celled marine algae called diatoms. It is used as an admixture for cement to produce a low-density slurry.
die	n. a tool used to shape, form, or finish other tools or pieces of metal. For example, a threading die is used to cut threads on pipe.
die collar	n: a collar or coupling of tool steel, threaded internally, that can be used to retrieve pipe from the well on fishing jobs; the female counterpart of a taper tap. The die collar is made up on the drill pipe and lowered into the hole until it contacts the lost pipe. If the lost pipe is stuck so that it cannot rotate, rotation of the die collar on top of the pipe cuts threads on the outside of the pipe, providing a firm attachment. The pipe is then retrieved from the hole. Compare taper tap. It is not often used because it is difficult to release it from the fish should it become necessary.
diesel-electric power	the power supplied to a drilling rig by diesel engines driving electric generators; used widely.
diesel engine	a high-compression, internal-combustion engine used extensively for powering drilling rigs. In a diesel engine, air is drawn into the cylinders and compressed to very high pressures; ignition occurs as fuel is injected into the compressed and heated air. Combustion takes place within the cylinder above the piston, and expansion of the combustion products imparts power to the piston.
diesel-oil plug	see <i>gunk plug</i>
differential displacing valve	a special-purpose valve used to facilitate spacing out and ranging up the well, run in on the tubing string.
differential pressure	the difference between two fluid pressures; for example, the difference between the pressure in a reservoir and in a wellbore drilled in the reservoir, or between atmospheric pressure at sea level and at 10,000 feet.
differential sticking	a condition in which the drill stem becomes stuck against the wall of the wellbore because part of the drill stem (usually the drill collars) has become embedded in the filter cake. necessary conditions for differential-pressure sticking, or wall sticking, are a permeable formation and a pressure differential across a nearly impermeable filter cake and drill stem. Also called <i>wall sticking</i> . See differential pressure , filter cake .
diffusion	1. the spontaneous movement and scattering of particles of liquids, gases, or solids. 2. the migration of dissolved substances from an area of high

	concentration to an area of low concentration.
dilatant fluid	a dilatant, or inverted plastic, fluid is usually made up of a high concentration of well-dispersed solids that exhibits a nonlinear consistency curve passing through the origin. The apparent viscosity increases instantaneously with increasing rate of shear. The yield point, as determined by conventional calculations from the direct-indicating viscometer readings, is negative; however, the true yield point is zero.
diluent	liquid added to dilute or thin a solution
direct-indicating viscometer	commonly called a "V-G meter." A rotational device powered by means of an electric motor or handcrank. Used to determine the apparent viscosity, plastic viscosity, yield point, and gel strengths of drilling fluids. See direct-reading viscometer
directional drilling	intentional deviation of a wellbore from the vertical. Although wellbores are normally drilled vertically, it is sometimes necessary or advantageous to drill at an angle from the vertical. Controlled directional drilling makes it possible to reach subsurface areas laterally remote from the point where the bit enters the earth. It often involves the use of turbodrills, Dyna-Drills, whipstocks, or other deflecting rods.
directional survey	a logging method that records drift angle, or deflection from the vertical, and direction of the drift. A single-shot directional-survey instrument makes a single photograph of a compass reading of the drift direction and the number of degrees the hole is off vertical. A multishot survey instrument obtains numerous readings in the hole as the device is pulled out of the well. See <i>directional drilling</i> .
direct-reading viscometer	commonly called a "V-G meter." The instrument is a rotational-type device powered by means of an electric motor or handcrank, and is used to determine the apparent viscosity, plastic viscosity, yield point, and gel strengths (all of which see) of drilling fluids. The usual speeds are 600 and 300 revolutions per minute. See API RP13B for operational procedures. Also see direct-indicating viscometer .
dispersant	a substance added to cement that chemically wets the cement particles in the slurry, allowing the slurry to flow easily without much water.
dispersed phase	that part of a drilling mud--clay, shale, barite, and other solids--that is dispersed throughout a liquid or gaseous medium, forming the mud.
dispersion	1. a suspension of extremely fine particles in a liquid (such as colloids in a colloidal solution). 2. of aggregates, subdivision of aggregates. Dispersion increases the specific surface of the particle; hence, it results in an increase in viscosity and gel strength.
dispersoid	a colloid or finely divided substance.

displacement	<p>1. the weight of a fluid (such as water) displaced by a freely floating or submerged body (such as an offshore drilling rig). if the body floats, the displacement equals the weigh of the body.</p> <p>2. replacement of one fluid by another in the pore space of a reservoir. For example, oil may be displaced by water.</p>
disposal well	a well through which water (usually salt water) is returned to subsurface formations.
dissociation	the separation of a molecule into two or more fragments (atoms, ions) by interaction with another body or by the absorption of electromagnetic radiation.
dissolved gas	natural gas which is in solution with crude oil in the reservoir.
distillation	the process of driving off gas or vapor from liquids or solids, usually by heating, and condensing the vapor back to liquid to purify, fractionate, or form new products.
diverter	a device used to direct fluid flowing from a well away from the drilling rig. When a kick is encountered at shallow depths, the well often cannot be shut in safely; therefore, a diverter is used to allow the well to flow through a side outlet (a diverter line).
dizzy nut	a mechanism used in packers to lock components together.
dog	a spring-loaded finger in a tubing end locator.
doghouse	a small house used for keeping lease records, changing clothes, or any other use around a lease.
dog leg	a bend in pipe, a ditch, or a well.
dolomite	a type of sedimentary rock similar to limestone but containing more than 50 percent magnesium carbonate; sometimes a reservoir rock for petroleum.
dome	a geologic structure resembling an inverted bowl; a short anticline that plunges on all sides.
dome plug trap	a reservoir formation in which fluid or plastic masses of rock material originated at unknown depths and pierced or lifted the overlying sedimentary strata.
donkey pump	any little pump; used for many kinds of small temporary pumping operations.
dope	material used on threads of pipe or tubing to lubricate and prevent leakage.

double	two lengths or joints of pipe joined together.
double grip	a tool employing tripping devices that limit tool movement from pressure either above or below the tool
double-post mast	a well-servicing unit whose mast consists of two steel tubes. Double-pole masts provide racking platforms for handling rods and tubing in stands and extend from 65 to 67 feet (20 meters) so that rods can be suspended as 50-foot (15 meter) doubles and tubing set back as 30-foot (9-meter) singles. See <i>pole mast</i> .
doughnut	a ring of wedges that supports a string of pipe or a threaded, tapered ring used for the same purpose.
dovetail	a cutout section in a cone enabling positive slip movement without the aid of conventional slip return springs
downcomer	a pipe through which flow is downward.
downhole	pertaining to the wellbore.
dozer	a powered machine for earthwork excavations.
draft	the vertical distance between the bottom of a vessel floating in water and the waterline.
drag bit	any of a variety of drilling bits that have no moving parts. As they are rotated on bottom, elements of the bit make hole by being pressed into the formation and being dragged across it. See <i>fishtail bit</i> .
drag blocks	spring-loaded buttons on a packer that provide friction with casing to retard movement of one section of a packer while another section rotates for setting.
drawworks	the hoisting mechanism on a drilling rig. It is essentially a large winch that spools off or takes in the drilling line and thus raises or lowers the drill stem and bit.
dress	to sharpen, repair, or add accessories to items of equipment (such as drilling bits and tool joints).
dresser sleeve	a slip-type collar that is used to join plain-end pipe.
drift	<ol style="list-style-type: none"> 1. an ocean current's speed of motion. 2. an observed change, usually uncontrolled, in meter performance, meter factor, etc., that occurs over a period of time.

	<p>v:1. to move slowly out of alignment, off center, or out of register.</p> <p>2. gauge or measure pipe by means of a mandrel passed through it to ensure the passage of tools, pumps, and so on.</p>
drifter	a worker who never stay long in one place.
drift angle	the angle at which a wellbore deviates from the vertical, expressed in degrees, as revealed by a directional survey. Also called angle of deviation, angle of drift, and inclination. See <i>directional survey</i> .
drill	to bore a hole in the earth, usually to find and remove subsurface formation fluids such as oil and gas.
drillable	pertaining to packers and other tools left in the wellbore to be broken up later by the drill bit. Drillable equipment is made of cast iron, aluminum, plastic, or other soft, brittle material.
drill bit	the cutting or boring element used for drilling. See <i>bit</i> .
drillable squeeze packer	a permanent packer, drillable in nature, capable of withstanding extreme working pressures, for remedial work. It has a positive flow-control valve built in.
drill collar	a heavy, thick-walled tube, usually steel, used between the drill pipe and the bit in the drill stem to provide a pendulum effect to the drill stem and weight to the bit.
drilled show	oil or gas in the mud circulated to the surface
drill pipe	heavy seamless tubing used to rotate the bit and circulate the drilling fluid. Joints of pipe approximately 30 feet (9 meters) long are coupled together by means of tool joints.
drill ship	a self-propelled floating offshore drilling unit that is a ship constructed to permit a well to be drilled from it. While not as stable as Semisubmersible, drill ships are capable of drilling exploratory wells in deep, remote waters. They may have a ship hull, a catamaran hull, or a trimaran hull. See <u>floating offshore drilling rig</u> .
drill stem	all members in the assembly used for rotary drilling from the swivel to the bit, including the kelly, drill pipe and tool joints, drill collars, stabilizers, and various specialty items. Compare <u>drill string</u> .
drill string	the column, or string, of drill pipe with attached tool joints that transmits fluid and rotational power from the kelly to the drill collars and bit. Often, especially in the oil patch, the term is loosely applied to both drill pipe and drill collars. Compare <u>drill stem</u> .
driller	the employee directly in charge of a drilling or workover rig and crew. His main duty is operation of the drilling and hoisting equipment, but he is also responsible for downhole condition of the well, operation of downhole tools, and pipe measurements.

drilling block	a lease or a number of leases of adjoining tracts of land that constitute a unit of acreage sufficient to justify the expense of drilling a wildcat.
drilling break	a sudden increase in the drill bit's rate of penetration. It sometimes indicates that the bit has penetrated a high-pressure zone and thus warns of the possibility of a kick.
drilling contractor	an individual or group of individuals that own a drilling rig and contract their services for drilling wells.
drilling crew	a driller, a derrickman, and two or more helpers who operate a drilling or workover rig for one tour each day.
drilling fluid	circulating fluid, one function of which is to force cuttings out of the wellbore and to the surface. Other functions are to cool the bit and to counteract downhole formation pressure. While a mixture of barite, clay, water, and chemical additives is the most common drilling fluid, wells can also be drilled by using air, gas, water, or oil-base mud as the drilling fluid. See <u>mud</u> .
drilling fluid cycle time	a cycle, or down the hole and back, is the time required for the pump to move the drilling fluid in the hole. The cycle in minutes equals the barrels of mud in the hole divided by barrels per minute.
drilling foreman	the supervisor of drilling or workover operations on a rig. Also called a rig manager, rig supervisor, rig superintendent, or tool pusher.
drilling in	the operation during the drilling procedure at the point of drilling into the pay formation.
drilling line	a wire rope used to support the drilling tools. Also called the rotary line.
drilling mud	a specially compounded liquid circulated through the wellbore during rotary drilling operations. See <u>mud</u> .
drilling out	<ol style="list-style-type: none"> 1. the operation during the drilling procedure when the cement is drilled out of the casing and the wellbore after the casing has been cemented. 2. to remove the settlements and cavings that are plugged inside a hollow fish (such as drill pipe) during a fishing operation.
drilling platform rig	See <u>platform rig</u> .
drilling slot	See <u>keyway</u> .
drilling spool	a fitting placed in the blowout preventer stack to provide space between preventers for facilitating stripping operations, to permit attachment of choke and kill lines, and for localizing possible erosion by fluid flow to the spool instead of to the more expensive pieces of equipment.

drill out	<p>1. to remove with the drill bit the residual cement that normally remains in the lower section of casing and the wellbore after the casing has been cemented.</p> <p>2. To remove the settlings and cavings that are plugged inside a hollow fish (such as drill pipe) during a fishing operation.</p>
drill pipe	<p>seamless steel or aluminum pipe made up in the drill stem between the kelly or top drive on the surface and the drill collars on the bottom. During drilling, it is usually rotated while drilling fluid is circulated through it. Drill pipe joints are available in three ranges of length: 18 to 22 feet, 27 to 30 feet, and 38 to 45 feet. The most popular length is 27 to 30 feet. It is available with outside diameters ranging from 2 7/8 to 5 1/2 inches. Several joints are made up (screwed together) to form the drill string.</p>
drill pipe pressure	<p>the amount of pressure exerted inside the drill pipe as a result of circulating pressure, entry of formation pressure into the well, or both.</p>
drill pipe pressure gauge	<p>an indicator, mounted in the mud circulating system, that measures and indicates the amount of pressure in the drill stem. See drill stem.</p>
drill pipe slips	<p>see slips</p>
drill ship	<p>a self-propelled floating offshore drilling unit that is a ship constructed to permit a well to be drilled from it. Although not as stable as semisubmersible, drill ships are capable of drilling exploratory wells in deep, remote waters. See floating offshore drilling rig.</p>
drill stem	<p>all members in the assembly used for rotary cutting from the swivel to the ball, including the kelly, drill pipe and tool joints, drill collars, stabilizers, and various specialty items. Compare drill string.</p>
drill stem safety valve	<p>a special valve installed below the kelly. Usually, the valve is open so that drilling fluid can flow out of the kelly and down the drill stem. It can, however, be manually closed with a special wrench when necessary. In one case, the valve is closed and broken out, still attached to the kelly to prevent drilling mud in the kelly from draining onto the rig floor. In another case, when kick pressure inside the drill stem exists, the drill stem safety valve is closed to prevent the pressure from escaping up the drill stem.</p>
drill stem test (DST)	<p>the conventional method of formation testing. The basic drill stem test tool consists of a packer or packers, valve or ports that may be opened and closed from the surface, and two or more pressure-recording devices. The tool is lowered on the drill string to the zone to be tested. The packer or packers are set to isolate the zone from the drilling fluid column. The valves or ports are then opened to allow for formation flow while the recorders chart static pressures. A sampling chamber traps clean formation fluids at the end of the test. Analysis of the pressure charts is an important part of formation testing.</p>
drill string	<p>the column, or string, of drill pipe with attached tool joints that transmits fluid and rotational power from the kelly to the drill collars and bit. Often, especially in the oil patch, the term is loosely applied to both drill pipe and drill collars. Compare drill stem.</p>

drill string float	a check valve in the drill string that will allow fluid to be pumped into the well but will prevent flow from entering the string.
drip	equipment designed to remove small quantities of liquids from a gas stream.
drive bushing	see kelly bushing
drive-in unit	a type of portable service or workover rig that is self-propelled, using power from the hoisting engines. The driver's cab and steering wheel are mounted on the same end as the mast support; thus the unit can be driven straight ahead to reach the wellhead. See carrier rig .
dry gas	natural gas that is produced without liquids; also a gas that has been treated to remove all liquids.
dry hole	an exploratory or development well found to be incapable of producing either oil or gas in sufficient quantities to justify completion as an oil or gas well.
DST	drill stem test
DST tool	drill stem test tool; used for formation evaluation.
dual completion	a single well that produces from two separate formation at the same time. Production from each zone is segregated by running two tubing strings with packers inside the single string of production casing, or by running one tubing string with a packer through one zone while the other is produced through the annulus. In a miniaturized dual completion, two separate 4 1/2-inch or smaller casing strings are run and cemented in the same wellbore.
dummy valve	a blanking valve placed in a gas lift mandrel to block off annular communication to the tubing.
dump bailer	a bailing device with a release valve, usually of the disk or flapper type, used to place, or spot material (such as cement slurry) at the bottom of the well.
duplex pump	a reciprocating pump with two pistons or plungers and used extensively as a mud pump on drilling rigs.

dutchman	a piece of pipe that has been twisted off inside a female connection; or a short section of material, such as belting or pipe, used to lengthen existing equipment.
DV tool	a generic term, originally a trademark name, used to describe a stage tool, used in selective zone primary cementing.
Dyna-Drill	trade name for a downhole motor driven by drilling fluid that imparts rotary motion to a drilling bit connected to the tool, thus eliminating the need to turn the entire drill stem to make hole. Used in straight and directional drilling.
dynamic positioning	a method by which a floating offshore drilling rig is maintained in position over an offshore well location without the use of mooring anchors. Generally, several propulsion units, called thrusters, are located on the hulls of the structure and are actuated by a sensing system. A computer to which the system feeds signals directs the thrusters to maintain the rig on location.

E

ECD	<i>abbreviation:</i> equivalent circulating density.
edgewater	the water that touches the edge of the oil in the lower horizon of a formation
effective permeability	a measure of the ability of a single fluid to flow through a rock when another fluid is also present in the pore spaces. Compare absolute permeability , relative permeability .
effective porosity	the percentage of the bulk volume of a rock sample that is composed of interconnected pore spaces that allow the passage of fluids through the sample. See porosity .
eight-round	a tapered connection with 8 threads per inch. One turn equals 0.125 inches of travel. Very common oilfield connection.
elastomer	an elastic material made of synthetic rubber or plastic; often the main component of the packing material in blowout preventers and downhole packers.
electric line	see electric well log
electric well log	a record of certain electrical characteristics (such as resistivity and conductivity) of formations traversed by the borehole. It is made to identify the formations, determine the nature and amount of fluids they contain, and estimate their depth.
electrolysis	the decomposition of a chemical compound brought about by the passage of an electrical current through the compound or through the solution containing the compound. Corroding action of stray current is caused by electrolysis
electrolyte	1. a chemical that, when dissolved in water, dissociates into positive and

	<p>negative ions, thus increasing its electrical conductivity. See dissociation.</p> <p>2. the electrically conductive solution that must be present for a corrosion cell to exist.</p>
elevator bails	see elevator links
elevator links	cylindrical bars that support the elevators and attach them to the hook. Also called elevator bails .
elevators	clamps that grip a stand of casing, tubing, drill pipe, or sucker rods so that the stand can be raised or lowered into the hole.
emulsified water	water so thoroughly combined with oil that special treating methods must be applied to separate it from the oil. Compare free water .
emulsifier	see emulsifying agent
emulsifying agent	a material that causes water and oil to form an emulsion. Water normally occurs separately from oil; if, however, an emulsifying agent is present, the water becomes dispersed in the oil as tiny droplets. Or, rarely, the oil may be dispersed in the water. In either case, the emulsion must be treated to separate the water and the oil.
emulsion	a mixture in which one liquid, termed the dispersed phase, is uniformly distributed (usually as minute globules) in another liquid, called the continuous phase or dispersion medium. In an oil-water emulsion, the oil is the dispersed phase and the water the dispersion medium; in a water-oil emulsion, the reverse holds. A typical product of oilwells, water-oil emulsion is also used as a drilling fluid.
emulsoid	colloidal particles that take up water.
endpoint	the point marking the end of one stage of a process. In filtrate analysis, the endpoint is the point at which a particular result is achieved through titration.
entrained	drawn in and transported by the flow of a fluid.
entrained gas	formation gas that enters the drilling fluid in the annulus.
EP additive	see extreme-pressure lubricant
epm or equivalents per million	unit chemical weight of solute per million unit weights of solution. The epm of a solute in solution is equal to the ppm (parts per million) divided by the equivalent weight.
equivalent circulating density (ECD)	<p>the increase in bottomhole pressure expressed as an increase in pressure that occurs only when mud is being circulated. Because of friction in the annulus as the mud is pumped, bottomhole pressure is slightly, but significantly, higher than when the mud is not being pumped. ECD is calculated by dividing the annular pressure loss by 0.052, dividing that by true vertical depth, and adding the result to the mud weight.</p>

equivalent weight or combining weight	the atomic or formula weight of an element, compound, or ion divided by its valence. Elements entering into combination always do so in quantities proportional to their equivalent weights.
ESD	<i>abbreviation:</i> emergency shut down, an automated platform system to shut in an SCSSV and/or SSV
ethane	a paraffin hydrocarbon, C ₂ H ₆ ; under atmospheric conditions, a gas. One component of natural gas.
expansion joint	a device used to connect long lines of pipe to allow the pipe joints to expand or contract as the temperature rises or falls.
expendable plug	a temporary plug set of a PSA, landed in a production packer to convert it to a bridge plug.
exploitation	the development of a reservoir to extract its oil.
exploitation well	a well drilled to permit more effective extraction of oil from a reservoir. Sometimes called a development well. See development well .
exploration	the search for reservoirs of oil and gas, including aerial and geophysical surveys, geological studies, core testing, and drilling of wildcats.
exploration well	also called a wildcat. See wildcat .
explosive fracturing	when explosives are used to fracture a formation. At the moment of detonation, the explosion furnishes a source of high-pressure gas to force fluid into the formation. The rubble prevent fracture healing, making the use of proppants unnecessary. Compare hydraulic fracturing .
extensions	tubular components attached to the bottom of a packer to extend it bore.
external cutter	a fishing tool containing metal-cutting knives that is lowered into the hole and over the outside of a length of pipe to cut it. The severed part of the pipe can then be brought to the surface.
extreme-pressure lubricant	additives that, when added to drilling fluid, lubricate bearing surfaces subjected to extreme pressure.

