

GLOSSARY OF OIL AND GAS TERMS

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A

- 1) Accommodation Doctrine: The principle (also known as a reasonable-use standard) that when a Lessee exercises its Implied Surface Use Easement (the right to use the surface of the leased premises to explore for or produce minerals) the Lessee must consider the impact on the Lessor's use of the property and the reasonableness of the use. When the minerals are severed from the surface, both the mineral owner and surface owner own valuable estates. While the surface remains servient to the dominant mineral estate, the Lessee must accommodate the surface owner's uses, whenever reasonable. The following factors must exist for the Accommodation Doctrine to apply:
 - There must be an existing surface use
 - The Lessee's proposed use must substantially interfere with the existing surface use
 - The Lessee must have reasonable alternatives available
- 2) Ad Coelum: This common law doctrine currently governs hard minerals; however, was replaced by the Rule of Capture in relation to fugacious and fungible resources, such as oil and gas. Under this doctrine, everything above and below property boundaries, spanning from the heavens to the core of the earth and all the elements therein, belonged to the landowner. Liability was imposed for producing minerals that migrated from an adjoining property. Continued application of this doctrine would have restricted oil and gas production, depriving society of the benefits of natural resources.
- 3) After-Acquired Title Clause: An Oil and Gas Lease provision which extends the coverage of the lease to any interest in the described property acquired after the lease. Sample lease language is as follows:

"This lease covers all the interest now owned by or hereafter vested in the Lessor..."
- 4) Apportionment Rule: If a Lessor sells part of the leased property subsequent to execution of an Oil and Gas Lease and a producing well is drilled on the tract conveyed, the issue arises (when no agreements exists between the parties as to royalty payments) regarding whether the Lessee should tender royalty payments to the owner of the newly subdivided tract or to all owners of the leased property. Under the Apportionment Rule (the minority rule followed in California and Pennsylvania), royalty payments are shared (apportioned) among all owners of the total leased acreage, in proportion to the acres owned.

If Owner A leases 20 acres to Oil Company and subsequently conveys the east ten acres to Owner B, Owner A and Owner B would share royalty payments equally regardless of where on the leased property the well is located.

- 5) Assignment Clause: An Oil and Gas Lease provision which requires that notice of changes in ownership be provided by the Lessor, or assignees, to the Lessee before the Lessee is obligated to recognize such changes. The purpose is to protect a lease holder against the consequences of making an improper payment under the lease (Same as Change-of-Ownership Clause). Sample language is as follows:

“The Right of either party hereunder may be assigned, in whole or in part. No change in ownership of the land, or any interest therein, shall be binding upon the Lessee until Lessee shall be furnished with a certified copy of all recorded instruments, all court proceedings and all other necessary evidence of any transfer, inheritance, or sale of said rights.”

- 6) Assignment of Oil and Gas Leases: The legal instrument whereby ownership of Oil and Gas Leases is assigned or conveyed (either in part or in full) from the assignor (who owned either Oil and Gas Leases in full or a partial interest therein) to the assignee. Courts generally treat oil and gas interests as real property; therefore, oil and gas interests are freely assignable unless reasonable terms are imposed by the terms of their creation. Even without provisions in the Oil and Gas Lease expressly permitting assignment, a Lessee may generally transfer all or any proportionately reduced of its interest. Many Oil and Gas Leases do expressly allow assignment. At common law, a party could assign a contract but would be bound by the obligations thereof. Accordingly, unless an Oil and Gas Lease states otherwise, an operator who assigns leases remains bound by the contractual obligations of the lease. Lessees protect themselves by including language such as the following into Oil and Gas Leases:

“If Lessee assigns this Oil and Gas Lease, in whole or in part, Lessee shall be relieved of all obligations with respect to the assigned portion or portions upon furnishing the Lessor with a written transfer or assignment or a true copy thereof.”

Courts have been reluctant to impute implied Oil and Gas Lease covenants to an assignee as assignees are sophisticated purchasers. Express obligations created by the Oil and Gas Lease, almost without exception, run with the land, so are imputed to the assignee.

- 7) Assignment of Overriding Royalty Interest: The legal instrument whereby ownership of an Overriding Royalty Interest is created and assigned (either in part or in full) from the assignor to the assignee.
- 8) Associated Gas: Natural gas is produced from oil wells, gas wells, and condensate wells. When produced from an oil well, the natural gas found in association with oil is known as associated gas. In the reservoir, associated gas may be dissolved and suspended in oil (known as dissolved gas), or it may be grouped as a cap of gas above the oil in the formation (known as free gas). Associated gas was historically flared (burned off at the well site) because there was no readily available market.

- 9) Assumpsit: A legal remedy available to a mineral owner for trespass. It is an equitable action brought to enforce an implied contract. A mineral owner that has suffered a mineral trespass may sue for payment for the right of entry that the trespasser should have obtained under an Oil and Gas Lease.
- 10) “At the Well” Rule: The majority of oil and gas producing states have adopted this rule (also known as the “Capture and Hold Rule” and the “work-back” or “net-back” method) and apply it to calculating the Royalty Interest payable to the Lessor when the Oil and Gas Lease does not specifically set forth a method for calculating “production.” The majority rule holds that production is complete (and therefore Production Costs cease and Post-Production Costs commence) when oil and gas is captured and held at the wellhead or on the leased property.

The appropriate point for Royalty Interest calculation is at the wellhead so that the Lessor receives royalties based on the wellhead price of the gas. Natural gas is rarely sold at the wellhead and is generally sold at downstream locations. The price paid at downstream locations is higher than if the gas were sold at the wellhead. The Lessee is entitled to deduct certain Post-Production Costs incurred to move the gas to the point where a higher price is realized (including the costs of gathering, processing, compressing, treating and transporting gas and severance and gross production taxes due) from the ultimate sales price, to determine an “at the well” value.

The method for calculating market value may be based upon either of the following:

- a) Comparable Sales Method: The preferred method for calculating market value.
- b) Workback Method: This method is appropriate when comparable sales evidence is not available. The Lessee begins with the price paid at a point of sale downstream, and then deducts reasonable Post-Production Costs to arrive at the market value of oil or gas at the wellhead.

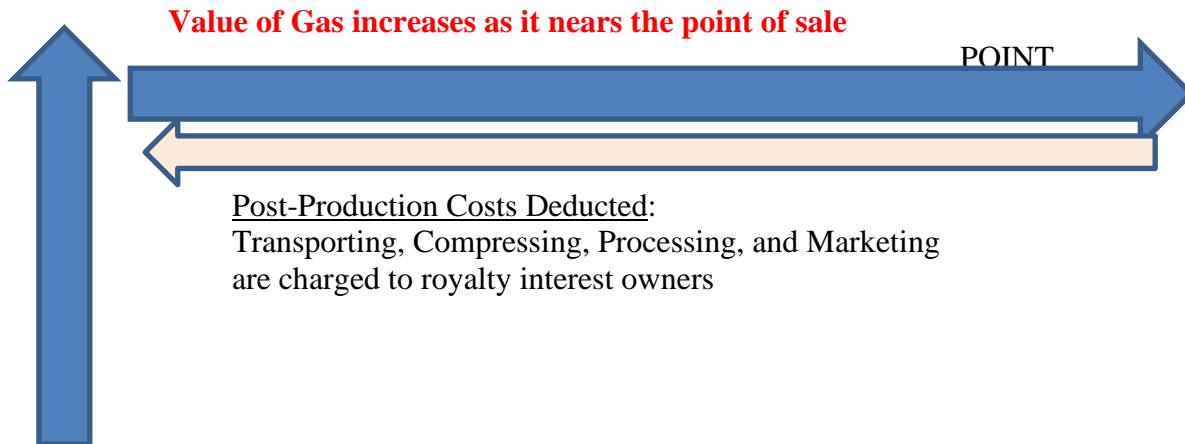
If an Oil and Gas Lease contains the language “net proceeds” and “market value,” the At the Well Rule allows deduction of Post-Production Costs. If an Oil and Gas Lease contains the language “at the wellhead,” the At the Well Rule allows the Lessee to net-back Post-Production Costs when determining the value of production upon which royalty calculations are based.

The following is an example of a gas royalty provision with “At the Well” language:

“Royalties to be paid by Lessee are: . . . (b) on gas, including casinghead gas or other gaseous substance, produced from said land and sold or used, the market value at the well of one-eighth (1/8) of the gas so sold or used, provided that on gas sold at the well the royalty shall be one-eighth (1/8) of the amount realized from such sales.”

**MAJORITY RULE – “AT THE WELL” RULE
a/k/a “CAPTURE AND HOLD” RULE**

X Production occurs when gas is “Captured and Held” at the wellhead
Surface _____



B

- 11) Back in Provision: A provision in a farmout agreement whereby the farmor retains an option to exchange a retained override for a share of the Working Interest.
- 12) Barrel (bbl): The volume of crude oil and distillates (also known as condensates) is measured in barrels. One barrel equals 42 US gallons.
- 13) Barrels of Oil Equivalent (BOE): A measurement that converts gas production into oil equivalent production using an energy equivalent basis where 1 BOE has the energy of 6,040 cubic feet of gas, which results in roughly one barrel to 6 Mcf.
- 14) Bcf: One Bcf equals one billion cubic feet of gas.
- 15) Brent Standard: The benchmark price at which crude oil futures contracts are traded in Europe, the Mediterranean, Africa, Australia, and Asia (making it the most common global price index) relating to light, sweet crude oil produced in the North Sea.

C

- 16) Carried Working Interest: A type of Working Interest ownership that does not require payment of well costs and/or operational expenses until the point contractually agreed to (often when the well is drilled to the casing point, is completed, or produces to the point of payout). The party advancing well costs and operational expenses is the “carrying party” and the other party is the “carried party.” The carrying party reimburses itself out of

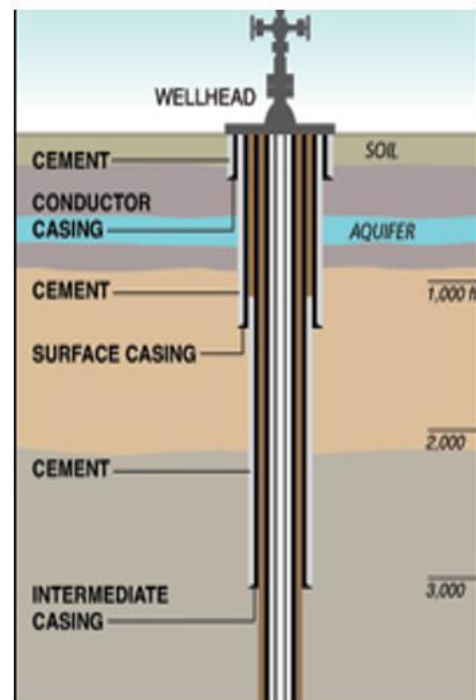
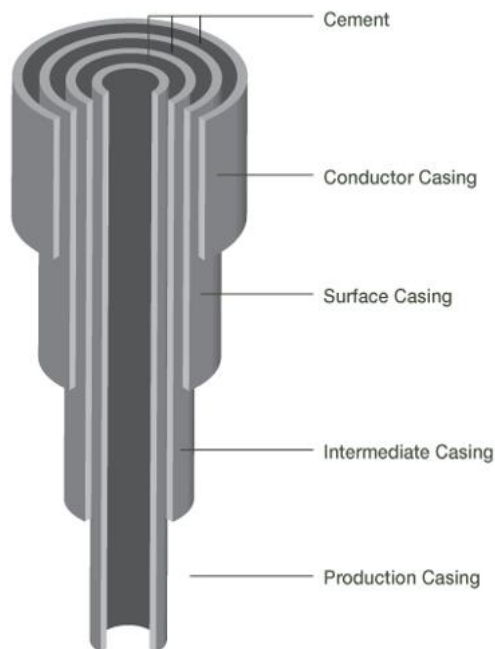
production revenue. This type of interest is often granted as compensation for work related to the prospect. When a 25% Carried Working Interest is created, the carrying party owns a 75% Working Interest and pays 100% of the costs (to the agreed point in time) and the carried party would begin to pay 25% of costs (at the agreed point in time), when the carrying party would begin to pay 75% of costs.

17) **Casing:** The protective pipe placed in a wellbore, through which the drill bit passes and production later flows to the surface. Wells generally have the following types of casing and the space between each casing string is filled with cement of regulated specifications:

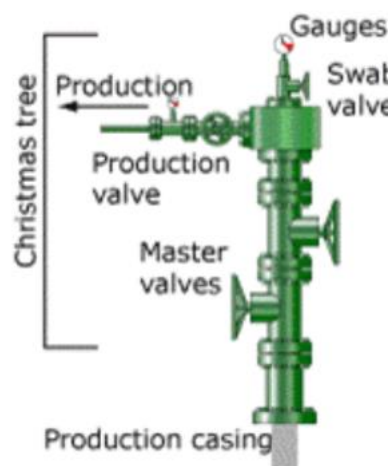
- **Surface Casing:** Casing set near the surface and outside the Intermediate Casing and Production Casing designed to protect potable waters from contact with drilling and producing operations.
- **Intermediate Casing:** Casing set between the Surface Casing and Production Casing designed to protect deeper formations located between the surface and the producing formation.
- **Production Casing:** The longest casing string, which is set inside the Intermediate Casing and reaches the producing formation, through which oil and gas is brought to the surface.

Typical Well Casing Diagram

(Not to Scale)



- 18) Casing Point: The point at which a well has been drilled to the desirable depth and the owners must decide whether or not to place production pipe, called casing, in the hole and proceed to complete and equip the well for production.
- 19) Cessation of Production Clause: An Oil and Gas Lease provision which establishes the necessary actions the Lessee must perform to cause the lease to remain in full force and effect should the production of oil, gas and associated hydrocarbons cease. The purpose of the Cessation of Production Clause is to make more certain the Temporary Cessation of Production Doctrine.
- 20) Change-of-Ownership Clause: An Oil and Gas Lease provision which requires that notice of changes in ownership be provided by the Lessor, or assignees, to the Lessee before the Lessee is obligated to recognize such changes. The purpose of the clause is to protect a lease holder against the consequences of making an improper payment under the lease (Same as Assignment Clause.)
- 21) Christmas Tree: Part of a completed well (located above ground and affixed to the top of the wellhead), comprised of valves, spools, fittings and pressure gauges, used to control the flow of oil and gas out of the well and to (1) allow injection of fluids (chemicals, alcohols or oil distillates) into the well to prevent blockage and deterrents to production, (2) control the injection of gas or water into a non-producing well in order to enhance production rates of oil from other wells, (3) monitor and release well pressure, (4) monitor corrosion, erosion, flow rate, flow composition, and temperature, (5) connect devices to the well, such as down hole pressure and temperature transducers. The valves are opened to allow production to travel along a flow line leading to a processing facility, storage depot, or to pipeline that leads to a refinery or distribution center.



- 22) Coalbed Methane: The methane naturally released from coal beds is now a significant unconventional resource, due to recent technological advances that allow production.

