

# **Handbook of Oil Industry Terms and Phrases**

By R. D. Langenkamp

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The Petroleum Publishing Company  
Tulsa • 1974

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Library of Congress Catalog Card Number 74-80034

ISBN 0-87814-056-5

Printed in the United States of America.

# Foreword

The oil industry in America was born in the wooded hills of Western Pennsylvania and grew up in greasy clothes with a plug of tobacco in its jaw.

It all started when "Colonel" Edwin L. Drake struck oil with his 69½-foot well near Titusville in 1859. When news of the discovery reached town, a gold-rush fever spread through the countryside. Hard-working men—coal miners, farmers, lumbermen, blacksmiths—left their jobs for the harder work of digging for oil. Before long, adventurers, gamblers, and fast-talking promoters, attracted by the prospects of quick fortunes, joined the action.

From this mixed band, laboring like sourdoughs over their diggings, evolved a salty and expressive vocabulary. Familiar words took on new meanings; new phrases were invented to describe tools and equipment, the work being done, and those who were doing it.

The first 50 years of oil were the years of the steam drilling rigs, cable tools, pot stills, and kerosine. Among those speaking for this era, in a vernacular few non-oil people understood, were the tool dressers, mule skiners, well shooters, tankies, and pipeliners—hardy men who inhabited the rough and profane world of the boom town.

In the following half century, the search for oil widened and grew more sophisticated. The vocabulary was enlarged to include the activities of the petroleum geologist, the geophysical crews, electric loggers, and the offshore men.

During the past 20 years or so, new terms have been added relating to oil in a global context, reflecting the industry's multi-national character. Words such as *participation*, *concession*, *fixer's fee*, *buy-back oil*, and the acronym OPEC are all part of the dynamic vocabulary of oil.

This handbook was compiled in order to bring together all that is old and historic and what is new in the lexicon of the industry, and to provide understandable, non-technical definitions and explanations.

The author, with 28 years in the oil patch and 10 years as editor of a major oil company magazine, has exercised the greatest care in compiling this work. All entries were checked against authoritative references and with operating oil men in the field to assure that definitions and explanations were correct.

Although certain words may have different meanings in different parts of the country, the conditions or procedures described are the same everywhere. A "kick" by any other name is still a potentially dangerous occurrence caused by encountering a pocket of high-pressure gas down hole; and "flanged up" anywhere in oil country means the job is finished.

The author hopes that this handbook will prove useful as well as interesting to those in the oil industry, to writers, students, lawyers, and investors as well as to members of the public who would like to learn more about an industry that, along with the automobile, has affected their lives profoundly.

R.D.L.

# A

## AAODC

American Association of Oilwell Drilling Contractors

## AAPG

American Association of Petroleum Geologists

## ABANDONED OIL

Oil permitted to escape from storage tanks or pipeline by an operator. If the operator makes no effort to recover the oil, the land owner on whose property the oil has run may trap the oil for his own use.

## ABANDONED WELL

A well no longer in use; a dry hole that, in most states, must be properly plugged.

## ABSOLUTE ALCOHOL

One hundred percent ethyl alcohol

## ABSORPTION OIL

An oil with a high affinity for light hydrocarbons but containing few if any of the light compounds composing gasoline or natural gas. The oil used in an absorption plant (q.v.).

## ABSORPTION PLANT

An oil field facility that removes liquid hydrocarbons from natural gas, especially casinghead gas. The gas is run through oil of a proper character which absorbs the liquid components of the gas. The liquids are then recovered from the oil by distillation.

## ABSORPTION TOWER

A tower or column in which contact is made between a rising gas and a falling liquid so that part of the gas is taken up or absorbed by the liquid.

## ACCELERATED AGING TEST

A procedure whereby an oil product may be subjected to intensified but controlled conditions of heat, pressure, radiation, or other variables to produce, in a short time, the effects of long-time storage or use under normal conditions.

#### ACCUMULATOR

A vessel for the temporary storage of a gas or liquid; usually employed for collecting sufficient stock for a continuous charge to a refining process.

#### ACETONE

A flammable, liquid compound used widely in industry as a solvent for many organic substances.

#### ACETYLENE

A colorless, highly flammable gas with a sweetish odor; used with oxygen in oxyacetylene welding. It is produced synthetically by incomplete combustion of coal gas and also by the action of water on calcium carbide ( $\text{CaC}_2$ ). Also can be made from natural gas.