F

face seal	a type of seal in which deformation of the seal is accomplished by a plate or flat surface (face).
fatigue	failure of a metal under repeated loading.
fault	a break in subsurface strata. Often strata on one side of the fault line have been displaced (upward, downward, or laterally) relative to their

	original positions.
feed in	in drilling, the entrance of formation fluids into the wellbore because hydrostatic pressure is less than formation pressure.
female connection	a pipe or rod coupling with the threads on the inside.
fermentation	decomposition process of certain organic substance, e.g., starch, in which a chemical change is brought by enzymes, bacteria, or other microorganisms. Often referred to as "souring."
fibrous material	any tough, stringy material of threadlike structure used to prevent loss of circulation or to restore circulation in porous or fractured formations.
field	an area consisting of a single reservoir or multiple reservoirs all grouped on or related to, the same individual geological structural feature and/or stratigraphic condition.
field facility	an installation designed for one or more specific and limited extraction units, scrubbers, absorbers, drip points, conventional single or multiple stage separation units, LTX low temperature separators, and other types of separation and recovery equipment.
fill the hole	to pump drilling fluid into the wellbore while the pipe is being withdrawn to ensure that the wellbore remains full of fluid even though the pipe is withdrawn. Filling the hole lessens the danger of a kick or of caving of the well or the wellbore.
fill-up line	the smaller of the side fittings on a bell nipple, used to fill the hole when drill pipe is being removed from the well.
filter cake	<p>1. compacted solid or semisolid material remaining on a filter after pressure filtration of mud with a standard filter press. Thickness of the cake is reported in thirty-seconds of an inch or in millimeters.</p> <p>2. the layer of concentrated solids from the drilling mud or cement slurry that forms on the walls of the borehole opposite permeable formations; also call wall cake or mud cake.</p>
filter cake thickness	a measurement of the solids deposited on filter paper in thirty-seconds of an inch during standard 30-min API filter test. See cake thickness . In certain areas the filter cake thickness is a measurement of the solids deposited on filter paper for 7-1/2-min.
filter loss	the amount of fluid that can be delivered through a permeable filter medium after being subjected to a set differential pressure for a set length of time.
filter paper	porous unsized paper for filtering liquids. API filtration test specifies one thickness of 9-cm filter paper Whatman No. 50, S & S No. 576, or equivalent.
filter press	a device used in the testing of filtration properties of drilling mud. See mud .

filtrate	<p>1. a fluid that has been passed through a filter.</p> <p>2. the liquid portion of drilling mud that is forced into porous and permeable formations next to the borehole.</p>
filtration	the process of filtering a fluid.
filtration loss	the escape of the liquid part of a drilling mud into permeable formations.
filtration qualities	the filtration characteristics of a drilling mud. In general, these qualities are inverse to the thickness of the filter cake deposited on the face of a porous medium and the amount of filtrate allowed to escape from the drilling fluid into or through the medium.
filtration rate	see <i>fluid loss</i> .
final circulating pressure	the pressure at which a well is circulated during well-killing procedures after killweight mud has filled the drill stem. This pressure is maintained until the well is completely filled with killweight mud.
fingering	a phenomenon that often occurs in an injection project in which the fluid being injected does not contact the entire reservoir but bypasses sections of the reservoir fluids in a finger-like manner. Fingering is not desirable, because portions of the reservoir are not contacted by the injection fluid.
fire wall	a wall of earth built around an oil tank to hold the oil if the tank breaks or burns.
fish	<p>1. to recover from a well any equipment left there during drilling operations, such as a lost bit or drill collar or part of the drill string.</p> <p>2. to remove from an older well certain pieces of equipment (such as packers, liners, or screen liner) to allow reconditioning of the well.</p>
fishing	the procedure of recovering lost or stuck equipment in the wellbore. See <i>fish</i> .
fishing assembly	see <i>fishing string</i> .
fishing head	a specialized fixture on a downhole tool that will allow the tool to be fished out after it's used downhole. See <i>fish</i> .
fishing magnet	a powerful permanent magnet designed to recover metallic objects lost in a well.
fishing neck	a device placed on a piece of equipment that is lowered into a wellbore so that the equipment may be retrieved by wire line.
fishing string	an assembly of tools made up on drill pipe that is lowered into the hole to retrieve lost or stuck equipment. Also call a <i>fish assembly</i> .

fishing tap	a tool that goes inside pipe lost in a well to provide a firm grip and permit recovery of the fish. Sometimes used in place of a spear.
fishing tool	a tool designed to recover equipment lost in a well.
fishing-tool operator	the person (usually a service company employee) in charge of directing fishing operations.
fishtail bit	a drilling bit with cutting edges of hard alloys. Developed about 1900, and first used with the rotary system of drilling, it is still useful in drilling very soft formations. Also called a drag bit .
fittings	the small pipes and valves that are used to make up a system of piping.
flag	n. 1. a piece of cloth, rope or nylon strand used to mark the wireline when swabbing or bailing. 2. an indicator of wind direction used during drilling or workover operations where hydrogen sulfide (sour) gas may be encountered.
flag	v. 1. to signal or attract attention. 2. in swabbing or bailing, to attach a piece of cloth to the wireline to enable the operator to estimate the position of the swab or bailer in the well.
flange	a projecting rim or edge (as on pipe fittings and openings in pumps and vessels), usually drilled with holes to allow bolting to other flanged fittings.
flange up	1. to finish a job. 2. to use flanges to make final connections on a piping system.
flapper valve	a hinged closure mechanism operating in a pivot manner, used to shut off tubing flow.
flash set	a premature thickening or setting of cement slurry, which makes it unpumpable.
flat gel	a condition wherein the 10-minute gel strength is substantially equal to the initial gel strength.
flipped	when the opposite occurs of what is intended in a drilling fluid. In an invert water-in-oil emulsion, the emulsion is said to be flipped when the continuous and dispersed phases reverse.
float	a long flat-bed semi-trailer.
float collar	a special coupling device inserted one or two joints above the bottom of the casing string that contains a check valve to permit fluid to pass downward but not upward through the casing. The float collar prevents drilling mud from entering the casing while it is being lowered, allowing

	the casing to float during its descent and thus decreasing the load on the derrick or mat. A float collar also prevents backflow of cement during a cementing operation.
float shoe	a short, heavy, cylindrical steel section with a rounded bottom and attached to the bottom of the casing string. It contains a check valve and functions similarly to the float collar but also serves as a guide shoe in the casing.
floater	See <i>floating offshore drilling rig</i> .
floating offshore drilling rig	a type of mobile offshore drilling unit that floats and is not secured to the seafloor (except for anchors). Floating units include inland barge rigs, drill ships and ship-shaped barges, and semisubmersibles. See <i>mobile offshore drilling unit</i> .
flocculating agent	material or chemical agent that enhances flocculation.
flocculation	the coagulation of solids in a drilling fluid, produced by special additives or by contaminants.
flocs	<i>abbreviation:</i> flocculates.
flood	1. to drive oil from a reservoir into a well by injecting water under pressure into the reservoir formation. See <i>waterflooding</i> . 2. to drown out a well with water.
floorman	also called a rotary help. See <i>rotary helper</i> .
flow a well hard	to let a well flow at too high a rate.
flow bean	a plug in the flow line at the well head which has a small hole drilled through it through which oil flows, and which keeps a well from flowing at too high a rate.
flow by heads	a well flowing oil at irregular intervals.
flow chart	a chart made by a recording meter which shows rate of production.
flow coupling	a tubing sub made of abrasion-resistant material and used in a tubing string where turbulent flow may cause internal erosion.
flow line	the surface pipe through which oil travels from a well to processing equipment or to storage.
flow lines	the surface pipes through which oil travels from the well to storage.

flow tank	a lease storage tank to which produced oil is run.
flow test	preliminary test to confirm flow rate through a tool prior to going downhole.
flow treater	a single unit which acts as an oil and gas separator, an oil heater, and an oil and water treater.
flow tube	an interval device commonly found in subsurface safety valves used to protect the tool's closure mechanism from the wellbore media.
flow-line sensor	a device to monitor rate of fluid from the annulus.
flow-line treating	process of separating, or breaking down, an emulsion into oil and water in a vessel or tank on a continuous basis (i.e., no interruption of flow of emulsion into the tank or vessel). Compare <i>batch treating</i> .
flowing well	a well which produces oil or gas without any means of artificial lift.
flowstream	the flow of fluids within a pipe.
fluid density	the unit weight of fluid, e.g., pounds per gallon.
fluid flow	the state in fluid dynamics of a fluid in motion is determined by the type of fluid (e.g., Newtonian, plastic, pseudoplastic, dilatant); the properties of the fluid such as viscosity and density; the geometry of the system; and the velocity. Thus, under a given set of conditions and fluid properties, the fluid flow can be described as plug flow, laminar (called also Newtonian, streamline, parallel, or viscous) flow, or turbulent flow.
fluid injection	injection of gases or liquids into a reservoir to force oil toward and into producing wells.
fluid level	distance between well head and point to which fluid rises in the well.
fluid loss	the unwanted migration of the liquid part of the drilling mud or cement slurry into a formation, often minimized or prevented by the blending of additives with the mud or cement.
fluid saturation	the amount of the pore volume of a reservoir rock that is filled by water, oil, or gas and measured in routine core analysis.
fluidity	the reciprocal of viscosity. The measure of rate with which a fluid is continuously deformed by a shearing stress; ease of flowing.
fluorescence	instantaneous re-emission of light of a greater wave length than that light originally absorbed.

flush production	the high rate of flow made by a good well right after it is drilled.
flush-joint casing	a casing in which the outside diameter of the joint is the same as the outside diameter of the casing itself.
flush-joint pipe	pipe in which the outside diameter of the joint is the same as the outside diameter of the tube. Pipe may also be internally flush-joint.
foam	a two-phase system, similar to an emulsion, in which the dispersed phase is a gas or air.
foaming agent	a chemical used to lighten the water column in gas wells, in oilwells producing gas, and in drilling wells in which air or gas is used as the drilling fluid so that the water can be forced out with the air or gas to prevent its impeding the production or drilling rate.
formation	a bed or deposit composed throughout of substantially the same kind of rock; often a lithologic unit. Each formation is given a name, frequently as a result of the study of the formation outcrop at the surface and sometimes based on fossils found in the formation.
formation breakdown	an event occurring when borehole pressure is of such magnitude that the exposed formation cannot withstand applied pressure.
formation competency	the ability of the formations to withstand applied pressure. Also called <i>formation integrity</i> .
formation competency test	a test used to determine the amount of pressure required to cause a formation to fracture.
formation damage	the reduction of permeability in a reservoir rock caused by the invasion of drilling fluid and treating fluids to the section adjacent to the wellbore. Often call skin damage.
formation fluid	fluid (such as gas, oil, or water) that exists in a subsurface rock formation.
formation fracture pressure	the point at which a formation will crack from pressure in the wellbore.
formation fracturing	a method of stimulating production by opening new flow channels in the rock surrounding a production well. Often call a frac job. Under extremely high hydraulic pressure, a fluid (such as distillate, diesel fuel, crude oil, dilute hydrochloric acid, water, or kerosene) is pumped downward through production tubing or drill pipe and forced out below a packer or between two packers. The pressure causes cracks to open in the formation, and the fluid penetrates the formation through the cracks. Sand grains, aluminum pellets, walnut shells, or similar materials (propping agents) are carried in suspension by the fluid into the cracks. When the pressure is released at the surface, the fracturing fluid returns to the well. The cracks partially close on the pellets, leaving channels for oil to flow around them to the well. See <i>explosive fracturing</i> , <i>hydraulic fracturing</i> .
formation integrity	see <i>formation competency</i> .

formation pressure	pressure at the bottom of a well that is shut in.
formation sensitivity	the tendency of certain producing formations to react adversely with invading filtrates.
formation testing	the gathering of pressure data and fluid samples from a formation to determine its production potential before choosing a completion method. Testing tools include formation testers and drill stem test tools.
formic acid	an organic acid, H_2CO_2 or $HCOOH$, used for acidizing oilwells. It is stronger than acetic acid but much less corrosive than hydrofluoric or hydrochloric acid and is usually used for high-temperature wells.
foundation pile	the first casing or conductor string (generally with a diameter of 30 to 36 inches) set when drilling a well from an offshore drilling rig. It prevents sloughing of the ocean-floor formations and is a structural support for the permanent guide base and the blowout preventers.
fourble	a section of drill pipe, casing, or tubing consisting of four joints screwed together. Compare <u>double</u> , <u>single</u> , <u>thribble</u> .
fracture acidizing	a procedure by which acid is forced into a formation under pressure high enough to cause the formation to crack. The acid acts on certain kinds of rocks, usually carbonates, to increase the permeability of the formation. Compare matrix acidizing .
fracture gradient	the pressure gradient (psi/ft) at which the formation accepts whole fluid from the wellbore.
fracture pressure	the pressure at which a formation will break down, or fracture.
fracturing	application of hydraulic pressure to the reservoir formation to create fractures through which oil or gas may move to the well bore.
free point	an area or point above the point at which a tubular, such as drill pipe, is stuck in the wellbore.
free-point indicator	a device run on wireline into the wellbore and inside the fishing string and fish to locate the area where a fish is stuck. When the drill string is pulled and turned, the electromagnetic fields of free pipe and stuck pipe differ. The free-point indicator is able to distinguish these differences, which are registered on a metering device at the surface.
free water	<ol style="list-style-type: none"> 1. water produced with oil. It usually settles out within five minutes when the well fluids become stationary in a settling space within a vessel. 2. the measured volume of water that is present in a container and that is not in suspension in the contained liquid at observed temperature.
free-water knockout (FWKO)	a vertical or horizontal vessel into which oil or emulsion is run to allow any water not emulsified with the oil (free water) to drop out.
freeze point	the depth in the hole at which the tubing, casing, or drill pipe is stuck.

friction	resistance to movement created when two surfaces are in contact. When friction is present, movement between the surfaces produces heat.
friction loss	a reduction in the pressure of a fluid caused by its motion against an enclosed surface (such as a pipe). As the fluid moves through the pipe, friction between the fluid and the pipe wall and within the fluid itself creates a pressure loss. The faster the fluid moves, the greater are the losses.
frost up	icing of equipment due to the cooling effect of expanding gas.
frozen up	said of equipment of which the components do not operate freely.
funnel viscosity	viscosity as measured by the Marsh funnel, based on the number of second it takes for 1,000 cubic centimeters of drilling fluid to flow through the funnel.
fusible plugs	a thermal device employed on surface flow lines as part of an emergency shutdown.

G

gaging nipple	a small section of pipe in the top of a tank through which a tank may be gaged.
galena	lead sulfide (PbS). Technical grades (specific gravity about 7) are used for increasing the density of drilling fluids to points impractical or impossible with barite.
gall	damage to steel surfaces caused by friction and improper lubrication.
galvanic corrosion	a type of corrosion that occurs when a small electric current flows from one piece of metal equipment to another. It is particularly prevalent when two dissimilar metals are present in an environment in which electricity can flow (as two dissimilar joints of tubing in an oil or gas well).
gas	a compressible fluid that fills any container in which it is confined. Technically, a gas will not condense when it is compressed and cooled, because a gas can exist only above the critical temperature for its particular composition. Below the critical temperature, this form of matter is known as a vapor, because liquid can exist and condensation can occur. Sometimes the terms "gas" and "vapor" are used interchangeably. The latter, however, should be used for those streams in which condensation can occur and that originate from, or are in equilibrium with, a liquid phase.
gas anchor	a tubular, perforated device attached to the bottom of sucker-rod pump that helps to prevent gas lock. The device works on the principle that gas, being lighter than oil, rises. As well fluids enter the anchor, the gas breaks out of the fluid and exits from the anchor through perforations near the top. The remaining fluids enter the pump through a mosquito bill (a tube with the anchor), which has an opening near the bottom. In this way, all or most of the gas escapes before the fluids enter the pump.

gas cap	a free-gas phase overlying an oil zone and occurring within the same producing formation as the oil.
gas cutting	a process in which gas becomes entrained in a liquid.
gas drive	the use of the energy that raises from the expansion of compressed gas in a reservoir to move crude oil to a wellbore. Also call <i>reservoir drive mechanism</i> .
gas input well	a well into which gas is injected for the purpose of maintaining or supplementing pressure in an oil reservoir. More commonly called a gas injection well.
gas lift	the process of raising or lifting fluid from a well by injecting gas down the well through tubing or through the tubing-casing annulus. Injected gas aerates the fluid to make it exert less pressure than the formation does; consequently, the higher formation pressure forces the fluid out of the wellbore. Gas may be injected continuously or intermittently, depending on the producing characteristics of the well and the arrangement of the gas-lift equipment.
gas lift valve	a device installed on a gas lift mandrel, which in turn is put on the tubing string of a gas lift well. Tubing and casing pressures cause the valve to open and close, thus allowing gas to be injected into the fluid in the tubing to cause the fluid to rise to the surface.
gas lock	<p>1. a condition sometimes encountered in a pumping well when dissolved gas, released from solution during the upstroke of the plunger, appears as free gas between the valves. If the gas pressure is sufficient, the standing valve is locked shut, and no fluid enter the tubing.</p> <p>2. a device fitted to the gauging hatch on a pressure tank that enables manual dipping and sampling without loss of vapor.</p>
gas plant products	natural gas liquids recovered from natural gas in gas processing plant and, in some situations, from field facilities.
gas processing plant	<p>a facility designed:</p> <p>(1) to achieve the recovery of natural gas liquids from the stream of natural gas which may or may not have been processed through lease separators and field facilities, and</p> <p>(2) to control the quality of the natural gas to be marketed.</p>
gas sand	a stratum of sand or porous sandstone from which natural gas is obtained.
gas well	a well that primarily produces gas. Legal definitions vary among the states.
gas-cut mud	a drilling mud that contains entrained formation gas, giving the mud a characteristically fluffy texture. Then entrained gas is not released before the fluid returns to the well, the weight or density of the fluid column is reduced. Because a large amount of gas in mud lowers its density, gas-cut mud must be treated to reduce the chance of a kick.
gas-cutting	a process in which gas becomes entrained in a liquid.

gas-oil ratio	a measure of the volume of gas produced with oil, expressed in cubic feet per barrel of cubic meters per tonne.
gasing-up	injection of nitrogen for gas lift valving.
gasket	any material (i.e., paper, cork, asbestos, or rubber) used to seal two essentially stationary surfaces.
gate valve	a valve that employs a sliding gate to open or close the passage in it.
gathering lines	the flow lines which run from several wells to a single tank battery.
gauge joint	the heaviest-wall casing section of the string, usually located just below the preventers or tree.
gauge ring	a cylindrical metal ring used to guide, and centralize, packers or tools inside casing.
gauge trip	running of a gauge on tubing or slickline to verify casing dimensions.
gel	a semisolid, jelly-like state assumed by some colloidal dispersions at rest. When agitated, the gel converts to a fluid state. Also a nickname for bentonite.
gel strength	a measure of the ability of a colloidal dispersion to develop and retain a gel form, based on its resistance to shear. The gel, or shear, strength of a drilling mud determines its ability to hold solids in suspension. Sometimes bentonite and other colloidal clays are added to drilling fluid to increase its gel strength.
general gas law	any law relating to the pressure, temperature, or volume of a gas.
geologist	a scientist who gathers and interprets data pertaining to the rocks of the earth's crust.
geology	the science of the physical history of the earth and its life, especially as recorded in the rocks of the crust.
get a bite	to set tools in casings.
gin-pole truck	a truck equipped with a pair of poles, and hoisting equipment for use in lifting heavy machinery around a lease.
girth or girt	one of the horizontal braces between the legs of a derrick.
gone to water	describes a well in which water production is increasing.
gland	a device used to form a seal around a reciprocating or rotating rod (as in a pump) to prevent fluid leakage. Specifically, the movable part of a stuffing box by which the packing is compressed.
glass disk	a sub with a glass blockage in the bore, used to isolate a surge chamber in gravel packing or perforation cleaning operations.
GLR	gas-liquid-ratio
go in the hole	to lower the drill stem, tubing, casing, or sucker rods in to the wellbore.
go-devil	1. a device that is inserted into a pipeline for the purpose of cleaning; a line scraper. Also called a pig.

	2. a device that is lowered into the borehole of a well for various purposes such as enclosing surveying instruments, detonating instruments, and the like.
gooseneck	the curved connection between the rotary hose and the swivel.
GPG	grains per gallon
GRN	gamma-ray-neutron (a well log).
gradient	pressure drop
grapple	a mechanism that is fitted into an overshot to grasp and retrieve fish from the borehole. The interior of a grapple is wickered to engage the fish.
grass gooser	a hoe or other kind of weed cutter.
grave-pack	to place a slotted or perforated liner in a well and surround it with gravel
gravel pack	a mass of very fine gravel placed around a slotted liner in a well.
gravel packing	a method of well completion in which a slotted or perforated liner, often wire-wrapped, is placed in the well and surrounded by gravel. If open hole, the well is sometimes enlarged by underreaming at the point where the gravel is packed. The mass of gravel excludes sand from the wellbore but allows continued production.
gravel-pack packer	a packer used for the well completion method of gravel packing.
gravitometer	a device for measuring and recording the specific gravity of a gas or liquid passing a point of measurement.
gravity - API	The specific gravity or density of oil expressed in terms of a scale devised by the American Petroleum Institute. The lighter the oil, the greater the gravity; other factors being equal, the higher the API gravity, the better price the oil will bring.
gravity - specific	density expressed as the ratio of the weight of a volume of substance to the weight of an equal volume of another standard substance. In the case of liquids and solids, the standard is water. In the case of natural gas or other gas materials, the standard is air.
gravity drainage	the movement of fluids in a reservoir resulting from the force of gravity. In the absence of an effective water or gas drive, gravity drainage is an important source of energy to produce oil, and it may also supplement other types of natural drive. Also called segregation drive.
gravity survey	an exploration method in which an instrument that measures the intensity of the earth's gravity is passed over the surface or through the water. In places where the instrument detects stronger or weaker than normal gravity forces, a geologic structure containing hydrocarbons may exist.
Gray valve	see <i>inside blowout preventer</i> .
grease injector	a surface device used in pressure control for slickline.
greasing out	when water-insoluble greasy materials (e.g., emulsifiers, lubricants) separate out of drilling fluids.

grind out	see shake out
gross production	the total production of oil from a well or lease during a specified period of time.
guar gum	a naturally occurring hydrophilic polysaccharide derived from the seed of the guar plant. The gum is chemically classified as a galactomannan. Guar gum slurries made up in clear fresh or brine water possess pseudoplastic flow properties.
guide ring	a cylindrical metal ring used to guide packers past casing obtrusions.
guide shoe	<p>1. a short, heavy, cylindrical section of steel filled with concrete and rounded at the bottom, which is placed at the end of the casing string. It prevents the casing from snagging on irregularities in the borehole as it is lowered. A passage through the center of the shoe allow drilling fluid to pass up into the casing while it is being lowered and allows cement to pass out during cementing operations. Also called casing shoe.</p> <p>2. a device, similar to a casing shoe, placed at the end of other tubular goods.</p>
gum	any hydrophilic plant polysaccharides or their derivatives that, when dispersed in water, swell to produce a viscous dispersion or solution. Unlike resins, they are soluble in water and insoluble in alcohol.
gumbo	any relatively sticky formation (such as clay) encountered in drilling
gun-perforate	to create holes in casing and cement set through a productive formation. A common method of completing a well is to set casing through the oil-bearing formation and cement it. A perforating gun is then lowered into the hole and fired to detonate high-powered jets or shoot steel projectiles (bullets) through the casing and cement and into the pay zone. The formation fluids flow out of the reservoir through the perforations and into the wellbore. See perforating gun .
gun the pits	to agitate the drilling fluid in a pit by means of a mud gun, electric mixer, or agitator.
gunk plug	a slurry in crude or diesel oil containing any of the following materials or combinations: bentonite, cement, attapulgate, and guar gum (never with cement). Used primarily in combating lost circulation.
gunk slurry	a slang term to denote a mixture of diesel oil and bentonite.
gunk squeeze	a bentonite and diesel oil mixture that is pumped down the drill pipe and into the annulus to mix with drilling mud. The stiff, putty-like material is squeezed into lost circulation zones to seal them.
gusher	an oilwell that has come in with such great pressure that the oil jets out of the well like a geyser. In reality, a gusher is a blowout and is extremely wasteful of reservoir fluids and drive energy. In the early days of the oil industry, gushers were common and many times were the only indication that a large reservoir of oil and gas had been struck. See blowout .
guy line	a wireline attached to a mast, derrick, or offshore platform to stabilize it. See wind guy line .

guy line anchor	a buried weight or anchor to which a guy line is attached. See deadman .
guy wire	a rope or cable used to steady a mast or pole.
guyed-tower platform rig	a compliant offshore drilling platform used to drill development wells. The foundation of the platform is a relatively lightweight jacket upon which all equipment is placed. A system of guy wires anchored by clump weights helps secure the jacket to the seafloor and allows it to move with wind and wave forces. See platform rig .
gyp	(slang) gypsum
gypsum	a naturally occurring crystalline form of calcium sulfate in which each molecule of calcium sulfate is combined with two molecules of water. See calcium sulfate .

