

GLOSSARY OF TERMS

Abandonment: To stop production of a well and plug the wellbore to prevent any possible future leakage into fresh water.

Barge Rig: A drilling rig that is placed on a towed barge for shallow inland water, swamp and river applications.

Block: Any assembly of pulleys on a common framework; in mechanics, one or more pulleys mounted to rotate on a common axis. The crown block is an assembly of pulleys mounted on beams at the top of the derrick or mast. The drilling line is passed through the grooved wheel on the pulley of the crown block alternately with the pulleys of the traveling block, which is raised and lowered in the derrick or mast by the drilling line.

Blowout: An uncontrolled expulsion of oil, natural gas or water (usually brine) from a well into the atmosphere.

Blowout Preventer (BOP): A stack of heavy-duty valves placed on top of the casing to control well pressure during drilling.

Bottomhole Pressure: Pressure exerted upward by the reservoir formation.

Cantilever Jack-ups: Jack-ups that have the derrick package mounted on steel arms that can be extended out from the hull of the rig. Extension allows for the positioning adjacent to a platform rig for development drilling.

Cased Hole: A wellbore in which casing has been installed and cemented.

Casing: Steel pipe that is installed in the wellbore to protect from cave-in and the migration of formation fluids into the wellbore, or communication between zones.

Cementing: Filling the space between the casing and the wellbore walls with cement to support the casing, and seal between zones.

Christmas Tree: An assembly of valves for flow control of production fluids or gasses installed at the top of the casing.

Completion: To finish a well and prepare it for production.

Conductor Casing or Conductor Pipe: Wide-diameter casing installed at the surface prior to rigging up to prevent caving.

Coring: Taking a sample of the formation or rock to determine its geologic properties.

Crown Block: Stationary pulley system used to raise or lower drilling equipment for the derrick. Supports the traveling block.

Crude Oil: Unrefined petroleum.

Dayrate: The daily rate paid by an operator to a drilling contractor under a daywork contract. *(See also Footage and Turnkey Contract.)*

Daywork Contract: A contract under which the drilling contractor is paid by the day or portion thereof.

Derrick: A steel mast used to support the drill string or drilling equipment such as casing.

Drawworks: Power equipment used for the hoisting of the drilling string via the derrick. Consists of a spool wrapped with wire rope positioned to the side of the derrick with wire traveling up the crown block.

Drill Bit: A tool located at the end of the drill string used for cutting or boring.

Drill Collars: Heavy walled steel pipe added to the drill string between the drill pipe and drill bit for additional downward pressure.

Drill Pipe: Steel pipe used to conduct fluids and torque down to the drill bit. Typically 30 feet in length.

Drill Stem: All members in the assembly used for rotary drilling from the swivel to the bit, including the kelly, the drill pipe and tool joints, the drill collars, the stabilizers, and various specialty items.

Drill String: An assembly consisting of drill pipe, drill collars and a drill bit. The drill string serves as a conduit for fluid circulation and torque from the power source.

Dry Hole: An exploratory well that, although reaching target depths, does not result in the production of hydrocarbons.

Electric Rig (SCR): A drilling rig that uses diesel generators to supply power to separate electric motors to power each of the rig's components (silicon-controlled rectifier).

Exploratory Well: A well drilled to either search for an undiscovered pool of hydrocarbons or to define the limits of the hydrocarbon-bearing formation.

Field: An area representing a group of producing oil and/or natural gas wells.

Footage Contracts: A contract under which the operator and contract driller agree to a fixed price per foot drilled. Contractor carries more of the operating risk than in a Daywork Contract. *(See also Daywork and Turnkey Contract.)*

Formation: A strata of rock that is composed mainly of the same type of rock.

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 and turns on bearings in its supporting housing.

Hook load: The weight of the drill stem that is suspended from the hook.

Horizontal Drilling: Deviation of the wellbore at least 80° from vertical so that the wellbore penetrates a productive formation in a manner parallel to the formation.

Hydrocarbons: Organic compounds of hydrogen and carbon atoms providing the basis of all petroleum products. Hydrocarbons exist in a solid, liquid or gaseous state.

Independent Leg Jack-ups: Jack-ups with open-truss steel legs with large steel cylinders (spud cans) attached at the bottom for sea floor penetration and stability.

Jack-up Rig: Bottom supported offshore drilling rig consisting of a floating platform that is towed on locations and jacked up above the water on three or four legs. The platform supports the drilling derrick, equipment and crew quarters. *(See also independent leg, mat-supported, cantilever and slot jack-ups.)*

Kelly: A four- or six-sided pipe at the top of the drill string through which rotation is parted.

Kelly Bushing: A cage with V & square faced rollers which fits the kelly in parting rotation while slowing up and down movement. The kelly pipe fits inside the kelly bushing, which fits inside the master bushing, which fits inside the rotary table. The rotary table creates the torque that is transmitted through the kelly down the drill pipe to the drill bit (versus a top drive system which foregoes all of such components).

Liner: A string of pipe used to case an open hole below an existing casing.

Log: A recording of data.

Mat-Supported Jack-ups: Jack-ups with cylindrical steel legs attached to a flat base. Ideally suited for soft, muddy sea floors.

Mechanical Rig: A drilling rig where the power generated from combustion engines (diesel) is distributed mechanically (shafts, sprockets, chains and clutches) to the various components of the rig.