- 23) Community Property: Community property states (Texas, Louisiana, California, New Mexico and others) create a marital partnership in property acquired during marriage. Each spouse is presumed to own half of all property acquired by either spouse during marriage. Exceptions are made for property acquired by one spouse by inheritance or with assets owned before marriage.
- 24) Concurrent Estate: A concept in property law (also known as co-tenancy), derived from common law, as to the various ways in which property can be owned by more than one person at a given time. The parties owning the property jointly are known as co-tenants or joint tenants. All co-tenants have the right to present possession of the property at the same time and their ownership is concurrent. Most states recognize three concurrent estates, being Tenancy in Common, Joint Tenancy with Right of Survivorship, and Tenancy by the Entirety. The type of ownership determines the right of the parties to convey their interest in the property to others, to devise the property by their last will and testament to their devisees, or to sever their joint ownership of the property. Just as each of these affords a different set of rights and responsibilities to the joint owners of property, each requires a different set of conditions in order to exist.

Co-tenants, irrespective of the type of tenancy, share certain rights to the property, except to the extent they have modified these rights through an agreement among themselves:

- Each tenant has an unrestricted right of access to the property. Where one co-tenant wrongfully excludes another from making use of the property, the excluded co-tenant can bring a cause of action for ouster and may receive the fair rental value of the property for the time that he was dispossessed.
- Each tenant has a right to an accounting of profits made from the property. If the property generates income such as rent, each tenant is entitled to a proportion of that income.
- Each tenant has a right of contribution for the costs of owning the property. Co-tenants can be forced to contribute to the payment of expenses such as property taxes and mortgages on the entire property.
- Co-tenants do not bear any obligation to contribute to any costs of repairing or improving the property. If one co-tenant adds a feature that enhances the value of the property, that co-tenant has no right to demand that any others share the cost of adding that feature, even if other co-tenants reap greater profits from the property because of it.
- Co-tenants can independently encumber their own share in the property by taking out a mortgage on that share. Other co-tenants have no obligation to help pay a mortgage that only runs to another tenant's share of the property, and the mortgagee can only foreclose on that share.

Co-tenants, irrespective of the type of tenancy, share certain obligations to the property and to co-tenants, except to the extent they have modified these rights through an agreement among themselves:

- Co-tenants owe one another a duty of fair dealing. Because of this, any co-tenant who acquires a mortgage claim against the property must give his co-tenants a reasonable opportunity to purchase proportionate shares in that claim.
- In a minority of states, a co-tenant is not allowed to drill a well without the consent of the other. The majority view is that a Tenant in Common has the right to develop minerals without the permission of other co-tenants or even over their objection. However, due to practical business considerations, operators generally do not rely on the majority rule.

- 25) Condensate: The wet element of natural gas that may be removed as a liquid. The term condensate is used interchangeably with *Distillate* and *Natural Gasoline*.
- 26) Continuous Operations Clause: This clause is a variation of the Operations Clause and causes the lease to remain in full force and effect after expiration of the Primary Term when the Lessee is in the process of drilling a well before expiration of the Primary Term. The Lessee also has the right to commence additional wells after expiration of the Primary Term. This clause differs from the Well Completion Clause, which restricts the Lessee to completion of the well commenced during the Primary Term. Sample lease language is as follows:
- “The lease shall continue in force so long as drilling or reworking operations are being continually prosecuted in said land...; and diligent drilling or reworking operations shall be considered to be continuously prosecuted if not more than 60 days shall elapse between the completion or abandonment of one well and the beginning or operations for the drilling or reworking of another well.”*
- 27) Conversion: The wrongful taking of personal property. In jurisdictions where oil and gas is classified as personal property, the cause of action for the wrongful taking is conversion.
- 28) Corporeal Right: An interest in land under common law that included the right of present possession (“of substance”), which could not be abandoned.
- 29) Correlative Rights: This doctrine protects the right of each Mineral Interest owner to produce oil and gas from a common pool/reservoir and imposes liability upon a party that drills a well in a negligent manner that causes damage to the ability of the pool/reservoir to produce or reduces production from wells in proximity. The Correlative Rights Doctrine modified the Rule of Capture.
- 30) Crude Oil: The category of petroleum that is produced at a well in liquid state (a mixture of hydrocarbon compounds that exists as a liquid in natural underground reservoirs and remains a liquid when brought to the surface in its raw form), which frequently contains

saltwater and other impurities. Crude oil is refined to produce petroleum products such as heating oils, gasoline, diesel, jet fuels, lubricants, asphalt, ethane, propane and butane.

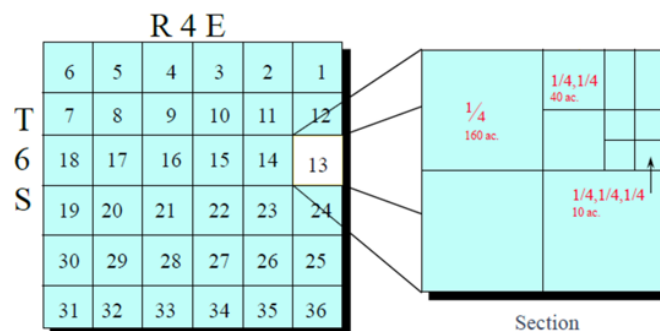
- 31) Curtsey: The interest a surviving husband received at common law to a Life Estate in all the property owned by his wife during marriage, if the husband fathered a male heir born alive. Many states have abolished curtesy by statute and surviving spouses are entitled to equal interests in property acquired during marriage (usually a one-third Life Estate), upon the death of the partner. When a Lessor is married, the spouse should be required to sign any Oil and Gas Lease pertaining to marital property.

D

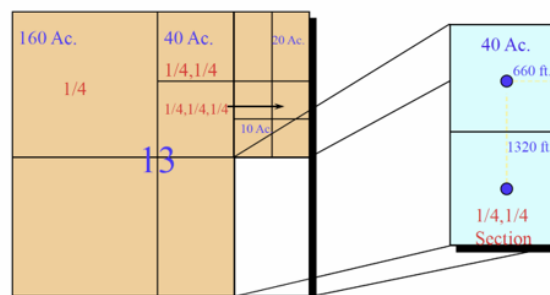
- 32) Damage to Lease Value: A legal remedy available to a mineral owner for trespass when a dry hole is drilled by a party who did not operate under a valid and effective Oil and Gas Lease. Drilling a well is the only way to know definitively if the leased property contains oil and gas. When a dry hole is drilled, it diminishes the property's lease value in that other operators will not want to obtain a subsequent Oil and Gas Lease and pay a Lease Signing Bonus, knowing the leased property does not contain oil and gas.
- 33) Damages Clause: An Oil and Gas Lease provision which requires that the Lessee pay the Lessor or surface owner for damages to the surface, often limited to growing crops. In the absence of a Damages Clause the Lessee has no obligation to pay for reasonable damage to the surface necessarily incurred in the effort to obtain oil and gas because the Lessee has an implied right to use the surface for oil and gas operations.
- 34) Defeasible Royalty: A Royalty Interest for an indefinite period of time (for example 25 years and so long thereafter as there is production from the leased property). Defeasible is defined as capable of being annulled or made void.
- 35) Delay Rental Clause: An Oil and Gas Lease provision which allows the Lessee to maintain the lease in full force and effect during the Primary Term by tendering Delay Rental Payments to the Lessor rather than by commencing drilling operations. Payments are made annually and cause the lease to remain in effect for the annual period after the Delay Rental Payment is made. The purpose of the provision is to ensure that the Lessee has no obligation to drill during the Primary Term by negating any implied obligation to test the leased property. A lease will not be held in full force and effect by Delay Rental Payment if (1) the well drilled is a dry hole or production ceases during the Primary Term or (2) the lease does not contain a Delay Rental Clause. The Delay Rental Clause has fallen out of use as most modern leases are "Paid-Up" and no Delay Rental Payments are due.
- 36) Delay Rental Payment: An annual rental payment issued by the Lessee to the Lessor after the first year of the Primary Term if no well is drilled during the Primary Term. The purpose is to keep the lease active. The amount agreed to in the Oil and Gas Lease is paid for each acre leased. Not all leases contain a Delay Rental Clause. If the lease does not contain a delay rental provision, the lease is known as a Paid-Up Lease.

- 37) Development Right: The right of the Mineral Interest owner to explore, develop, mine, and produce any or all of the natural resources lying below the surface of the property, including all organic and inorganic substances that form a part of the soil, but not including sand, gravel, limestone, and subsurface water, which are generally considered part of the surface, which is one of the “Incidents of Mineral-Interest Ownership.”
- 38) Directional Drilling: A drilling method (also known as slant drilling) where the bottom of the well bore is slanted away from the surface location so that the well path is not vertical, which is utilized to access resources under adjoining land, minimize surface disruptions and structures as multiple directional well legs can originate from one surface location, increase the length of the well bore that passes through the producing zone, and to more advantageously intersect geological fractures.
- 39) Division Order: A document generated by the Lessee (generally with the assistance of legal counsel and in reliance upon a division order title opinion), which the Lessee submits to every party that owns an interest in the production unit. The owners sign the document to authorize the distribution of production revenue and to approve the rate of payment, confirm the acreage amount that serves as the basis of payment, and verify the proper payee. Oil and Gas Leases, operating agreements, mineral and royalty deeds, and other instruments impacting title to oil and gas, often contain specific provisions regarding rights to production revenue. The operator seeks protection, through the division order, against liability for improperly interpreting such instruments.
- 40) Dormant Mineral Acts: Many oil and gas producing states have enacted statutes that cause a severed Mineral Interest that has not been developed or “used” (as the term “use” is defined in the statutes, which vary slightly from state to state) within the specified time frame (usually 20 years) to lapse, to be construed as extinguished, and to merge back into ownership of the surface.
- 41) Double Fraction Problem: The ambiguity that arises when a party that owns a fractional interest conveys or reserves a fractional interest using language that is unclear regarding whether the grant or reservation is a part of what the grantor owns or part of the whole. If Owner A owns a 1/2 interest in minerals and conveyed “a 1/2 interest in the minerals,” it is unclear if the grantor intended to convey 1/2 of all of the minerals or 1/2 of what the grantor owned, being 1/2. Courts apply the Duhig Rule for resolution (See Duhig Rule).
- 42) Dower: The interest a surviving wife received at common law in the inheritable lands owned by her husband during marriage. The wife received a Life Estate in 1/3 of such lands. Many states have abolished dower by statute and surviving spouses are entitled to equal interests in property acquired during marriage (usually a one-third Life Estate), upon the death of the partner. When a Lessor is married, the spouse should be required to sign any Oil and Gas Lease pertaining to marital property.

- 43) Downstream: This sector of the petroleum exploration, production and delivery cycle refines petroleum crude oil, processes and purifies raw natural gas, and markets and distributes products derived from crude oil and natural gas. This sector provides gasoline, kerosene, jet fuel, diesel oil, heating oil, fuel oils, lubricants, waxes, asphalt, natural gas, and liquefied petroleum gas and petrochemicals.
- 44) Drilling and Service Companies: Oil and gas producers generally do not own drilling equipment or employ staff to drill wells so utilize contract drilling companies, who are paid on a wage basis and not in relation to oil and gas production revenue.
- 45) Drilling Unit: The minimum amount of acreage the Operator must pool (group together) to obtain a permit to drill an oil and gas well and to comply with Petroleum Conservation Laws.
- 46) Drilling Unit Size Requirements: A limitation imposed by Petroleum Conservation Laws that requires the Operator to pool (group together) a minimum amount of acreage in order to obtain a permit to drill an oil and gas well. All land within the boundaries of a Drilling Unit must be under an operative Oil and Gas Lease executed in favor of the Operator or subject to an Order issued by a State Regulatory Agency granting the Operator's Petition for Forced Pooling. These requirements may mandate that a Drilling Unit contains 10 acres (comprised of a Quarter-Quarter-Quarter Section of land), 20 acres (comprised of a Half Quarter-Quarter Section of land), 40 acres (comprised of a Quarter-Quarter Section of land) or other minimum acreage amounts, depending upon the well type, and the statutes enacted in the state where the well is located.

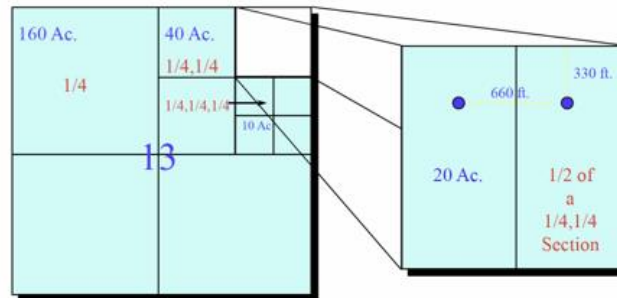


40 ACRE UNITS & SPACING

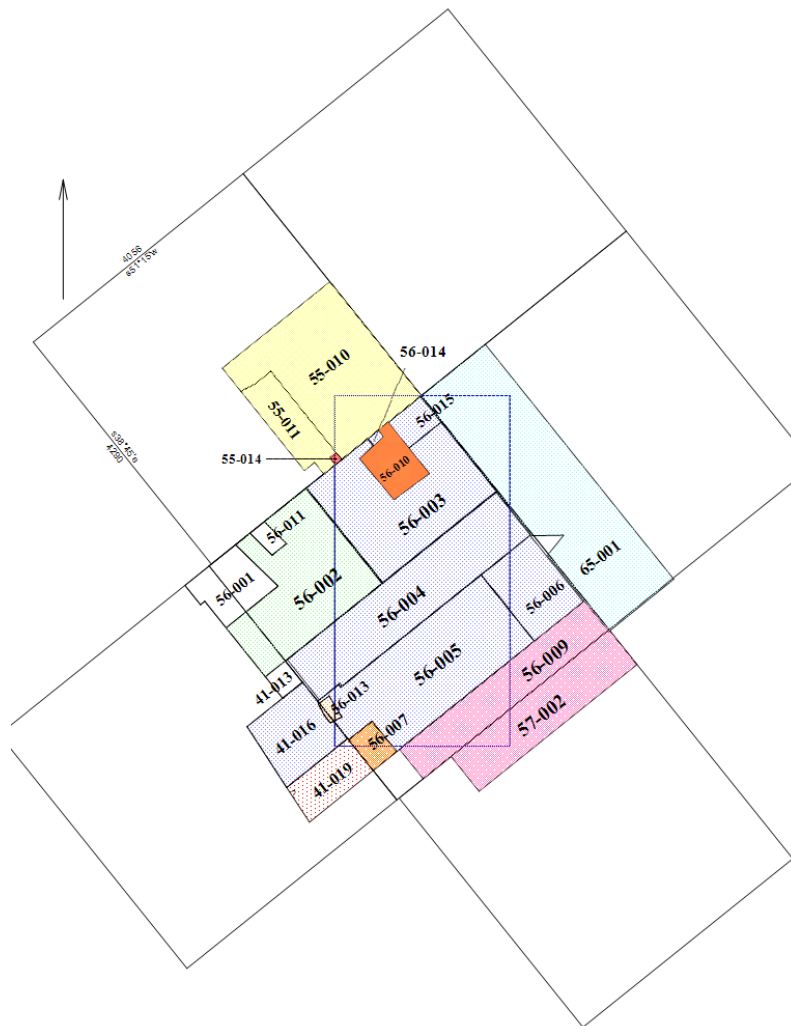


Typical Spacing for Gas Wells that are Deeper than 1,000 ft.
regardless of formation and for all Coal Bed Methane (CBM) Wells

20 ACRE UNITS & SPACING



Typical Spacing for Oil Wells and Gas Wells
Shallower than 1,000 ft. in formations other than
Sandstone's
(Non-sandstone oil wells and shallow gas wells)



- 47) Dry Gas: A type of natural gas comprised predominantly of methane that is recovered from a well that produces little or no reservoir liquids or condensate. The term also applies to gas that has had condensable hydrocarbons removed.
- 48) Dry Hole Clause: An Oil and Gas Lease provision which allows a Lessee to maintain the lease in full force and effect during the Primary Term, after drilling an unproductive well, by tendering Delay Rental Payments to the Lessor.
- 49) Duhig Rule: A rule of title interpretation regarding the over-conveyance of fractional interests (See Double Fraction Problem). The Court in *Duhig v. Peavy-Moore Lumber Co., Inc.*, 135 Tex. 503, 144 S.W. 2d 878 (1940), ruled that when a grantor does not own enough interest to give full effect to the granted interest and to a reserved interest, courts will give priority to the granted interest until the granted interest is fully satisfied. Grantors of mineral rights may fail to mention reservations made by previous owners, which leads the buyer to believe that the seller owns all the minerals described in the deed. The rule applies only to warranty deeds in most of the states.