H

H-crossover	circulating member with integral landing nipples
H ₂ S form	hydrogen sulfide
half mule shoe	a cutoff pup joint below a packer used as a fluid entry device and/or seal assemblies guide
hammering-up	connection of treating line during well servicing, from pump trucks to tree/well
hand	a worker in the oil industry, especially one in the field.
handy	a connection that can be unscrewed by hand.
hang rods	to suspend sucker rods in a derrick or mast on rod hangers rather than horizontally on a rack.
hanger	see casing hanger , tubing hanger
hanger plug	a device placed or hung in the casing below the blowout preventer stack to form a pressure tight seal. Pressure is then applied to the blowout preventer stack to test it for leaks
hard shut-in	in a well-control operation, closing the BOP without first opening an alternate flow path up the choke line. When the BOP is closed, pressure in the annulus cannot be read on the casing pressure gauge.
hard water	water that contains dissolved compounds of calcium, magnesium, or both. Compare soft water .
hatch	an opening into a tank, usually through the top deck.
hay pulley	a pulley that is normally attached to the wellhead at a convenient place for the wireline to pass through as it comes from the stuffing box sheave before being spooled onto the wireline reel. The hay pulley prevents any lateral force from being exerted on the lubricator and the wellhead.
hay tank	a tank or enclosure filled with hay-like materials used to filter oil out of water.

heat (a connection)	to loosen a collar or other threaded connection by striking it with a hammer.
heater	container or vessel enclosing an arrangement of tubes and a firebox in which an emulsion is heated before further treating, or in which natural gas is heated in the field to prevent the formation of hydrates.
heater-treater	a vessel that heats an emulsion and removes water and gas from the oil to raise it to a quality acceptable for a pipeline or other means of transport. A heater-treater is a combination of a heater, free-water knockout, and oil and gas separator.
heaving	the partial or complete collapse of the walls of a hole resulting from internal pressures due primarily to swelling from hydration or formation gas pressures. See caving .
hesitation squeeze	a method of squeeze cementing in which cement is pumped in and the pumps are stopped for a few minutes. Pumping is started and stopped until the desired pressure is obtained.
high pH mud	a drilling fluid with a pH range above 10.5 i.e., a high-alkalinity mud.
high-yield drilling clay	a classification of commercial drilling-clay preparations having a yield of 35 to 40 barrels per ton and intermediate between bentonite and low-yield clays. Usually prepared by peptizing low-yield calcium montmorillonite clays or, in a few cases, by blending some bentonite with the peptized low yield clay
hi-lo cam	a mechanism in some packers to set and release the tool with a minimum of rotation
hoist	1. an arrangement of pulleys and wire rope or chain used for lifting heavy objects; a winch or similar device. 2. the drawworks; to raise or lift
hoisting drum	the large flanged spool in the drawworks on which the hoisting cable is wound. See drawworks .
hold-down	a mechanical arrangement that prevents the upward movement of certain pieces of equipment installed in a well. A sucker rod pump may use a mechanical hold-down for attachment to a seating nipple.
hole opener	a device used to enlarge the size of an existing borehole, having teeth arranged on its outside circumference to cut the formation as it rotates.
homogeneous	of uniform or similar nature throughout; a substance or fluid with the same property or composition everywhere.
hook	a large, hook-shaped device from which the swivel is suspended. It is designed to carry maximum loads ranging from 100 to 650 tons (90 to 590 tonnes) and turns on bearings in its supporting housing. A strong spring within the assembly cushions the weight of a stand (90 feet, about 27 meters) of drill pipe, thus permitting the pipe to be made up and broken out with less damage to the tool joint threads. Smaller hooks without the spring are used for handling tubing and sucker rods. See stand and swivel .
hook load	the weight of the drill stem that is suspended from the hook.

hook-wall packer	a packer equipped with friction blocks or drag springs and slips and designed so that rotation of the pipe unlatches the slips. The friction springs prevent the slips from turning with the pipe and assist in advancing the slips up a tapered sleeve to engage the wail of the outside pipe as weight is put on the packer. Also called a wall-hook packer. See packer .
hot oil	oil production in violation of state regulations or transported interstate in violation of federal regulations.
hot-oil treatments	the treatment of a producing well with heated oil to melt accumulated paraffin in the tubing and the annulus.
hot tap	to make repairs or modifications on a tank, pipeline, or installation without shutting down operations.
humic acid	organic acids of indefinite composition in naturally occurring leonardite lignite. The humic acids are the most valuable constituent.
hydrate	a hydrocarbon and water compound that is formed under reduced temperature and pressure in gathering, compression, and transmission facilities for gas. Hydrates often accumulate in troublesome amounts and impede fluid flow. They resemble snow or ice.
hydration	<ol style="list-style-type: none"> 1. a chemical reaction in which molecular water is added to the molecule of another compound without breaking it down. 2. reaction of powdered cement with water. The cement gradually sets to a solid as hydration continues.
hydraulic	<ol style="list-style-type: none"> 1. of or relating to water or other liquid in motion. 2. operated, moved, or effected by water or liquid.
hydraulic fracturing	an operation in which a specially blended liquid is pumped down a well and into a formation under pressure high enough to cause the formation to crack open, forming passages through which oil can flow into the wellbore. Sand grains, aluminum pellets, glass beads, or similar materials are carried in suspension into the fractures. When the pressure is released at the surface, the fractures partially close on the proppants, leaving channels for oil to flow through to the well. Compare explosive fracturing .
hydraulic hammer effect	a phenomenon in which a pressure concession occurs by suddenly stopping the flow of liquids in a closed container. Also called water hammer.
hydraulic head	the force exerted by a column of liquid expressed by the height of the liquid above the point at which the pressure is measured. Although "head" refers to distance or height, it is used to express pressure, since the force of the liquid column is directly proportional to its height. Also called head or hydrostatic head. Compare hydrostatic pressure .
hydraulic holddown	an accessory or integral part of a packer used to limit the packer's upward movement under pressure.
hydraulic jar	see mechanical jar
hydraulic workover	a series of hydraulic rams to restrain and pull tubing under well pressure,

	temporarily attached to the wellhead for workover.
hydrocarbons	organic compounds of hydrogen and carbon, whose densities, boiling points, and freezing points increase as their molecular weights increase. Although composed of only two elements. hydrocarbons exist in a variety of compounds because of the strong affinity of the carbon atom for other atoms and for itself. The smallest molecules of hydrocarbons are gaseous; the largest are solids. Petroleum is a mixture of many different hydrocarbons.
hydrochloric acid	an acid compound, HCl, commonly used to acidize carbonate rocks. It is prepared by mixing hydrogen chloride gas in water. Also known as muriatic acid.
hydrofluoric-hydrochloric acid	mixture of acids used for removal of mud from the wellbore. See mud acid .
hydro-set tool	a wireline pressure setting tool for setting permanent downhole tools.
hydrogen ion concentration	a measure of the acidity or alkalinity of a solution expressed as pH. See pH .
hydrogen sulfide	a flammable, colorless gaseous compound of hydrogen and sulfur (H ₂ S) , which in small amounts has the odor of rotten eggs. Sometimes found in petroleum, it causes the foul smell of petroleum fractions. In dangerous concentrations, it is extremely corrosive and poisonous, causing damage to skin, eyes, breathing passages, and lungs and attacking and paralyzing the nervous system, particularly that part controlling the lungs and heart. In large amounts, it deadens the sense of smell. Also called hepatic gas of sulfureted hydrogen.
hydrolysis	the break down of a mineral by chemical reaction with water.
hydrometer	an instrument with a graduated stem, used to determine the gravity of liquids. The liquid to be measured is placed in a cylinder, and the hydrometer dropped into it. It floats at a certain level in the liquid (high if the liquid is light, low if it is heavy), and the stem markings indicate the gravity of the liquid.
hydrophilic	tending to absorb water.
hydrophilic-lipophilic balance (HLB)	an expressions of the relative attraction of an emulsifier for water and oil, determined largely by the chemical composition and ionization characteristics of a given emulsifier. The HLB of an emulsifier is not directly related to solubility, but it determines the type of emulsion that tends to be formed. It is an indication of the behavioral characteristics and not an indication of emulsifier efficiency.
hydrophobic	tending to repel water
hydrostatic head	see hydrostatic pressure
hydrostatic pressure	the force exerted by a body of fluid at rest. It increases directly with the density and the depth of the fluid and is expressed in pounds per square inch or kilopascals. The hydrostatic pressure of fresh water is 0.433 pounds per square inch per foot of depth (9.792 kilopascals per meter). In drilling, the term refers to the pressure exerted by the drilling fluid in the wellbore. In a water drive field, the term refers to the pressure that may furnish the primary energy for production.

hydro-trip pressure sub	a sub with a ball seat run on top of a hydraulically set packer to set the packer.
hydroxide	a designation that is given for basic compounds containing the OH radical. When these substances are dissolved in water, they increase the pH of the solution. See base .
hygroscopic	absorbing or attracting moisture from the air

IADC	International Association of Drilling Contractors
igneous rock	a rock mass formed by the solidification of material poured (when molten) into the earth's crust or onto its surface. Granite is an igneous rock.
impermeable	preventing the passage of fluid. A formation may be porous yet impermeable if there is an absence of connecting passages between the voids within it. See permeability .
impression block	a block with lead or another relatively soft material on its bottom. It is made up of drill pipe or tubing at the surface, run into a well, and set down on the object that has been lost in the well. The block is retrieved and the impression is examined. The impression is a mirror image of the top of the fish and indicates the fish's position in the hole, i.e., whether it is centered or off to one side. From this information, the correct fishing tool can be selected.
impression tool	A lead-filled cylindrical device used to ascertain the shape of a fish.
in situ combustion	the setting afire of some portion of the reservoir in order that the gases produced by combustion will drive oil ahead of it to the producing wells.
indexing valve	operates on the same principle as an annular valve, except it requires pipe rotation for opening and closing operations.
indicator	1.a dial gauge used on the rig to measure the hookload. 2. substances in acid-base that, in solution, change color or become colorless as the hydrogen ion concentration reaches a definite value, these values varying with the indicator. In other titrations, such as chloride, hardness, and other determinations, these substances change color at the end of the reaction. Common indicators are phenolphthalein, and potassium chromate.
inflatable packer	a type of packer used for open-hole work, with inflatable packing elements

inflow	see feed in .
influx	an intrusion of formation fluids into the borehole, i.e., a kick.
inhibited acid	an acid that has been chemically treated before the acidizing or acid fracturing of a well to lessen its corrosive effect on the tubular goods and yet maintain its effectiveness. See acid fracture , acidize .
inhibitor	an additive used to retard undesirable chemical action in a product. It is added in small quantities to gasolines to prevent oxidation and gum formation, to lubricating oils to stop color change, and to corrosive environments to decrease corrosive action.
initial circulating pressure (ICP)	the pressure at which a well that has been closed in on a kick is circulated when well-killing procedures are begun
initial gel	see initial gel strength .
initial gel strength	the maximum reading (deflection) taken from a direct-reading viscometer after fluid has been quiescent for 10 seconds. It is reported in pounds per 100 square feet. See API-RP13B for details of test procedure.
injection gas	1.a high-pressure gas injected into a formation to maintain or restore reservoir pressure. 2. gas injected in gas lift operations.
injection valve	a poppet spring-loaded subsurface valve run in on wireline, landed in a profile, to shut the well if injection ceases.
injection well	a well through which fluids are injected into an underground stratum to increase reservoir pressure and to displace oil.
inland barge rig	a drilling structure consisting of a barge upon which the drilling equipment is constructed. When moved from one location to another, the barge floats. When stationed on the drill site, the barge can be anchored in the floating mode or submerged to rest on the bottom. Typically, inland barge rigs are used to drill wells in marshes, shallow inland bays, and areas where the water covering the drill site is not too deep. Also called swamp barge. See floating offshore drilling rig .
input well	an injection well used for injecting fluids into an underground stratum to increase reservoir pressure.
insert pump	a sucker rod pump that is run into the well as a complete unit.

inside blowout preventer	any valve installed in the drill stem to prevent a blowout through the stem. Mud can be pumped in but flow back up the stem is prevented. Also called an internal blowout preventer.
instrument hanger	a hanger used to lock instruments into seating nipple (pressure/temperature bombs, etc.).
insulated flange	a flange which incorporates plastic pieces to separate the metal parts.
insulating flange	a flange equipped with plastic pieces to separate its metal parts, thus preventing the flow of electric current. Insulating flanges are often used in cathodic protection systems to prevent electrolytic corrosion and are sometimes installed when a flow line is being attached to a wellhead.
intensifier	a pressure-multiplier-type well servicing mobile pump.
interfacial tension	the surface tension occurring at the interface between two liquids that do not mix, such as oil and water. Interfacial tension is caused by the difference in fluid pressures of the liquids.
intermediate casing string	the string of casing set in a well after the surface casing but before production casing is set. Keeps hole from caving and seals off troublesome formations. Also called protection casing .

J

jack board	a device used to support the end of a length of pipe while another length is being screwed on
jackup	a jackup drilling rig.
jackup drilling rig	a mobile bottom-supported offshore drilling structure with columnar or open-truss legs that support the deck and hull. When positioned over the drilling site, the bottoms of the legs rest on the seafloor. A jackup rig is towed or propelled to a location with its legs up. Once the legs are firmly positioned on the bottom, the deck and hull height are adjusted and leveled. Also called self-elevating drilling unit. See <i>bottom-supported offshore drilling rig</i> .
joint	a single length (30 feet or 9 meters) of drill pipe, drill collar, casing, or tubing that has threaded connections at both ends. Several joints screwed together constitute a stand of pipe.

K

kelly	the heavy steel member, three-, four-, six-, or eight-sided, suspended from the swivel through the rotary table and connected to the topmost joint of drill pipe to turn the drill stem as the rotary table turns. It has a bored passageway that permits fluid to be circulated into the drill stem and up the annulus, or vice versa.
kelly bushing	a special device that, when fitted in to the master bushing, transmits torque to the kelly and simultaneously permits vertical movement of the kelly to make hole. It may be shaped to fit the rotary opening or have pins for transmitting torque. Also called the drive bushing. See <i>kelly</i> .
keyway	a slot in the edge of the barge hull of a jackup drilling unit over which the drilling rig is mounted and through which drilling tools are lowered and removed from the well being drilled.
kick	an entry of water, gas, oil, or other formation fluid into the wellbore during drilling. It occurs because the pressure exerted by the column of drilling fluid is not great enough to overcome the pressure exerted by the fluids in the formation drilled. If prompt action is not taken to control the kick or kill the well, a blowout may occur.
kill a well	to overcome pressure in a well by use of mud or water so that surface connections may be removed.
knockout	a kind of tank or filter used to separate oil and water.

L

LACT	"Lease Automatic Custody Transfer", possible where measuring equipment installed at the point of transfer from lease to pipeline is so completely automated as not to require any manual activity or witnesses.
lay barge	a barge used in the construction and placement of underwater pipelines. Joints of pipe are welded together and then lowered off the stern of the barge as it moves ahead.
lazy board	see <i>jack board</i> .
lease condensate	a natural gas liquid recovered from gas well gas (associated and non-associated) in lease separators of field facilities.
lease separator	a facility located at the surface for the purpose of: (1) separating casinghead gas from produced crude oil and water at the temperature and pressure conditions of the separator; and (2) separating gas from that portion of associated and non-associated gas which liquefies at temperature and pressure conditions of the separator.

live oil	oil that contains gas.
load binder	chain or rope used to tie down loads of equipment, or the "boomer" used to tighten the chains.
location	the place at which a well is to be or has been drilled.
log	a systematic recording of data, such as a driller's log, mud log, electrical well log, or radioactivity log. Many different logs are run in wells to obtain various characteristics of downhole formations.
lost circulation additives	materials added to the mud in varying amounts to control or prevent lost circulation. Classified as fiber, flake, or granular.
lost circulation material (LCM)	a substance added to cement slurries or drilling mud to prevent the loss of cement or mud to the formation. See bridging materials.
lost returns	see lost circulation. lower kelly cock n: see drill stem safety valve
lower kelly valve	an essentially full-opening valve installed immediately below the kelly, with outside diameter equal to the tool joint outside diameter.
low-solids fluid	see low-solids mud
low-solids mud	a drilling mud that contains a minimum amount of solid material (sand, silt, and so on) and that is used in rotary drilling when possible because it can provide fast drilling rates.
low-yield clay	commercial clay chiefly of the calcium montmorillonite type and having a yield of approximately 15 barrels per ton.
LPG	liquefied petroleum gas
lubricate	<ol style="list-style-type: none"> 1. to apply grease or oil to moving parts 2. to lower or raise tools in or out of a well with pressure inside the well. The term comes from the fact that a lubricant (grease) is often used to provide a seal against well pressure while allowing wireline to move in or out of the well.
lubricator stack	a surface device used in slickline operations to keep the line lubricated and provide grease for pressure control
lyophilic	having an affinity for the suspending medium, such as bentonite in water.
lyophilic colloid	a colloid that is not easily precipitated from a solution and is readily dispersible after the precipitation by an addition of the solvent.
lyophobic colloid	a colloid that is readily precipitated from a solution and cannot be redispersed by an addition of the solution.
lost circulation additives	materials added to the mud in varying amounts to control or prevent lost circulation. Classified as fiber, flake, or granular.
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lyophilic	having an affinity for the suspending medium, such as bentonite in water.
lyophilic colloid	a colloid that is not easily precipitated from a solution and is readily dispersible after the precipitation by an addition of the solvent.

ML - MH

M1	the methyl orange alkalinity of the filtrate, reported as the number of millimeters of 0.02 normal (n/50) acid required per millimeter of filtrate to reach the methyl orange end point (pH 4.3).
macaroni rig	a workover rig, usually lightweight, that is specially built to run a string of 3/4 inch or 1-inch tubing. See macaroni string.
macaroni string	a string of tubing or pipe, usually 3/4 or 1 inch in diameter.
magnet	a metal that has the property of attracting ferrous and certain other metals to it.
magnetic survey	an exploration method in which an instrument that measure the intensity of the natural magnetic forces existing in the earth's subsurface is passed over the surface or through the water. The instrument can detect deviations in magnetic forces, and such deviations may indicate the existence of an underground hydrocarbon reservoir.
magnetometer	an instrument used to measure the intensity and direction of a magnetic field, especially that of the earth.

make a connection	to attach a joint of drill pipe onto the drill stem suspended in the wellbore to permit deepening the wellbore by the length of the joint added (about 30 feet, or 9 meters).
make a hand	to become a good worker.
make a trip	to hoist the drill stem out of the wellbore to perform one of a number of operations such as changing bits, taking a core, and so forth, and then to return the drill stem to the wellbore.
make it up another wrinkle	to make up connection one more turn.
make up	1. to assemble and join parts to form a complete unit (e.g., to make up a string of casing). 2. to screw together two threaded pieces. 3. to mix or prepare (e.g., to make up a tank of mud). 4. to compensate for (e.g., to make up for lost time).
makeup	added to a system (e.g., makeup water used in mixing mud).
make up a joint	to screw a length of pipe into another length of pipe.
makeup cathead	a device that is attached to the shaft of the drawworks and used as a power source for screwing together joints of pipe. It is usually located on the driller's side of the drawworks. Also called spinning cathead. See cathead .
make hole	to run casing or pipe.
male connection	a connection with the threads on the outside.
mandrel	a cylindrical bar, spindle, or shaft around which other parts are arranged or attached or that fits inside a cylinder or tube.
manhole	a hole in the side of a tank through which a man can enter the tank, also the cleanout plate.
manifold	1. an accessory system of piping to a main piping system (or another conductor) that serves to divide a flow into several parts, to combine several flows into one, or to reroute a flow to any one of several possible destinations. 2. a pipe fitting with several side outlets to connect it with other pipes. 3. a fitting on an internal combustion engine made to receive exhaust gases from several cylinders.
marginal well	an oil or gas well the production of which is so limited in relation to production costs that profit approaches the vanishing point.
marine rise pipe	see rise pipe .
Marsh funnel	a calibrated funnel used in field tests to determine the viscosity of drilling mud.

Marsh funnel viscosity	commonly called the funnel viscosity. The Marsh funnel viscosity is reported as the number of seconds required for a given fluid to flow 1 qt through the Marsh funnel. In some areas, the efflux quantity is 1,000 cc. See API-RP13B for instructions. See also kinematic viscosity.
Martin-Decker	a common term for a rig weight indicator. Martin-Decker is the name of a company.
mast	a portable derrick that is capable of being erected as a unit, as distinguished from a standard derrick that cannot be raised to a working position as a unit. For transporting by land, the mast can be divided into two or more sections to avoid excessive length extending from truck beds on the highway. Compare derrick .
master bushing	a device that fits into the rotary table to accommodate the slips and drive the kelly bushing so that the rotating motion of the rotary table to accommodate the slips and drive the kelly bushing so that the rotating motion of the rotary table can be transmitted to the kelly. Also called rotary bushing .
master choke line valve	the valve on the choke and flow line that is nearest to the preventer assembly. Its purpose is to stop the flow through the choke and flow line.
master gate	a large valve used to shut in a well.
master or primary control panel	a manifold system of valves, usually situated at the power source, which may be operated manually (or by remote control) to direct pressurized fluid to closing devices at wellhead.
master valve	1. a large valve located on the Christmas tree and used to control the flow of oil and gas from a well. Also called master gate. 2. the blind or blank rams of a blowout preventer (obsolete).
matrix acidizing	the procedure by which acid flow is confined to the natural permeability and porosity of the formation. Compare fracture acidizing .
Mcf	abbreviation: 1,000 cubic feet of gas, commonly used to express the volume of gas produced, transmitted, or consumed in a given period.
Mcf/d	abbreviation: 1,000 cubic feet of gas per day.
measure in	to obtain an accurate measurement of the depth reached in a well by measuring the drill pipe or tubing as it is run into the well.
measure out	to measure drill pipe or tubing as it is pulled out of the hole, usually to determine the depth of the well or the depth to which the pipe or tubing was run.
mechanical jar	a percussion tool operated mechanically to give an upward thrust to a fish by the sudden release of a tripping device inside the tool. if the fish can e freed by an upward blow, the mechanical jar can be very effective. Also called a hydraulic jar .
mechanical rig	a drilling rig in which the source of power is one or more internal-combustion engines and in which the power is distributed to rig

	components through mechanical devices (such as chains, sprockets, clutches, and shafts). Also called a power rig.
meniscus	the curved upper surface of a liquid column, concave when the containing walls are wet by the liquid (negative meniscus) and convex when not (positive meniscus).
mesh	a measure of fineness of a woven material, screen, or sieve; e.g., a 200-mesh sieve has 200 openings per linear inch. A 200-mesh screen with a wire diameter of 0.0021 in. (0.0533 mm) has an opening of 0.074 mm, or will pass a particle of 74 microns. See micron .
metamorphic rock	a rock derived from preexisting rocks by mineralogical, chemical, and structural alterations caused by processes within the earth's crust. Marble is a metamorphic rock.
methane	a light, gaseous, flammable paraffinic hydrocarbon that has a boiling point of -25 degrees F and is the chief component of natural gas and an important basic hydrocarbon for petrochemical manufacture.
MFE	abbreviation: a trademark name for multiple formation evaluation; a DST.

MI - MU

mica	a silicate mineral characterized by sheet cleavage; i.e., it separates in thin sheets. Biotite is ferromagnesian black mica, and muscovite is potassic white mica. Sometimes mica is used as a lost circulation material in drilling.
micellar-polymer flooding	a method of improved oil recovery in which chemicals dissolved in water are pumped into a reservoir through injection wells to mobilize oil left behind after primary or secondary recovery and to move it toward production wells. The chemical solution includes surfactants or surfactant-forming chemicals that reduce the interfacial and capillary forces between oil and water, releasing the oil and carrying it out of the pores where it has been trapped. The solution may also contain cosurfactants to match the viscosity of the solution to that of the oil to stabilize the solution and to prevent its absorption by reservoir rock. An electrolyte is often added to aid in adjusting viscosity. Injection of the chemical solution is followed by a slug of water thickened with a polymer, which pushes the released oil through the reservoir, decreases the effective permeability of established channels so that new channels are opened, and serves as a mobility buffer between the chemical solution and the final injection of water.
micelle	a round cluster of hydrocarbon chains formed when the amount of surfactant in an aqueous solution reaches a critical point. The micelles are able to surround and dissolve droplets of water or oil, forming an emulsion.
micron	one-millionth of a meter, a metric unit of measure of length equal to 0.000001 meter or 0.001 millimeter.
migration	the movement of oil from the area in which it was formed to a reservoir rock where it can accumulate.

milk emulsion	see <i>oil-emulsion water</i> .
mill	a downhole tool with rough, sharp, extremely hard cutting surfaces for removing metal by grinding or cutting. Mills are run on drill pipe or tubing to grind up debris in the hole, remove stuck portions of drill stem or sections of casing for sidetracking, and ream out tight spots in the casing. They are also called junk mills, reaming mills, and so forth, depending on what use they have.
millidarcy (md)	one-thousandth of a darcy.
milling shoe	see <i>rotary shoe, burn shoe</i> .
milling tool	the tool used in the operation of milling. See <i>mill</i> .
mill out	to use a mill on the end of a workstring to remove a permanent tool or fish.
mill-out extension	a pinned-end pup joint used to provide additional length and inside diameter necessary to accommodate a standard milling tool.
mined (humic) acids lignins	naturally occurring special lignite, e.g., leonardite, that is produced by strip mining from special lignite deposits. The active ingredient is the humic acids. Mined lignins are used primarily as thinners, which may or may not be chemically modified; however, they are also widely used as emulsifiers.
mineral rights	the rights of ownership, conveyed by deed, of gas, oil, and other minerals beneath the surface of the earth. In the United States, mineral rights are the property of the surface owner unless disposed of separately.
Minerals Management Service (MMS)	an agency of the U.S. Department of the Interior that establishes requirements through the code of Federal Regulations (CFR) for drilling while operating on the Outer Continental Shelf of the United States. The agency regulates rig design and construction, drilling procedures, equipment, qualification of personnel, and pollution prevention.
miniaturized completion	a well completion in which the production casing is less than 4.5 inches in diameter. Compare <i>conventional completion</i> .
minimum internal yield pressure	the lowest internal pressure at which a failure (of pipe) will take place.
miscible flood	an oil-recovery process which involves the injection of a solvent followed by a displacing fluid. - A method of secondary recovery of fluids from a reservoir by injection of fluids that are miscible with the reservoir fluids.
mist drilling	a drilling technique that uses air or gas to which a foaming agent has been added.
ml	<i>abbreviation:</i> milliliter.

