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**TEXAS OIL & GAS GLOSSARY ACCORDING TO THE TEXAS RAILROAD COMMISSION**

Abandoned Well - A well no longer in use, whether dry, inoperable or no longer productive, and the previous operator has intentionally relinquished its interest in the well.

Acre-Feet - Unit of volume; one acre of producing formation one foot thick. One acre foot equals 7,758 barrels, 325,829 gallons or 43,560 cubic feet.

Adjacent Estuarine Zones - This term embraces the area inland from the coastline of Texas and is comprised of the bays, inlets, and estuaries along the gulf coast.

Administrative Penalty - Statutory penalty imposed by the RRC for violation of a rule.

Allowable - Amount of oil or gas which a well, leasehold or field may produce per month under proration orders of the RRC.

Associated Reservoir - Oil and gas reservoir with a gas cap. Gas production from these reservoirs is generally restricted in order to preserve the gas cap energy thereby increasing ultimate recovery.

Basic Sediment and Water (BS&W) - Impurities and water contained in the fluid produced by an oil well.

Bay Well - (SWR 14) Any well under the jurisdiction of the Commission for which the surface location is either:

- (a) located in or on a lake, river, stream, canal, estuary, bayou, or other inland navigable waters of the state; or
- (b) located on state lands seaward of the mean high tide line of the Gulf of Mexico in water of a depth at mean tide of not more than 100 feet that is sheltered from the direct action of the open seas of the Gulf of Mexico.

Bbl, Barrel -- In the energy industry, a barrel is 42 U.S. gallons measured at 60 § Fahrenheit.

BCF - The abbreviation for billion cubic feet of gas. (see "cubic foot of gas")

BCF/D - The abbreviation for billion cubic feet of gas per day.

BHP - The abbreviation for bottom-hole pressure

Blind Nipple - Nipple (pipe with threads at both ends) that can be blocked off from formation pressure and give a false pressure measurement.

Blowout Prevention - Casinghead equipment that prevents the uncontrolled flow of oil, gas and mud from the well by closing around the drillpipe or sealing the hole.

BOPD - The abbreviation for barrels of oil per day.

Bradenhead Completion - A head, screwed into the top of the casing, used to confine gas in the well until release through an outlet into a pipeline.

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 casing interval while testing an upper section.

Brine Well - A well used for injecting fresh water into geologic formation comprised mainly of salt. The injected freshwater dissolves the salt and is pumped back to the surface as a saturated sodium chloride brine solution used as a feedstock in petrochemical refineries and in oil and gas well drilling and workover operations.

BTU, British Thermal Unit(s) -- The amount of heat required to raise the temperature of one pound of water one degree Fahrenheit under standard conditions of pressure and temperature.

Casing - Pipe cemented in the well to seal off formation fluids or keep the hole from caving in.

Casinghead Gas - Gas found naturally in oil and produced with the oil.

Casing-Tubing Annulus - Space between the surface casing and the production casing.

Christmas Tree - The system of pipes, valves, gauges and related equipment that is located on the well at ground level and that controls the flow of gas and other petroleum products produced from the well.

Commission - The Railroad Commission of Texas.

Common Reservoir - A pool or accumulation of oil or gas that is produced in more than one well.

Condensate (also called Lease Condensate) -- Liquid hydrocarbons separated from gas production.

Crude Oil - Liquid petroleum as it comes out of the ground as distinguished from refined oils manufactured out of it.

Cubic Foot of Gas or Standard Cubic Foot of Gas - As a unit of volume, 1,728 cubic inches. As applied to water, 7.48 gallons. As applied to natural gas, the volume of gas which, when saturated with water vapor at 60°F and at a pressure of 30 inches of mercury occupies one cubic foot of volume.

Diagonal - Farthest distance between two points on a proration unit.

Discovery Date - Date assigned to discovery of a new field.

Discovery Well - The first oil or gas well drilled in a new field. The discovery well is the well that is drilled to reveal the actual presence of a petroleum-bearing reservoir, Subsequent wells are development wells.

Disposal Well - Well used for disposal of saltwater into an underground formation.

Dissolved Gas -- Commonly referred to as solution gas.

District Office - The Commission designated office for the geographic area in which the property or act subject to regulation is located or arises.

Downstream -- This term is used in describing operations performed after those at a point of reference.

Dry Gas - Natural gas that does not have a significant content of liquid hydrocarbons or water vapor.