Owner A grants a warranty to Owner B and reserves 1/3 of the minerals. Owner B later grants a warranty deed to Owner C and reserves unto himself 1/3 of the minerals but fails to mention the previous reservation and that Owner A owns a 1/3 Mineral Interest. Under the Duhig Rule (despite the fact that it was the obvious intent of Owner B to reserve a 1/3 Mineral Interest for himself), priority will be given to the granted interest and Owner B will own no interest in the minerals. Owner B intended to sell Owner C a 1/3 Mineral Interest and to retain a 1/3 Mineral Interest; however, the warranty deed must be taken on its own, without regard to the prior reservation from Owner A since it was not mentioned. The deed to Owner C states that 1/3 of the Mineral Interest are reserved to Owner B; thus, Owner C would logically expect to receive a 2/3 Mineral Interest according to this deed, assuming he had no knowledge of the reservation made by Owner A.

E

- 50) Entirety Clause: If a Lessor sells part of the leased property subsequent to execution of an Oil and Gas Lease and a producing well is drilled on the tract conveyed, the issue arises (when no agreements exists between the parties as to Royalty Interest payments) regarding whether the Lessee should tender Royalty Interest payments to the owner of the newly subdivided tract or to all owners of the leased. An Entirety Clause is an Oil and Gas Lease provision which requires that Royalty Interest payments be shared (apportioned) among all owners of the leased property, in proportion to the acres owned. The purpose of the clause is to avoid the Non-Appportionment Rule. Entirety Clauses benefit the Lessee by providing that divisions of fee ownership or Royalty Interest payments after execution of the Oil and Gas Lease shall not affect the Lessee's duties of development and operation. Sample lease language is as follows:

“If more than one person executes this lease as Lessor or is now or shall hereafter become entitled to share in or receive the benefits accruing to Lessor hereunder, this lease shall nevertheless always be operated and developed by Lessee as a single tract, without regard to any such division in or change of interest or ownership, or right to receive payment, which shall not operate to enlarge the obligations or diminish the Right of Lessee.”

- 51) Ejectment and Conversion: A legal remedy available to a mineral owner upon a Mineral Trespass. A mineral owner that has suffered a Mineral Trespass may seek to eject the trespasser and demand compensation for the conversion of oil and gas. The measure of damages depends upon whether the action was in bad faith or good faith. If the trespasser commits a “good faith trespass” equity permits the trespasser to recover Production Costs or their reasonable value for land improvements. If courts held otherwise, the landowner would be unjustly enriched. If the trespasser commits a “bad faith trespass” the trespasser may not recover Production Costs.
- 52) Executive Right: The right to negotiate and execute an Oil and Gas Lease, which is one of the “Incidents of Mineral-Interest Ownership.”

F

- 53) Farmout Agreement: An agreement by which one who owns an Oil and Gas Lease (the farmor) agrees to assign the lease and drilling rights to another party (the farmee) an interest in the lease in return for drilling and testing operations on the lease or payment for them. The primary characteristic is that the assignee is obligated to drill one or more wells on the assigned acreage as a prerequisite to the completion of the assignment. A farmout agreement is an effective way to convey a Working Interest if the farmor does not intend to drill on the leased property and the farmee is willing to utilize and maintain the Oil and Gas Lease and the Working Interest rights by drilling a well.
- 54) Fee Interest: An interest in real property that includes ownership of the surface and minerals, described as the entire “bundle of sticks” of rights in real property (each stick represents a right or benefit) of potentially infinite duration. The term “fee” refers to the *duration* of an interest and the potentially infinite right to pass an interest from generation to generation. From the full bundle of sticks, the owner of land in fee simple absolute may carve out and/or create (by grant or reservation) Working Interests (also known as Leasehold Interests), Mineral Interests, and Royalty Interests (including Leasehold Royalty Interests).
- 55) Fixed-Term Lease: A type of Oil and Gas Lease with a fixed term, which may be renewable for an additional period of time (if such a term is set forth in the lease), but without the “and so long thereafter as oil and gas or related hydrocarbons are produced from the leased property or on land pooled therewith” provision commonly found in leases.

- 56) Force Majeure Clause: An Oil and Gas Lease provision which prevents the lease from expiring and protects the Lessee from being in breach of lease obligations if prevented from conducting operations or drilling by acts of God that are beyond the reasonable control of the Lessee. Given the consequences that result from failing to tender Delay Rental Payments or to meet the Production in Paying Quantities requirement, many Oil and Gas Leases contain a Force Majeure Clause. Sample lease language is as follows:

“If Lessee is prevented from, or delayed in commencing, continuing, or resuming operations, or complying with its express or implied obligations hereunder by circumstances not reasonably within Lessee’s control, this lease shall not terminate and Lessee shall not be liable in damages so long as said circumstances continue. These circumstances include, but are not limited to the following: Conflict with federal, state or local laws, rules, regulations, and executive orders; acts of God; strikes; lockouts; riots; wars; improper refusal or undue delay by any governmental agency in issuing a necessary approval, license or permit applied for by Lessee; equipment failures; inability to obtain materials in the open market or to transport said materials. If the period of suspension commences more than 90 days prior to the end of the primary term of this lease, then that period of suspension shall be added to the primary term. If the period of suspension commences less than 90 days prior to the end of the primary term or at any time after the primary term, this lease shall not terminate if Lessee shall commence or resume operations within 90 days after the end of the period of suspension.

- 57) Forced Pooling: A statutory or regulatory device (also known as compulsory pooling) that allows an operator to petition their State Regulatory Agency for an order compelling the inclusion of landowners and/or Mineral Interest owners that are unwilling to execute an Oil and Gas Lease in favor of the operator, when the land at issue is located within a Drilling Unit. Petroleum Conservation Laws require that Drilling Units be of standard sizes (based upon the area that a well drains) and that the Correlative Rights of each tract owner be protected. The state protects citizens from over-drilling and simultaneously protects landowners who opt not to sign an Oil and Gas Lease from drainage by imposing administratively determined fair terms.

- 58) Free Gas Clause: An Oil and Gas Lease provision (generally utilized in states with colder climates) which entitles the Lessor or the surface owner to use gas produced from the leased property without charge or to purchase gas directly from the Lessee. The use is often limited in scope (for domestic heat and light) and/or in quantity. Although the economic impact is small, there has been substantial related litigation pertaining to the measure of damages for failure to provide free gas, the quantity of gas allowed and whether the right runs with the land. Sample lease language is as follows:

“Lessor shall have the privilege of using free of charge, at his own risk and expense, gas from any gas well on said land for stoves and inside lights in the dwellings on said land and appurtenant structures, and also of using such gas for pumping water for irrigation or other use upon the premises by paying therefore at the same rate which Lessee receives for such gas.”

59) Freehold Estate: For an ownership interest to be freehold, it must be (1) immobile (either an interest in the land or an interest in attachments and annexations to the land) and (2) for an unlimited duration with no fixed or defined expiration date, and which can be devised in a last will and testament. The three types of freehold estates are as follows:

- A) Fee Simple Absolute: The greatest possible ownership interest in real property that cannot be defeated by the previous owner or the heirs of previous owners. Ownership is limited only by the governmental powers of eminent domain, taxation, police power, and escheat, and by any encumbrances and/or conditions in the deed of conveyance. The owner has rights, privileges, powers, and immunities in the Mineral Interest and the surface.
- B) Fee Simple Defeasible: Created when a grantor places a condition on a fee simple estate. Upon the happening of the specified event, the estate may become void or subject to annulment. Two types of defeasible estates are as follows:
 - Fee Simple Determinable: Created when the grantor uses language that creates a special condition of duration, such as “to grantee *so long as* the land is used for a park.” Upon the happening of the specified event, the estate automatically terminates and reverts to the grantor. The ownership interest created by an Oil and Gas Lease is a fee simple determinable as the Habendum Clause provides that the lease shall remain in full force and effect “for the Primary Term and as long thereafter as oil and gas and other associated hydrocarbons are produced on the leased property or on land pooled therewith.”
 - Fee Simple Subject to a Condition Subsequent: Created when the grantor uses language such as “but if alcohol is served” then the grantor or the heirs have a right of entry, but the estate does not automatically revert to the grantor.

Fee Simple Absolute Includes Both Estates

SURFACE INTEREST = SERVIENT ESTATE

Mineral Severance

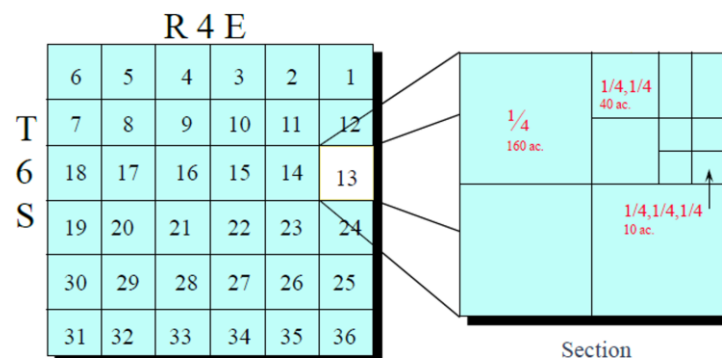
MINERAL INTEREST = DOMINANT ESTATE

- 60) Fugacious Minerals: Liquid or gaseous minerals (including oil and gas) that are volatile, migratory, and tend to move from place to place in response to pressure differentials and rock permeability.
- 61) Fungible Minerals: Minerals whose components are interchangeable so that one part may easily be replaced by another part. Oil and natural gas are fungible minerals.

G

- 62) Gas-Oil Contact Line: Oil, gas and water (usually saltwater) may be found alone or in combination in reservoir traps. Water is heaviest so settles to the bottom. Oil forms the next layer and gas forms the top layer. The line where oil and gas meets is known as the Gas-Oil Contact Line.
- 63) Gas-Oil Ratio: A limit to a production allowable that requires an operator to stop production when the operator produces more than a designated ratio of gas to oil; e.g., 2000 cubic feet of gas to one barrel of oil. A gas-oil ratio is designed to preserve the reservoir pressure.
- 64) Geophysical Survey: An exploration method whereby devices, such as a seismograph, are utilized to develop a contour map of an area in order to determine what land should be leased and where wells should be located.
- 65) Government Survey Descriptions: A method to describe real property that is based upon land surveys conducted under government authority. The most common governmental survey (used in 50% of the states) is the “standard” survey system (also known as the rectangular survey system), which divides land into Townships that are 6 miles high and 6 miles wide; therefore, containing 36 miles. Sample language is as follows:

The Northeast Quarter of the Northeast Quarter of Section 12, Township 3 North, Range 4 West, in Jackson Township, County of Marion, State of Indiana.



66) Granting Clause: An essential Oil and Gas Lease provision which grants the Lessee the right to explore for, drill, and produce oil, gas and associated hydrocarbons on the leased property. The Granting Clause must identify the following:

- A) The size of the interest granted (does the Lessor own all of the Mineral Interest, is he a concurrent owner, or a Life Estate or Remainder Interest owner).
- B) The substances covered by the lease (oil, gas, and associated hydrocarbons, coalbed methane, casinghead gas, etc.).
- C) The land covered by the lease (the legal description must make it possible to locate the land and some leases contain a Mother Hubbard Clause).
- D) The uses permitted by the lease

The Lessee has an implied right to use the surface for the purpose of locating, developing and producing oil and gas in such ways as may be reasonably necessary to obtain the minerals, such as seismographic testing; constructing roads, drill sites, and power stations; erecting oil storage tanks, and using potable ground water. The Lessee's right to use the surface is the dominate estate. The Right of the surface owner are servient to the Lessee's right of use. The Lessee's use is subject to the following limiting factors:

- The use must be reasonable
- The use must be in accordance with the Accommodation Doctrine
- The use must be for the benefit of the minerals under the leased property
- The use must comply with the terms of the Oil and Gas Lease
- The use must comply with applicable statutes, ordinances, rules and regulations

A sample Granting Clause is as follows:

"Lessor, for and in consideration of ten dollars and other consideration, the receipt of which is hereby acknowledged, and the covenants and agreements of the Lessee hereinafter contained, does hereby grant, lease and let unto Lessee the land described below, including all interests therein Lessor may acquire by operation of law, reversion or otherwise, (herein called "said land"), exclusively for the purposes of exploring by geophysical and other methods, drilling, mining, operating for and producing oil and/or gas, together with all rights, privileges and easements useful or convenient in exploring for, drilling for, producing, treating, storing, caring for, transporting and removing production from said land or any other land adjacent thereto, including but not limited to rights to lay pipelines, build roads, establish and utilize facilities for disposition of water, brine or other fluids, and construct tanks, power and communication lines, pump and power stations, and other structures and facilities. Said land is in the county of __, state of Indiana, and is described

as follows: (See Exhibit "A" attached hereto and made a part hereof.), containing _acres, more or less, and all lands and interests therein contiguous or appurtenant to the land specifically described above, that are owned or claimed by Lessor, or to which Lessor has a preference right of acquisition, including but not limited to all lands underlying all alleys, streets, roads or highways and all riparian or submerged lands along and/or underlying any rivers, lakes or other bodies of water. The term "oil" when used in this lease shall mean crude oil and other hydrocarbons, regardless of gravity, which are produced at the well in liquid form by ordinary production methods and which are not the result of condensation of gas after it leaves the underground reservoir. The term "gas" when used in this lease shall mean a mixture of hydrocarbons and of non-hydrocarbons in a gaseous state which may or may not be associated with oil, coal or shale, and including coalbed methane and shale gas and those liquids resulting from condensation of gas after it leaves the reservoir."