MMS	<i>abbreviation:</i> Minerals Management Service
mobile offshore drilling unit	a drilling rig that is used exclusively to drill offshore exploration and development wells and that floats upon the surface of the water when being moved from one drill site to another. It may or may not float once drilling begins. Two basic types of mobile offshore drilling units are used to drill most offshore wildcat wells: bottom-supported drilling rigs and floating drilling rigs.
MODU	<i>abbreviation:</i> mobile offshore drilling unit.
modular-spaced workover rig	workover equipment designed in equipment packages or modules that are light enough to be lifted onto an offshore platform by a platform crane. In most cases, the maximum weight of a module is 12,000 pounds. Once lifted from the work boat, the rig can be erected and working within twenty-four to thirty-six hours.
mole	the fundamental unit of mass of a substance. A mole of any substance is the number of grams or pounds indicated by its molecular weight. For example, water has a molecular weight of approximately 18. Therefore, a gram-mole of water is 18 grams of water; a poundmole of water is 18 pounds of water. See <i>molecular weight</i> .
molecular weight	the sum of the atomic weights in a molecule. For example, the molecular weight of water is 18, because the atomic weight of each of the hydrogen molecules is 1 and the atomic weight of oxygen is 16. See <i>mole</i>
molecule	the smallest particle of a substance that retains the properties of the substance. it is composed of one or more atoms.
monkeyboard	the derrickman's working platform. As pipe of tubing is run into or out of the hole, the derrickman must handle the top end of the pipe, which may be as high as 90 feet (27 m) in the derrick or mast. The monkeyboard provide a small platform to raise him to the proper height for handling the top of the pipe.
montmorillonite	a clay mineral often used as an additive to drilling mud. It is a hydrous aluminum silicate capable of reacting with such substances of magnesium and calcium. See <i>bentonite</i> .
moon pool	a walled round hole or well in the hull of a drill ship (usually in the center) through which the drilling assembly and other assemblies pass while a well is being drilled, completed, or abandoned from the drill ship.
mosquito bill	a tube mounted at the bottom of a sucker rod pump and inside a gas anchor to provide a conduit into the pump for well fluids that contain little or no gas.
mousetrap	a fishing tool used to recover a parted string of sucker rods from a well.
mud	the liquid circulated through the wellbore during rotary drilling and workover operations. In addition to its function of bringing cuttings to the surface, drilling mud cools and lubricates the bit and drill stem, protects against blowouts by holding back subsurface pressures, and deposits a mud cake on the wall of the borehole to prevent loss of fluids to the

	formation. See drilling fluid .
mud acid	a mixture of hydrochloric and hydrofluoric acids and surfactants used to remove wall cake from the wellbore.
mud additive	any material added to drilling fluid to change some of its characteristics or properties.
mud balance	a beam balance consisting of a cup and a graduated arm carrying a sliding weight and resting on a fulcrum. It is used to determine the density or weight of drilling mud.
mud circulation	the process of pumping mud downward to the bit and back up to the surface in a drilling or workover operation. See normal circulation , reverse circulation .
mud density	weight per unit volume of drilling fluid usually expressed in pounds per gallon or pounds per cubic foot. See hydrostatic pressure .
mud engineer	an employee of a drilling fluid supply company whose duty it is to test and maintain the drilling mud properties that are specified by the operator.
mud-flow indicator	a device that continually measures and may record the flow rate of mud returning from the annulus and flowing out of the mud return line. If the mud does not flow at a fairly constant rate, a kick or lost circulation may have occurred.
mud-flow sensor	see mud-flow indicator
mud gas separator	a device that removes gas from the mud coming out of a well when a kick is being circulated out.
mud hose	also called kelly hose or rotary hose. See rotary hose .
mud house	structure at the rig to store and shelter sacked materials used in drilling fluids.
mud inhibitor	substances generally regarded as drilling mud contaminants, such as salt and calcium sulfate, are called inhibitors when purposely added to mud so that the filtrate from the drilling fluid will prevent or retard the hydration of formation clays shells.
mud log	a record of information derived from examination of drilling fluid and drill bit cuttings. See mud logging .
mud logging	the recording of information derived from examination and analysis of formation cuttings made by the bit and of mud circulated out of the hole. A portion of the mud is diverted through a gas-detecting device. Cuttings brought up by the mud are examined under ultraviolet light to detect the presence of oil or gas. Mud logging is often carried out in a portable laboratory set up at the well.

mud-mixing devices	any of several devices used to agitate, or mix, the liquids and solids that make up drilling fluid. These devices include jet hoppers, paddles, stirrers, mud guns, and chemical barrels.
mud-off	<ol style="list-style-type: none"> 1. to seal the hole against formation fluids by allowing the buildup of wall cake. 2. block off the flow of oil into the wellbore.
mud pit	an open pit dug in the ground to hold drilling fluid or waste materials discarded after the treatment of drilling mud. For some drilling operations, mud pits are used for suction to the mud pumps, settling of mud sediments, and storage of reserve mud. Steel tanks are much more commonly used for these purposes now, but they are still sometimes referred to as pits.
mud program	a plan or procedure, with respect to depth, for the type and properties of drilling fluid to be used in drilling a well. Some factors that influence the mud program are the casing program and such formation characteristics as type, competence, solubility, temperature, and pressure.
mud pump	a large, high-pressure reciprocating pump used to circulate the mud on a drilling rig. A typical mud pump is a two-cylinder, double-acting or a three-cylinder, single-acting piston pump whose pistons travel in replaceable liners and are driven by a crankshaft actuated by an engine or a motor. Also called a slush pump .
mud return line	a trough or pipe that is placed between the surface connections at the wellbore and the shale shaker and through which drilling mud flows upon its return to the surface from the hole. Also called flow line.
mud scales	see mud balance .
mud screen	see shale shaker
mud still	instrument used to distill oil, water, and other volatile materials in a mud to determine oil, water, and total solids contents in volume-percent.
mud-up	to add solid materials (such as bentonite or other clay) to a drilling fluid composed mainly of clear water to obtain certain desirable properties.
mud weight	a measure of the density of a drilling fluid expressed as pounds per gallon, pounds per cubic foot, or kilograms per cubic meter. Mud weight is directly related to the amount of pressure the column of drilling mud exerts at the bottom of the hole.
mud weight recorder	an instrument installed in the mud pits that has a recorder mounted on the rig floor to provide a continuous reading of the mud weight.
mule shoe	a sub part of which is formed in the shape of a horseshoe and used to orient the drill stem downhole.
multiple completion	an arrangement for producing a well in which one wellbore penetrates two or more petroleum-bearing formations. In one type, multiple tubing strings are suspended side by side in the production casing string, each a different length and each packed to prevent the commingling of

	different reservoir fluids. Each reservoir is then produced through its own tubing string. Alternatively, a small-diameter production casing string may be provided for each reservoir, as in multiple miniaturized or multiple tubingless completions.
multiple completion well	a well equipped to produce oil and/or gas separately from more than one reservoir.

N

NACE	<i>abbreviation:</i> National Association of Corrosion Engineers.
nail pin	a pin shaped like a carpenter's nail and placed in a pressure relief valve. When the pin shears, it opens the valve to relieve pressure inside a vessel.
National Association of Corrosion Engineers (NACE)	an organization whose function is to establish standards and recommended practices for the field of corrosion control.
natural clays	clays that are encountered when drilling various formations; they may or may not be incorporated purposely into the mud system.
natural gas	A mixture of hydrocarbons and varying quantities of nonhydrocarbons that exist either in the gaseous phase or in solution with crude oil in natural underground reservoirs.
natural gas liquids	Those portions of reservoir gas which are liquefied at the surface in field facilities or gas processing plants.
natural gasoline	the liquid hydrocarbons recovered from wet natural gas, i.e., casinghead gasoline.
neat cement	a cement with no additives other than water.
necking	the tendency of a metal bar or pipe to taper to a reduced diameter at some point when subjected to excessive longitudinal stress. See bottleneck .
needle valve	a globe valve that contains a sharp, pointed, needle-like plug that is driven into and out of a cone-shaped seat to control accurately a relatively small rate of fluid flow. In a fuel injector, the fuel pressure forces the needle valve off its seat to allow injection.
neutral	position of the rig's weight indicator where hook load is zero.
neutralization	a reaction in which the hydrogen ion of an acid and the hydroxyl ion of a base unite to form water, the other ionic product being salt.

Newtonian flow	see Newtonian fluid .
Newtonian fluid	a fluid in which the viscosity remains constant for all rates of shear if constant conditions of temperature and pressure are maintained. Most drilling fluids behave as non-Newtonian fluids, as their viscosity is not constant but varies with the rate of shear.
nipple	a short, threaded tubular coupling used for making connections between pipe joints and other tools.
nipple up	in drilling, to assemble the blowout preventer stack on the wellhead at the surface.
nitrogen	an inert gas used for jetting wells.
nitro shooting	a formation-stimulation process first used about a hundred years ago in Pennsylvania. Nitroglycerine is placed in a well and exploded to fracture the rock. Sand and gravel or cement is usually placed above the explosive charge to improve the efficiency of the shot. Nitro shooting has been largely replaced by formation fracturing.
no-go	a gauge run downhole to verify dimensions.
no-go nipple	a special nipple made up in the tubing, casing, or drill pipe string the configuration of which is such that a tool contacting it can pass through only if the tool is in the proper position or configuration.
nomograph	a chart that presents an equation containing a number of variables in the form of several straight lines. The straight lines are scaled with values of the variables. To use it, a straight edge is placed across the scaled lines at the appropriate values. A nomograph can be easier to use than solving the equation.
non-associated gas	Natural gas which is in reservoirs that do not contain significant quantities of crude oil.
nonconductive mud	any drilling fluid, usually oil-base or invert-emulsion muds, the continuous phase of which does not conduct electricity, e.g., oil.
nonlocator	term to describe the passage entry of seal assemblies into a packer seal bore not locking into place.
normal butane	in commercial transactions, a product meeting GPA specification for commercial butane and, in addition, containing a minimum of 95 liquid volume percent normal butane. Chemically, normal butane is an aliphatic compound of the paraffin series.
normal circulation	the smooth, uninterrupted circulation of drilling fluid down the drill stem, out the bit, up the annular space between the pipe and the hole, and

	back to the surface. Compare <u>reverse circulation</u> .
normal formation pressure	formation fluid pressure equivalent to about 0.465 pounds per square foot of depth from the surface. If the formation pressure is 4,650 pounds per square inch at 10,000 feet, it is considered normal.
normal pressure gradient	the normal pressure divided by true vertical depth.
normal solution	a solution that contains 1 gram-equivalent of a substance per liter of solution.
nozzle	<p>1. a passageway through jet bits that causes the drilling fluid to be ejected from the bit at high velocity. The jet of mud clears the bottom of the hole. Nozzles come in different sizes that can be interchanged on the bit to adjust the velocity with which the mud exits the bit.</p> <p>2. the part of the fuel system of an engine that has small holes in it to permit fuel to enter the cylinder. Properly known as a fuel-injection nozzle, but also called a spray valve. The needle valve is directly above the nozzle.</p>

O

ocs	<i>abbreviation:</i> outer continental shelf
off production	said of a well when it is shut in or temporarily not able to produce.
offset well	well drilled near another one.
offset-well data	information obtained from wells that are drilled in an area close to where another well is being drilled or worked over. Such information can be very helpful in determining how a particular well will behave or react to certain treatments or techniques.
offshore	that geographic area which lies seaward of the coastline
offshore drilling	drilling for oil or gas in an ocean, gulf, or sea, usually on the Outer Continental Shelf. A drilling unit for offshore operations may be a mobile floating vessel with a ship or barge hull, a semisubmersible or submersible base, a self-propelled or towed structure with jacking legs (jackup drilling rig), or a permanent structure used as a production platform when drilling is completed. In general, wildcat wells are drilled from mobile floating vessels or from jackups, while development wells are drilled from platforms or jackups.

oil and gas separator	an item of production equipment used to separate liquid components of the well stream from gaseous elements. Separators are either vertical or horizontal and either cylindrical or spherical in shape. Separation is accomplished principally by gravity, the heavier liquids falling to the bottom and the gas rising to the top. A float valve or other liquid-level control regulates the level of oil in the bottom of the separator.
oil-base mud	a drilling or workover fluid in which oil is the continuous phase and which contains from less than 2 percent and up to 5 percent water. This water is spread out, or dispersed, in the oil as small droplets. See <i>oil mud</i> .
oil breakout	oil that has risen to the surface of the mud but which was previously combined with the mud as emulsion.
oil content	the amount of oil in volume-percent in a drilling fluid.
oil country tubular goods	oil-well, casing, tubing, or drill pipe.
oil-emulsion mud	a water-base mud in which water is the continuous phase and oil is the dispersed phase. The oil is spread out, or dispersed, in the water in small droplets, which are tightly emulsified so that they do not settle out. Because of its lubricating abilities, an oil-emulsion mud increases the drilling rate and ensures better hole conditions than other muds. Compare oil mud .
oil-emulsion water	the water contained in an emulsion of oil and water. Also called milk emulsion .
oilfield	the surface area overlying an oil reservoir or reservoirs. The term usually includes not only the surface area, but also the reservoir, the wells, and the production equipment.
oil-in-water emulsion mud	any conventional or special water-base mud to which oil has been added. The oil becomes the dispersed phase and may be emulsified into the mud either mechanically or chemically. Also called oil-emulsion mud .
oil mud	a drilling mud, e.g., oil-base mud and invert emulsion mud, in which oil is the continuous phase. It is useful in drilling certain formation that may be difficult or costly to drill with water-base mud. Compare oil emulsion mud .
oil operator	also called operator. See operator .
oil - petroleum - gas	a fluid of vapor composed of hydrocarbons; dry gas is nearly free of oil and gasoline vapor.
oil pool	the accumulation of oil in the pores of sedimentary rock that yields petroleum on drilling. Not a pool or pond in the ordinary use of the term.

oil sand	any porous stratum bearing oil.
oil well	a well completed for the production of crude oil from at least one oil zone or reservoir.
oil zone	a formation or horizon of a well from which oil may be produced. The oil zone is usually immediately under the gas zone and on top of the water zone if all three fluids are present and segregated.
old hand	a man who has been around the oil field for a long time.
one-trip	a tool that goes downhole and is not retrievable.
on-off tool	a tool used to open or close a downhole valve; a tool used to set or release a downhole tool, such as a retrievable bridge plug.
on the horn	someone talking on a two-way radio to another person.
on the pump	said of a well that is being pumped.
on-vacuum	said of any pressure-tight vessel or container when the internal pressure is lower than atmospheric pressure
open	1. of a wellbore, having no casing. 2. of a hole, having no drill pipe or tubing suspended in it.
open hole	uncased portion of a well.
open-hole completion	a method of preparing a well for production in which no production casing or liner is set opposite the producing formation. Reservoir fluids flow unrestricted into the open wellbore. An open-hole completion has limited use in rather special situations. Also called a <u>barefoot completion</u> .
opening/closing plug	a rubber plug used in primary cementing operations to displace cement slurry from the casing into the borehole annulus.
opening ratio	the ratio between the pressure required to open the preventer and the well pressure under the rams.
operator	the person or company, either proprietor or lessee, actually operating an oilwell or lease. Generally, the oil company by whom the drilling contractor is engaged.

organic theory	an explanation of the origin of petroleum, which holds that the hydrogen and the carbon that make up petroleum come from plants and animals of land and sea. Furthermore, the theory holds that more of this organic material comes from very tiny creatures of swamp and sea than comes from larger creatures of land.
orifice	an opening of a measured diameter that is used for measuring the flow of fluid through a pipe, the orifice must be of smaller diameter than the pipe diameter. It is drilled into an orifice plate held by an orifice fitting.
O-ring	a circular seal common in the oilfield; requires deformation (squeeze) to energize and seal.
outer continental shelf	an offshore area in the United States that begins where state ownership of mineral rights ends and ends where international treaties dictate.
outrigger	a projecting member run out at an angle from the sides of a portable mast or a land crane to the ground to provide stability and to minimize the possibility of having the mast or the crane overturn.
overproduced	said of a well that has produced more than its allowable.
out-running	<ol style="list-style-type: none"> 1. a condition in which fluid is free-falling down the well at a faster rate than the pumps can handle. 2. in wireline, trying to pull out of the well faster than the wireline tools are being blown upwards by unexpected pressure. 3. trying to pump out a gas influx before the expansion of gas reduces pressure allowing the well to kick.
overbalance	the extent to which the hydrostatic pressure of the mud column exceeds formation pressure.
overburden	the strata of rock that overlie the stratum of interest in drilling.
overpull	pull on pipe over and beyond its weight in either air or fluid
overshot	a fishing tool that is attached to tubing or drill pipe and lowered over the outside wall of pipe or sucker rods lost or stuck in the wellbore. A friction device in the overshot, usually either a basket or as spiral grapple, firmly grips the pipe, allowing the fish to be pulled from the hole.

PA - PM

P&A	<i>abbreviation:</i> plug and abandon
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packed-hole assembly	a bottomhole assembly consisting of stabilizers and large-diameter drill collars arranged in a particular configuration to maintain drift angle and direction of a hole.
packer	a piece of downhole equipment, consisting of a sealing device, a holding or setting device, and an inside passage for fluids, used to block the flow of fluids through the annular space between the tubing and the wall of the wellbore by sealing off the space between them. It is usually made up in the tubing string some distance above the producing zone. A packing element expands to prevent fluid flow except through the inside bore of the packer and into the tubing. Packers are classified according to configuration, use, and method of setting and whether or not they are retrievable (that is, whether they can be removed when necessary, or whether they must be milled or drilled out and thus destroyed).
packer-bore receptacle	a retrievable receptacle anchored into the top of a production packer to land a tubing seal assembly
packer fluid	a liquid, usually salt water or oil, but sometimes mud, used in a well when a packer is between the tubing and the casing. Packer fluid must be heavy enough to shut off the pressure of the formation being produced, must not stiffen or settle out of suspension over long periods of time, and must be noncorrosive.
packer squeeze method	a squeeze cementing method in which a packer is set to form a seal between the working string (the pipe down which cement is pumped) and the casing. Another packer or a cement plug is set below the point to be squeeze-cemented. By setting packers, the squeeze point is isolated from the rest of the well. See packer , squeeze cementing .
packer test	a fluid-pressure test of the casing. Also called a cup test .
packing elements	the set of dense rubber, washer-shaped pieces encircling a packer, which are designed to expand against casing or formation face to seal off the annulus.
packing gland	the metal part that compresses and holds packing in place in a stuffing box. See stuffing box .
pack-off	(v) to place a packer in the wellbore and activate it so that it forms a seal between the tubing and the casing.
pack-off	(n) a device with an elastomer packing element that depends on pressure below the packing to effect a seal in the annulus. Used primarily to run or pull pipe under low or moderate pressures. This device is not dependable for service under high differential pressures. Also called a stripper .
pack-off (stripper) preventer	a preventer having a unit of packing material whose closure depends on well pressure coming from below. It is used primarily to strip pipe through the hole or allow pipe to be moved with pressure on the annulus.
pad volume	the amount of fluid placed in a well to serve as a pad, which is a special fluid used for any special purpose.

paraffin	a saturated aliphatic hydrocarbon
parted rods	sucker rods that have been broken and separated in a pumping well because of corrosion, improper loading, damaged rods, and so forth.
particle	a minute unit of matter, usually a single crystal, or of regular shape with a specific gravity approximately that of a single crystal
pay	see pay sand .
pay sand	the producing formation, often one that is not even sandstone. Also called pay , pay zone , and producing zone .
pay zone	see pay sand
PBR	<i>abbreviation:</i> polished bore receptacle, a section in the casing string to facilitate landing of the production tubing (casing).
PDC log	<i>abbreviation:</i> perforating depth control log
pentane	a liquid hydrocarbon of the paraffin series
peptization	an increased dispersion of solids in a liquid caused by the addition of electrolytes or other chemical substances. See deflocculation , dispersion .
peptized clay	a clay to which an agent has been added to increase its initial yield
perforate	to pierce the casing wall and cement to provide holes through which formation fluids may enter or to provide holes in the casing so that materials may be introduced into the annulus between the casing and the wall of the borehole. Perforating is accomplished by lowering into the well a perforating gun, or perforator, that fires electrically detonated bullets or shaped charges.
perforated liner	a liner that has had holes shot in it by a perforating gun. See liner .
perforated spacer tube	a ported, extended production tub used as an alternative path for wireline measuring devices.
perforating gun	a device fitted with shaped charges or bullets that is lowered to the desired depth in a well and fired to create penetrating holes in casing, cement, and formation.
perforation	a hole made in the casing, cement, and formation through which formation fluids enter a wellbore. Usually several perforations are made at a time.

perforation depth control log (PDC log)	a special type of nuclear log that measures the depth of each casing collar. Knowing the depth of the collars makes it easy to determine the exact depth of the formation to be perforated by correlating casing-collar depth with formation depth.
perfs	perforations in casing for the inflow of hydrocarbons and gas
permeability (of a reservoir rock)	the ability of a rock to transmit fluid through the pore spaces. - A key influence on the rate of flow, movement and drainage of the fluids. There is no necessary relation between porosity and permeability. A rock may be highly porous and yet impermeable if there is no communication between pores. A highly porous sand is usually highly permeable. A measure of the ease with which a fluid flows through the connecting pore spaces of rock or cement. The unit of measurement is the millidarcy. Fluid conductivity of a porous medium. Ability of a fluid to flow within the interconnected pore network of a porous medium.
persuader	a big tool for a small job, used to overcome some excess friction.
petroleum	a substance occurring naturally in the earth and composed mainly of mixtures of chemical compounds of carbon and hydrogen, with or without other nonmetallic elements such as sulfur, oxygen, and nitrogen. The compounds that compose it may be in the gaseous, liquid, or solid state, depending on their nature and on the existent conditions of temperature and pressure.
Pf	<i>abbreviation:</i> the phenolphthalein alkalinity of the filtrate, reported as the number of milliliters of 0.02 Normal (N/50) acid required per milliliter of filtrate to reach the phenolphthalein end point.
pH	<i>abbreviation:</i> an indicator of the acidity or alkalinity of a substance of solution, represented on a scale of 0-14, 0-6.9 being acidic, 7 being neither acidic or basic (i.e., neutral), and 7.1-14 being basic. These values are based on hydrogen ion content and activity.
phosphate	1. generic term for any compound that contains phosphorous and oxygen in the form of a phosphate 2. a salt or ester of phosphoric acid
pH value	a unit of measure of the acid or alkaline condition of a substance. A neutral solution (such as pure water) has a pH of 7; acid solutions are less than 7; basic, or alkaline, solutions are more than 7. The pH scale is a logarithmic scale. A substance with a pH of 4 is more than twice as acid as a substance with a pH of 5. Similarly, a substance with a pH of 9 is more than twice as alkaline as a substance with a pH of 8.
pickle	a cylindrical or spherical device that is affixed to the end of a wireline just above the hook to keep the line straight and to provide weight. v: to soak metal pieces in a chemical solution to remove dirt and scale from the metal's surface.
pig	1. a scraping tool that is forced through a pipeline or flow line to clean out accumulations of wax, scale, and debris from the walls of the pipe. It travels with the flow of product in the line, cleaning the pipe walls by means of blades or brushes affixed to it. Also called a line scraper or a go-devil.