Dry Hole -- Any well that fails to discover oil or gas in paying quantities.

Electric Logs - Recording that indicates the well's rock formation characteristics by different responses to electric current.

Enhanced Oil Recovery (EOR) - The use of any process for the displacement of oil from the reservoir other than primary recovery.

Ethane -- A colorless odorless gaseous hydrocarbon with the characteristics of the predominant molecule, CH<sub>3</sub>CH<sub>3</sub>.

Exploratory Well - Any well drilled for the purpose of securing geological or geophysical information to be used in the exploration or development of oil, gas, geothermal, or other mineral resources, except coal and uranium, and includes what is commonly referred to in the industry as slim hole tests, core hole tests, or seismic holes.

Extraction Loss -- The reduction in volume and energy content of natural gas resulting from the removal of natural gas liquid constituents.

Farmout - Assignment or partial assignment of an oil and gas lease from one lessee to another lessee.

Field - Area of oil and gas production with at least one common reservoir for the entire area.

Field Rules - Spacing and production rules for the common reservoir in an area.

Formation -- A separate layer of rock or group of intermingled beds.

Frac-- High pressure or explosive method of fracturing rock formations

Fuel and Shrinkage - The difference between the amount of gas produced at the wellhead and the gas that enters a pipeline that can be associated with providing energy to on lease equipment or removal of solution gas. The losses include but are not limited to those from the separation process and field use, as well as fuel, flare gas and plant liquids extraction.

Gas Lift - The process of raising or lifting fluid from a well by means of gas injected down the well through tubing or tubing casing annulus. Injected gas aerates the fluid to make it exert less pressure than the formation pressure, consequently forcing the fluid out of the wellbore.

Gas-Oil Ratio (G.O.R.) - Number of cubic feet of gas produced per barrel of oil.

Gas Well - Any well:

- (A) which produces natural gas not associated or blended with crude petroleum oil at the time of production;
- (B) which produces more than 100,000 cubic feet of natural gas for each barrel of crude petroleum oil from the same producing horizon; or
- (C) which produces natural gas from a formation or producing horizon productive of gas only encountered in a wellbore through which crude petroleum oil also is produced through the inside of another string of casing or tubing. A well which produces hydrocarbon liquids, a part of which is formed by a condensation from a gas phase and a part of which is crude petroleum oil, shall be classified as a gas well unless there is produced one barrel or more of crude petroleum oil per 100,000 cubic feet of natural gas; and that the term "crude petroleum oil" shall not be construed to mean any liquid hydrocarbon mixture or portion thereof which is not in the liquid phase in the reservoir, removed from the reservoir in such liquid phase, and obtained at the surface as such.

Gatherer - Includes any pipeline, truck, motor vehicle, boat, barge, or person authorized to gather or accept oil, gas, or geothermal resources from lease production or lease storage.

Gathering Line -- A pipeline that transports oil or gas from a central point of production to a transmission line or mainline.

Geothermal Energy and Associated Resources--

- (A) All products of geothermal processes, embracing indigenous steam, hot water and hot brines, and geopressured water;
- (B) Steam and other gases, hot water and hot brines resulting from water, gas, or other fluids artificially introduced into geothermal formations;
- (C) Heat or other associated energy found in geothermal formations;
- (D) Any by-product derived from them.

Geothermal Resource Well - A well drilled within the established limits of a designated geothermal field.

- (A) A geopressured geothermal well must be completed within a geopressured aquifer.
- (B) A geopressured aquifer is a water-bearing zone with a pressure gradient in excess of 0.5 pounds per square inch per foot and a temperature gradient in excess of 1.60 F per 100 feet of depth.

Henry Hub -- Located in Erath, LA, the Henry Hub is a pipeline interchange and the delivery point for the New York Mercantile Exchange (NYMEX) active natural gas futures contracts. Natural gas from the Gulf of Mexico moves through the Henry Hub onto interstate pipelines serving the Midwest and the Northeast.

Horizontal Drilling - A well which is not vertically drilled as defined in Statewide Rule 86.

Hub -- A location where several pipelines interconnect. Also known as a market center.

Hydrocarbon -- An organic chemical compound of hydrogen and carbon, called petroleum. The molecular structure of hydrocarbon compounds varies from the simplest, methane (CH<sub>4</sub>), a constituent of natural gas, to the very heavy and very complex. Octane, for example, a constituent of crude oil, is one of the heavier, more complex molecules.