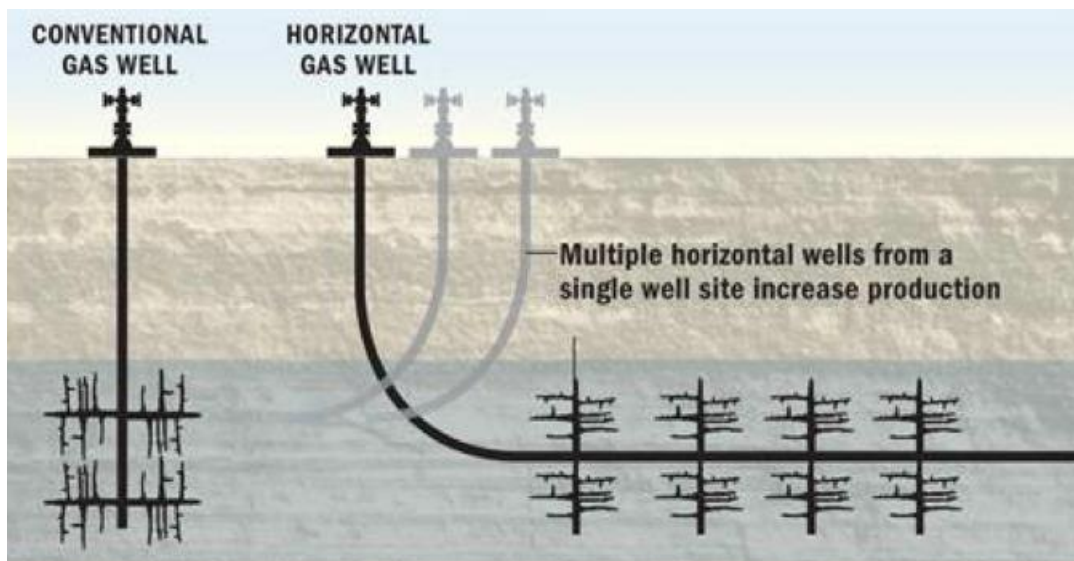
- 67) Greatest Possible Estate Rule: The interpretive rule that a deed or lease transfers the greatest possible interest to the grantee and reserves only that which it expressly reserves.

H

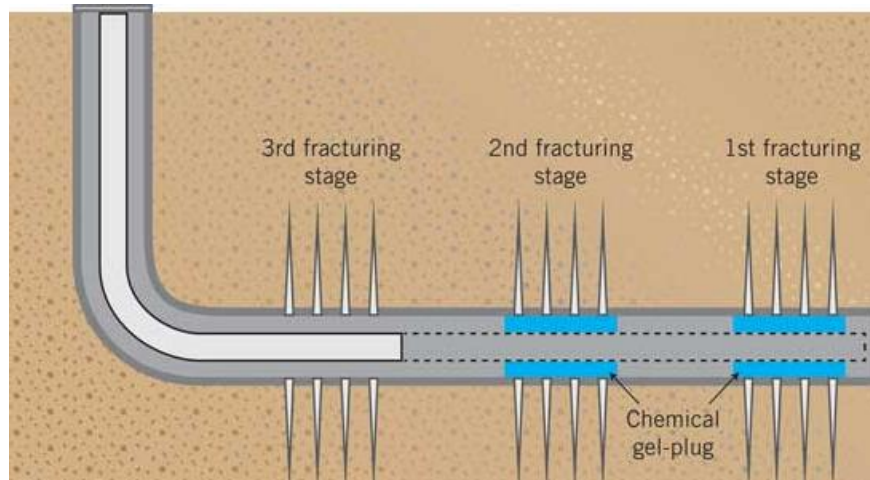
- 68) Habendum Clause: An essential Oil and Gas Lease provision (also known as the Term Clause) which establishes the duration of the Oil and Gas Lease and/or how long the Lessee can maintain the Oil and Gas Lease in full force and effect. Modern Oil and Gas Leases typically provide for a Primary Term (a fixed number of years during which the Lessee has no obligation to develop the property) and a Secondary Term for "so long thereafter as oil, gas and/or associated hydrocarbons are produced from the leased property or on lands pooled therewith." The Primary Term commences the date the lease is signed. The Secondary Term is the period in which the lease remains in full force and effect after expiration of the Primary Term. Production, operations, continuous drilling and Shut-in Royalty Payments are often used to extend an Oil and Gas Lease into its Secondary Term. Sample lease language is as follows:

"It is agreed that this lease shall remain in force for the primary term of 5 years from this date, and as long thereafter as operations are conducted upon said land with no cessation for more than 90 consecutive days, provided, however, that in no event shall this lease terminate if production of oil and/or gas from a well located on said land, or on lands pooled therewith, has not permanently ceased. If operations commenced during the primary term are discontinued less than 90 days before the end of the term, this lease shall not terminate at the end of the primary term if operations are again conducted within 90 days after the discontinuance. Whenever used in this lease the word "operations" shall refer to any of the following and any activities related thereto: preparing location for drilling, drilling, coring, testing, completing, equipping, reworking, recompleting, deepening, plugging back, de-watering, water disposal, or repairing of a well in search of or in an endeavor to obtain production of oil and/or gas, and production of oil and/or gas whether or not in paying quantities."

- 69) Held by Production: When an Oil and Gas Lease remains in full force and effect after expiration of the Primary Term, due to either, (1) a well drilled on the leased property is producing oil and/or gas and production revenue are disbursed to all Mineral Interest owners, or (2) the Oil and Gas Lease at issue is pooled or unitized with other leases to form a production unit, a well drilled on the production unit is producing oil and/or gas, and production revenue is disbursed to all Mineral Interest owners. The lease expires when production ceases.
- 70) Henry Hub Standard: The benchmark price at which natural gas futures contracts are traded on the New York Mercantile Exchange, named after the distribution hub on the natural gas pipeline system located in Erath, Louisiana. Henry Hub spot and future natural gas prices are quantified in millions of British thermal units (MMBtu). North American unregulated wellhead prices are closely related to the Henry Hub price point.
- 71) Homestead: Many states have enacted legislation to protect property used as the family home against attachment and sale by creditors and which bars the creation and transfer of property rights without both spouses. In some states, homestead must be noted on the deed and actual occupancy of the land claimed. In other states, homestead is a question of fact, and a formal legal claim is not required.
- 72) Horizontal Drilling: A drilling method where a specialized rig drills vertically then makes a long, gradual turn resulting in a 90-degree angle in the wellbore. Since 2010, more than half of the wells drilled in the United States use this method.



- 73) Hydraulic Fracturing: The technique used in drilling wells that injects water underground at high pressure to perforate the producing zone (the target formation), to connect porous spaces and to create small fractures. Sand and other proppants are injected to keep the pathways open to allow petroleum to migrate to the wellbore.



I

- 74) Incorporeal Right: An interest in land under common law that did not include the present right of possession (“not of substance”), which could be abandoned.
- 75) Impermeable Rock: A category of underground rock layer that is so dense and/or thick that petroleum cannot pass through the rock and a barrier occurs. When petroleum is trapped by impermeable rock, petroleum reservoirs may be formed.
- 76) Implied Covenant: The minimum standard of responsibility, behavior, duty and obligation, including acts and omissions, that are automatically imposed and enforced at law when parties enter into a contract, applicable when terms pertaining to the duty and obligation are not specifically set forth in the contract. Courts consistently impose (generally on the Lessee) implied covenants that are not expressly set forth in an Oil and Gas Lease. Such covenants are equitable in nature and are justified by the rationale that not all scenarios can be written down in advance in the Oil and Gas Lease. Implied covenants under an Oil and Gas Lease arise from the ongoing relationship of the Lessor and Lessee created by the lease. The lease gives the Lessee the exclusive cost-bearing right to explore and develop the leased property, potentially in perpetuity.

The Lessor has a cost-free interest in production or revenues or value, but no right to drill or produce. Because the typical Oil and Gas Lease makes the Lessor’s royalty dependent upon the quantity and quality of the Lessee’s actions on the property, courts have concluded that the Lessee has an obligation to perform certain unstated obligations. Implied covenants inherent in Oil and Gas Leases are recognized by courts that impose obligations on both the Lessor and the Lessee; however, generally upon the Lessee. Courts describe implied covenants differently; however, the six covenants set out below are generally recognized:

- A) Implied Covenant to Test the Property
- B) Implied Covenant to Protect from Drainage

- C) Implied Covenant to Reasonably Develop
- D) Implied Covenant of Further Exploration
- E) Implied Covenant to Market Production
- F) Implied Covenant of Diligent and Proper Operation (Catchall)

77) Implied Covenant of Diligent and Proper Operation: The promise implied in an Oil and Gas Lease that the Lessee will conduct operations on and manage the leasehold estate with reasonable care and due diligence (also known as the Covenant to Conduct Operations with Reasonable Care and Due Diligence). This implied covenant is a catchall obligation covering acts or omissions not contemplated by the more specific implied covenants. It is merely another formulation of the general duty of the Lessee to act in such manner as to accomplish the purposes of the lease. The following types of claims fall within the realm of this implied covenant:

- 1) Claims that operations on the leased property have been carelessly conducted causing damage to the Royalty Interest
- 2) Claims that premature abandonment of the lease has damaged the Royalty Interest
- 3) Claims that the Lessee failed to maximize the recover from the land by using advanced production techniques
- 4) Claims that the Lessee failed to seek favorable action by the regulatory commission that would have benefited the Royalty Interest
- 5) Claims that the Lessee as holder of multiple leases failed to produce a fair share from each.

78) Implied Covenant of Further Exploration: The promise implied in an Oil and Gas Lease (applicable only after production is obtained in paying quantities) the Lessee will continue to explore other parts of the property and other formations under the leased property. Unlike the Implied Covenant of Reasonable Development (which pertains to the Lessee's obligation to develop a proven reservoir or formation), the Implied Covenant of Further Exploration applies to unproven areas. This implied covenant requires a Lessee to conduct further exploration of unproven areas to the extent that a reasonably prudent operator would do so. Some courts hold that an Implied Covenant of Further Exploration does not exist independently of the Implied Covenant of Reasonable Development.

79) Implied Covenant to Market: The promise implied in an Oil and Gas Lease that the Lessee will diligently seek purchasers at a reasonable price for any oil or gas found in paying quantities and will market the production within a reasonable time. Disputes regarding this implied covenant most often involve natural gas and often concern (1) whether the Lessee has been diligent in finding a buyer or in making connections to a pipeline so that the gas can be transported to market, or (2) whether this implied covenant requires that the Lessee absorb all Post-Production Costs when the lease is ambiguous regarding cost allocation.

- 80) Implied Covenant to Protect from Drainage: The promise implied in an Oil and Gas Lease that the Lessee will defend the leased property against drainage by drilling a producing well into the reservoir being drained by another's well, if a reasonably prudent operator would do so. This implied covenant requires that the Lessee take reasonable action to protect the leased property against drainage from wells on nearby property. The customary method to protect the leased property against drainage is to drill offset wells. A Lessee does not have a duty to drill an offset well if the well is likely to be unprofitable. Depending upon the jurisdiction, courts employ a variety of remedies to enforce this implied covenant, including, (1) cancellation of the lease, (2) conditional cancellation of the lease, (3) cancellation of the lease combined with damages for past loss, (4) mandatory injunction to drill a protection well, and (5) damages in the amount of the loss, both past and prospective. Some jurisdictions allow damages as the standard remedy and not lease cancellation.
- 81) Implied Covenant to Reasonably Develop: The promise implied in an Oil and Gas Lease (applicable only after production is obtained in paying quantities) that the Lessee will continue to develop the property as would any other reasonably prudent operator rather than merely holding the lease by the production already obtained. This covenant requires the Lessee to drill as many wells as are reasonably necessary to develop the proven reservoir or formation. The obligation on the Lessee imposed is such that upon securing production of oil and gas, the Lessee is bound thereafter to drill such additional wells to develop the premises as a reasonably prudent operator would drill under similar circumstances bearing in mind the interests of both the Lessor and the Lessee.

This implied covenant does not require that a Lessee drill wells that likely would be unprofitable nor does it require the Lessee to drill exploratory wells in unproven areas. A reasonably prudent operator would not drill an unprofitable well with the sole purpose of draining a proven reservoir more quickly. If the rate of production could be increased by drilling additional wells, and such wells may be profitable, it does not follow that a prudent operator would drill additional wells, because the operator's overall profit may be reduced.

Courts recognize three remedies for breach of the covenant of reasonable development, including, (1) cancellation of the Oil and Gas Lease except in relation to a small area of land surrounding producing wells, (2) conditional cancellation of the Oil and Gas Lease (the lease is cancelled unless a specific number of wells are drilled within a fixed period of time), and (3) damages (even though proof of damages is inherently imprecise).

- 82) Implied Covenant to Test the Property: Historically, courts held that a Lessee had an implied duty to promptly drill at least one test well on the leased property. Lessees often were not prepared to promptly drill and thus began utilizing Delay Rental Clauses, which provide that, if the Lessee had not begun drilling by the first anniversary of the lease date, the Lessee could tender Delay Rental Payments to defer or delay its obligation to drill a test well. Almost all modern Oil and Gas Lease are "Paid-up". If a lease is not "Paid-up," it will generally contain a Delay Rental Clause. Therefore, this implied covenant is rarely the subject of litigation.

- 83) Implied Surface Use Easement: A fee simple absolute owner may sever all or part of the mineral estate by deed and may expressly grant easements to the mineral owner to use the surface as a servient estate. If the conveyance does not expressly grant rights to use the surface, courts have held that an implied easement is granted to the Mineral Interest owner (even though the Mineral Interest owner does not own the surface), for the purpose of prospecting for, severing, removing, and producing minerals. This implied easement is one of the “Incidents of Mineral-Interest Ownership.” All Implied Surface Use Easements are limited by the Accommodation Doctrine, which requires that the Mineral Interest owner must reasonably accommodate the surface owner and that any and all uses of the surface must be reasonably necessary.
- 84) In-Kind Royalty: The Royalty Clause of an Oil and Gas Lease may provide in relation to oil produced, that the Lessor be paid “in kind” by taking a share of the oil produced (due to the fact that oil is generally stored on the leased property and sold periodically).

J

- 85) Joint Tenants with Right of Survivorship: Co-tenant ownership where joint owners have Right of survivorship. If one owner dies that owner's interest in the real property will automatically pass to the remaining owner(s). On the death of one of the tenants, the whole of the property passes to remaining tenant(s). This form of ownership is common between husband and wife (when Tenancy by the Entirety is not recognized in the state), and parent and child, and in any other situation where parties want absolute ownership to immediately pass to the survivor. To create a Joint Tenancy, language clearly indicating the party's intent is required, such as “to Joe Smith and Susan Jones as joint tenants with Right of survivorship, and not as Tenants in Common.”

To create a Joint Tenancy, the co-tenants must share the “four unities” described below. If any one of the four is missing, the Joint Tenancy is invalid and a Tenancy in Common is created.

- Time: The property interest must be acquired by the co-tenants at the same time.
- Title: Co-tenants must have the same title to the property in the deed.
- Possession: Co-tenants must have the right to possess the whole property.
- Interest: Co-tenants must have the same interest in the property (two co-owners must own 50% each and three co-owners must own 33.33% each).

A Joint Tenant with Right of Survivorship can break the co-tenancy by conveying their interest in the property to another person. The resulting co-tenancy will be a Tenancy in Common, except that when three or more Joint Tenants with Right of Survivorship own property and only one of the owners breaks the co-tenancy, the other owners remain as Joint Tenants with Right of Survivorship in relation to each other.

Depending upon the law in place in the state, a Joint Tenancy with Right of Survivorship co-tenancy may be broken when one co-tenant obtains a mortgage on the jointly owned property. Those states that categorize a mortgage as a lien (lien theory states) treat the mortgage as a lien on the property, which does not break the co-tenancy. In those states that categorize a mortgage as a conveyance of title to the lender until the mortgage is paid in full (title theory states), a mortgage does break the joint tenancy as to the mortgagor.

- 86) Judicial Partition: A compulsory partition results in the division of real property between co-tenants when the co-owners will not agree to a voluntary partition. If co-owners have no unity on the use, improvement, or disposition of the property, courts approve partition. Under such circumstances, a lawsuit to compel partition can be filed to sever property interests. Courts allow partition even if every other owner objects to it.