	<p>2. a batching cylinder with neoprene or plastic cups on either end and used to separate different products traveling in the same pipeline.</p> <p>3. a neoprene displacement spheroid, automatically launched and received, used to displace liquid hydrocarbons from natural gas pipelines.</p> <p>4. in hydrostatic testing of a pipeline, a scraper used inside the line to push air out ahead of the test water and to push water out after the test.</p> <p>v: to force a device called a pig through a pipeline or a flow line for the purpose of cleaning the interior walls of the pipe, separating different products, or displacing fluids.</p>
piggyback	(nautical) to install anchors behind each other in tandem
pig iron	what a large heavy piece of equipment is said to be made of.
pill	a gelled viscous fluid
pilot	a rod-like or tube-like extension below a downhole tool, such as a mill, that serves to guide the tool into or over another downhole tool or fish.
pilot hole	in pipeline construction, the hole drilled as the first step of a directionally drilled river crossing. It establishes a pathway for the pipeline.
pilot mill	a special mill that has a heavy tubular extension below it called a pilot or stinger. The pilot, smaller in diameter than the mill, is designed to go inside drill pipe or tubing that is lost in the hole. It guides the mill to the top of the pipe and centers it, thus preventing the mill from bypassing the pipe. Also called a piloted mill.
pilot testing	a method of predicting behavior of mud
pin	<p>1. the male section of a tool joint.</p> <p>2. on a bit, the bit shank.</p> <p>3. one of the pegs that are fitted on each side into the link plates (side bars) of a chain link of roller chain and that serve as the stable members onto which bushings are press-fitted and around which rollers move.</p>
pipe	a long, hollow cylinder, usually steel, through which fluids are conducted. Oilfield tubular goods are casing (including liners), drill pipe, tubing, or line pipe
pipe fitting	an auxiliary part (such as a coupling, elbow, tee, or cross) used for connecting lengths of pipe.

pipe hanger	<p>1. a circular device with a frictional gripping arrangement used to suspend casing and tubing in a well.</p> <p>2. a device used to support a pipeline.</p>
pipeline	a system of connected lengths of pipe, usually buried in the earth or laid on the seafloor, that is used for transporting petroleum and natural gas.
pipeline oil	oil clean enough to be acceptable to transport or purchase.
pipe ram	a sealing component for a blowout preventer that closes the annular space between the pipe and the blowout preventer or wellhead.
pipe ram preventer	a blowout preventer that uses pipe rams as the closing elements. See pipe ram .
pit	a temporary containment, usually excavated earth, for wellbore fluids.
pit level	height of drilling mud in the pits
pit-level indicator	one of a series of devices that continuously monitor the level of the drilling mud in the mud tanks. The indicator usually consists of float devices in the mud tanks that sense the mud level and transmit data to a recording and alarm device (a pit-volume recorder) mounted near the driller's position on the rig floor. If the mud level drops too low or rises too high, the alarm sounds to warn the driller of losing circulation or a kick.
pit-volume recorder	the gauge at the driller's position that records data from the pit-level indicator.
Pit Volume Totalizer (PVT)	trade name for a type of pit-level indicator. See pit-level indicator .
plastic flow	see plastic fluid
plastic fluid	a complex, non-Newtonian fluid in which the shear force is not proportional to the shear rate. Most drilling muds are plastic fluids.
plasticity	the ability of a substance to be deformed without rupturing.
plastic viscosity	an absolute flow property indicating the flow resistance of certain types of fluids. It is a measure of shearing stress.
platform	see platform rig .

platform rig	an immobile offshore structure from which development wells are drilled and produced. Platform rigs may be built of steel or concrete and may be either rigid or compliant. Rigid platform rigs, which rest on the seafloor, are the caisson-type platform, the concrete gravity platform, and the steel-jacket platform. Compliant platform rigs, which are used in deeper waters and yield to water and wind movements are the guyed-tower platform and the tension-leg platform.
play	<ol style="list-style-type: none"> 1. the extent of a petroleum-bearing formation. 2. the activities associated with petroleum development in an area.
plug	any object or device that blocks a hole or passageway (such as a cement plug in a borehole).
plug and abandon (P&A)	to place cement plugs into a dry hole and abandon it.
plug back	to shut off lower formation in a well bore.
plug-back cementing	a secondary-cementing operation in which a plug of cement is positioned at a specific point in the well and allowed to set.
plug container	see cementing head .
plug flow	a fluid moving as a unit in which all shear stress occurs at the pipe wall and hole wall. The stream thus assumes the shape of several telescopic layers of fluid with lowest velocities near the pipe and hole walls and the fastest in the middle.
plug pucker	a tool used to mill over permanent bridge plugs/cement retainers while retrieving the milled-out debris
plug valve	see valve
plunger	<ol style="list-style-type: none"> 1. a basic component of the sucker rod pump that serves to draw well fluids into the pump. 2. the rod that serves as a piston in a reciprocating pump. 3. the device in a fuel-injection unit that regulates the amount of fuel pumped on each stroke.
plunger lift	a method of lifting oil using a swab or free piston propelled by compressed gas from the lower end of the tubing string to the surface.
Pm	<i>abbreviation:</i> the phenolphthalein alkalinity of the mud reported as the number of milliliters of 0.02 Normal (n/50) add required per milliliter of mud

PO - PV

points	a method for indicating hook load or force, read off rig's indicator; 1 point = 1,000 pounds
pole mast	a portable mast constructed of tubular members. A pole mast may be a single pole, usually one or two different sizes of pipe telescoped together to be moved or extended and locked to obtain maximum height above a well. Double-pole masts give added strength and stability. See mast .
polished rod	the topmost portion of a string of sucker rods. It is used for lifting fluid by the rod-pumping method. It has a uniform diameter and is smoothly polished to seal pressure effectively in the stuffing box attached to the top of the well.
polymer	a substance that consists of large molecules formed from smaller molecules in repeating structural units (monomers). In oilfield operations, various types of polymers are used to thicken drilling mud, fracturing fluid, acid, water, and other liquids. See <i>micellar-polymer flooding</i> , <i>polymer mud</i> . In petroleum refining, heat and pressure are used to polymerize light hydrocarbons into larger molecules, such as those that make up high-octane gasoline. In petrochemical production, polymer hydrocarbons are used as a feedstock for plastics.
polymer mud	a drilling mud to which a polymer has been added to increase the viscosity of the mud.
pony rod	1. a sucker rod, shorter than usual, used to make up a sucker rod string of desired length. Pony rods are usually placed just below the polished rod. 2. the rod joined to the connecting rod and piston rod in a mud pump
POOH	<i>abbreviation:</i> pull-out-of-hole
pool	in general, the term "pool" is synonymous with the term "reservoir"; however, in certain situations, a pool may consist of more than one reservoir.
poor boy	homemade; something done on a shoestring basis.
poor boy degasser	slang for gas separator
poor boy gravel pack	a bradenhead pack; no packer, very limited pack pressure capability.
poppet valve	a device that controls the rate of flow of fluid in a line or opens or shuts off the flow of fluid completely. When open, the sealing surface of the valve is moved away from a seat; when closed, the sealing surface contacts the seat to shut off flow. The direction of movement of the valve is usually perpendicular to the seat. Popper valves are used extensively

	as pneumatic (air) controls on drilling rigs and as intake and exhausts valves in most internal-combustion engines.
pore	an opening or space within a rock or mass of rocks, usually small and often filled with some fluid (water, oil, gas, or all three). Compare vug .
pore pressure	see formation pressure
porosity (of a sand or sandstone)	the percentage that the volume of the pore space bears to the total bulk volume. The pore space determines the amount of space available for storage of fluids.
porous	having pores, or tiny openings, as in rock
portable mast	a mast mounted on a truck and capable of being erected as a single unit. See telescoping derrick .
ported sub	nipple; a device through which fluid is circulated.
portland cement	the cement most widely used in oilwells. It is made from raw materials such as limestone, clay or shale, and iron ore.
positive choke	a choke in which the orifice size must be changed to change the rate of flow through the choke.
positive-displacement meter	a mechanical fluid-measuring device that measures by filling and emptying chambers of a specific volume. The displacement of a fixed volume of fluid may be accomplished by the action of reciprocating or oscillating pistons, rotating vanes or buckets, rotating disks, or tanks or other vessels that automatically fill and empty. Also called a volume meter or volumeter .
posted barge submersible rig	a mobile submersible drilling structure consisting of a barge hull that rests on bottom, steel posts that rise from the top of the barge hull, and a deck that is built on top of the posts, well above the waterline. It is used to drill wells in water no deeper than about 30-35 feet (9-10.7m). Most posted barge submersibles work in inland gulfs and bays. See submersible drilling rig .
potassium	one of the alkali metal elements with a valence of 1 and an atomic weight of about 39. Potassium compounds, most commonly potassium hydroxide (KOH), are sometimes added to drilling fluids to impart special properties, usually inhibition.
potential	the maximum volume of oil or gas that a well is capable of producing, calculated from well test data.
potential test	a test of the maximum rate at which a well can produce oil.

pound equivalent	a laboratory unit used in pilot testing. One gram or pound equivalent, when added to 350 ml of fluid, is equivalent to 1 lb/bbl.
pounds per gallon (ppg)	a measure of the density of a fluid (such as a drilling mud).
pounds per square inch gauge (psig)	the pressure in a vessel or container as registered on a gauge attached to the container. This reading does not include the pressure of the atmosphere outside the container.
power rated	rating given by a manufacturer of an engine operating at most efficient output.
power rod tongs	tongs that are actuated by air or hydraulic fluid and are used for making up or breaking out sucker rods
power sub	a hydraulically powered device used in lieu of a rotary to turn the drill pipe, tubing, or casing in a well.
power takeoff	a gearbox or other device serving to relay the power of a prime mover to auxiliary equipment.
power tools	equipment operated hydraulically or by compressed air for making up and breaking out drill pipe, casing, tubing, and rods.
ppg	<i>abbreviation:</i> pounds per gallon.
ppm	<i>abbreviation:</i> parts per million
precipitate	a substance, usually a solid, that separates from a fluid because of a chemical or physical change in the fluid. v: to separate in this manner
precipitation	the production of a separate liquid phase from a mixture of gases (e.g., rain), or of a separate solid phase from a liquid solution, as in the precipitation of calcite cement from water in the interstices of rock.
preservative	usually paraformaldehyde. Any material used to prevent starch or any other substance from fermenting through bacterial action.
pressure	the force that a fluid (liquid or gas) exerts uniformly in all directions within a vessel, pipe, hole in the ground, and so forth, such as that exerted against the inner wall of a tank or that exerted on the bottom of the wellbore by a fluid. Pressure is expressed in terms of force exerted per unit of area, as pounds per square inch, or in kilopascals.
pressure control	commonly referred to as snubbing; running of tool and/or pulling of tubing under well pressure.
pressure drop	a loss of pressure that results from friction sustained by a fluid passing through a line, valve, fitting, or other device.

pressure-drop loss	the pressure lost in a pipeline or annulus due to the velocity of the liquid in the pipeline, the properties of the fluid, the condition of the pipe wall, and the alignment of the pipe. In certain mud-mixing systems, the loss of head can be substantial
pressure gauge	an instrument that measures fluid pressure and usually registers the difference between atmospheric pressure and the pressure of the fluid by indicating the effect of such pressures on a measuring element (e.g., a column of liquid, pressure in a Bourdon tube, a weighted piston, or a diaphragm).
pressure gradient	<p>1. a scale of pressure differences in which there is a uniform variation of pressure from point to point. For example, the pressure gradient of a column of water is about 0.433 pounds per square inch per foot (9.794 kilopascals per meter) of vertical elevation. The normal pressure gradient in a formation is equivalent to the pressure exerted at any given depth by a column of 10 percent salt water extending from that depth to the surface 0.465 pounds per square inch per foot or 10.518 kilopascals per meter).</p> <p>2. the change (along a horizontal distance) in atmospheric pressure. Isobars drawn on weather maps display the pressure gradient.</p>
pressure-integrity test	a method of determining the amount of pressure that is allowed to appear on the casing pressure gauge as a kick is circulated out of a well. In general, it is determined by slowly pumping mud into the well while it is shut in and observing the pressure at which the formation begins to take mud.
pressure loss	<p>1. a reduction in the amount of force a fluid exerts against a surface, such as the walls of a pipe. It usually occurs because the fluid is moving against the surface and is caused by the friction between the fluid and the surface.</p> <p>2. the amount of pressure indicated by a drill pipe pressure gauge when drilling fluid is being circulated by the mud pump. Pressure losses occur as the fluid is circulated.</p>
pressure maintenance	repressuring of an oil-field to maintain original pressure. The use of water flooding or natural gas recycling during primary recovery to provide additional formation pressure and displacement energy that can supplement and conserve natural reservoir drives. Although commonly begun during primary production, pressure maintenance methods are often considered to be a form of enhanced oil recovery.
pressure probe	a diagnostic tool used to ascertain whether there is a gas leak in the tubing of a gas lift well. If there is a tubing leak, the pressure on the annulus will equal the pressure on the tubing.
pressure regulator	a device for maintaining pressure in a line, downstream from the valve.
pressure relief valve	a valve that opens at a preset pressure to relieve excessive pressures within a vessel or line. Also called a relief valve , safety valve , or safety relief valve .

pressure surge	a sudden, usually short-duration, increase in pressure. When pipe or casing is run into a hole too rapidly, an increase in the hydrostatic pressure results, which may be great enough to create lost circulation
pressure, volume, and temperature (PVT) analysis	an examination of reservoir fluid in a laboratory under various pressures, volumes, and temperatures to determine the characteristics and behavior of the fluid.
primary cementing	the cementing operation that takes place immediately after the casing has been run into the hole. It provides a protective sheath around the casing, segregates the producing formation, and prevents the undesirable migration of fluids.
primary recovery	the first stage of oil production in which natural reservoir drives are used to recover oil, although some form of artificial lift may be required to exploit declining reservoir drives.
primary well control	prevention of formation fluid flow by maintaining a hydrostatic pressure equal to or greater than formation pressure
prime mover	an internal-combustion engine or a turbine that is the source of power for driving a machine or machines.
producing zone	the zone or formation from which oil or gas is produced. See pay sand.
production	the yield of an oil or gas well; the branch of the industry that brings the oil and gas to the surface for sale. The phase of the petroleum industry that deals with bringing the well fluids to the surface and separating them and with storing, gauging, and otherwise preparing the product for pipeline. The amount of oil or gas produced in a given period.
production packer	any packer designed to make a seal between the tubing and the casing during production
production rig	a portable servicing or workover outfit, usually mounted on wheels and self-propelled. A well servicing unit consists of a hoist and engine mounted on a wheeled chassis with a self-erecting mast. A workover rig is basically the same, with the addition of a substructure with rotary, pump, pits, and auxiliaries to permit handling and working a drill string.
production seal unit	same as seal nipple assemblies.
production tank	a tank used in the field to receive crude oil as it comes from the well. Also called a flow tank or lease tank.
production test	a test of the well's producing potential usually done during the initial completion phase
production tubing	a string of tubing used to produce the well, providing well control and energy conservation.

propane	a paraffinic hydrocarbon that is a gas at ordinary atmospheric conditions but is easily liquefied under pressure. It is a constituent of liquefied petroleum gas.
proppant	see propping agent
propping agent	a granular substance (sand grains, aluminum pellets, or other material) that is carried in suspension by the fracturing fluid and that serves to keep the cracks open when fracturing fluid is withdrawn after a fracture treatment.
props	proppants, beads, sand used in hydraulic fracturing operations.
proration	a system of allocating production on a per well basis.
PSA	<i>abbreviation:</i> a generic term for pressure setting assembly; a tool that is used to set permanent tools on electric wireline, through explosive force.
pseudoplastic	having the capability of changing apparent viscosity with a change in shear rate. Pseudoplastic fluids gain viscosity when subjected to a decrease in shear rate, and lose viscosity when the shear rate is increased. See <i>shear</i> .
psi	<i>abbreviation:</i> pounds per square inch
psia	<i>abbreviation:</i> pounds per square inch absolute. See absolute pressure .
psi/ft	<i>abbreviation:</i> pounds per square inch per foot.
psig	<i>abbreviation:</i> pounds per square inch, gauge.
PTO	<i>abbreviation:</i> power take off.
pull the trigger	to fire a wireline-operated downhole tool from inside the service truck.
pulling tool	a hydraulically operated tool that is run in above the fishing tool and anchored to the casing by slips. It exerts a strong upward pull on the fish by hydraulic power derived from fluid that is pumped down the fishing string.
pulling unit	a well-servicing outfit used in pulling rods and tubing from the well. See production rig .

pump	a device that increases the pressure on a fluid or raises it to a higher level. Various types of pumps include the bottomhole pump, centrifugal pump, hydraulic pump, jet pump, mud pump, reciprocating pump, rotary pump, sucker rod pump, and submersible pump
pump-down	descriptive of any tool or device that can be pumped down a wellbore. Pump-down tools are not lowered into the well on wireline; instead, they are pumped down the well with the drilling fluid.
pumping tee	a heavy-duty steel, T-shaped pipe fitting that is screwed or flanged to the top of a pumping well. The polished rod works through a stuffing box on top of the tee and in the run of the tee to operate a sucker rod pump in the well. Pumped fluid is discharged through the side opening of the tee.
pump jack	a surface unit similar to a pumping unit but having no individual power plant. Usually, several pump jacks are operated by pull rods or cables from one central power source. Commonly, but erroneously, beam pumping units are called pump jacks. Compare beam pumping unit .
pump liner	a cylindrical, accurately machined, metallic section that forms the working barrel of some reciprocating pumps. Liners are an inexpensive means of replacing worn cylinder surface, and in some pumps they provide a method of conveniently changing the displacement and capacity of the pumps.
pump manifold	an arrangement of valves and piping that permits a wide choice in the routing of suction and discharge fluids among two or more pumps
pump off	to pump so rapidly that the oil level drops below the standing valve on the pump.
pump-out plug	a device to provide running the tubing dry with a packer released by elevating tubing pressure, thereby opening the tubing to formation pressure.
pup joint	a length of drill or line pipe, tubing, or casing considerably shorter than 30 feet.
put a well on	to start a well flowing or pumping.
put on pump	to install a pump or pumping unit, sucker rods, and bottom-hole pump.
PVT	<i>abbreviation:</i> 1. Pit Volume Totalizer. 2. pressure, volume, and temperature.

Q

quebracho	a South American tree that is a source of tannin extract, which was extensively used as a thinning agent for drilling mud, but is seldom used today.
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quicklime	calcium oxide, used in certain oil-base muds to neutralize the organic acid.
quiescence	the state of being quiet or at rest (being still). Static.

RA-RH

rabbit	a small plug that is run through a flow line by pressure to clean the line or test for obstructions (see pig).
racking platform	a small platform with finger-like steel projections attached to the side of the mast on a well servicing unit. When a string of sucker rods or tubing is pulled from a well, the top end of the rods or tubing is placed (racked) between the steel projections and held in a vertical position in the mast.
rack pipe	1. to place pipe withdrawn from the hole on a pipe rack 2. to stand pipe on the derrick floor when pulling it out of the hole.
RAD	<i>abbreviation:</i> radioactive densiometer; fluid-measuring device to measure density.
radical	two or more atoms behaving as a single chemical unit, i.e., as an atom, e.g., sulfate, phosphate, nitrate.
radioactivity well logging	the recording of the natural or induced radioactive characteristics of subsurface formations. A radioactivity log, also known as a radiation log or a nuclear log, normally consists of two recorded curves: a gamma ray curve and a neutron curve. Both help to determine the types of rocks in the formation and the types of fluids contained in the rocks.
ram	the closing and sealing component on a blowout preventer. One of three types--blind, pipe, or shear--may be installed in several preventers mounted in a stack on top of the wellbore. Blind rams, when closed, form a seal on a hole that has no drill pipe in it; pipe rams, when closed, seal around the pipe; shear rams cut through drill pipe and then form a seal.
ram blowout preventer	a blowout preventer that uses rams to seal off pressure on a hole that is with or without pipe. Also called a ram preventer .
ram preventer	see ram blowout preventer .
range of load	in sucker rod pumping, the difference between the polished rod peak load on the upstroke and the minimum load on the downstroke.
ratchet	a generic term used to describe certain tool movements, such as the cone-to-slip engagement on permanent packers or plugs.
rate of penetration (ROP)	a measure of the speed at which the bit drills into formations, usually expressed in feet (meters) per hour or minutes per foot (meter).

rate of shear	rate (commonly given in rpm) at which an action resulting from applied forces causes or tends to cause two adjacent parts of a body to slide relative to each other in a direction parallel to their plane of contact.
rathole	<p>1. a hole in the rig floor, 30 to 35 feet (9 to 11 meters) deep, which is lined with casing that projects above the floor and into which the kelly and swivel are placed when hoisting operations are in progress.</p> <p>2. a hole of a diameter smaller than the main hole and drilled in the bottom of the main hole.</p> <p>v: to reduce the size of the wellbore and drill ahead.</p>
ream	to enlarge the wellbore by drilling it again with a special bit. Often a rathole is reamed or opened to the same size as the main wellbore. See rathole .
reamer	a tool used in drilling to smooth the wall of a well, enlarge the hole to the specified size, help stabilize the bit, straighten the wellbore if kinks or doglegs are encountered, and rill directionally. See ream .
reciprocating pump	a pump consisting of a piston that moves back and forth or up and down in a cylinder. The cylinder is equipped with inlet (suction) and outlet (discharge) valves. On the intake stroke, the suction valves are opened, and fluid is drawn into the cylinder. On the discharge stroke, the suction valves close, the discharge valves open, and fluid is forced out of the cylinder.
recompletion	after the initial completion of a well, the action and techniques of reentering the well and redoing or repairing the original completion to restore the well's productivity.
recorder carrier	a sub in a DST string in which pressure and temperature recorders are placed for formation evaluation.
recovery efficiency	the recoverable amount of original or residual hydrocarbons in place in a reservoir, expressed as a percentage of total hydrocarbons in place. Also called recovery factor .
recovery factor	see recovery efficiency
red-lime mud	a water-base clay mud containing caustic soda and tannates to which lime has been added. Also called red mud .
red mud	see red-lime mud .
reeled tubing	lighter-duty well maintenance than hydraulic workover, employing small OD tubing capable of descending down the production string under well pressure
reel vessel	a ship or barge specially designed to handle pipeline that is wound onto a large reel. To lay the pipeline, the vessel pays out the pipe off the reel at a steady rate onto the ocean flow. The pipeline has been constructed at an offshore facility where it has been welded, coated, inspected, and wound onto the reel.