#### ACID BOTTLE INCLINATOR

A device used in a well to determine the degree of deviation from the vertical of the well bore. The acid is used to etch a horizontal line on the container and from the angle the line makes with the wall of the container, the angle of the well's course can be arrived at.

#### ACID SLUDGE

The residue left after treating petroleum oil with sulfuric acid for the removal of impurities. The sludge is a black, viscous substance containing the spent acid and the impurities which the acid has removed from the oil.

#### ACID TREATMENT

A refining process in which unfinished petroleum products such as gasoline, kerosine, diesel fuels, and lubricating stocks are treated with sulfuric acid to improve color, odor, and other properties.

#### ACID-RECOVERY PLANT

An auxiliary facility at some refineries where sludge acid is separated into acid oil, tar, and weak sulfuric acid. The sulfuric acid is then reconcentrated.

#### ACIDIZING A WELL

A technique for increasing the flow of oil from a well. Hydrochloric acid is pumped into the well under high pressure to reopen and enlarge the pores in the oil-bearing limestone formations.

#### ACOUSTIC PLENUM

A sound-proof room; an office or "sanctuary" aboard an offshore drilling platform protected from the noise of drilling engines and pipe handling.

#### ACOUSTIC REENTRY

A method used in deep-water operations offshore to reposition a drill ship over a bore hole previously drilled and cased. The technique employs acoustic signals to locate the pipe and guide the ship into position.

**ACRE-FOOT OF SAND**

A unit of measurement applied to petroleum reserves; an acre of producing formation one foot thick.

**ACS**

American Chemical Society

**ACT SYSTEM**

Automatic Custody Transfer System (q.v.)

**ADA MUD**

A material which may be added to drilling mud to condition it in order to obtain satisfactory core samples.

**ADAPTER**

A device to provide a connection between two dissimilar parts, or between similar parts of different sizes. See Swage.

**ADDITIVE**

A chemical added to oil, gasoline, or other products to enhance certain characteristics or to give them other desirable properties.

**ADSORPTION**

The attraction exhibited by the surface of a solid for a liquid or a gas when they are in contact.

**AEC**

Atomic Energy Commission

**AERIFY**

To change into a gaseous form; to infuse with or force air into; gasify.

**AGA**

American Gas Association

**AIChE**

American Institute of Chemical Engineers

**AIMME**

American Institute of Mining and Metallurgical Engineers

**AIR-BALANCED PUMPING UNIT**

An oil well pumping jack equipped with a piston and rod that works in an air chamber to balance the weight of the string of sucker rods. The device is attached to the well end of the walking beam and, acting as a shock absorber, does away with the need for counterweights on the rear end of the walking beam.

**AIR-CUSHION TRANSPORT**

A vehicle employing the hovercraft principal of down-thrusting air-stream support, developed to transport equipment and supplies in the arctic



regions. The air-cushion protects the tundra from being cut by the wheels or treads of conventional vehicles.

#### AIR INJECTION METHOD

A type of secondary recovery to increase production by forcing the oil from the reservoir into the well bore. Because of the dangers inherent in the use of air, this method is not a common practice except in areas where there is insufficient gas for repressuring.

#### ALIPHATICS

One of the two classes of organic petrochemicals; the other is the aromatics (q.v.). The most important aliphatics are the gases, ethylene, butylene, acetylene, and propylene.

#### ALKYLATION PROCESS

The process of making gasoline-range liquids from refinery gases, i.e., isobutane, butylenes, and others. The resulting alkylates are highly desirable components for blending in premium grade gasolines.

#### ALLOWABLE

The amount of oil or gas a well or a leasehold is permitted to produce under proration orders of a state regulatory body.

#### ALL-THREAD NIPPLE

A short piece of small-diameter pipe with threads over its entire length; a close nipple.

#### ALUMINUM CHLORIDE

A chemical used as a catalytic agent in oil refining and for the removal of odor and color from cracked gasoline.

#### AMERIPOL

The trade name for products made from a type of synthetic rubber.

#### AMMONIUM SULFATE

A salt having commercial value which is obtained in the distillation of shale oils.

#### AMYL HYDRIDE

This fraction in the distillation of petroleum was used as an anesthetic by J. Bigelow and B. Richardson in the year 1865.

#### ANNULAR SPACE

The space between the well's casing and the wall of the bore hole.

#### ANNULUS OF A WELL

The space between the surface casing and the producing or well-bore casing.