L

- 87) Landman: A person in the oil and gas industry that may be responsible for one or more of the following: acquiring Oil and Gas Leases, curing title, negotiating arrangements for development, and managing leased properties. They are generally hired by the operator (directly or as an independent contractor) in preparation for exploration and drilling.
- 88) Lease Burdens: Lease Burdens include the Royalty Interest owned by the Lessor (created by an Oil and Gas Lease) and all Overriding Royalty Interests, production payments and any similar interest payable out of the production revenue generated from a well (created by an agreement or assignment and conveyed by the Working Interest owner.) The lease burden owners do not pay any well or operational expenses. The Working Interest owner receives the production revenue that remains after the commensurate share of production revenue are paid to the owners of the lease burdens.
- 89) Lease Signing Bonus: A payment issued to the landowner by the Lessee as compensation for executing an Oil and Gas Lease. An agreed upon amount is paid for each acre leased.
- 90) Leasehold Royalty Interest: A type of Royalty Interest (also known as a Landowners' Royalty or Lessor's Royalty) which confers the right to (1) receive a share of production, or (2) receive payment for a share of the revenue when production is sold (typically a 1/8 interest or greater). Production revenue payments to the Leasehold Royalty Interest owner are generally free of Production Costs and subject to Post-Production Costs.

Legal disputes pertaining to Royalty Interests often arise when gas is sold at a hypothetical market value of a market downstream or the value of the gas is determined by deducting Post-Production Costs to get the gas to market downstream. Except in a few states, the Lessor's Royalty Interest under an Oil and Gas Lease is classified as an interest in real property. Royalty Interest ownership is characterized by the following:

- A) A Lessor's Royalty Interest does not exist until an Oil and Gas Lease is executed and terminates when the Oil and Gas Lease terminates. (The Royalty Interest created by a deed or reservation, independent of the existence of an Oil and Gas Lease, is often described in the oil and gas industry as a Royalty Interest but is also specifically and properly described as a perpetual Royalty Interest. This outline labels the later type of Royalty Interest as a Perpetual Royalty Interest.
 - B) The duration of ownership may be in fee (in perpetuity), fee simple defeasible (for a fixed period with a thereafter clause), for life, or for a fixed term of years.
 - C) The Mineral Interest owner possesses Development Rights, being the right to enter upon and utilize the surface of the property for the purpose of prospecting for, severing, removing, and producing minerals.
 - D) The Royalty Interest owner does not possess Development Rights, therefore is not authorized to enter upon and utilize the surface of the property for the purpose of prospecting for, severing, removing, and producing minerals.
 - E) The Royalty Interest owner possesses the right to receive a share of the oil and gas produced or payment for a share of revenue if production is sold.
 - F) The Royalty Interest owner does not possess the right to execute an Oil and Gas Lease (Executive Right).
 - G) The Royalty Interest owner does possess the right to a surface use easement (Implied Surface Use Easement).
 - H) The Royalty Interest owner does not benefit from express and implied Oil and Gas Lease covenants.
- 91) Lessee: The party that obtains, pays compensation for, and enters into an Oil and Gas Lease with a Lessor, and which possesses the right to develop and produce minerals and the right to the production revenue remaining after all expenses and obligations are paid.
- 92) Lesser Interest Clause: An Oil and Gas Lease provision which permits a Lessee to reduce payments under a lease proportionately if the Lessor owns less than 100% of the Mineral Interest (Same as Proportionate Reduction Clause). Sample lease language is as follows:
- "It is agreed that if Lessor owns an interest in the oil, gas and other hydrocarbons in or under the leased property that is less than the entire fee simple estate, then the royalties and rentals to be paid Lessor shall be reduced proportionately."*
- 93) Lessor: The party that owns the Mineral Interest and possesses Executive Rights and executes and enters into an Oil and Gas Lease with a Lessee. The interests, rights, and benefits of a Lessor created under an Oil and Gas Lease are as follows:

- A) Right to receive/collect payments made to induce the signing of the lease (Lease Signing Bonus).
 - B) Right to receive/collect any payments for maintaining the lease in full force and effect without development (Delay Rental Payments).
 - C) Right to receive/collect a share of the petroleum product or production revenue generated under the lease (Royalty Interest Payments).
 - D) Reversionary interests created by Delay Rental Clauses. (An “Unless” lease creates the possibility of reverter and an “Or” lease creates the “right of re-entry,” being the power to terminate the lease.
 - E) The benefit of express and implied covenants.
- 94) Life Estate: An interest in real property owned for the duration of the life of the person holding title or the life of another person. A life tenant receives the property and is responsible for maintenance and paying taxes. If a life tenant allows a property to deteriorate it would be committing waste, a life tenant cannot commit waste. A life tenant cannot devise the property in a last will and testament; however, a life tenant may sell, mortgage or lease the property for the duration of the estate. All contracts terminate upon the death of the life tenant.
- 95) Liquefied Petroleum Gas (LPG): A category of petroleum in gas form that changes to liquid when compressed (referred to as propane even though it may also contain butane or isobutane). LPG does not include ethane and is characterized by the following:
- Heavier than air and colorless, odorless, nontoxic, noncorrosive and free of lead
 - Stored in pressurized tanks (200 pounds per square inch) so it stays a liquid
 - Transported by tanker trucks or in cylinders
 - Used predominantly as fuel or as raw material for chemical synthesis
 - Burns readily in air and is an excellent fuel for heating, cooking and automotive use
 - LPG used in vehicles is the same as that used in gas barbecues and camper appliances
 - LPG fueled engines can pollute less than gasoline and diesel engines
 - Used in homes when no natural gas pipelines exist for heating, cooking and hot water
 - Liquefied by pressurization (not refrigeration) for transportation and storage

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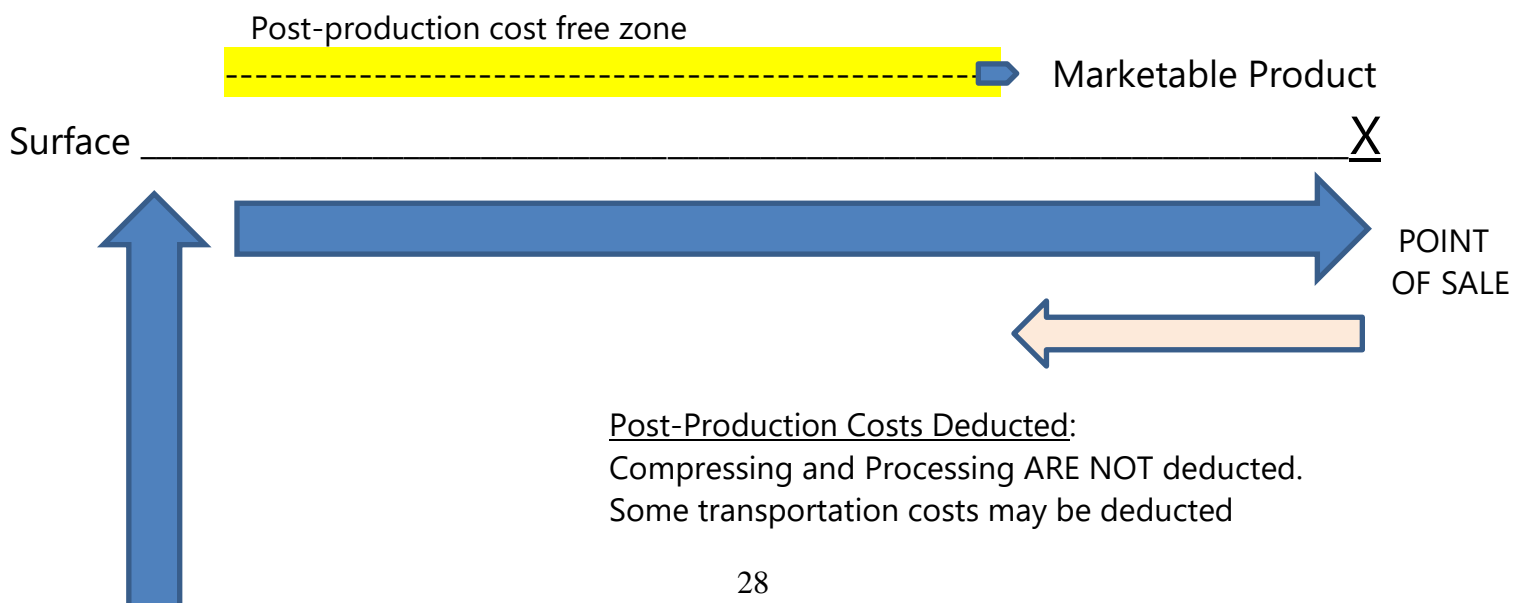
- 96) Mbbl: One Mbbl equals one thousand barrels of oil.

- 97) Mcf: The volume of natural gas is measured in Mcf. One Mcf equals one thousand cubic feet of gas (1,027,000 Btu).
- 98) MMbbl: One MMbbl equals one million barrels of oil.
- 99) MMBtu: The ability of natural gas to heat is measured in MMBtu (abbreviation for one million British Thermal Units). Gas market prices are sold on the New York Mercantile Exchange futures market in terms of million British Thermal Units (1 MMBtu = 970 cubic feet of gas). Investors generally equate 1 mcf of gas to 1 MMBtu.
- 100) Mmcf: One Mmcf equals one million cubic feet of gas.
- 101) “Marketable Product” Rule: A minority of oil and gas producing states have adopted this rule (also known as the “first marketable product” method) and apply it to calculating the Royalty Interest payable to the Lessor when the Oil and Gas Lease does not specifically set forth a method for calculating “production.” The minority rule holds that production is complete (and therefore Production Costs cease and Post-Production Costs commence) only when the Lessee has done both of the following:
- a) captured and held the product
 - b) made the product marketable

Prior to the point when oil and gas is fully prepared and conditioned for sale and moved to the location of sale, the Lessee must bear all costs associated with capturing and handling the oil and gas.

MINORITY RULE – “MARKETABLE PRODUCT” RULE

Production occurs when gas is “Captured and Held” AND Marketed

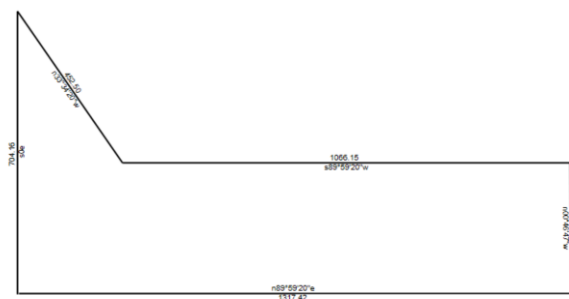


- 102) Marketable Record Title Acts: Some states have applied marketable record title acts to oil and gas rights so that interests that conflict with a record chain of title are extinguished. If the record does not contain a specific reference to the interest within the statutory period (usually 30 to 40 years), it is destroyed.

NOTE: Other methods of obtaining the right to develop (in addition to judicial partition and Marketable Record Title Acts) are Forced Pooling, Dormant Mineral Acts, and sales due to non-payment of taxes.

- 103) Maximum Efficient Rate of Production: The maximum sustainable daily rate of oil or gas production from a reservoir that will permit economic development and depletion of that reservoir without detriment to ultimate recovery and without damaging the reservoirs natural energy. If oil is extracted from a reservoir at a rate greater than the maximum efficient rate of recovery the natural pressure of the reservoir will decline resulting in a decrease in the amount of oil ultimately recoverable.
- 104) Metes and Bounds Descriptions: A method to describe real property that locates property by reference to its exterior boundaries and sets forth the lengths and angles of boundaries starting at the point of beginning and continuing to the point of ending. This method was used in the original 13 colonies before the rectangular survey system was developed. A mete is a boundary line and a bound is the area enclosed by the metes. Metes and bounds descriptions commence at an identified point of beginning and then describe the length of each boundary by its distance and angle (measured in degrees). This continues to the point of end, which should be identical to the point of beginning to allow the property boundaries to close. Sample language is as follows:

Part of the Southwest Quarter of Section 17, Township 5 North, Range 8 West, described as follows: Beginning at an iron pin which point is 2,025.14 feet North (Basis of Bearings) of the Southwest corner of said Section 17; thence North 89 degrees 59 minutes 20 seconds East 1,317.42 feet to a 5/8 inch iron pin in a fence line; thence North 00 degrees 46 minutes 47 seconds West 325.00 feet to a 5/8 inch iron pin in a fence line; thence South 89 degrees 59 minutes 20 seconds West 1,066.15 feet to a 5/8 inch iron pin; thence North 33 degrees 34 minutes 20 seconds West 452.50 feet to a 5/8 inch pin on the West line of Section 17; thence South 704.16 feet along the West line of said Section 17 to the point of beginning, containing 10.886 acres, more or less.

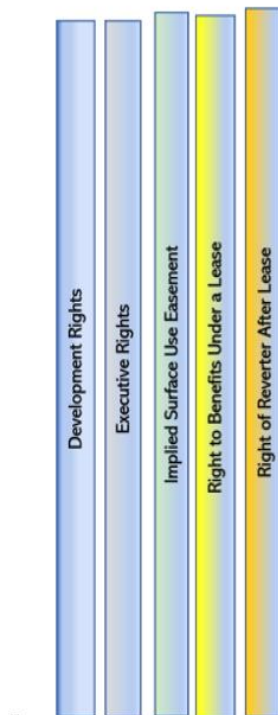


- 105) Midstream: The sector of the petroleum industry that stores, transports (by pipeline, rail, barge, oil tanker or truck), markets, and wholesales crude oil and refined petroleum products. Pipelines and transport systems move crude oil from production sites to refineries and deliver the various refined products to downstream distributors. Pipelines move gas from purification plants to downstream customers, such as local utilities.
- 106) Mineral Acre: The full Mineral Interest under one acre of land. Often conveyances and reservations describe the interest conveyed in terms of mineral acres to avoid the double-fraction problem (See Double Fraction Problem).
- 107) Mineral Deed: A deed that conveys a Mineral Interest and all of the Incidents of Mineral-Interest Ownership, which provides mineral deed holders considerable control over how mineral resources are extracted and sold. Generally, mineral deeds are more expansive and less restrictive than royalty deeds.
- 108) Mineral Interest: Ownership of all or part of the oil, gas, and other minerals, which may be separated from ownership of the surface by a mineral severance. Mineral Interest owners possess the right to explore, develop, mine, and produce natural resources lying below the surface of the property (known as Development Rights) and the right to enter upon and utilize the surface of the land (known as an Implied Surface Use Easement). Further, Mineral Interest ownership is characterized by the following:
- A) A Mineral Interest is created by a mineral deed or reservation and typically utilizes language such as, *“The Grantor conveys (or reserves) all of the oil, gas and other minerals located in, on or under the subject property and that may be produced from the subject property.”*
 - B) In relation to the minerals, the Mineral Interest owner possesses the same rights as the fee simple absolute owner possessed before the mineral severance occurred.
 - C) The duration of ownership may be in fee (in perpetuity), fee simple defeasible (for a fixed period with a thereafter clause), for life, or for a fixed term of years.
 - D) Unless subject to statutory lapse for non-use (Dormant Mineral Acts), Mineral Interest ownership exists regardless of whether an Oil and Gas Lease has been executed and survives the expiration of any Oil and Gas Lease in existence.
 - E) Mineral Interest owners may convey away the entire Mineral Interest or a portion of the Mineral Interest, creating and/or reserving a fractional Mineral Interest.
 - F) Mineral Interest owners possess the “bundle of sticks” rights described below (known as Incidents of Mineral-Interest Ownership), which may be individually conveyed or reserved (except the right to sell the Mineral Interest in full, which would terminate Mineral Interest ownership):

- The right to develop (known as Development Rights).
- The right to execute an Oil and Gas Lease and to convey the right to explore and produce minerals (known as Executive Rights).
- The right to enter upon and utilize the surface (known as an Implied Surface Use Easement) for the purpose of prospecting for, severing, removing, and producing minerals.
- The Implied Surface Use Easement is limited by the Accommodation Doctrine, which is the imputed obligation to accommodate the uses of the surface owner, if possible, and to use the easement only in such ways and to such extent as is reasonably necessary to obtain the minerals.
- When an Oil and Gas Lease has been executed by the Mineral Interest owner, the right to whatever benefits are provided to the Lessor under the lease.
- The right of reverter of the minerals in fee upon expiration of any Oil and Gas Lease in existence.