reeve	to pass (as a rope) through a hole or opening in a block or similar device.
reeve the line	to string a wire rope drilling line through the sheaves of the traveling and crown blocks to the hoisting drum.
refracturing	fracturing a formation again. See formation fracturing, hydraulic fracturing .
regulator	a device that reduces the pressure or volume of a fluid flowing in a line and maintains the pressure or volume at a specified level.
relative density	<p>1. the ratio of the weight of a given volume of a substance at a given temperature to the weight of an equal volume of a standard substance at the same temperature. For example, if 1 cubic inch of water at 39 degrees F weighs 1 unit and 1 cubic inch of another solid or liquid at 39 degrees F weight 0.95 unit, then the relative density of the substance is 0.95. In determining the relative density of gases, the comparison is made with the standard of air or hydrogen.</p> <p>2. the ratio of the mass of a given volume of a substance to the mass of a like volume of a standard substance, such as water or air.</p>
relative permeability	the ratio of effective permeability to absolute permeability. The relative permeability of rock to a single fluid is 1.0 when only that fluid is present, and 0.0 when the presence of another fluid prevents all flow of the given fluid. Compare absolute permeability, effective permeability.
relief valve	a valve that will open automatically when pressure gets too high.
relief well	a well drilled near and deflected into a well that is out of control, making it possible to bring the wild well under control. See wild well.
remote choke panel	a set of controls, usually placed on the rig floor, that is manipulated to control the amount of drilling fluid being circulated through the choke manifold. This procedure is necessary when a kick is being circulated out of a well. See choke manifold.
remote (secondary) control panel	a system of controls, convenient to the driller, which can be used selectively to actuate valves at the master control panel.
remote control station	a station containing equipment to control and regulate operations in the field.
replacement	the process whereby a volume of fluid equal to the volume of steel in tubular and tools withdrawn from the wellbore is returned to the wellbore.
reservoir	a porous and permeable underground formation containing an individual and separate natural accumulation of producible hydrocarbons (oil and/or gas) which is confined by impermeable rock or water barriers and is characterized by a single natural pressure system. A subsurface, porous, permeable rock body in which oil and/or gas is stored, Most reservoir rocks are limestones, dolomites, sandstones, or a combination of these. The three basic types of hydrocarbon reservoirs are oil, gas, and condensate. An oil reservoir generally contains three fluids - gas, oil, and water - with oil the dominant product. In the typical oil reservoir, these fluids occur in different phases because of the variance in their

	<p>gravities. Gas, the lightest, occupies the upper part of the reservoir rocks; water, the lower part; and oil, the intermediate section. In addition to its occurrence as a cap or in solution, gas may accumulate independently of the oil; if so, the reservoir is called a gas reservoir. Associated with the gas, in most instances, are salt water and some oil. In a condensate reservoir, the hydrocarbons may exist as a gas, but, when brought to the surface, some of the heavier ones condense to a liquid.</p>
reservoir drive mechanism	<p>the process in which reservoir fluids are caused to flow out of the reservoir rock and into a wellbore by natural energy. Gas drives depend on the fact that, as the reservoir is produced, pressure is reduced, allowing the gas to expand and provide the driving energy. Water-drive reservoirs depend on water pressure to force the hydrocarbons out of the reservoir and into the wellbore.</p>
reservoir pressure	<p>the average pressure within the reservoir at any given time. Determination of this value is best made by bottomhole pressure measurements with adequate shut-in time. If a shut-in period long enough for the reservoir pressure to stabilize is impractical, then various techniques of analysis by pressure buildup or drawdown tests are available to determine static reservoir pressure.</p>
reservoir rock	<p>a permeable rock that may contain oil or gas in appreciable quantity and through which petroleum may migrate.</p>
resin	<p>semisolid or solid complex, amorphous mixture of organic compounds having no definite melting point or tendency to crystallize. Resins may be a component of compounded materials that can be added to drilling fluids to impart special properties to the system, to wall cake, etc.</p>
resistivity	<p>the electrical resistance offered to the passage of current; the opposite of conductivity.</p>
resistivity meter	<p>an instrument for measuring the resistivity of drilling fluids and their cakes.</p>
retainer	<p>a cast-iron or magnesium drillable tool consisting of a packing assembly and a back-pressure valve. It is used to close off the annular space between tubing or drill pipe and casing to allow the placement of cement or fluid through the tubing or drill pipe at any predetermined point behind the casing or liner, around the shoe, or into the open hole around the shoe.</p>
retarder	<p>a substance added to cement to prolong the setting time so that the cement can be pumped into place. Retarders are used for cementing in high-temperature formation</p>
retrievable wireline choke	<p>a bottomhole choke run on wireline and landed in a nipple profile in the tubing string.</p>
reverse circulation	<p>the course of drilling fluid downward through the annulus and upward through the drill stem, in contrast to normal circulation in which the course is downward through the drill stem and upward through the annulus. Seldom used in open hole, but frequently used in workover operations. Also referred to as "circulating the short way," since returns from bottom can be obtained more quickly than in normal circulation.</p>
reverse out	<p>to displace the wellbore fluid back to the surface; to displace tubing</p>

	volume back to the pit.
reversing hand	a well servicing hand who cleans out wellbores.
rheology	the study of the flow of gases and liquids of special importance to mud engineers and reservoir engineers.

RI - RU

rig	the derrick or mast, drawworks, and attendant surface equipment of a drilling or workover unit.
rig manager	an employee of a drilling contractor who is in charge of the entire drilling crew and the drilling rig. Also called a toolpusher, drilling foreman, rig supervisor, or rig superintendent.
rig superintendent	also called a toolpusher. See <i>toolpusher</i> .
rig up	to prepare the drilling rig for making hole; to install tools and machinery before drilling is started.
RIH	<i>abbreviation:</i> run-in-hole.
ring-joint flange	a special type of flanged connection in which a metal ring (resting in a groove in the flange) serves as a pressure seal between the two flanges.
riser	a pipe through which liquid travels upward.
riser margin	the slight increase in mud weight used to offset friction losses that occur as the mud is circulated through the riser.
riser pipe	the pipe and special fittings used on floating offshore drilling rigs to establish a seal between the top of the wellbore, which is on the ocean floor, and the drilling equipment, located above the surface of the water. A riser pipe serves as a guide for the drill stem from the drilling vessel to the wellhead and as a conductor of drilling fluid from the well to the vessel. The riser consists of several sections of pipe and includes special devices to compensate for any movement of the drilling rig caused by waves. It is also called a <i>marine riser</i> .
rock a well	to bleed pressure from casing of a dead well, then from tubing, then from casing, and so on so that the well will start to flow.
Rockwell hardness test	an arbitrarily defined measure of resistance of a material to indentation under static or dynamic load
rod blowout preventer	a ram device used to close the annular space around the polished rod or sucker rod in a pumping well.
rod elevators	a device used to pull or to run sucker rods.
rod hanger	a device used to hang sucker rods on the mast or in the derrick
rod hook	a small swivel hook having a fast-operating automatic latch to close the

	hook opening when weight is suspended from the hook.
rod pump	see sucker rod pump
rod string	a sucker rod string, that is, the entire length of sucker rods, which usually consist of several single rods screwed together. The rod string serves as a mechanical link from the beam pumping unit on the surface to the sucker rod pump near the bottom of the well.
rod stripper	a device closed around the rods when the well may flow through the tubing while the rods are being pulled. It is a form of blowout preventer.
rod sub	a short length of sucker rod that is attached to the top of the sucker rod pump
rod-transfer elevator	a special type of elevator designed to accommodate the end of a sucker rod. it allows the derrickman to transfer the rod to the racking platform from the regular elevator being used to lift the rod out of the well.
rod-transfer equipment	all the devices used to accomplish the moving of sucker rods from the elevators to the racking platform.
roller cone bit	a drilling bit made of two, three, or four cones, or cutters, that are mounted on extremely rugged bearings. the surface of each cone is made of rows of steel teeth or rolls of tungsten carbide inserts. Also called rock bits.
rope socket	a device to connect the wireline to the tool string.
rotary	the machine used to impart rotational power to the drill stem while permitting vertical movement of the pipe for rotary drilling. Modern rotary machines have a special component, the rotary or master bushing, to turn the kelly bushing, which permits vertical movement of the kelly while the stem is turning.
rotary drilling	a drilling method in which a hole is drilled by a rotating bit to which a downward force is applied. The bit is fastened to and rotated by the drill stem, which also provides a passageway through which the drilling fluid is circulated. Additional joints of drill pipe are added as drilling progresses.
rotary helper	a worker on a drilling or workover rig, subordinate to the driller, whose primary work station is on the rig floor. On rotary drilling rigs, there are at least two and usually three or more rotary helpers on each crew. Sometimes called floor man, roughneck, or rig crewman.
rotary hose	a reinforced flexible tub on a rotary drilling rig that conducts the drilling fluid from the standpipe to the swivel and kelly. Also called the mud hose or the kelly hose
rotary shoe	a length of pipe whose bottom edge is serrated or dressed with a hard cutting material and that is run into the wellbore around the outside of stuck casing, pipe, or tubing to mill away the obstruction.
rotary table	the principal component of a rotary, or rotary machine, used to turn the drill stem and support the drilling assembly. It has a beveled gear arrangement to create the rotational motion and an opening into which bushings are fitted to drive and support the drilling assembly.

rotating components	those parts of the drilling or workover rig that are designed to turn or rotate the drill stem and bit - swivel, kelly, kelly busing, master bushing, and rotary table.
rotating head	a sealing device used to close off the annular space around the kelly in drilling with pressure at the surface, usually installed above the main blowout preventers. A rotating head makes it possible to drill ahead even when there is pressure in the annulus that the weight of the drilling fluid is not overcoming; the head prevents the well from blowing out. It is used mainly in the drilling of formations that have low permeability. The rate of penetration through such formations is usually rapid.
roughneck	see rotary helper
round trip	the action of pull out and subsequently running back into the hole a string of drill pipe or tubing. Making a round trip is also called tripping.
roustabout	a worker on an offshore rig who handles the equipment and supplies that are sent to the rig from the shore base. The head roustabout is very often the crane operator. a worker who assists the foreman in the general work around a producing oilwell, usually on the property of the oil company. A helper on a well servicing unit.
royalty	the portion of oil, gas, and minerals retained by the lessor on execution of a leases or their cash value paid by the lessee to the lessor or to one who has acquired possession of the royalty rights, based on a percentage of the gross production from the property free and clear of all costs except taxes.
RTTS	a trademark for a retrievable squeeze tool.
running tools	specialized tools used to run equipment in a well, such as a wireline running tool for installing retrievable gas lift valves. Various tubing-type running tools are also used.

SA - SH

saddle bearing	a bearing between the walking beam and the sampson post of a pumping unit.
safety clamp	a device used to suspend a rod string after the pump has been spaced or when the weight of the rod string must be taken off the pumping equipment.
safety factor of wire rope	a measurement of load safety for wire rope obtained by using the following formula: Safety Factor - B/W where: B=nominal catalog breaking strength of the wire rope, and W = calculated total static load. Also called design factor.
safety joint	an accessory to a fishing tool, placed above it. if the tool cannot be disengaged from the fish, the safety joint permits easy disengagement of the string of pipe above the safety joint. Thus, part of the safety joint and the tool attached to the fish remain in the hole and become part of the fish.

safety margin	see <i>trip margin</i>
safety release	an emergency mechanism component enabling the retrieval of a packer (or tubing) if stuck.
safety valve	<ol style="list-style-type: none"> 1. an automatic valve that opens or closes when an abnormal condition occurs (e.g., a pressure relief valve on a separator that opens if the pressure exceeds the set point, or the shutdown valve at the wellhead that closes if the line pressure becomes too high or too low). 2. a valve installed at the top of the drill stem to prevent flow out of the drill pipe if a kick occurs during tripping operations.
salt	a compound that is formed (along with water) by the reaction of an acid with a base. A common salt (table salt) is sodium chloride derived by combining hydrochloric acid with sodium hydroxide. The result is sodium chloride and water. Another salt is calcium sulfate, obtained when sulfuric acid is combined with calcium hydroxide.
salt dome	a dome that is caused by an intrusion of rock salt into overlying sediments. A piercement salt dome is one that has been pushed up so that it penetrates the overlying sediments, leaving them truncated. The formations above the salt plug are usually arched so that they dip in all directions away from the center of the dome, thus frequently forming traps for petroleum accumulations.
salt mud	<ol style="list-style-type: none"> 1. a drilling mud in which the water has an appreciable amount of salt (usually sodium or calcium chloride) dissolved in it. Also called saltwater mud or saline drilling fluid. 2. a mud with a resistivity less than or equal to the formation water resistivity.
saltwater clay	see <i>attapulgate</i>
saltwater mud	see <i>salt mud</i> .
saltwater flow	an influx of formation salt water into the wellbore
sample mud	drilling fluid formulated so that it will not alter the properties of the cuttings the fluid carries up the well.
sampler	a device attached to pipeline to permit continuous sampling of the oil, gas, or product flowing in the line.
samples	<ol style="list-style-type: none"> 1. the well cuttings obtained at designated footage intervals during drilling. From an examination of these cuttings, the geologist determines the type of rock and formations being drilled and estimates oil and gas content. 2. small quantities of well fluids obtained for analysis.
sand	<ol style="list-style-type: none"> 1. an abrasive material composed of small quartz grains formed from the disintegration of preexisting rocks. Sand consists of particles less than 2 millimeters and greater than 1/16 millimeter in diameter. 2. sandstone.
sand consolidation	any one of several methods by which the loose, unconsolidated grains of

	a producing formation are made to adhere to prevent a well from producing sand but to permit it to produce oil and gas.
sand content	the insoluble abrasive solids content of a drilling fluid rejected by a 200-mesh screen. usually expressed as the percentage bulk volume of sand in a drilling fluid. This test is an elementary type in that the retained solids are not necessarily silica and may not be altogether abrasive. For additional information concerning the kinds of solids retained on the 200-mesh screen, more specific tests would be required. See mesh .
sand control	any method by which large amounts of sand in a sandy formation are prevented from entering the wellbore. Sand in the wellbore can cause plugging and premature wear of well equipment. See gravel pack, sand consolidation, screen liner.
sand cutter	a device to salvage casing on a P&A job.
sand line	a wireline used on drilling rigs and well servicing rigs to operate a swab or bailer, to retrieve cores or to run logging devices. It is usually 9/16 of an inch (15 millimeters) in diameter and several thousand feet or meters long
sand line drill	a device run on cable-tool drilling line, a service machine, or sand line of a rotary rig to drill up tools, remove downhole debris, and so on.
sand screen	a screen joint placed opposite perforations in sand control
sandstone	a sedimentary rock composed of individual mineral grains of rock fragments between 1/16 and 2 millimeters in diameter and cemented together by silica, calcite, iron oxide, and so forth. Sandstone is commonly porous and permeable and therefore a likely type of rock in which to find a petroleum reservoir.
sand-thickness map	a map that shows the thickness of subsurface sands. See isopach map .
sanded up	clogged by sand entering the well bore with the oil.
satellite well	usually a single well drilled offshore by a mobile offshore drilling unit to produce hydrocarbons from the outer fringes of a reservoir that cannot be produced by primary development wells drilled from a permanent drilling structure (as a platform rig). Sometimes, several satellite wells will be drilled to exploit marginal reservoirs and avoid the enormous expense of erecting a platform.
saturated solution	a solution that contains at a given temperature as much of a solute as it can retain. At 68 degrees F it takes 126.5 lb/bbl salt to saturate 1 bbl of fresh water. See supersaturation .
saturation point	a given point at a certain temperature and pressure at which no more solid material will dissolve in a liquid.
SBHT	<i>abbreviation</i> : static bottomhole temperature
Schlumberger (pronounced "slumberjay")	one of the pioneer companies in electric well logging, named for the French scientist who first developed the method. Today, many companies provide logging services of all kinds.
scraper	a device used to clean deposits of paraffin from tubing or flow lines (see pig or rabbit).

scratcher	a device that is fastened to the outside of casing to remove mud cake from the wall of a hole to condition the hole for cementing. By rotating or moving the casing string up and down as it is being run into the hole, the scratcher, formed of stiff wire, removes the cake so that the cement can bond solidly to the formation.
screen analysis	determination of the relative percentages of substances, e.g., the suspended solids in a drilling fluid that pass through or are retained on a sequence of screens of decreasing mesh size. Also called sieve analysis.
screen liner	a pipe that is perforated and often arranged with a wire wrapping to act as a sieve to prevent or minimize the entry of sand particles into the wellbore. Also called a screen pipe.
SCSSV	abbreviation: surface-controlled subsurface safety valve.
seal-bore extension	a tube extending the effective packer seal bore; used where excessive tubing expansion or contraction is anticipated.
sealing agent	any of various materials, such as mica flakes or walnut hulls, that cure lost circulation. See lost circulation, lost circulation material.
seal nipple assemblies	sealing members at the production tubing for landing inside the packer's seal bore.
seal units	extensions of the producing string with seals to travel within a packer bore and/or extensions.
seawater mud	a special class of saltwater muds in which sea water is used as the fluid phase.
secondary cementing	any cementing operation after the primary cementing operation. Secondary cementing includes a plug-back job, in which a plug of cement is positioned at a specific point in the well and allowed to set. Wells are plugged to shut off bottom water or to reduce the depth of the well for other reasons.
seconds API	a unit of viscosity as measured with a Marsh funnel according to API procedure. See API RP 13B, Marsh funnel viscosity.
sedimentary rock	a rock composed of materials that were transported to their present position by wind or water. Sandstone, shale, and limestone are sedimentary rocks.
seismic data	detailed information obtained from earth vibration produced naturally or artificially (as in geophysical prospecting).
seismic survey	an exploration method in which strong low-frequency sound waves are generated on the surface or in the water to find subsurface rock structures that may contain hydrocarbons. The sound waves travel through the layers of the earth's crust; however, at formation boundaries some of the waves are reflected back to the surface where sensitive detectors pick them up. Reflections from shallow formations arrive at the surface sooner than reflections from deep formations, and since the reflections are recorded, a record of the depth and configuration of the various formations can be generated. Interpretation of the record can reveal possible hydrocarbon-bearing formations.
seismograph	a device that detects vibrations in the earth. It is used in studying the

	earth's interior and in prospecting for probably oil-bearing structures. Vibrations are created by discharging explosive in shallow boreholes, by striking the surface with a heavy blow, or by vibrating a heavy plate in contact with the ground. The type and velocity of the vibrations are recorded by the seismograph indicate the general characteristics of the section of earth through which the vibrations pass.
selective-set shear	the ability to predetermine where a tool will set or release.
selective shear	the ability to determine selectively, by the quantity of shear screws or pins, when a tool will set
self-elevating drilling unit	an offshore drilling rig, usually with a large hull. It has a mat or legs that are lowered to the sea-floor and a main deck that is raised above the surface of the water to a distance where it will not be affected by the waves. Also called a jackup drilling rig .
self-potential (SP)	see spontaneous potential .
semi-expendable gun	a perforating gun that consists of a metallic strip on which encapsulated shaped charges are mounted. After the gun is fire, the strip is retrieved. See gun-perforate .
semisubmersible	See semisubmersible drilling rig .
semisubmersible drilling rig	a floating offshore drilling unit that has pontoons and columns that when flooded cause the unit to submerge in the water to a predetermined depth. Living quarters, storage space, and so forth a reassembled on the deck. Semisubmersible rigs are either self-propelled or towed to a drilling site and either anchored or dynamically positioned over the site, or both. In shallow water, some semisubmersibles can be ballasted to rest on the seabed. Semisubmersibles are more stable than drill ships and ship-shaped barges and are used extensively to drill wildcat wells in rough waters such as the North Sea. Two types of semisubmersible rigs are the bottle-type semisubmersible and the column-stabilized semisubmersible. See floating offshore drilling rig .
separation sleeve	a sleeve designed to shut off tubing-to-annulus flow should the sliding sleeve become inoperative.
separator	a cylindrical or spherical vessel used to isolate the components in mixed streams of fluids. See oil and gas separator .
sequestration	the formation of stable calcium, magnesium, iron complex by treating water or mud with certain complex phosphates.
service well	a Well drilled or completed for the purpose of supporting production in an existing field.
set back	to place stands of drill pipe and drill collars in a vertical position to one side of the rotary table in the derrick or mast of a drilling or workover rig. Compare lay down pipe .
set casing	to run and cement casing at a certain depth in the wellbore. Sometimes called set pipe.
set-down tool	a compression-set packer
setting tool	a tool used to set drillable or permanent tools, such as packers, retainers, plugs; can be mechanical, electric, or hydraulic.

settled production	a loose term used to described oil fields that produce at nearly the same rate form day to day.
settling pit	see shaker tank
separator	a cylindrical or spherical vessel used to isolate the components in streams of mixed fluids. See oil and gas separator.
shake out	to spin a sample of oil at high speed to determine its BS&W content.
shaker pit	see shaker tank
shaker tank	the mud tank adjacent to the shake shaker, usually the first tank in to which mud flows after returning from the hole. Also called a shaker pit.
shale	a fine-grained sedimentary rock composed mostly of consolidated clay or mud. Shale is the most frequently occurring sedimentary rock.
shale shaker	a vibrating screen used to remove cuttings from the circulating fluid in rotary drilling operations. The size of the openings in the screen should be carefully selected to be the smallest size possible that will allow 100 percent flow of the fluid. Also called a shaker.
shaped charge	a relatively small container of high explosive that is loaded into a perforating gun. On detonation, the charge releases a small, high-velocity stream of particles (a jet) that penetrates the casing, cement, and formation. See perforating gun .
sharpshooter	a long narrow shovel used in ditch digging.
shear	action or stress that results from applied forces and that causes or tends to cause two adjoining portions of a substance or body to slide relative to each other in a direction parallel to their plane of contact.
shearometer	an instrument used to measure the shear strength, or gel strength, of a drilling fluid. See gel strength
shear ram	the component in a blowout preventer that cuts, or shears, through drill pipe and forms a seal against well pressure. Shear rams are used in floating offshore drilling operations to provide a quick method of moving the rig away from the hole when there is no time to trip the drill stem out of the hole.
shear ram preventer	a blowout preventer that uses shear rams as closing elements.
shear strength	see gel strength
sheave	a grooved pulley.
shoe	a device placed at the end of or beneath an object for various purposes (e.g., casing shoe guide shoe).
shoot	<ol style="list-style-type: none"> 1. to explode nitroglycerine or other high explosives in a hole to shatter the rock and increase the flow of oil, now largely replaced by formation fracturing. 2. in seismographic work, to discharge explosives to create vibrations in the earth's crust. See seismograph.
short way	the displacing of wellbore fluids from the annulus up the tubing

shot	<p>1. a charge of high explosive, usually nitroglycerine, detonated in a well to shatter the formation and expedite the recovery of oil. Shooting has been almost completely replaced by formation fracturing and acid treatments.</p> <p>2. a point at which a photograph is made in a single-shot survey. See <i>directional survey</i>.</p>
show	the appearance of oil or gas in cuttings, samples, or cores from a drilling well
shut in	to close valves on a well so that it stops producing; said of a well on which the valves are closed.
shut-in bottomhole pressure (SIBHP)	the pressure at the bottom of a well when the surface valves on the well are completely closed. It is caused by formation fluids at the bottom of the well.
shut-in bottomhole pressure test	a bottomhole pressure test that measures pressure after the well has been shut in for a specified period of time. See bottomhole pressure test.
shut-in casing pressure (SICP)	pressure of the annular fluid on the casing at the surface when a well is shut in
shut-in drill pipe pressure (SIDPP)	pressure of the annular fluid on the casing at the surface when a well is shut in.
shut-in pressure	pressure at the top of a well when it is shut in.