Independent Producer - An energy company, usually in the exploration and production segment of the industry and generally, with no marketing, transportation or refining operations. A non-integrated producing company in the oil industry.

Injection Well - Well used to inject fluids (usually water) into a subsurface formation by pressure.

Kelly Bushing - Drilling rig equipment that fits inside the rotary table and is also used as a reference point on logs to calculate depth.

Long String - Last string of casing set in the well, covering the productive zone.

Low Temperature Extraction (LTX) Unit - Condensation of gas into a liquid by refrigeration.

Mcf -- One thousand cubic feet of natural gas measured at standard pressure and temperature conditions.

MMbo -- Million barrels of oil.

MMBtu -- One million British thermal units, 252,000 Kilocalories or 293 Kilowatt Hours.

MMcf - One million cubic feet.

Mud - Drilling fluid used to lubricate the drill string, line, the walls of the well, flush cutting to the surface and create enough weight to prevent blowouts.

Multiple 49(b) - Rule governing gas well production from an oil reservoir gas cap.

Multiple Completion -- The completion of a single well into more than one producing horizon. Such a well may produce simultaneously from the different horizons, or alternatively from each.

Natural Gas or Gas - A naturally occurring mixture of hydrocarbon and non-hydrocarbon gases in porous formations beneath the earth's surface, often in association with petroleum. The principal constituent is methane.

Natural Gasoline - Gasoline manufactured from casinghead gas or from any natural gas.

NGL, Natural Gas Liquids - Hydrocarbon liquids extracted from natural gas.

Odorant - Any malodorous substance added to natural or LP-gas in small concentrations for the purpose of making the presence of the gas detectable.

Offshore Well - (SWR 14) Any well subject to Commission jurisdiction for which the surface location is on state lands in or on the Gulf of Mexico, that is not a bay well.

Oil Well - Any well which produces one barrel or more crude petroleum oil to each 100,000 cubic feet of natural gas.

Open-flow Test - A test made to determine the volume of gas that will flow from a well during a given time span with minimum restrictions.

Operator - A person, acting for himself or as an agent for others and designated to the Commission as the one who has the primary responsibility for complying with its rules and regulations in any and all acts subject to the jurisdiction of the Commission.

Overproduction - Production in excess of the well's monthly allowable.

PPM -- Parts per million.

Perforations - Holes through casing and cement into the productive formation.

Permeability - Ability of rock to transmit fluids through pore spaces.

Person - Any natural person, corporation, association, partnership, receiver, trustee, guardian, executor, administrator, and a fiduciary or representative of any kind.

Pit - Hole dug out in the ground surface for temporary storage of fluids during drilling operations.

Plug - Seal off formations to stop open communication of formation fluids within a well.

Pollution - Unauthorized contamination of surface or subsurface waters or land.

Pooled Unit - Unit created by combining separate mineral interests under the pooling clause of lease or agreement.

Porosity - Percentage of the rock volume that can be occupied by oil, gas or water.

Proration Unit - Acreage allocated to a well for the purpose of determining an allowable.

PSIA - Pounds of pressure per square inch absolute, using absolute zero as a base.

PSIG - Pounds of pressure per square inch gauge, using atmospheric pressure as a base.

PSI (pounds per square inch) - An English system of measure of the amount of pressure on an area that is 1 inch square.

Processing Plant -- A plant to remove liquefiable hydrocarbon.

Product - Includes refined crude oil, crude tops, topped crude, processed crude petroleum, residue from crude petroleum, cracking stock, uncracked fuel oil, fuel oil, treated crude oil, residuum, casinghead gasoline, natural gas gasoline, gas oil, naphtha, distillate, gasoline, kerosene, benzine, wash oil, waste oil, blended gasoline, lubricating oil, blends or mixtures of petroleum and/or any and all liquid products or by-products derived from crude petroleum oil or gas, whether hereinabove enumerated or not.

Propane -- A gaseous hydrocarbon with the characteristics of the predominant molecule  $\text{CH}_3\text{CH}_2\text{CH}_3$ .

Quad -- One quadrillion (1,000,000,000,000,000) British Thermal Units (BTU)

Rat Hole - Hole adjacent to well bore for storage of the kelly joint when not in use during drilling operations.

Reclamation Plant - Plant that treats and reclaims waste oil.

Regular Permit - Permit to drill, plug back or deepen that does not require an exception.

Reserve Pit - Pit used to collect spent drilling fluids, cutting and wash water during drilling operations.