#### ANODE

A block of non-ferrous metal buried near a pipeline, storage tank, or other facility and connected to the structure to be protected. The anode sets up a weak electric current that flows to the structure thus reversing the flow of current that is associated with the corrosion of iron and steel. See Rectifier bed.

#### ANTICLINAL FOLD

A subsurface formation resembling an anticline.

#### ANTICLINE

A subsurface geological structure in the form of a sine curve or an elongated dome. The formation is favorable to the accumulation of oil and/or gas.

#### ANTI-KNOCK COMPOUNDS

Certain chemicals that are added to automotive gasolines to improve their performance—to reduce "ping" or knock—in high-compression internal combustion engines. Tetraethyl lead is one well-known compound.

#### API.

(1) The American Petroleum Institute; (2) The proper way to do a job; "strictly API."

#### API GRAVITY

Gravity (weight per unit of volume) of crude oil or other liquid hydrocarbon as measured by a system recommended by the API. API gravity bears a relationship to true specific gravity but is more convenient to work with than the decimal fractions which would result if petroleum were expressed in specific gravity.

#### APPRAISAL DRILLING

Wells drilled in the vicinity of a discovery or wildcat well in order to evaluate the extent and the importance of the find.

#### APRON RING

The bottom-most ring of steel plates in the wall of an upright cylindrical tank.

#### AQUAGEL

A specially prepared bentonite (clay) widely used as a conditioning material in drilling mud.

#### AQUIFER

Water-bearing rock strata. In a water-drive oil field, the aquifer is the water zone of the reservoir.

#### ARC WELDER

(1) An electric welding unit consisting of an engine and D.C. generator; usually skid mounted. (2) A person who uses such a machine in making welds.

#### AREAL GEOLOGY

The branch of geology that pertains to the distribution, position, and form of the areas of the earth's surface occupied by different types of rocks or geologic formations; also, the making of maps of such areas.

#### AREOMETER

An instrument for measuring the specific gravity of liquids; a hydrometer (q.v.).

#### ARGON

An inert, colorless, odorless gaseous element sometimes and in some locations produced with natural gas.

#### AROMATICS

A group of hydrocarbon fractions that form the basis of most organic chemicals so far synthesized. The name aromatics derives from their rather pleasant odor. The unique ring structure of their carbon atoms makes it possible to transform aromatics into an almost endless number of chemicals. Benzene, toluene, and xylene are the principal aromatics and are commonly referred to as the BTX group (q.v.).

#### ASK SYSTEM

Automatic station-keeping system; the name applied to a sophisticated drill-ship positioning technique consisting of subsurface acoustical equipment linked to shipboard computers that control ship's thrusters. The thrusters fore and aft reposition the ship, compensating for drift, wind drag, current, and wave action. See Dynamic stationing.

#### ASME

American Society of Mechanical Engineers

#### ASPHALT

A solid hydrocarbon found as a natural deposit. Crude oil of high asphaltic content when subjected to distillation to remove the lighter fractions such as naphtha and kerosine, leave asphalt as a residue. Asphalt is dark brown or black in color and at normal temperatures is a solid. See Brea.

#### ASPHALT-BASE CRUDE

Crude oil containing very little paraffin wax and a residue primarily asphaltic. Sulfur, oxygen, and nitrogen are often relatively high. This type crude is particularly suitable for making high-quality gasoline, lubricating oil, and asphalt. See Paraffin-base crude.

#### **ASPHALTIC PETROLEUM**

Petroleum which contains sufficient amounts of asphalt in solution to make recovery commercially practical by merely distilling off the solvent oils.

#### **ASPHALTIC SANDS**

Natural mixtures of asphalts with varying proportions of loose sand. The quantity of bituminous cementing material extracted from the sand may run as high as 12 percent. This bitumen is composed of soft asphalt.

#### **ASSIGNEE**

A recipient of an interest in property or a contract; in oil and gas usage, the recipient of an oil or gas lease; a transferee.

#### **ASSOCIATED GAS**

Gas that occurs with oil, either as free gas or in solution. Gas occurring alone in a reservoir is unassociated gas.

#### **ASTM**

American Society For Testing Materials

#### **ASTM DISTILLATION**

(1) A distillation test made on such products as gasoline and kerosine to determine the initial and final boiling points and boiling range. (2) Any distillation made in accordance with an ASTM distillation procedure.

#### **ATMOSPHERIC STILL**

A refining vessel in which crude oil is heated and product is distilled off at the pressure of one atmosphere.