Mud: The liquid circulated through the wellbore during rotary drilling operations. In addition to its function of bringing cuttings to the surface, drilling mud cools and lubricates the drill bit and the drill stem, protects against blowouts by holding back subsurface pressures, and deposits a mud cake on the wall of the wellbore to prevent loss of fluids to the formation.

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.

Mud Pump: A large high-pressure pump used to circulate the mud on a drilling rig.

Mud Tank: One of a series of open tanks, usually made of steel plate, through which the drilling mud is cycled to remove sand and fine sediments. Also called mud pits.

Operator: Organization that obtains (buys or leases) the right to drill and produce oil and/or natural gas from the owner of a specified location. The operator of an oil or gas well or field.

Operator – Independent: A person or relatively small organization that engages in the drilling, producing and selling of oil and gas, but has no pipeline or other means of transportation or refining.

Operator – Integrated (Majors): A larger organization typically engaged in the drilling, production, transportation and refining of oil and natural gas, as well as the retail sales of oil and gas refined products.

Operator – National Oil Company: State-owned organization typically engaged in the drilling, production, transportation and refining of oil and natural gas, as well as the retail sales of oil and gas refined products.

Organization of Petroleum Exporting Countries (OPEC): An organization formed in 1960 for the intent of negotiating the price and production levels of oil. There are currently twelve members including Saudi Arabia, Kuwait, Iran, Qatar, United Arab Emirates, Algeria, Libya, Nigeria, Venezuela, Indonesia, the Neutral Zone (the area between Saudi Arabia and Kuwait) and Iraq.

Permeability: The measure of conductivity of fluids through the pores of rock.

Petroleum: A natural occurring solid, liquid or gaseous substance in the earth containing hydrogen and carbon in various mixtures. Term often refers to oil and does not include natural gas or gas liquids such as propane or butane.

Platform: A drilling and production platform that is supported by a truss of steel members (a jacket) secured to the ocean floor.

Platform Rig: Mobile drilling rig packages mounted on production platforms.

Plugging a Well: To stop the flow of hydrocarbons and/or water by filling the wellbore with cement when the well is abandoned.

Reservoir: A porous, permeable, subsurface rock formation containing trapped oil, natural gas, or water.

Rig: The derrick or mast, drawworks and attendant surface equipment of a drilling unit.

Rig Year: A measure of the number of equivalent rigs operating during a given period. It is calculated as the number of days rigs are operating divided by the number of days in the period. For example, one rig operating 182.5 days during a 365-day period represents .5 rig years, and 100 rigs operating for 33,000 cumulative days, during a 365-day period would equal 90.4 rig years (33,000 divided by 365).

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.

SCR: See “Electric Rig.”

Slot Jack-ups: Jack-ups that have the drilling derrick mounted over a slot in the hull and cannot be used over adjacent structures.

Spudding the Well: The initiation of the drilling of a well.

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.

Swivel: A rotary tool that is hung from the rotary hook and the traveling block to suspend the drill stem and to permit it to rotate freely. It also provides a connection for the rotary hose and a passageway for the flow of drilling fluid into the drill stem.

Tool Joints: Heavy duty steel couplings used to connect lengths of drill pipe.

Top Drive: A powered swivel connected directly into the drill stem to provide the necessary torque for the drill bit. Replaces the conventional rotary table and hangs from the hook attached to the traveling block. Allows three lengths of drill pipe to be tripped in and out at a time, and provides makeup and breakup power for the assembly of the drill pipe lengths as well. Generally considered to save time over the rotary table assembly.

Torque: A force that causes or attempts to cause a rotation or torsion.

Traveling Block: Block hanging from the derrick supporting the drill string as it “travels” up and down as it raises and lowers the drill string into the wellbore.

Trip: When drill string is pulled and returned to the wellbore.

Turnkey Contract: A contract under which the drilling contractor agrees to drill a well to the operator’s specifications for a fixed lump sum fee. The contractor carries the majority of the operating risk. *(See also Dayrate and Footage Contracts.)*

Utilization: A measure of the portion of the available rig or vessel fleet, as applicable, in use during a given period. It is calculated as rig (or vessel) years divided by total rigs (or vessels) available. For example, if the equivalent rig (or vessel) years are 100 and the available fleet is 200, the utilization rate is 50%.

Vessel Year: A measure of the number of equivalent vessels operating during a given period. It is calculated as the number of days vessels are operating divided by the number of days in the period. For example, one vessel operating 182.5 days during a 365-day period represents .5 vessel years.

Wellbore (Well): The hole created when drilling that serves as the passageway between the surface and the reservoir.

Wellhead: Flow control equipment located at the top of the casing string at the surface of the wellbore.

Well-servicing: Maintenance work on a producing well to improve its flow rate. Service typically involves repairing equipment installed during drilling, completion or workover, but may include addition of new equipment. Well-servicing jobs usually take less than 48 hours to complete.

Wildcat: An exploratory well drilled in an unknown or unproven area.

Workover: Essentially, refurbishment of a well to improve its flow rate. Workover includes any of several operations on a well to restore or increase production when a reservoir stops producing at the rate it should. Many workover jobs involve treating the reservoir rock, rather than the equipment in the well. Workover jobs typically take a few days to several weeks to complete.