SI - SP

SICP	<i>abbreviation:</i> shut-in casing pressure
side pocket	an offset heavy-wall sub in the production string for placing gas lift valves, and so on.
sidetrack	to use a whipstock, turbodrill, or other mud motor to drill around broken drill pipe or casing that has become lodged permanently in the hole.
sidewall coring	a coring technique in which core samples are obtained from the hole wall in a zone that has already been drilled. A hollow bullet is fired into the formation wall to capture the core and then retrieved on a flexible steel cable. Core samples of this type usually range from 3/4 to 1-3/16 inches (20 to 30 millimeters) in diameter and from 3/4 to 4 inches (20 to 100 millimeters) in length. This method is especially useful in soft-rock areas.
SIDPP	<i>abbreviation:</i> shut-in drill pipe pressure, used in drilling reports.
sieve analysis	the determination of the percentage of particles that pass through several screens of graduated fineness
silica gel	highly absorbent, gelatinous form of silica used chiefly as a dehumidifying and dehydrating agent.
silt	material that exhibits little or no swelling and whose particle size

	generally falls between 2 microns and API sand size, or 74 microns (200-mesh) A certain portion of dispersed clays and barite for the most part also fall into this same particle-size range.
single	a joint of drill pipe. Compare double , thribble , and fourable .
single-grip	used to describe packers with one slip system for supporting weight and pressure from above only.
single-pole rig	a well-servicing unit whose mast consists of but one steel tube, usually about 65 feet long.
sinker bar	a heavy weight or bar placed on or near a lightweight wireline tool. The bar provides weight so that the tool will lower properly into the well.
skid	a low platform mounted on the bottom of equipment for ease of moving, hauling, or storing.
skin	<p>1. the area of the formation that is damaged because of the invasion of foreign substances into the exposed section of the formation adjacent to the wellbore during drilling and completion.</p> <p>2. the pressure drop from the outer limits of drainage to the wellbore caused by the relatively thin veneer (or skin) of the affected formation. Skin is expressed in dimensionless units: a positive value denotes formation damage; a negative value indicate improvement. Also called <i>skin effect</i>.</p>
sky-top mast	a mast on a well servicing unit that utilizes a split traveling block and crown block, which makes it possible to pull 60-foot stands with a 50-foot mast.
slack off	to lower a load or ease up on a line.
sleeve valve	a valve in the bottom of a retainer. See wireline .
sliding sleeve	a special device placed in a string of tubing that can be operated by a wireline tool to open or close orifices to permit circulation between the tubing and the annulus. It may also be used to open or shut off production from various intervals in a well. Also called circulation sleeve .
slim-hole drilling	drilling in which the size of the hole is smaller than the conventional hole diameter for a given depth. This decrease in hole size enables the operator to run smaller casing, thereby lessening the cost of completion. See miniaturized completion .
sling	a wire-rope loop for use in lifting heavy equipment.
slip bowl	a device in a rotary table or other tool into which tubing, drill pipe, or slips can be inserted.
slip ring	a conducting ring that gives current to or receives current from the brushes in a generator or motor.
slips	wedge-shaped toothed pieces of metal that fit inside a bowl and are used to support tubing or other pipe.
slip segment	a singular component of an entire slip system

slip velocity	<p>1. the rate at which drilled solids tend to settle in the borehole as a well is being drilled.</p> <p>2. difference between the annular velocity of the fluid and the rate at which a cutting is removed from the hole.</p>
sloughing (pronounced "sluffing")	see caving
slug the pipe	to pump a quantity of heavy mud into the drill pipe. Before hoisting drill pipe, it is desirable (if possible) to pump into its top section a quantity of heavy mud (a slug) that causes the level of the fluid to remain below the rig floor so that the crew members and the rig floor are not contaminated with the fluid when stands are broken out.
slurry	<p>1. in drilling, a plastic mixture of cement and water that is pumped into a well to harden. There it supports the casing and provides a seal in the wellbore to prevent migration of underground fluids.</p> <p>2. a mixture in which solids are suspended in a liquid.</p>
slush pit	the old term for a mud pit. See mud pit .
snake out	to pull out.
snatch block	a sheave or pulley that can be opened up for putting a line over the roller or sheave.
snub	<p>1. to force pipe or tools into a high-pressure well that has not been killed (i.e., to run pipe or tools into the well against pressure when the weight of pipe is not great enough to force the pipe through the BOPs). Snubbing usually requires an array of wireline bocks and wire rope that forces the pipe or tools into the well through a stripper head or blowout preventer until the weight of the string is sufficient to overcome the lifting effect of the well pressure on the pipe in the preventer. In workover operations, snubbing is usually accomplished by using hydraulic power to force the pipe through the stripping head or blowout preventer.</p> <p>2. to tie up short with a line.</p>
snubber	<p>1. a device that mechanically or hydraulically forces pipe or tools into the well against pressure.</p> <p>2. a device within some hooks that acts as a shock absorber in eliminating the bouncing action of pipe as it is picked up.</p>
soap	the sodium or potassium salt of a high-molecular weight fatty acid. Commonly used in drilling fluids to improve lubrication, emulsification, sample size, and defoaming.
soda ash	see sodium carbonate
sodium	one of the alkali metal elements with a valence of 1, an atomic number of about 23. Numerous sodium compounds are used as additives to drilling fluids.
sodium bicarbonate	the half-neutralized sodium salt of carbonic acid, used extensively for treating cement contamination and occasionally other calcium

	contamination in drilling fluids.
sodium bichromate	Also called sodium dichromate. See chromate .
sodium carbonate	used extensively for treating various types of calcium contamination. Also called soda ash .
sodium carboxymethyl cellulose	see carboxymethyl cellulose
sodium chloride	common table salt. It is sometimes used in cement slurries as an accelerator or a retarder, depending on the concentration.
sodium chromate	See chromate , caustic soda .
sodium polyacrylate	a synthetic high-molecular-weight polymer of acrylonitrile used primarily as a fluid loss control agent
sodium silicate muds	special class of inhibited chemical muds using as their bases sodium silicate, salt, water, and clay
soft rope	a small loose fiber rope.
soft shut-in	in well-control operations, closing the BOP's with the choke and HCR, or fail-safe, valves open. Compare hard shut-in .
soft water	water that is free of calcium or magnesium salts. Compare hard water
sol	a general term for colloidal dispersions, as distinguished from true solutions.
solids concentration	total amount of solids in a drilling fluid as determined by distillation. Includes both the dissolved and the suspended or undissolved solids.
solubility	the degree to which a substance will dissolve in a particular solvent.
solute	a substance that is dissolved in another (the solvent).
solution	single, homogenous liquid, solid, or gas phase that is a mixture in which the components (liquid, gas, solid, or combinations thereof) are uniformly distributed throughout the mixture. In a solution, the dissolved substance is called the solute; the substance in which the solute is dissolved is called the solvent.
solvent	a substance, usually liquid, in which another substance (the solute) dissolves.
sonce	a logging tool assembly, especially the device in the logging assembly that senses and transmits formation data.
sonic log	a type of acoustic log that records the travel time of sounds through objects, cement, or formation rocks. Often used to determine whether voids exist in the cement behind the casing in a wellbore.
sonic logging	see acoustic well logging .
sour	containing or caused by hydrogen sulfide or another acid gas (e.g., sour crude, sour gas, sour corrosion).
sour corrosion	embrittlement and subsequent wearing away of metal caused by contact of the metal with hydrogen sulfide.

sour crude	oil containing hydrogen sulfide or another acid gas.
sour gas	gas containing an appreciable quantity of hydrogen sulfide and/or mercaptans.
sour hole	a wellbore or formation known to contain hydrogen sulfide gas.
SP	abbreviation: spontaneous potential or self-potential.
spacing	distance between wells producing from the same pool (usually expressed in terms of acres, e.g., 10-acre spacing).
space out	the act of ensuring that a pipe ram preventer will not close on a drill pipe tool joint when the drill stem is stationary. A pup joint is made up in the drill string to lengthen it sufficiently.
space-out joint	the joint of drill pipe that is used in hang-off operations so that no tool joint is opposite a set of preventer rams.
spacing clamp	a clamp used to hold the rod string in pumping position when the well is in the final stages of being put back on the pump.
spacing-out	position the correct number of feet or joints of pipe from the packer to the surface tree, or from the rig floor to the stack.
spaghetti	very small tubing or pipe.
spear	a fishing tool used to retrieve pipe lost in a well. The spear is lowered down the hole and into the lost pipe. When weight, torque, or both are applied to the string to which the spear is attached, the slips in the spear expand and tightly grip the inside of the wall of the lost pipe. Then the string, spear, and lost pipe are pulled to the surface.
specific gravity	see relative density
specific heat	the amount of heat required to cause a unit increase in temperature in a unit mass of a substance, expressed as numerically equal to the number of calories needed to raise the temperature of 1 gram of a substance by 1 degree C.
speed kit	a dual-speed traveling block, which permits one elevator to pick up stands as they are broken out while the traveling block continues to move.
spider	a circular steel device that holds slips supporting a suspended string of drill pipe, casing, or tubing. A spider may be split or solid.
spinning chain	a Y-shaped chain used to spin up (tighten) one joint of drill pipe into another. One end of the chain is attached to the tongs, another end to the spinning cathead, and the third end left free. The free end is wrapped around the tool joint, and the cathead pulls the chain off the joint, causing the joint to spin rapidly and tighten up. After the free end of the chain is pulled off the joint, the tongs are secured in the spot vacated by the chain and continued pull on the chain (and thus on the tongs) by the cathead makes up the joint to final tightness.
spiral grapple	a helically shaped gripping mechanism that is fitted into an overshot to retrieve fish from the borehole. See grapple .
spontaneous potential	one of the natural electrical characteristics exhibited by a formation as

	measured by a logging tool lowered into the wellbore. Also called self potential or SP.
spool	the drawworks drum. Also a casinghead or drilling spool.; to wind around a drum
spot	to pump a designated quantity of a substance (such as acid or cement) into a specific interval in the well. For example, 10 barrels of diesel oil may be spotted around an area in the hole in which drill collars are stuck against the wall of the hole in an effort to free the collars.
spotting	the pumping of a substance such as oil into an interval in the well.
spring collet	a spring-actuated metal band or ring(ferrule) used to expand a liner patch when making casing repairs. See liner patch .
spud	<ol style="list-style-type: none"> 1. to move the drill stem up and down in the hole over a short distance without rotation. Careless execution of this operation creates pressure surges that can cause a formation to break down, resulting in lost circulation. 2. to force a wireline tool or tubing down the hole by using a reciprocating motion. 3. to begin drilling a well; i.e., to spud in.
spudder	a portable cable-tool drilling rig, sometimes mounted on a truck or trailer.
spud in	to begin drilling; to start the hole.
spud mud	the fluid used when drilling starts at the surface, often a thick bentonite-lime slurry.
spurt loss	the initial loss of mud solids by filtration, making formations easier to drill. See filtration loss .

SQ-SY

squeeze	<ol style="list-style-type: none"> 1. a cementing operation in which cement is pumped behind the casing under high pressure to recement channeled areas or to block off an uncemented zone. 2. the increasing of external pressure on a diver's body caused by improper diving technique.
squeeze cementing	the forcing of cement slurry by pressure to specified points in a well to cause seals at the points of squeeze. It is a secondary cementing method that is used to isolate a producing formation, seal off water, repair casing leaks, and so forth.
squeeze job	a remedial well-servicing activity whereby a cement slurry is pumped into open perms, split casing, etc., to effect a blockage.
squeeze manifold	a type of manifold used in squeeze jobs.
squeeze packer	a drillable service packer, a retainer.

squeeze tool	a generic term to describe a retrievable service packer.
SSV	abbreviation: surface safety valve.
stab	to guide the end of a pipe into a coupling when making up a connection.
stabbing valve	a special drill stem valve that, when in open position, allows fluid to flow through it, thus allowing the valve to be stabbed into the drill stem.
stability meter	an instrument to measure the amount of voltage needed to break down invert emulsions.
stabilized	a well is considered "stabilized" when, in the case of a flowing well, the rate of production through a given size of choke remains constant, or, in the case of pumping well, when the fluid column within the well remains constant in height.
stabilizer	<ol style="list-style-type: none"> 1. a tool placed on a drill collar near the bit that is used, depending on where it is placed, either to maintain a particular hole angle or to change the angle by controlling the location of the contact point between the hole and the collars. See packed-hole assembly. 2. a vessel in which hydrocarbon vapors are separated from liquids. 3. a fractionation system that reduces the vapor pressure so that the resulting liquid is less volatile.
stack	<ol style="list-style-type: none"> 1. a vertical arrangement of blowout prevention equipment. Also called preventer stack. See blowout preventer. 2. the vertical chimney-like installation that is the waste disposal system for unwanted vapor such as flue gases or tail-gas streams.
stack a rig	to store a drilling rig on completion of a job when the rig is to be withdrawn from operation for a time.
stage tool	a sliding-sleeve ported casing section used in stage cementing.
staging	the placement of compressors, pumps, cooling systems, treating systems, and so forth, in a series with another unit or units of like design to improve operating efficiency and results.
stand	the connected joints of pipe racked in the derrick or mast during a trip. The usual stand is about 90 feet long (about 27 meters), which is three lengths of drill pipe screwed together (a thribble).
standing valve	a fixed ball-and-seat valve at the lower end of the working barrel of a sucker rod pump. The standing valve and its cage do not move, as does the traveling valve. Compare traveling valve .
standpipe	a vertical pipe rising along the side of the derrick or mast, which joins the discharge line leading from the mud pump to the rotary hose and through which mud is pumped going into the hole.
starch	a complex carbohydrate sometimes added to drilling fluids to reduce filtration loss.
static	opposite of dynamic. See quiescence .

static fluid level	the level to which fluid rises in a well when the well is shut in.
steam drive	a method of improved recovery in which steam is injected into a reservoir through injection wells and driven toward production wells. The steam reduces the viscosity of crude oil, causing it to flow more freely. The heat vaporizes lighter hydrocarbons; as they move ahead of the steam, they cool and condense into liquids that dissolve and displace crude oil. The steam provides additional gas drive. This method is used to recover viscous oils. Also called continuous steam injection or steam flooding.
steam flooding	see steam drive
stearate	salt of stearic acid that is a saturated, 18-carbon fatty acid. Certain compounds, such as aluminum stearate, calcium stearate, zinc stearate, have been used in drilling fluids for one or more of the following purposes: defoamer, lubrication, air drilling in which a small amount of water is encountered.
stimulation	any process undertaken to enlarge old channels or to create new ones in the producing formation of a well (e.g., acidizing or formation fracturing).
stimulation valve	a surge valve.
stinger	<p>1. a cylindrical or tubular projection, relatively small in diameter, that extends below a downhole tool and helps to guide the tool to a designated spot (such as into the center of a portion of stuck pipe).</p> <p>2. a device for guiding pipe and lowering it to the water bottom as it is being laid down by a lay barge. It is hinged to permit adjustments in the angle of pipe launch.</p>
stinging in	the lowering of pipe or tubing into the bore of a downhole tool.
stock tank oil	oil as it exists at atmospheric conditions in a stock tank. Stock tank oil lacks much of the dissolved gas present at reservoir pressure and temperatures.
storage gas	gas that is stored in an underground reservoir.
Storm Choke	a tubing safety valve.
stormer viscometer	a rotational shear viscometer used for measuring the viscosity and gel strength of drilling fluids. This instrument has been largely superseded by the direct-indicating viscometer.
storm packer	a heavy-mandrel service squeeze tool with on-off tool used in drilling operations during storm interruptions.
storm plug	a retrievable tool used to suspend drilling temporarily during a storm offshore.
straddle packer	two packers separated by a spacer of variable length. A straddle packer may be used to isolate sections of open hole to be treated or tested or to isolate certain areas of perforated casing from the rest of the perforated section.
streaming potential	the electrokinetic portion of the spontaneous potential electric-log curve that can be influenced significantly by the characteristics of the filtrate and mud cake or the drilling fluid that was used to drill the well.

streamline flow	flow of a fluid in which no turbulence occurs. The fluid follows a well-defined, continuous path.
string shot	an explosive method utilizing primacord, which is an instantaneous textile-covered fuse with a core of very high explosive. It is used to create an explosive jar inside stuck drill pipe or tubing so that the pipe may be backed off at the joint immediately above where it is stuck.
string up	to thread the drilling line through the sheaves of the crown block and traveling block. One end of the line is secured to the hoisting drum and the other to the derrick substructure.
strip a well	to pull rods and tubing from a well at the same time. Tubing must be "stripped" over the rods a joint at a time.
stripper	<ol style="list-style-type: none"> 1. a well nearing depletion that produces a very small amount of oil or gas, usually ten barrels per day or less. 2. a stripper head. 3. a column wherein absorbed constituents are stripped from absorption off. The term is applicable to columns using a stripping medium, such as steam or gas.
stripper head	a blowout prevention device consisting of a gland and packing arrangement bolted to the wellhead. It is often used to seal the annular space between tubing and casing.
stripper rubber	<ol style="list-style-type: none"> 1. a rubber disk surrounding drill pipe or tubing that removes mud as the pipe is brought out of the hole. 2. the pressure-sealing element of a stripper blowout preventer See stripper head.
stripping in	<ol style="list-style-type: none"> 1. the process of lowering the drill stem into the wellbore when the well is shut in on a kick and when the weight of the drill stem is sufficient to overcome the force of well pressure. 2. the process of putting tubing into a well under pressure.
stripping out	<ol style="list-style-type: none"> 1. the process of raising the drill stem out of the wellbore when the well is shut in on a kick. 2. the process of removing tubing from the well under pressure.
stuck pipe	drill pipe, drill collars, casing, or tubing that has inadvertently become immovable in the hole. Sticking may occur when drilling is in progress, when casing is being run in the hole, or when the drill pipe is being hoisted.
stuck point	the depth in the hole at which the drill stem, tubing, or casing is stuck.
stuffing box	a device that prevents leakage along a piston, rod, propeller shaft, or other moving part that passes through a hole in a cylinder or vessel. It consists of a box or chamber made by enlarging the hole and a gland containing compressed packing. On a well being artificially lifted by means of a sucker rod pump, the polished rod operates through a stuffing box, preventing escape of oil and diverting it into a side outlet to

	which is connected the flow line leading to the oil and gas separator or to the field storage tank. For a bottomhole pressure test, the wireline goes through a stuffing box and lubricator, allowing the gauge to be raised and lowered against well pressure. The lubricator provides a pressure-tight grease seal in the stuffing box.
strung up	to have rigged up wire rope and sheaves or blocks for hoisting.
sub	a short, threaded piece of pipe used to adapt parts of the drilling string that cannot otherwise be screwed together because of differences in thread size or design. A sub (i.e., a substitute) may also perform a special function. Lifting subs are used with drill collars to provide a shoulder to fit the drill pipe elevators; a kelly saver sub is placed between the drill pipe and the kelly to prevent excessive thread wear of the kelly and drill pipe threads, a bent sub is used when drilling a directional hole.
sub elevator	a small attachment on the rod-transfer equipment that picks up the rods after they are unscrewed from the string and then transfers them to the rod hanger, or reverses the procedure when going into the hole. See rod-transfer equipment .
subsea blowout preventer	a blowout preventer placed on the seafloor for use by a floating offshore drilling rig.
substructure	the foundation on which the derrick or mast and usually the drawworks sit. It contains space for storage and well-control equipment.
sucker rod	a special steel pumping rod. Several rods screwed together make up the mechanical link from the beam pumping unit on the surface to the sucker rod pump at the bottom of a well. Sucker rods are threaded on each end and manufactured to dimension standards and metal specifications set by the petroleum industry. Lengths are 25 or 30 feet (7.6 or 9.1 meters); diameter varies from 1/2 to 1-1/8 inches (12 to 30 millimeters). There is also a continuous sucker rod (tradename: Corod).
sucker rod pump	the downhole assembly used to lift fluid to the surface by the reciprocating action of the sucker rod string. Basic components are barrel, plunger, valves, and hold-down. Two types of sucker rod pumps are the tubing pump, in which the barrel is attached to the tubing, and the rod, or insert, pump, which is run into the well as a complete unit.
sucker rod whip	an undesirable whipping motion in the sucker rod string that occurs when the string is not properly attached to the sucker rod pump or when the pump is operated at a resonant speed.
suction pit	also called a suction tank, sump pit, or mud suction pit. See suction tank .
suction tank	the mud tank from which mud is picked up by the suction of the mud pumps. Also called a suction pit .
suicide squeeze	a squeeze cement job with open perfs above the packer.
sulfamic acid	a crystalline acid derived from sulfuric acid that is sometimes used in acidizing.
supersaturation	the condition of containing more solute in solution than would normally be present at the existing temperature.
surface-active agent	see surfactant .

surface pipe	the first string of casing (after the conductor pipe) that is set in a well. it varies in length from a few hundred to several thousand feet. Some states require a minimum length to protect freshwater sands. Compare conductor pipe .
surface tension	the tendency of liquids to maintain as small a surface as possible. It is caused by the cohesive attraction between the molecules of liquid.
surfactant	a soluble compound that concentrates on the surface boundary between two substances such as oil and water and reduces the surface tension between the substances. The use of surfactants permits the thorough surface contact or mixing of substances that ordinarily remain separate. Surfactants are used in the petroleum industry as additives to drilling mud and to water during chemical flooding. See micellar-polymer flooding; surfactant mud
surfactant mud	a drilling mud prepared by adding a surfactant to a water-base mud to change the colloidal state of the clay from that of complete dispersion to one of controlled flocculation. Such muds were originally designed for use in deep, high-temperature wells, but their many advantages (high chemical and thermal stability, minimum swelling effect on clay-bearing zones, lower plastic viscosity, and so on) extend their applicability.
surge loss	the flux of fluids and solids that occurs in the initial stages of any filtration before pore openings are bridged and a filter cake is formed. Also called spurt loss.
surge valve	a device employed with a packer to surge, or clean, open perforations; also called surge disk.
surging	a rapid increase in n pressure downhole that occurs when the drill stem is lowered too fast or when the mud pump is brought up to speed after starting.
suspensoid	a mixture consisting of finely divided colloidal particles floating in a liquid. The particles are so small that they do not settle but are kept in motion by the moving molecules of the liquid (Brownian movement).
swab	a hollow, rubber-faced cylinder mounted on a hollow mandrel with a pin joint on the upper end to connect to the swab line. A check valve that opens upward on the lower end provides a way to remove the fluid from the well when pressure is insufficient to support flow. v: 1. to operate a swab on a wireline to bring well fluids to the surface when the well does not flow naturally. Swabbing is a temporary operation to determine whether the well can be made to flow. If the well does not flow after being swabbed, a pump is installed a a permanent lifting device to bring the oil to the surface. 2. to pull formation fluids into a wellbore by raising the drill stem at a rate that reduces the hydrostatic pressure of the drilling mud below the bit.
swab cup	a rubber or rubber-like device on a special rod (a swab), which forms a seal between the swab and the wall of the tubing or casing.
swage	a tool used to straighten damaged or collapsed casing in a well.
swamper	a helper on a truck.

swedge	a swage
sweet	said of oil or gas when it contains no sour impurities.
sweet corrosion	the deterioration of metal caused by contact with carbon dioxide in water.
sweet crude oil	oil containing little or no sulfur, especially little or no hydrogen sulfide.
switcher (obsolete)	lease operator or pumper.
swivel	a rotary tool that is hung from the rotary hook and traveling block to suspend the drill stem and to permit it to rotate freely. it also provides a connection fore the rotary hose and a passageway of the flow of drilling fluid into the drill stem.
sx	<i>abbreviation:</i> sacks; used in drilling and mud reports.
synergistic effect	the added effect produced by two processes working in combination. It is greater than the sum of the individual parts.