NOTE: The rights and benefits of (1) a Mineral Interest owner, (2) a Lessor under an Oil and Gas Lease and (3) a Royalty Interest owner are similar in various aspects but also differ. See related definitions for comparison.

MINERAL OWNERSHIP BUNDLE OF STICKS



- 109) Mineral Trespass: This type of trespass (also known as a subsurface trespass) occurs (1) when an operator conducts exploration, development or operations under real property without obtaining an Oil and Gas Lease from the Mineral Interest owner, (2) pursuant to an Oil and Gas Lease that expired or failed due to title and/or ownership issues, or (3) when the surface location is on the driller's land but the well path crosses under the surface of land that is not properly leased. The intent of the driller is immaterial as to whether a trespass occurs; however, intent does determine available remedies.

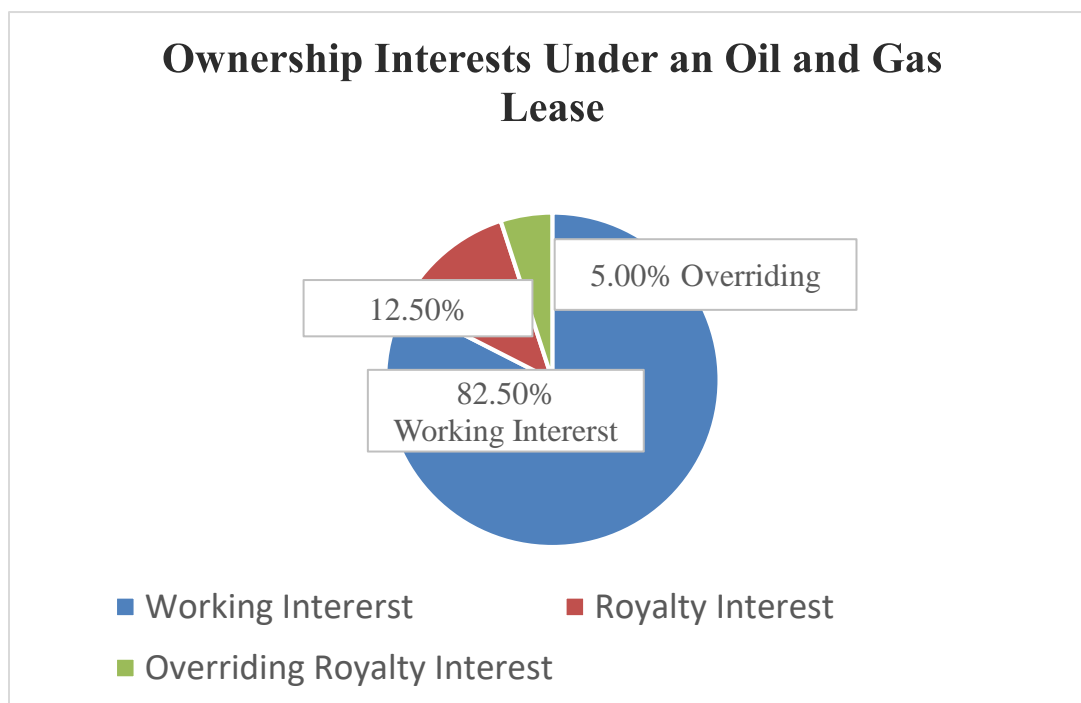
When the mineral trespass is intentional (in bad faith), the operator must pay the Mineral Interest owner the value of the oil produced when it reaches the surface, without deducting drilling and operating costs. Due to modern technology which make unintentional trespass unlikely, courts disfavor trespasses and generally deemed them intentional. When the mineral trespass is unintentional (in good faith), the Mineral Interest owner may enjoin production from the well if substantial injury results from the trespass. Legal remedies available to the Mineral Interest owner are as follows and as further described hereinafter:

- Assumpsit
 - Damage to Lease Value
 - Slander of Title
 - Ejectment and Conversion
- 110) Most-Favored Nations Clause: A contract clause that provides for adjustment of the contract price upward if another producer in the area receives a higher price for gas of similar quality and quantity. This clause is often seen in gas contracts and sometimes in Oil and Gas Leases.
- 111) Mother Hubbard Clause: An Oil and Gas Lease provision (also known as a Cover-All Clause) which protects the Lessee against errors in the description of the leased property used in a lease. This provision covers adjacent and continuous land owned by the Lessor even if omitted from the description and frequently covers after-acquired interests in the leased property. Courts often limit application so that the Oil and Gas Lease will cover only small unleased tracts that exist without the knowledge of the Lessor and Lessee.

N

- 112) Natural Gas: The category of petroleum (comprised predominantly of methane) that is produced from oil wells, gas wells, and condensate wells in a gaseous state (a mixture of hydrocarbon compounds that is lighter than air and is highly combustible) and which remains in a gaseous state at atmospheric conditions. Whatever the source, once separated from any crude oil present, natural gas commonly exists in mixtures with other hydrocarbons such as ethane, propane, butane, and pentanes. Raw natural gas also contains water vapor, hydrogen sulfide, carbon dioxide, helium, nitrogen, and other compounds. Natural gas is highly combustible, offers clean combustion, is easy to utilize and can be transformed into the following:

- Low Pressure Natural Gas: Delivered by gas companies via underground pipe, used for heating homes, cooking and running appliances such as water heaters and clothes dryers.
 - Compressed Natural Gas (CNG): Created by compressing natural gas into high pressure fuel cylinders available at CNG fuel stations to power vehicles.
 - Liquefied Natural Gas (LNG): Created by condensing natural gas through cryogenic refrigeration to -260 degrees, resulting in a liquefied form that is much denser than natural gas or CNG, which offers much more energy per storage space utilized. Liquefaction removes most of the water vapor, butane, propane, and other trace gases found in natural gas and generally results in 98% pure methane.
- 113) Net-Profits Interest: The right to receive payment for a share of production, calculated at the net value of the oil and gas produced (free of Production Costs, but subject to deduction of Post-Production Costs), which is paid by the Working Interest owner only if the well generates a net profit. It may be granted in lieu of or in addition to a Royalty Interest. The share is generally expressed as a fraction or percentage of production. “Net Profits” must be defined in the instrument of conveyance or reservation.
- 114) Net Revenue Interest: The percentage of production revenue that the Working Interest owner(s) actually receives, which is calculated by deducting all lease burdens, such as Royalty Interests and Overriding Royalty Interests, from 100%. If a lease granted a Royalty Interest of 12.5% and a 5% Overriding Royalty Interest was conveyed by the Working Interest owner to an investor, the Net Revenue Interest would be 100%, less 12.5%, less 5.0%, equaling 82.5%. The Working Interest owner would be required to pay all well costs but would receive 82.5% of the production revenue generated from the well.



Working Interest Burden = ALWAYS 100%
Net Revenue Interest = 82.50%
Lease Burdens = 17.50%

- 115) No Increase of Burden Clause: An Oil and Gas Lease provision which states that if the Lessor sells the leased property after execution of the Oil and Gas Lease, the obligations and burdens upon the Lessee will not increase. Sample lease language is as follows:

“No change or division in the ownership of the lands, rentals or royalties, however accomplished, shall operate to enlarge obligations, or diminish the Right of Lessee.”

- 116) No-Term Lease: A type of Oil and Gas Lease that has virtually no Primary Term but which allows the Lessee to cause the Oil and Gas Lease to remain in full force and effect for an indefinite term by tendering Delay Rental Payments or nominal fixed royalties to the Lessor. Sample lease language is as follows:

“In consideration of the sum of one dollar, the Lessor does hereby grant and guaranty unto the Lessee all the oil and gas in and under the described property, together with the right to enter thereon at all times for the purpose of drilling and operating for oil and gas. The Lessor shall have a 1/8 part of oil produced and saved from said premises. In case no well is commenced within one day from this date, then this grant shall become null and void, unless the Lessee shall thereafter pay (in advance) \$10.00 for each month such commencement is delayed.”

- 117) Non-Appportionment Rule: If a Lessor sells part of the leased property subsequent to execution of an Oil and Gas Lease and a producing well is drilled on the tract conveyed, the issue arises (when no agreements exists between the parties as to royalty payments) regarding whether the Lessee should tender royalty payments to the owner of the newly subdivided tract or to all owners of the leased property. Under the Non-Appportionment Rule (the majority rule followed in Texas and most other states), royalty payments are not shared (apportioned) among all owners of the total leased acreage.

Royalty Interest payments are payable to the owner of the tract upon which the well is located. If Owner A leases 20 acres to Oil Company and subsequently conveys the east 10 acres to Owner B, Owner A would receive Royalty Interest payments if a well located on the west half generated production revenue and Owner B would receive Royalty Interest payments if a well located on the east half generated production revenue. The rule is circumvented when the Oil and Gas Lease contains an Entirety Clause, Pooling Clause, Unitization Clause, or Proportionate Reduction Clause, when a related mineral or royalty deed contains a “Subject-to” Clause, or when Petroleum Conservation Laws (Well Spacing Requirements) preclude application.

- 118) Non-Associated Gas: Natural gas is produced from oil wells, gas wells, and condensate wells. When produced from gas wells and condensates wells, the natural gas that does not contain substantial amounts of oil is known as non-associated gas. Gas wells typically produce raw natural gas by itself. Condensate wells typically produce free natural gas along with a semi-liquid hydrocarbon condensate.
- 119) Non-Executive Right: An oil and gas interest that does not possess the right to lease; e.g., a Royalty Interest, a non-executive Mineral Interest.
- 120) Non-Operating Interest: An ownership interest in an oil and/or gas well that does not grant the owner the right to participate in or have any responsibility for actual operation of the well. An Overriding Royalty Interest is a non-operating interest and Carried Working Interests and minority fractional Working Interests are often non-operating interests by agreement.
- 121) Non-Ownership Theory: The theory that the owner of oil and gas rights did not own the oil or gas until it has been captured. Until capture, the owner of oil and gas rights only has a right to explore, develop, and produce oil and gas a Mineral Interest owner possesses merely a right to develop and produce oil and gas from land, but not a present right to possess the oil and gas in place, similar to a profit a prendre (a right to use the land and remove items of value from it). Under this minority rule (followed in California, Louisiana, Oklahoma, Wyoming and other producing states), the rights to oil and gas are incorporeal.
- 122) Non-Participating Royalty Interest: A type of Royalty Interest (which confers the right to (1) receive a share of production, or (2) receive payment for a share of revenue when production is sold) that is created by a deed or reservation rather than under an Oil and Gas Lease and exists without regard to the terms of any lease. It may exist before and after the duration of an Oil and Gas Lease and may be perpetual in duration, if the instrument of conveyance or reservation does not limit the interest to a term of years or base duration upon a contingency. The term “non-participating” indicates that the owner does not possess at least one of the following Incidents of Mineral-Interest Ownership:
- The right to execute an Oil and Gas Lease (Executive Right)
 - The right to use the surface to search for, develop, and produce minerals (Implied Surface Use Easement)
 - The right to collect payment of the Lease Signing Bonus
 - The right to collect payment of rental payments due under a lease

A Non-Participating Royalty Interest is characterized by the following:

- It burdens the Mineral Interest

- It is carved out of the Mineral Interest
- It exists when no Oil and Gas Lease exists
- It is expense free and does not bear costs of production
- The owner possesses fewer rights than a Mineral Interest owner
- The owner does not own the oil, gas and minerals under the surface
- It is a non-possessory ownership interest and is not subject to being extinguished in a tax sale for non-payment of taxes
- The duration is perpetual, if the instrument of conveyance or reservation that created the interest does not limit the interest to a term of years or base duration upon a contingency

Production revenue payments to the Non-Participating Royalty Interest owner are free of Production Costs and subject to Post-Production Costs. Sample language used when a grantor reserves a perpetual royalty interest with Executive Rights and participation rights, is as follows:

“Grantor grants unto grantee all oil, gas and other minerals under the Subject Property. Grantor reserves the right to receive all bonus payments and rental payments. Grantor also reserves the exclusive right to execute oil, gas and mineral leases pertaining to the Subject Property.”

Q

- 123) Obstruction Doctrine: If a top lease fails to mention the existence of the lease in full force and effect, some courts suggest that title to the bottom lease is clouded, whether or not the top lease is recorded. This doctrine suspends the running of time under the bottom lease for the duration of the obstruction or extends the Primary Term for a reasonable period of time after removal of the obstruction. Most top leases avoid the problem by specifically stating that the top lease is subordinate to the bottom lease.
- 124) Oil and Gas Lease: The core legal contract of oil and gas development in the United States between a Mineral Interest owner (often the landowner), as Lessor, and an exploration company (also known as a producer or operator), as Lessee, which grants exploration and development rights to the subsurface minerals described therein. The main goals of an Oil and Gas Lease are as follows:
 - A Lessee seeks the right to develop the leased property for an agreed term without any obligation to develop.

- If production is obtained, a Lessee wants the right to maintain the lease in full force and effect for as long as production is economically viable.