#### **ATOMIZER, FUEL OIL**

A nozzle or spraying device used to break up fuel oil into a fine spray so the oil may be brought into more intimate contact with the air in the combustion chamber. See Ultrasonic atomizer.

#### **AUSTRALIAN OFFSET**

A humorous reference to a well drilled miles away from proven production.

#### **AUTOMATIC CUSTODY TRANSFER SYSTEM**

A system of oil handling on a lease; receiving into tankage, measuring, testing, and turning into a pipeline the crude produced on a lease. Such automatic handling of oil is usually confined to leases with settled production.

#### **AXLE GREASE**

A cold-setting grease made of rosin oil, hydrated lime, and petroleum oils. See Grease.

## B

### BABBITT

A soft, silver-colored metal alloy of relatively low melting point used for engine and pump bearings; an alloy containing tin, copper, and antimony.

### BACKFILL

To replace the earth dug from a ditch or trench; also, the earth removed from an excavation.

### BACKHOE

A self-propelled ditching machine with a hydraulically operated arm equipped with toothed shovel that scoops earth as the shovel is pulled toward the machine.

### BACK-IN FARM-OUT

A farm-out agreement (q.v.) in which a retained non-operating interest of the lessor may be converted, at a later date, into a specified individual working interest (q.v.).

### BACK-UP MAN

The person who holds (with a wrench) one length of pipe while another length is being screwed into or out of it.

### BAFFLES

Plates or obstructions built into a tank or other vessel that change the direction of the flow of fluids or gases.

### BAIL

To evacuate the liquid contents of a drill hole with the use of a long, cylindrical bucket (bailer).

### BAIL DOWN

To reduce the level of liquid in a well bore by bailing.

### BAILER

A cylindrical, bucket-like piece of equipment used in cable-tool drilling to remove mud and rock cuttings from the bore hole.

### BAILER DART

The protruding "tongue" of the valve on the bottom of a bailer. When the dart reaches the bottom of the hole, it is thrust upward opening the valve to admit the mud-water slurry.

### BALL AND SEAT

A type of valve used in a plunger pump.

### BALLING OF THE BIT

The fouling of a rotary drilling bit in sticky, gumbo-like shale which causes a serious drag on the bit and loss of circulation.

### BANDWHEEL

In a cable tool rig the large vertical wheel that transmits power from the drilling engine to the crank and pitman assembly that actuates the walking beam. Used in former years in drilling with cable tools. Old pumping wells still use a bandwheel.

### BAREFOOT COMPLETION

Wells completed in firm sandstone or limestone that show no indication of caving or disintegrating may be finished "barefoot," i.e., without casing through the producing interval.

### BARITE

A mineral used as weighting material in drilling mud; a material to increase the density or weight per gallon or cubic foot of mud.

### BARKER

A whistle-like device attached to the exhaust pipe of a one-cylindered oil field engine so that the lease pumper can tell from a distance whether or not the engine is running. The noise the device makes resembles the bark of a hoarse fox.

### BAROID

A specially processed barite (barium sulfate) to which Aquagel has been added, used as a conditioning material in drilling mud in order to obtain satisfactory cores and formation samples.

### BARREL

(1) Petroleum barrel; a unit of measure for crude oil and oil products equal to 42 U.S. gallons. (2) Pump barrel; cylindrical body of an oil well pump.

### BARREL HOUSE

A building on the refinery grounds where barrels are filled with various grades of lubricating and other oils, sealed, and made ready for shipment; oil house.

### BARREL MILE

The cost to move a barrel of oil or an equivalent amount of product one mile.

### BASEMENT ROCK

Igneous or metamorphic rock lying below the sedimentary formations in the earth's crust. Basement rock does not contain petroleum deposits.

### BASIC SEDIMENT

Impurities and foreign matter contained in oil produced from a well. See BS&W.

### BASIN

A synclinal structure in the subsurface, once the bed of a prehistoric sea. Basins, composed of sedimentary rock, are regarded as good prospects for oil exploration.

### BASTARD

(1) Any non-standard piece of equipment. (2) A kind of file. (3) A word used in grudging admiration, or as a term of opprobrium.

### BATCH

A measured amount of oil or refined product in a pipeline or a tank; a shipment of oil or product by pipeline.