TA - TH

TA	<i>abbreviation:</i> temporarily abandoned.
tagging	running pipe or tubing and landing it on a downhole tool.
tailing in	guiding a downhole tool into the wellbore or up onto the rig floor.
tail out rods	to pull the bottom end of a sucker rod away from a well when laying rods down.
tail pipe	1. a pipe run in a well blow a packer. 2. a pipe used to exhaust gases from the muffler of an engine to the outside atmosphere.
take a stain on	to begin to pull on a load.
tally	to measure and record length of pipe of tubing
tank battery	a group of production tanks located in a field to store crude oil.
tank strapper	the person who measures a tank to determine the volume it holds at 1/4" intervals of height.
tannic acid	the active ingredient of quebracho and quebracho substitutes, such as mangrove bark, chestnut extract, and hemlock.

tap	<p>1. a tool for forming an internal screw thread. It consists of a hardened tool-steel male screw grooved longitudinally so as to have cutting edges.</p> <p>2. a hole or opening in a line or vessel into which a gauge or valve may be inserted and screwed tight.</p> <p>v.1. to form a female thread by means of a tap.</p> <p>2. extract or cause to flow by means of a borehole, e.g., to tape a reservoir.</p>
taper tap	a tap with a gradually decreasing diameter from the top. It is used to retrieve a hollow fish such as a drill collar and is the male counterpart of a die collar. The taper tap is run into a hollow fish and rotated to cut enough threads to provide a firm grip and permit the fish to be pulled and recovered. See tap. Compare die collar.
tapered string	drill pipe, tubing, sucker rods, and so forth with the diameter near the top of the well larger than the diameter below.
target	a bull plug or blind flange at the end of a tee to prevent erosion at a point where change in flow direction occurs.
targeted	refers to a fluid piping system in which flow impinges on a lead-filled end (target) or a piping tee when fluid transits a change in direction.
TCP	<i>abbreviation:</i> tubing conveyed perforator.
TD	<i>abbreviation:</i> total depth
telecommunications	pertaining to the transmission of signals over long distances, such as by telegraph, radio, or television.
telescoping derrick	a portable mast that can be erected as a unit, usually by a tackle that hoists the wireline or by hydraulic pistons. The upper section of a telescoping derrick is generally nested (telescoped) inside the lower section of the structure and raised to full height either by the wireline or by a hydraulic system.
telescoping swivel sub	a sub with a telescoping joint used in dual or triple completions for running additional tail pipe.
tell-tale	terminology used to describe a screen that, when packed off by gels, will give a pressure rise at the surface, thereby "telling" the tool operator that the gel has reached a certain location. Also called tattle-tale.
temperature survey	an operation used to determine temperatures at various depths in the wellbore. It is also used to determine the height of cement behind the casing and to locate the source of water influx into the wellbore.
temporarily abandoned	temporarily shut in but not plugged.

ten-minute gel strength	the measured 10-min gel strength of a fluid is the maximum reading (deflection) taken from a direct-reading viscometer after the fluid has been quiescent for 10 minutes. The reading is reported in lb/100 sq. ft. See API RP 13B for details of test procedure.
ten round	same as an eight round, except ten threads per inch.
tensile strength	the greatest longitudinal stress that a metal can bear without tearing apart. A metal's tensile strength is greater than its yield strength.
tension tool	a retrievable or drillable packer in which sufficient pipe weight is not available to set the tool in compression.
tester	a person who tests pipe and casing for leaks
test pressure	an equipment's working pressure times a safety factor.
test well	a wildcat well.
TFL	<i>abbreviation:</i> through-the-flow-line.
thermal decomposition	the breakdown of a compound or substance by temperature into simple substances or into constituent elements.
thief formation	a formation that absorbs drilling fluid as it is circulated in the well. Lost circulation is caused by a thief formation. Also called a thief sand or a thief zone.
thief zone	see thief formation
thinning agent	a chemical or combination of chemicals that, when added to a drilling mud, reduces its viscosity.
thixotropy	the property exhibited by a fluid that is in a liquid state when flowing and in a semisolid, gelled state when at rest. Most drilling fluids must be thixotropic so that cuttings will remain in suspension when circulation is stopped.
thread protector.	a metal or plastic device that is screwed onto or into pipe threads to protect them from damage when the pipe is not in use.
thribble	a stand of pipe made up of three joints and handled as a unit. Compare double, fourable, and single.
through-the-flow-line (TFL) equipment	any equipment designed to be pumped down a completed well to effect a repair, modify the well's flow, or for other reasons.

TI - TW

tie-down	a device to which a guy wire or brace may be attached, such as the anchoring device for the deadline of a hoisting-block arrangement.
tighten up	to add oil to a system, which causes the oil to break out and rise to the surface.
tight formation	a petroleum- or water-bearing formation of relatively low porosity and permeability.
titration	a chemical analysis process where drops of a standard solution are added to another solution or substance to obtain a response: color change, precipitation, or conductivity change, for measurement and evaluation.
tongs	the large wrenches used to make up or break out drill pipe, casing, tubing, or other pipe; variously called casing tongs, pipe tongs, and so forth, according to the specific use. Power tongs are pneumatically or hydraulically operated tools that serve to spin the pipe up tight and, in some instances, to apply the final makeup torque.
tool hand	the tool man; a packer hand; a service company hand.
toolhouse	a building for storing tools
tool joint	a heavy coupling element for drill pipe. It is made of special alloy steel and has coarse, tapered threads and seating shoulders designed to sustain the weight of the drill stem, withstand the strain of frequent coupling and uncoupling, and provide a leakproof seal. The male section of the joint, or the pin, is attached to one end of a length of drill pipe, and the female section, or box, is attached to the other end. The tool joint may be welded to the end of the pipe, screwed on, or both. A hard-metal facing is often applied in a band around the outside of the tool joint to enable it to resist abrasion from the walls of the borehole.
toolpusher	an employee of a drilling contractor who is in charge of the entire drilling crew and the drilling rig. Also called a drilling foreman,, rig manager, rig superintendent, or rig supervisor.
top drill	a drillable tool configuration allowing the opening of formation pressure, during drillout, prior to cutting through the tools slips.
top off	to fill a wellbore up to the surface.
top sub	a component of a packer to which the tubing is connected.
torque	the turning force that is applied to a shaft or other rotary mechanism to cause it to rotate or tend to do so. Torque is measured in units of length and force (footpounds, newton-meters).
torque converter	a hydraulic device connected between an engine and a mechanical load such as a compound. Torque converters are characterized by an ability to increase output torque as the load causes a reduction in speed. Torque converters are used on mechanical rigs that have compounds.

total depth (TD)	the maximum depth reached in a well.
tour (pronounced "tower")	a working shift for drilling crew or other oilfield workers. The most common tour is 8 hours; the three daily tours are called daylight, evening (or afternoon), and graveyard (or morning). Sometimes 12-hour tours are used, especially on offshore rigs; they are called simply day tour and night tour.
transfer	to lower pipe or tubing onto a downhole tool, transferring all or part of the hook load.
traveling block	an arrangement of pulleys, or sheaves, through which drilling line is reeved and which moves up and down in the derrick or mast. See block .
traveling valve	one of the two valves in a sucker rod pumping system. It moves with the movement of the sucker rod string. On the upstroke, the ball member of the valve is seated, supporting the fluid load. On the downstroke, the ball is unseated, allowing fluid to enter into the production column. Compare standing valve .
treater	a vessel in which oil is treated for the removal of S&W or other objectionable substances by the addition of chemicals, heat, electricity, or all three.
tree	the wellhead.
tree saver tool	a tubular device employed as an isolation tool inside the Christmas tree, to increase the tree's pressure rating during stimulation.
trip	the operation of hoisting the drill stem from and returning it to the wellbore. v: shortened form of "make a trip."
trip gas	gas that enters the wellbore when the mud pump is shut down and pipe is being pulled from the wellbore. The gas may enter because of the reduction in bottomhole pressure when the pump is shut down, because of swabbing, or because of both.
triplex pump	a reciprocating pump with three pistons or plungers
trip margin	the small amount of additional mud weight carried over that needed to balance formation pressure to overcome the pressure-reduction effects caused by swabbing when a trip out of the hole is made.
tripping	the operation of hoisting the drill stem out of and returning it to the wellbore. See make a trip .
trip tank	a small mud tank with a capacity of 10 to 15 barrels, usually with 1-barrel or H-barrel divisions, used to ascertain the amount of mud necessary to keep the wellbore full with the exact amount of mud that is displaced by drill pipe. When the bit comes out of the hole, a volume of mud equal to that which the drill pipe occupied while in the hole must be pumped into the hole to replace the pipe. When the bit goes back in the hole, the drill pipe displaces a certain amount of mud, and a trip tank can be used

	again to keep track of this volume.
truck-mounted rig	a well-servicing and workover rig that is mounted on a truck chassis.
tubing	relatively small-diameter pipe that is run into a well to serve as a conduit for the passage of oil and gas to the surface.
tubing anchor	a device that holds the lower end of a tubing string in place by means of slips, used to prevent tubing movement when no packer is present.
tubing elevators	a damping apparatus used to pull tubing. The elevators latch onto the pipe just below the top collar. The elevators are attached to the hook by steel links or bails.
tubing hanger	an arrangement of slips and packing rings used to suspend tubing from a tubing head.
tubing head	a flanged fitting that supports the tubing string, seals off pressure between the casing and the outside of the tubing, and provides a connection that supports the Christmas tree.
tubing job	the act of pulling tubing out of and running it back into a well.
tubingless completion	a method of producing a well in which only production casing is set through the pay zone, with no tubing or inner production string used to bring formation fluids to the surface. This type of completion has its best application in low-pressure, dry-gas reservoirs.
tubing pump	a sucker rod pump in which the barrel is attached to the tubing. See sucker rod pump .
tubing slips	slips designed specifically to be used with tubing.
tubing spider	a device used with slips to prevent tubing from falling into the hole when a joint of pipe is being unscrewed and racked.
tubing tester	a mechanically operated (tubing rotation) valve used to shut off formation pressure above a packer, thus testing all connections from the packer to the tree.
tubing tongs	large wrenches used to break out and make up tubing. They may be operated manually, hydraulically, or pneumatically.
tubular goods	any kind of pipe. Oilfield tubular goods include tubing, casing, drill pipe, and line pipe. Also called tubulars .
tubulars	shortened form of tubular goods .
tungsten carbide	a fine, very hard, gray crystalline powder, a compound of tungsten and carbon. This compound is bonded with cobalt or nickel in cemented carbide compositions and used for cutting tools, abrasives, and dies.

turbodrill	a downhole motor that rotates a bit by the action of the drilling mud on turbine blades built into the tool. When a turbodrill is used, rotary motion is imparted only at the bit; therefore, it is unnecessary to rotate the drill stem. Although straight holes can be drilled with the tool, it is used most often in directional drilling.
turbulent flow	the erratic, nonlinear flow of a fluid, caused by high velocity. Characterized by random eddying flow patterns superimposed on the general flow progressing in a given direction.
turnkey contract	a drilling contract that calls for the payment of a stipulated amount to the drilling contractor on completion of the well. In a turnkey contract, the contractor furnishes all material and labor and controls the entire drilling operation, independent of operator supervision. A turnkey contract does not, as a rule, include the completion of a well as a producer.
twistoff	a complete break in pipe caused by metal fatigue. <i>v.</i> to break something in two or to break apart, such as the head of a bolt or the drill stem.

U

ultraviolet light	light waves shorter than the visible blue violet waves of the spectrum. Crude oil, colored distillates, residuum, a few drilling fluid additives, and certain minerals and chemicals fluoresce in the presence of ultraviolet light. These substances, when present in mud, may cause the mud to fluoresce.
underbalanced	of or relating to a condition in which pressure in the wellbore is less than the pressure in the formation.
underground blowout	an uncontrolled flow of gas, salt water, or other fluid out of the wellbore and into another formation that the wellbore has penetrated.
unitization	a system of operating a certain oil and condensate reservoir in order to conduct some form of pressure maintenance, repressuring, waterflood, or other cooperative form to increase ultimate recovery.
underream	to enlarge the wellbore below the casing.
unit operator	the oil company in charge of development and production in an oilfield in which several companies have joined to produce the field.
univalent	monovalent. See valence , unloader. Same as a circulation valve
unloading a well	removing fluid from the tubing in a well, often by means of a swab, to lower the bottomhole pressure in the wellbore at the perforations and induce the well to flow.
unloading sub	an unloader; provides a means to equalize tubing and annulus pressure.
upper kelly cock	a valve installed above the kelly that can be closed manually to protect the rotary hose from high pressure that may exist in the drill stem
urea	a soluble, weakly basic, nitrogenous compound used in the manufacture of resins and plastics.

V

valence	the tendency of elements to form compounds through a shift of electronic structure.
valence effect	in general, the higher the valence of an ion, the greater the loss of stability to emulsions, colloidal suspensions, etc., these polyvalent ions will impart
valve	a device used to control the rate of flow in a line to open or shut off a line completely, or to serve as an automatic or semiautomatic safety device. Those used extensively include the check valve, gate valve, globe valve, needle valve, plug valve, and pressure relief valve.
vaporproof	not susceptible to or affected by vapors. For example, an electrical switch is made vaporproof so that a spark issuing from it will not cause an explosion in the presence of combustible gases (vapors).
V-door	an opening at floor level in a side of a derrick or mast. The V-door is opposite the drawworks and is used as an entry to bring in drill pipe, casing, and other tools from the pipe rack. The name comes from the fact that on the old standard derrick, the shape of the opening was an inverted V.
vee ring	an elastomer (seal) energized by pressure
velocity	1. speed. 2. the timed rate of linear motion.
velocity safety valve	a storm choke
V-G meter	see direct-indicating viscometer, vibrating screen; see shale shaker.
viscometer	a device used to determine the viscosity of a substance. Also called a viscosimeter .
viscosimeter	see viscometer .
viscosity	a measure of the resistance of a fluid to flow. Resistance is brought about by the internal friction resulting from the combined effects of cohesion and adhesion. The viscosity of petroleum products is commonly expressed in terms of the time required for a specific volume of the liquid to flow through a capillary tube of a specific size at a given temperature.
viscous flow	see laminar flow.
viton	a fluoroelastomer capable of sealing in sour gas, volatile adj: readily vaporized.
volatility	the tendency of a liquid to assume the gaseous state.
vug	1. a cavity in a rock. 2. a small cavern, larger than a pore but too small to contain a person. Typically found in limestone subject to groundwater leaching.

WA - WE

waiting on cement (WOC)	pertaining to the time when drilling or completion operations are suspended so that the cement in a well can harden sufficiently.
wall cake	also called filter cake or mud cake. See filter cake .
wall hook	a device used in fishing for drill pipe. If the upper end of the lost pipe is leaning against the side of the wellbore, the wall hook centers it in the hole so that it may be recovered with an overshot, which is run on the fishing string and attached to the wall hook.
wall sticking	see differential sticking .
washing	<ol style="list-style-type: none"> 1. the high-pressure spraying of the crude oil cargo to dislodge or dissolve clingage and sediment from the walls, cross members, and lines in the compartments of a vessel during the unloading operation. 2. the use of a high-pressure water stream to dislodge clingage and sediment from the bulkheads, bottoms, and internal structures of a vessel's cargo tanks.
wash over	to release pipe that is stuck in the hole by running washover pipe. The washover pipe must have an outside diameter small enough to fit into the borehole but an inside diameter large enough to fit over the outside diameter of the stuck pipe. A rotary shoe, which cuts away the formation, mud, or whatever is sticking the pipe, is made up on the bottom joint of the washover pipe, and the assembly is lowered into the hole. Rotation of the assembly frees the stuck pipe. Several washovers may have to be made if the stuck portion is very long.
washover	the operation during which stuck drill stem or tubing is freed using washover pipe.
washover shoe	a device employed to protect seals, seating nipples, etc., during mill-out operations.
washpipe	<ol style="list-style-type: none"> 1. a short length of surface-hardened pipe that fits inside the swivel and serves as a conduit for drilling fluid through the swivel. 2. sometimes used to mean washover pipe.
water-base mud	a drilling mud in which the continuous phase is water. In water-gas muds, any additives are dispersed in the water. Compare oil-base mud .
water block	a reduction in the permeability of a formation caused by the invasion of water into the pores.
water coning	the upward encroachment of water into a well caused by pressure drawdown from production.

water cushion (W/C)	water put into an empty string of pipe in a wellbore to prevent the pipe from being crushed by pressure in the annulus.
water drive	the reservoir drive mechanism in which oil is produced by the expansion of the underlying water and rock, which forces the oil into the wellbore. In general, there are two types of water drive: bottom-water drive, in which the oil is totally underlain by water; and edgewater drive, in which only a portion of the oil is in contact with the water.
waterflooding	a method of improved recovery in which water is injected into a reservoir to remove additional quantities of oil that have been left behind after primary recovery. Waterflooding usually involves the injection of water through wells specially set up for water injection and the removal of water and oil from production wells drilled adjacent to the injection wells.
water-in-oil emulsion	see <i>invert-emulsion mud</i> , water loss, fluid loss.
water well	a well drilled to (1) obtain a water supply to support drilling or plant operations, or (2) obtain a water supply to be used in connection with an improved recovery program.
Webb-Wilson	mechanical tongs; sometimes used generically for all brands of tongs.
weevil	shortened form of boll weevil. See <i>boll weevil</i> .
weight	1. in mud terminology, refers to the density of a drilling fluid. 2. of a measurement, expresses degree of confidence in result of measurement of a certain quantity compared with result of another measurement of the same quantity.
weight cut	the amount by which drilling fluid density is reduced by entrained formation fluids or air.
weight indicator	an instrument near the driller's position on a drilling rig that shows both the weight of the drill stem that is hanging from the hook (hook load)
weight up	to increase the weight or density of drilling fluid by adding weighting material.
well	a hole drilled in the earth for purpose of (1) finding or producing crude oil or natural gas; or (2) providing services related to the production of crude oil or natural gas.
wellbore	a borehole; the hole drilled by the bit. A wellbore may have casing in it or it may be open (uncased); or part of it may be cased, and part of it may be open. Also called a borehole or hole.

well completion	<p>1. the activities and methods of preparing a well for the production of oil and gas or for other purposes, such as injection; the method by which one or more flow paths for hydrocarbons are established between the reservoir and the surface.</p> <p>2. the system of tubulars, packers, and other tools installed beneath the wellhead in the production casing; that is, the tool assembly that provides the hydrocarbon flow path or paths.</p>
wellhead	the equipment installed at the surface of the wellbore. A wellhead includes such equipment as the casinghead and tubing head. adj: pertaining to the wellhead (e.g., wellhead pressure).
well logging	the recording of information about subsurface geologic formations, including records kept by the driller and records of mud and cutting analyses, core analysis, drill stem tests, and electric, acoustic, and radioactivity procedures. See acoustic log, core analysis, driller's log, drill stem test, electric well log, mud analysis, and radioactivity well logging.
well permit	authorization, usually granted by a governmental conservation agency, to drill a well. A permit is sometimes also required for deepening or remedial work.
well puller	a member of a well-servicing crew.
well servicing	the maintenance work performed on an oil or gas well to improve or maintain the production from a formation already producing. It usually involves repairs to the pump, rods, gas lift valves, tubing, packers, and so forth
wet gas	gas that carries a lot of liquids with it.
wetting	the adhesion of a liquid to the surface of a solid.
wetting agent	a substance or composition that, when added to a liquid, increases the spreading of the liquid on a surface or the penetration of the liquid into a material.

WH - WO

wheel-type back-off wrench	a wheel-shaped wrench that is attached to the sucker rod string at the surface and is manually turned to unscrew the string to allow it to be pulled from the well.
whipstock	a long steel casing that uses an inclined plane to cause the bit to deflect from the original borehole at a slight angle. Whipstocks are sometimes used in controlled directional drilling, in straightening crooked boreholes, and in sidetracking to avoid unretrieved fish.
whipstock	a long steel casing that uses an inclined plane to cause the bit to deflect from the original borehole at a slight angle. Whipstocks are sometimes used in controlled directional drilling, in straightening crooked boreholes, and in sidetracking to avoid unretrieved fish.

whipstock anchor packer	a special-purpose packer placed in the casing to permit a sidetrack operation.
wickers	broken or frayed strands of the steel wire that makes up the outer wrapping of wire rope.
widow maker	anything liable to cause death or serious injury of a workman.
wildcat	1. a well drilled in an area where no oil or gas production exists. 2. (nautical) the geared sheave of a windlass used to pull anchor chain. v: to drill wildcat wells.
wild well	a well that has blown out of control and from which oil, water, or gas is escaping with great force to the surface. Also called a gusher.
winch	a machine used for pulling or hoisting that does so by winding a cable around a spool.
wind guy line	the wireline attached to ground anchors to provide lateral support for a mast or derrick.
wing	the horizontal valving on a tree.
wiper plug	a rubber-bodied, plastic- or aluminum-cored device used to separate cement and drilling fluid as they are being pumped down the inside of the casing during cementing operations. A wiper plug also removes drilling mud that adheres to the inside of the casing.
wireline	a small-diameter metal line used in wireline operations. Also called slick line . Compare conductor line .
wireline entry guide	a flared-end sub run on the end of the tubing string to permit easy access of wireline tools into the tubing ID.
wireline feeler	a tool used to gauge and clean junk and debris from the casing in conjunction with a junk catcher.
wireline formation tester	a formation fluid sampling device, actually run on conductor line rather than wireline, that also logs flow and shut-in pressure in rock near the borehole. A spring mechanism holds a pad firmly against the sidewall while a piston creates a vacuum in a test chamber. Formation fluids enter the test chamber through a valve in the pad. A recorder logs the rate at which the test chamber is filled. Fluids may also be drawn to fill a sampling chamber. Wireline formation tests may be done any number of times during one trip in the hole, so they are very useful in formation testing.
wireline preventer	a manually operated ram preventer especially adapted for closure around a wireline.
wireline probe	a diagnostic tool used to ascertain the position of a gas leak in the tubing of a gas lift well.
wireline survey	a general term often used to refer to any type of log being run in a well.

wire rope	a cable composed of steel wires twisted around a central core of fiber or steel wire to create a rope of great strength and considerable flexibility. Wire rope is used as drilling line (in rotary and cable-tool rigs), coring line, servicing line, winch line, and so on. It is often called cable or wireline; however, wireline is a single, slender metal rod, usually very flexible. Compare wireline .
wireline entry guide	a flared-end sub run on the end of the tubing string to permit easy access of wireline tools into the tubing ID.
wireline preventer	a manually operated ram preventer especially adapted for closure around a wireline.
wireline preventers	preventers installed on top of the well or drill string as a precautionary measure while running wirelines. The preventer packing will close around the wireline.
wireline probe	a diagnostic tool used to ascertain the position of a gas leak in the tubing of a gas-lift well.
wireline survey	a general term often used to refer to any type of log being run in a well. See log .
WOC	<i>abbreviation:</i> Waiting-on-Cement
WOE	<i>abbreviation:</i> Waiting-on-Engineering
WOG	<i>abbreviation:</i> Water-Oil-Gas
work string	the string of drill pipe tubing suspended in a well to which is attached a special tool or device that is used to carry out a certain task, as squeeze cementing or fishing.
working pressure	the pressure to which a particular piece of equipment is subjected during normal operations.
workover fluid	any type of fluid used in the workover operation of a well. See completion fluid .
workover rig	see production rig . Also see pulling unit .
workover string	the string of drill pipe or tubing suspended in a well to which is attached a special tool or device that is used to carry out a certain task, such as squeeze cementing or fishing.
workover	to perform one or more of a variety of remedial operations on a producing oil well to try to increase production. Examples of workover operations are deepening, plugging back, pulling and resetting liners, squeeze cementing, and so on.
workstring	a string of pipe used in workover of well-servicing operations; not typically considered as production tubing.
worms	see weevils .

X

x-axis	<ol style="list-style-type: none">1. the horizontal axis of a two-dimensional Cartesian coordinate system.2. one of three axes in a three-dimensional Cartesian coordinate system
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Y

yield	a term used to define the quality of a clay by describing the number of barrels of a given centipoise slurry that can be made from a ton of clay. Based on the yield, clays are classified as bentonite, high yield, low yield, etc., types of clays. Not related to yield value below. See API RP 13B for procedures.
yield point	in drilling-fluid terminology, yield point means yield value (which see). Of the two terms, yield point is more common.
yield value	the yield value (commonly called "yield point") is the resistance to initial flow, or represents the stress required to start fluid movement. This resistance is due to electrical charges located on or near the surfaces of the particles. The values of the yield point and thixotropy, respectively, are measurements of the same fluid properties under dynamic and static states. The Bingham yield value, reported in lb/100 square feet, is determined by the direct-indicating viscometer by subtracting the plastic viscosity from the 300-rpm reading.

Z

zero-zero gel	a condition wherein the drilling fluid fails to form measurable gels during a quiescent time interval (usually 10 minutes)
zeta potential	the electrokinetic potential of a particle as determined by its electrophoretic mobility. This electric potential cause colloidal particles to repel each other and stay in suspension.
zinc chloride	A very soluble salt used to increase the density of water to points more than double that of water. Normally added to a system first saturated with calcium chloride.
zone	the term "zone" as applied to reservoirs, is used to describe an interval which has one or more distinguishing characteristics, such as lithology, porosity, saturation, etc.