Executing an Oil and Gas Lease does not require or ensure that a well will be drilled. The determination to drill depends upon a variety of economic factors, including the supply and demand for oil and gas, tax structure and incentives, and regulations. The property covered by a lease may be too small to form a production unit, so leases are often packaged and sold before drilling. Lessees seek the right to operate without the obligation to drill. If the land covered by the lease is sold before the term of the lease expires, the lease remains binding upon the buyer. Modern Oil and Gas Leases are characterized by the following:

- A) Both a Conveyance and a Contract: Courts in most states treat a lease both as a conveyance of mineral rights from the Lessor to the Lessee (most states treat the rights granted under a lease as a right in real property, particularly after oil and/or gas are produced) and a contract that allows the Lessee to develop the minerals.
 - B) More a Deed than a Lease: An Oil and Gas Lease is dissimilar from a standard real property lease in that the Lessee has the right to use the land and to take substances of value from it, the Lessee's rights continue after a set term of years if production ensues, and the Lessee's right must be shared with the surface owner.
 - C) Legal Classification: Some states classify the Lessee's interest and an estate in fee simple determinable while others classify it as a profit a prendre.
- 125) Oil and Gas Interests: Ownership interests in oil and gas are considered real property and are created or transferred by conveyance, inheritance, judicial transfer and adverse possession. Regarding conveyances, due to the fact that ownership interests in oil and gas are considered real property, a conveyance is subject to the Statute of Frauds and therefore must:
- A) be created and conveyed in writing
 - B) contain sufficient words of grant
 - C) contain a legal description sufficient to create legal validity (the description allows location of the property with reasonable certainty) or marketability (the description allows location based solely upon information on the public record, without ambiguity or reliance upon extrinsic facts, and is sufficiently certain to make the title freely assignable in commerce)
 - D) identify the parties involved, being the grantor and grantee
 - E) be properly executed to include a signature, attestation and acknowledgment, delivery and acceptance, and be recorded

- 126) Oil-Water Contact Line: Oil, gas and water (usually saltwater) may be found alone or in combination in reservoir traps. Water is heaviest so settles to the bottom. Oil forms the next layer and gas forms the top layer. The line where oil and water meets is known as the Oil-Water Contact Line.
- 127) One-Hundred Percent Rule: The principle of legal interpretation under which a land description that does not contain limiting language is construed to describe 100% of both the surface and the Mineral Interest.
- 128) Open Mines Doctrine: This doctrine allows a co-tenant to commit voluntary waste on a tract of land by depleting it of natural resources when the mines, or oil and gas produced by well, were open at the time the tenant took possession of the land. The life tenant is allowed to continue mining on the land but can only continue to mine in the open mines already in existence and cannot open any new mines on the land.
- 129) Operating Agreement: A contract among owners of the leasehold interests in a producing oil and gas well or wells setting forth the parties' agreement about drilling, development, operations, and accounting.
- 130) Operations Clause: An Oil and Gas Lease provision which maintains the lease in full force and effect after expiration of the Primary Term as long as "Operations for Oil and Gas Development" continue on the leased property or on lands pooled therewith (if the lease provides for pooling and/or unitization).
- 131) Operations for Oil and Gas Development: Whether an action of a Lessee qualifies as operations depends upon (1) the provisions of the Oil and Gas Lease, (2) whether the actions are in good faith, and (3) whether the Lessee's exercised due diligence. The language of a lease controls; however, generally courts rule that any type of work which evidences the Lessee's intent to develop the leased property, commenced at the well site prior to the end of the Primary Term, equate to operations as long as the Lessee thereafter diligently pursues development.
- 132) Operator: The party that manages oil and gas operations (also known as the producer), that determines when and where to drill, and that exercises the right to explore for, produce, market and sell oil and gas granted under an Oil and Gas Lease. This term pertains to the actions of the party and not specifically to their ownership interest.
- 133) "Or" Lease (also known as a Drill or Pay Lease): An Oil and Gas Lease (used in West Coast and Appalachian states) with a Delay Rental Clause that requires the Lessee to either (1) commence drilling operations or (2) tender Delay Rental Payments (generally annually) during the Primary Term. The Lessee is obligated to drill a well, tender Delay Rental Payments, or surrender the lease. If the Lessee does not surrender the lease and it fails to drill or pay, the lease does not automatically terminate; however, the Lessee is subject to a breach of contract action for failure to drill or pay. Sample lease language is as follows:

“Lessee agrees to commence a well on said premises within 2 years from the date hereof, or pay Lessor \$25.00 an acre per annum, payable on the anniversary date of this lease until said well is commenced or this lease is surrendered.”

- 134) Other Minerals: Most mineral deeds convey “oil, gas and other minerals,” which has lead to litigation regarding whether “minerals” includes oil and gas. Courts have held that a conveyance of minerals includes oil and gas, except in Pennsylvania and a few other states. Courts generally utilize the ejusdem generis cannon, the community knowledge test, the exceptional-characteristic test (a substance is a mineral if it possesses exceptional characteristic and value), and the surface-destruction test (when production of a substance requires destruction of the surface, the substance is not a mineral).
- 135) Overriding Royalty Interest: An ownership interest that does not exist until an Oil and Gas Lease is executed and terminates when the lease terminates, which is carved out of a Lessee’s interest in the lease and is often granted as compensation for work by landmen, geologists and investors related to the prospect. The Overriding Royalty Interest owner is paid a share of the production generated under an Oil and Gas Lease (or a share of the revenue when production is sold).

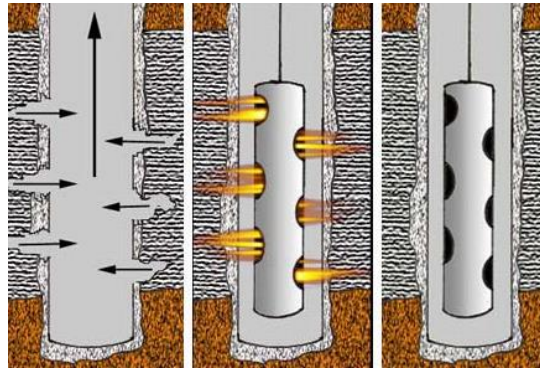
Production revenue paid to the Overriding Royalty Interest owner is generally free of Production Costs and subject to Post-Production Costs. An Overriding Royalty Interest is a non-operating interest in that the owner has no control over decisions pertaining to the Oil and Gas Lease, such as whether a well will be drilled or abandoned.

- 136) Ownership in Place Theory: The theory that oil and gas rights are a fee simple absolute estate in the land and the right to individual molecules of oil and gas is a determinable interest that terminates automatically upon capture by another. The Mineral Interest owner possesses the right to present possession of the oil and gas in place as well as the right to use the land surface to search, develop and produce from the property. Under this majority rule (followed in Texas, New Mexico, Kansas, Mississippi, and other major producing states), the rights to oil and gas are corporeal.

P

- 137) Paid-Up Lease: A type of Oil and Gas Lease that does not require annual Delay Rental Payments to keep the lease from termination. The lease is effective, and no additional payments are due for the entire Primary Term.
- 138) Petroleum: A general label for combustible hydrocarbon compounds found in the earth, formed when organic materials, such as plant and animal remains, are compressed in sedimentary rock (sandstone, limestone and shale) for long periods under high pressure. Its general characteristics are categorized as follows:

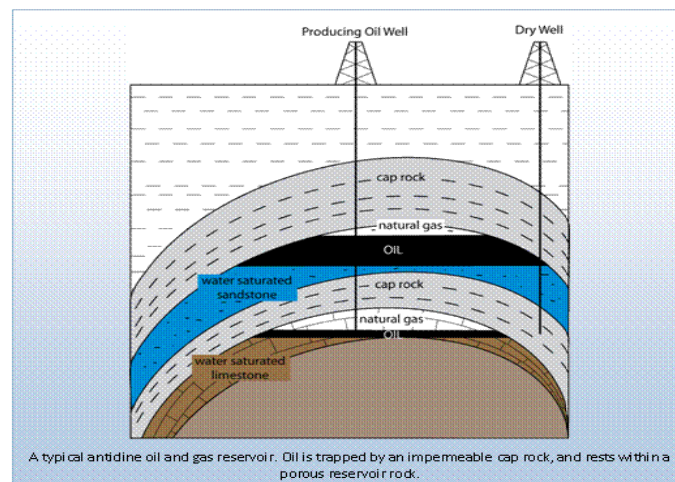
- Physical State: Petroleum is found and produced in all three physical states (gaseous, liquid and solid); however, is generally produced in a gaseous state (Natural Gas) or liquid state (Crude Oil).
 - Gravity (Density): An inverse measurement of the weight and gravity of petroleum. The American Petroleum Institute gravity scale (API Gravity) measures how heavy petroleum liquids are in relation to water and quantifies the results in API degrees. The less dense the oil, the higher the API degrees and the higher the value.
 - Viscosity: An inverse measurement of thickness and the ability to flow, so that the less viscous the oil, the greater its ability to flow.
- 139) Perforation: A perforating gun is lowered down the wellbore to the production zone where it sets off explosives to create entry paths for the petroleum through the casing and cement.



- 140) Payout: The point at which all costs of leasing, exploring, drilling and operating have been recovered from the production revenue generated from a well.
- 141) Permeability: The quantity of interconnected pathways between the open pore spaces located between sediment particles within the structure of sedimentary rock (sandstone, limestone and shale). Permeability permits petroleum, which is lighter than water, to flow upwards and into the wellbore. The higher the permeability, the easier it is for oil or gas to move in response to pressure.
- 142) Perpetual Royalty Interest: A type of Royalty Interest (which confers the right to (1) receive a share of production, or (2) receive payment for a share of revenue when production is sold,) that is created by a deed or reservation rather than under an Oil and Gas Lease and exists without regard to the terms of any lease. It may exist before and after the duration of an Oil and Gas Lease and may be perpetual in duration, if the instrument of conveyance or reservation does not limit the interest to a term of years or base duration upon a contingency. Sample deed languages is as follows:

“O conveys to A any and all royalty generated under any and all future Oil and Gas Leases covering Blackacre.”

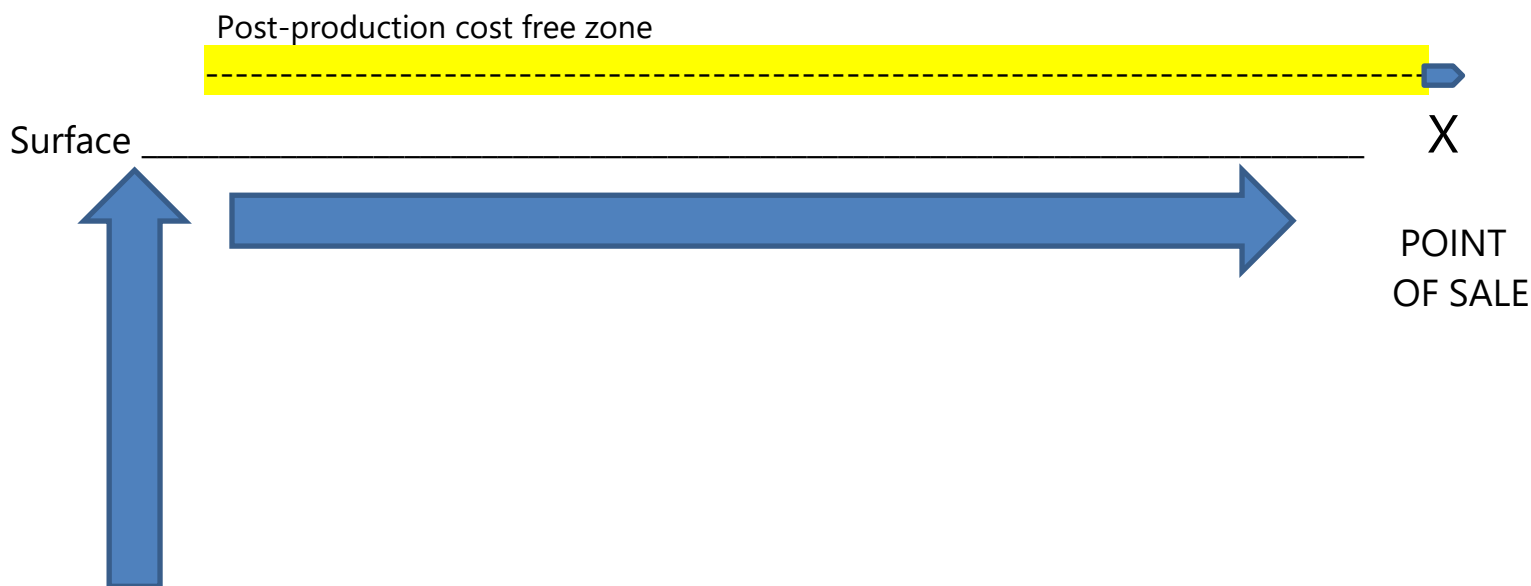
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 - Viscosity: An inverse measurement of thickness and the ability to flow, so that the less viscous the oil, the greater its ability to flow.
- 144) Petroleum Conservation Laws: Upon discovering that application of the Rule of Capture led to Physical Waste and economic waste, Petroleum Conservation Laws were enacted and are now enforced by State Regulatory Agencies to regulate the drilling and operation of oil and gas wells, which include Well Spacing Requirements, Drilling Unit Size Requirements, and Well Setback Requirements designed to protect the Correlative Rights of landowners and the underlying reservoir.
- 145) Petroleum Products: The category of products obtained by processing crude oil, natural gas, and other hydrocarbon compounds, including liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, jet fuel, kerosene, petrochemical feedstock, lubricants, waxes, petroleum coke, asphalt, road oil and miscellaneous products.
- 146) Petroleum Reservoir: A geological formation in which oil and gas is trapped.



- 147) Physical Waste: Short-term overproduction or production using improper methods likely to result in long term total recovery from the reservoir in amounts less than what might be achieved by slower, proper production. Application of the Rule of Capture, encouraged, neighboring landowners to drill as many wells as possible on their own land once as well near them was drilled, before the common underlying reservoir was drained.
- 148) “Point of Sale” Rule: The rule adopted in West Virginia (*Tawney v. Columbia Natural Resources, LLC*) in relation to calculating the Royalty Interest payable to the Lessor, which holds that the Oil and Gas Lease language “at the well” is ambiguous and thus, no Post-Production Costs can be deducted from the Royalty Interest absent express language in the lease identifying specific deductions and providing a method for calculating those deductions. The Lessee bears all costs incurred in marketing and transporting the product to the point of sale, unless the Oil and Gas Lease specifically provides otherwise.

POINT OF SALE RULE

“Captured and Held” AND Marketed, AND Moved to the Point of Sale



- 149) Pooling: Bringing together small tracts of land or fractional interests in land, either by voluntary agreement or by Forced Pooling, to comply with Well Spacing Requirements. The term generally relates to drilling a single well and operating that well by primary production techniques, while Unitization usually involves operating numerous wells using secondary or tertiary recovery techniques, although the terms sometimes used interchangeably.

- 150) Pooling and Unitization Clause: An Oil and Gas Lease provision which grants the Lessee the right and power to combine and unitize part or all of the leased property with other properties to form a larger production unit.
- 151) Porosity: The quantity of open pore spaces located between sediment particles within the structure of sedimentary rock (sandstone, limestone and shale). Petroleum is frequently trapped in these small pockets of space. The higher the porosity of the rock, the more oil or gas it may contain. A productive petroleum reservoir is both porous and permeable.



- 152) Post-Production Costs: The costs and expenses of oil and gas production incurred after oil and/or gas is brought to the surface (being the point in time when Production Costs cease to accrue) including the costs of operations, production, processing, and marketing such as costs related to the following:
- a) extracting liquids from gas
 - b) gathering, dehydrating, compressing, and storing gas
 - c) building a gathering system or pipeline to connect to a purchaser's pipeline
 - d) transporting gas, including fees to use third parties' pipelines or gathering system
 - e) production and severance taxes.

Oil and Gas Leases usually provide that Royalty Interest payments due on gas production are calculated at the agreed upon Royalty Interest rate (e.g. 1/8) of the "amount realized at the wellhead" or "the market value at the well." However, gas is not typically sold to a purchaser at the well site. Gas must be transported to the point of sale and the must be treated before injection into pipelines. Issues arise as to whether the Lessee or the Royalty Interest owner and Overriding Royalty Interest owners are responsible for payment of Post-Production Costs. Leases may specify which specific Post-Production Costs are deductible. Such lease provisions govern as do the laws of the state in which the leased property is located.