Reservoir - A porous, permeable sedimentary rock containing commercial quantities of oil and gas.

Residue Gas - Gas remaining after processing and extraction of NGL.

Salt Water Disposal Well (SWD) - A well used for the purpose of injecting produced water back into the ground.

Secondary Recovery - Hydrocarbons produced in one well bore by increasing reservoir pressure with water injected into an adjacent well bore.

Solution Gas - Gas which is dissolved in oil in the reservoir under pressure.

Sour Gas - (SWR 79) Any natural gas containing more than 1-1/2 grains of hydrogen sulfide per 100 cubic feet or more than 30 grains of total sulfur per 100 cubic feet, or gas which in its natural state is found by the Commission to be unfit for use in generating light or fuel for domestic purposes.

Spot Market -- Short term, non-regulated, arms length contract sales of natural gas, crude oil, refined products, or liquid petroleum gas.

Spud Date - Date that drilling begins.

Storage Gas - A gas that is stored in an underground reservoir.

Storage Tank - Tank for the accumulation of oil pending transferal to a pipeline company or other purchaser.

Stratigraphic Cross Section - Series of electric logs that illustrate formation correlation with one formation as a datum.

Structural Cross Section - Series of electric logs that illustrate subsurface structure by placing the logs relative to sea level.

Substandard Acreage - Amount of acreage that is less than the standard amount for a proration unit for a field.

Surface Casing - Outer casing cemented in the upper portion of the wellbore to protect fresh water formations from contamination.

Sweet Gas - All natural gas except sour gas and casinghead gas.

Tank Battery - Tanks for oil storage before delivery to a refinery.

Texas Offshore - This term embraces the area in the Gulf of Mexico seaward of the coast line of Texas comprised of:

(A) the three league area confirmed to the State of Texas by the Submerged Land Act (43 United States Code 1301-1315); and

(B) the area seaward of such three league area owned by the United States.

Therm - A unit of heat equivalent to 100,000 British Thermal Units (Btu).

3-D, Three Dimensional Seismic -- Advanced method for collecting, processing, and interpreting seismic data in three dimensions. Three-dimensional seismic data are collected from closely spaced lines over an area and the data are processed as a volume. The advantages of three-dimensional seismic methodology include increased resolution (through 3-d migration and deconvolution) as well as improved interpretational tools and data displays (such as closely spaced parallel seismic lines, horizontal time sections).

Tidal Disposal - Discharge of produced water or other waste materials into tide influenced waters.

Tolerance Acreage - Small amounts of acreage assigned to a proration unit after the unit is already established.

Transportation or to Transport - The movement of any crude petroleum oil or products of crude petroleum oil or the products of either from any receptacle in which any such crude petroleum or products of crude petroleum oil or the products of either has been stored to any other receptacle by any means or method whatsoever, including the movement by any pipeline, railway, truck, motor vehicle, barge, boat, or railway tank car. It is the purpose of this definition to include the movement or transportation of crude petroleum oil and products of crude petroleum oil and the products of either by any means whatsoever from any receptacle containing the same to any other receptacle anywhere within or from the State of Texas, regardless of whether or not possession or control or ownership change.

Transporter or transporting agency - Includes any common carrier by pipeline, railway, truck, motor vehicle, boat, or barge, and/or any person transporting oil or a product by pipeline, railway, truck, motor vehicle, boat, or barge.

Tubing - String of pipe set inside the well casing, through which the oil or gas is produced.

Underground Hydrocarbon Storage -- The use of sub-surface geologic formations for storing liquid, liquefied or gaseous hydrocarbons, such as natural gasoline, propane and natural gas.

Underproduction - Production that is less than the allowable assigned to a proration unit.

Unitization - Joint operations to maximize recovery among separate operators within a common reservoir.

Unitization Tract - Land subject to a unitization agreement.

Waterflood - Injecting water in one well causing oil not recovered by primary production to migrate to an adjacent well.

#### Wells

Development Well -- A well drilled to a known producing formation in a previously discovered field.

Exploratory Well - Any well drilled for the purpose of securing geological or geophysical information to be used in the exploration or development of oil, gas, geothermal, or other mineral resources, except coal and uranium, and includes what is commonly referred to in the industry as "slim hole tests," "core hole test," or "seismic holes".

Wildcat Well - A well drilled for the purpose of discovering a new field or reservoir.

Zone - Interval of subsurface formation.