### BATCHING SPHERE

An inflated, hard rubber sphere used in product pipelines to separate "incompatible" batches of product being pumped one behind the other. Fungible (q.v.) products are not physically separated, but gasoline is separated from diesel fuel and heating oils by batching spheres.

### BATTERY

Two or more tanks connected together to receive oil production on a lease; tank battery.

### BAUME, ANTOINE

The French chemist who devised a simple method to measure the relative weights of liquids using the hydrometer (q.v.).

### BEAD

A course of molten metal laid down by a welder (electric or oxyacetylene) in joining two pieces of metal. See Pipeline welding.

### BEAKER SAMPLER

A metal or glass container with a small opening fitted with a stopper that is lowered into a tank of oil to obtain a sample of oil.

### BEAM WELL

A well whose fluid is being lifted by rods and pump actuated by a walking beam (q.v.).

### BEAN

A choke used to regulate the flow of fluid from a well.

### BELL HOLE

An excavation dug beneath a pipeline to provide room for the use of tools by workers; a hole larger in diameter at the bottom than at the top.

### BELL-HOLE WELDER

A welder who can do oxyacetylene or electric welding in a bell hole. This requires a great deal of skill as the molten metal from the welding rod is being laid on upside down and tends to fall away from the weld; a skilled welder.

### BELT HALL

A wooden shed built to protect the wide belt that runs from the engine to the bandwheel on a cable tool rig, or an old beam pumping well. The belt hall extends from the engine house to the derrick.

### BENCH-SCALE TEST

Testing of methods or materials on so small a scale that it can be carried out on a laboratory table or specially constructed bench.

### BENZINE

An old term for light, petroleum distillates in the gasoline and naphtha range.

### BENZOL

The general term which refers to commercial benzene which may contain other aromatic hydrocarbons.

### BEVELING MACHINE

An oxyacetylene pipe-cutting machine. A device that holds an acetylene cutting torch so that the ends of joints of pipe may be trimmed off at an angle to the pipe's long axis. Line pipe is beveled in preparation for welding joints together.

### B.H.P.

Brake horsepower (q.v.)

### BIG SPROCKET, ON THE

Said of a person who is moving in influential circles or has suddenly gone from a small job to one of considerably larger responsibility; a big operator, often used perjoratively.

### BIOCHEMICAL CONVERSION

The use of bacteria to separate kerogen from oil shale. Certain bacteria will biograde the minerals in oil shale releasing the kerogen from the shale in liquid or semi-liquid form. (From studies made by Dr. Ten Fu Yen and Dr. Milo D. Appleman, University of Southern California, Professors of Bacteriology).

### BIRD CAGE

(1) To flatten and spread the strands of a cable or wire rope. (2) The slatted or mesh-enclosed cage used to hoist workmen from crew boats to offshore platforms.



#### **BIRD DOG**

To pay close attention to a job or to follow a person closely with the intent to learn or to help; to follow up on a job until it is finished.

#### **BIT**

The cutting or pulverizing tool or head attached to the drill pipe in boring a hole in underground formations. See Drill bit.

#### **BLACK OILS**

(1) A term denoting residual oil; oil used in ships' boilers or in large heating or generating plants; bunkers. (2) Black-colored oil used for lubricating heavy, slow-moving machinery where the use of higher-grade lubes would be impractical.

#### **BLEED**

To draw off a liquid or gas slowly. To reduce pressure by allowing fluid or gas to escape slowly; to vent the air from a pump.

#### **BLEEDER VALVE**

A small valve on a pipeline, pump, or tank from which samples are drawn or to vent air or oil; sample valve.

#### **BLEEDING**

The tendency of a liquid component to separate from a lubricant, as oil from a grease; to seep out.

#### **BLEEDING CORE**

A core sample of rock highly saturated and of such good permeability that oil drips from the core.

#### **BLEED LINE**

A line on the wellhead or blowout preventer stack through which gas pressure can be bled to prevent a threatened blowout.

#### **BLENDING**

The process of mixing two or more oils having different properties to obtain a lubricating oil of intermediate or desired properties. Certain classes of lube oils are blended to a specified viscosity. Other products, notably gasolines, are also blended to obtain desired properties.

#### **BLIND FLANGE**

A companion flange with a disc bolted to one end to seal off a section of pipe.

#### **BLOCK**

(1) A pulley or sheave in a rigid frame. (2) To prevent the flow of liquid or gas in a line. (3) A chock.

#### **BLOCK AND TACKLE**

An arrangement of ropes and blocks (pulleys) used to hoist or pull.