MUST PAY
Production Costs

100% of Costs

Working Interest - 82.50%

Carried Working Interest

MUST PAY
Post-Production Costs

Leasehold Royalty Interest - 12.50%

Overriding Royalty Interest - 5.0%

$$\text{Net Revenue Interest} = 100\% - 12.50\% - 5.0\% = 82.50\%$$

$$\text{Lease Burdens} = 12.50\% - 5.0\% = 17.50\%$$

- 153) Production Costs: The costs and expenses of oil and gas production incurred before oil and/or gas is brought to the surface, including the costs of exploration and operations such as the costs of geophysical surveying, drilling, testing, completing and reworking a well, and secondary recovery. Generally, Production Costs are paid in full by Working Interest owners and are not deducted from Royalty Interest payments, meaning production revenue issued to Royalty Interest owners and Overriding Royalty Interest owners are not burdened by the responsibility to pay for Production Costs.
- 154) Pressure Maintenance: An oil and gas production enhancing technique that injects fluid into a reservoir when the reservoir first begins to show production and pressure decline.
- 155) Primary Recovery: Petroleum production that relies on naturally occurring pressures within the reservoir occurs assisted by pumping units and artificial lift mechanisms. The primary factors affecting recovery volumes are the rate of production, gas-oil and water-oil ratios, and (to a lesser degree) the space between wells and the number of wells drilled in the area.
- 156) Primary Term Clause: An essential Oil and Gas Lease provision (also known as the Habendum Clause) which establishes the duration of the Oil and Gas Lease and/or how long the Lessee can maintain the Oil and Gas Lease in full force and effect.
- 157) Probable Reserves: Fossil fuels that are not classified as proven, but which are reasonably expected to exist (also known as indicated reserves). Information pertaining to probable energy reserves is insufficient to establish, with confidence, the location, grade and quality of the source.
- 158) Production Allowable: A limitation set by Petroleum Conservation Laws on the amount of oil and gas production that may take place over a given period of time, designed to

prevent overproduction and to allow production to be shared equally among common owners.

- 159) Production in Paying Quantities: Literal construction of the term “production” required in a lease Habendum Clause would allow small amounts of production to maintain a lease in full force and effect indefinitely. Courts generally have ruled that production must be in paying quantities. Modern leases contain a potentially indefinite Secondary Term to avoid the termination of a lease when a profitable well remains in production. The Lessor and Lessee both view the lease as an economic transaction. When the lease is no longer profitable, the lease should terminate. The Court in *Clifton v. Koontz* defined production in paying quantities as follows:

“The standard by which paying quantities is determined is whether or not under all relevant circumstances a reasonably prudent operator would, for the purpose of making a profit and not merely for speculation, continue to operator the well...”

In determining paying quantities, in accordance with the above standard, the trial court must necessarily take into consideration all matters that would influence a reasonable and prudent operator.”

It is not necessary that the Lessee recover all drilling and completing costs. A well produces in paying quantities when production is sufficient to pay the Lessee a profit, however small, over the operating and marketing expenses. Production during the Primary Term maintains an Oil and Gas Lease in full force and effect. Courts have held that the term “producing” in the Habendum Clause means “producing in paying quantities.” In most states, actual production in paying quantities is necessary to extend and maintain a lease in full force and effect during the secondary term. Further, the production must be marketed for sale (referred to as discovery, plus marketing). The following analysis is employed in the majority of states to determine if production is in paying quantities. An Oil and Gas Lease terminates only if both phases of the analysis are negative.

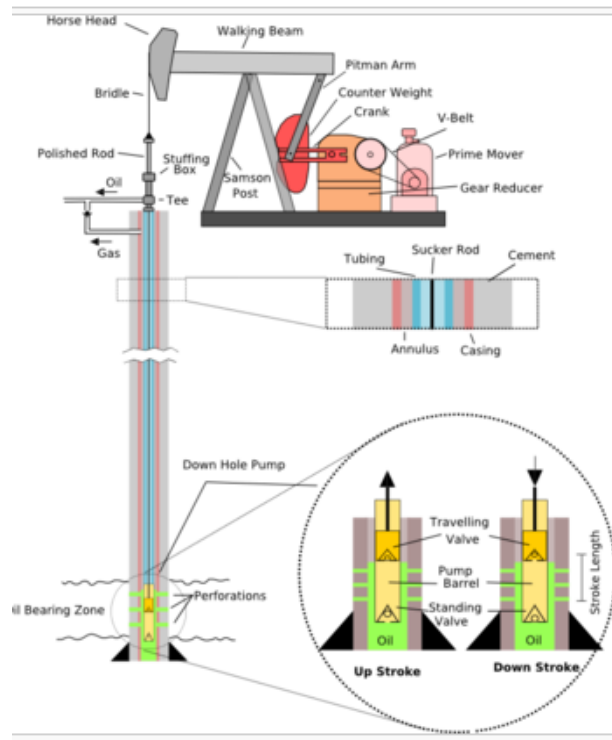
- The Litmus Test: This standard of evaluation (also known as the Mathematical Test) examines operating revenue and operating costs over a reasonable period of time to determine whether operations have been profitable. If operations have been profitable (even to a small degree) the lease is determined to be producing in paying quantities. Drilling costs are not part of the costs of operation costs because the Lessee should be allowed to recoup as much of the investment as possible. Operating and marketing costs are deducted from revenue. If the level of production does not pass the litmus test, the standard below is subsequently applied.
- The Legal Test: This standard of evaluation (also known as the Reasonably Prudent Operator Test) examines whether, under all of the relevant circumstances, a reasonably prudent operator would, for the purpose of making a profit and not merely for speculation, continue to operate a well in the manner in which the well at issue was operated. The Court must consider all matters that would influence a reasonable and prudent operator, such as depletion of the reservoir, the price point at which the Lessee

sells production, the Royalty Interest rate required by the lease, the profit margin of other wells in the vicinity, the operating and marketing costs of the lease, the net profit generated, and other lease provisions.

- 160) Production Payment: The right to receive payments from production, which terminate when the sum agreed upon is paid, such as “1/5 of all oil and gas produced until the market value at the well of such production shall aggregate One Million Dollars.” A production payment often takes the place of a mortgage covering the producing property.
- 161) Profit a Prendre: This common law doctrine grants the landowner the right to enter the land of another and take part of the soil or produce. In many states, mineral rights and Oil and Gas Leases are classified as profit a prendre. It is a right to take from the land, as in the mining of minerals, and differs from an easement, which is a non-possessory interest in land generally granting a right of way over the property of another.
- 162) Proportionate Reduction Clause: An Oil and Gas Lease provision which permits a Lessee to reduce payments under a lease proportionately if the Lessor owns less than 100% of the Mineral Interest (Same as Lesser Interest Clause).
- 163) Proven Reserves: Fossil fuels estimated (with reasonable certainty from the analysis of geologic and engineering data) to be recoverable from well-established and/or known reservoirs using presently existing equipment and under presently existing operating conditions. Operating conditions include break-even price (impacted by the commodity price point) and regulatory and contractual approvals.
- 164) Pugh Clause: An Oil and Gas Lease provision (also known as a Freestone Rider) which requires that the Lessee execute and record a Release of Oil and Gas Lease pertaining to that part of the leased property not included in a production unit at the end of the Primary Term. The clause protects the Lessor from having all of the leased property held under a lease by production when only a small portion of the leased property is producing oil and gas. This provision is not routinely included in Oil and Gas Leases, unless requested by the Lessor. The term refers to all lease riders and provisions that allow production, drilling, or operations to hold only acreage within the production unit or pooled area.

Variations of the Pugh Clause have developed which provide that no acreage will be lost from the lease if operations are continuous, that acreage located outside the pooled unit may be held by the rental payments for a specific number of years beyond the Primary Term, that the lease will be held only from the surface down to the producing zone, or that only producing zones or perforated zones will be held.

- 165) Pump Jack: The mechanism of an oil well located above ground (also known as an oil horse, pumping unit, horse head pump, rocking horse, or jack pump) that drives a reciprocating piston pump to mechanically lift liquid out of the well if insufficient natural pressure exists for the liquid to flow unassisted to the surface. Producing surface wells that require a pump jack rarely require a “Christmas Tree” as pressure containment is not necessary.



R

- 166) Reasonably Prudent Operator Standard: This standard (legally approved test and method of examining and evaluating) determines whether a Lessee acted in compliance with the implied covenants inherent in an Oil and Gas Lease, by examining what a reasonable, competent operator in the oil and gas industry, acting in good faith and with economic motivation, and taking into account the interests of both the Lessor and the Lessee, would do under the circumstances.

- 167) Release of Lease Clause: An Oil and Gas Lease provision to facilitate the quieting of the Lessor's title after the expiration, forfeiture or termination of a lease which requires that the Lessee release the Oil and Gas Lease of record (generally accomplished by filing a Release of Oil and Gas Lease).

- 168) Remainder Interest: A future interest held by a remainderman or remaindermen in the real property that will take effect upon the expiration of the other property interests created (generally a Life Estate interest). Remainder Interests are either contingent remainders or vested remainders. For a remainder to be effective, it must be created in the same conveyance that grants the present interest to another person.

- 169) Rental Division Order: A stipulation signed by those entitled to Delay Rental Payments stipulating their interests and how much rental each is to receive.

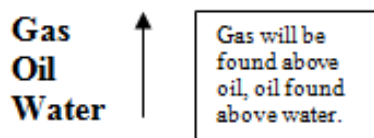
- 170) Removal of Fixtures Clause: An Oil and Gas Lease provision which allows the Lessee to enter upon the leased property at any time during or after the expiration of the lease to remove all property and fixtures. The purpose is to grant the Lessee the broadest possible discretion to determine when to plug and abandon well and to protect against a finding that the Lessee has abandoned equipment left on the leased property. Sample lease language is as follows:

“Lessee shall have the right at any time during or after expiration of this lease to remove all property and fixtures placed on the leased property by Lessee, including the right to draw and remove all casing.”

- 171) Reservoir Pressure: There are three natural sources of reservoir pressure (also known as reservoir energy) that force petroleum and liquids to the wellbore. One of the following is always present and often all three are present:

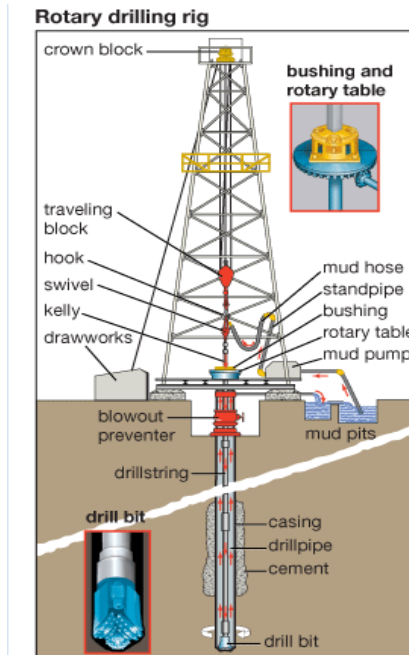
- Gas expansion
- Water encroachment
- Gravity

Water is heavier and denser than oil and oil is heavier and denser than gas so that they are found in the reservoir as show below.



Both natural and artificial means are used to create reservoir pressure. The most common source of reservoir pressure is expanding gas. Gas expands when pressure is reduced, which drives oil to the surface. Water encroachment and gravity are also often present in reservoirs. The large quantities of water below the surface of the earth allow oil and gas to migrate upward through porous sedimentary rock until trapped by impermeable rock, causing a petroleum reservoir to form. When petroleum occurs as a liquid, some gas is almost always present.

- 172) Rights of Surface Easement Owners: The owner of an easement over the surface of the leased property covered by an Oil and Gas Lease does not have the right to receive production revenue generated under the lease. The Lessee must conduct operations in a manner that will not negatively impact use of the easement. A well may be drilled under the surface of the easement without trespass.
- 173) Rotary Rig Drilling: A hole is bored by the continuous turning of a bit, generally comprised of three interlocking, movable gears with sharp teeth. The remainder of the rig structure is designed to power and effectively activate the rotary drill bit.



- 174) **Royalty Acre:** The full lease royalty (whatever the royalty percentage may be under present or future leases) under one mineral acre. If the Royalty Interest rate in an Oil and Gas Lease is $\frac{1}{8}$, there would be 8 royalty acres in one mineral acre.
- 175) **Royalty Clause:** An essential Oil and Gas Lease provision which establishes the share or percentage of production revenue the Lessor will receive under the lease and which directs how the royalty shall be paid, if the well produces. Except in Louisiana, a royalty is classified as an interest in real property. Oil and Gas Leases may provide that the Lessor be paid as follows:
- 1) In-Kind” Royalty by granting the Lessor a share of the oil produced (oil is generally stored on the leased property and sold periodically).
 - 2) Share of Value Royalty by paying the Lessor in cash after the gas is sold (at a point off of the leased property as it is difficult to store gas) and receive a percentage of the value of the revenue of the sale.

A sample Royalty Clause is as follows:

“Lessee covenants and agrees to pay the following royalties:

(a) To deliver to the credit of the Lessor into tank reservoirs or into the pipeline to which Lessee may connect its well, one-eighth of the oil produced and saved from said land, Lessor’s interest to bear one-eighth of the cost of treating oil to render it marketable pipeline oil, or from time to time, at the option of the Lessee, Lessee may sell the oil produced and saved from said land and pay Lessor one-eighth of the net amount realized by Lessee, computed at the wellhead, whether the point of sale is on or off said land,

(b) To pay Lessor on gas produced from said land (1) when sold by Lessee, whether the point of sale is on or off said land, one-eighth of the net amount realized by Lessee, computed at the wellhead, or (2) when used by Lessee, for purposes other than those specified in Paragraph numbered 7 of this lease, the market value, at the wellhead, of one-eighth of said gas.

Prior to payment of royalty, Lessor shall execute a Division Order setting forth his interest in production. Lessee may pay all taxes and privilege fees levied upon the oil and gas produced and deduct a proportionate share of the amount so paid from any monies payable to Lessor hereunder."

176) Royalty Deed: A deed that conveys a "non-participating production interest." Royalty deeds are far more restrictive than mineral deeds. Their attributes usually include:

- Full restrictions on the holders' rights to exploit and market the minerals
- No Right of ingress or improvement
- No responsibility for production and improvement costs
- No third-party lease-granting rights
- No rights to any income or bonuses associated with third-party leases or mineral sales

177) Royalty Interest: A category of ownership interest which confers the right to (1) receive a share of production, or (2) receive payment for a share of the revenue when production is sold. Production revenue payments to the Royalty Interest owner are generally free of Production Costs and subject to Post-Production Costs. The types of Royalty Interest are as follows:

- Leasehold Royalty Interest
- Perpetual Royalty Interest
- Non-Participating Royalty Interest

178) Rule of Capture: This common law doctrine (which replaced the Ad Coelum Doctrine) allows a landowner to acquire title to the oil and gas produced from wells on their land, even if the source was adjoining property. Early courts did not understand petroleum reservoirs and thought that oil ran in large underground rivers. Oil and gas ownership and the right to capture wild animals were treated similarly. One could only capture then possess (but never own) the animal.

A landowner could drill an unlimited number of wells without facing liability to adjacent landowners for the impact and a landowner being drained of oil and gas had no legal remedy and generally sought to produce as much and as quickly as possible, to capture remaining resources, which led to Physical Waste, over-drilling and wells placed too closely together. The rule does not apply to:

- A) Escaped oil and gas (previously produced by another). Gas in its natural state is subject to capture, but once captured, it remains the property of whoever captured it,

until abandoned. Oil and gas become personal property when produced so ownership is not lost by mere loss of possession.

- B) Oil and gas produced by secondary and tertiary recovery, unless all landowners are offered the opportunity to participate in the unit operations on a fair basis.

The Rule of Capture was modified by the Correlative Rights Doctrine and subsequently further modified by Petroleum Conservation Laws.



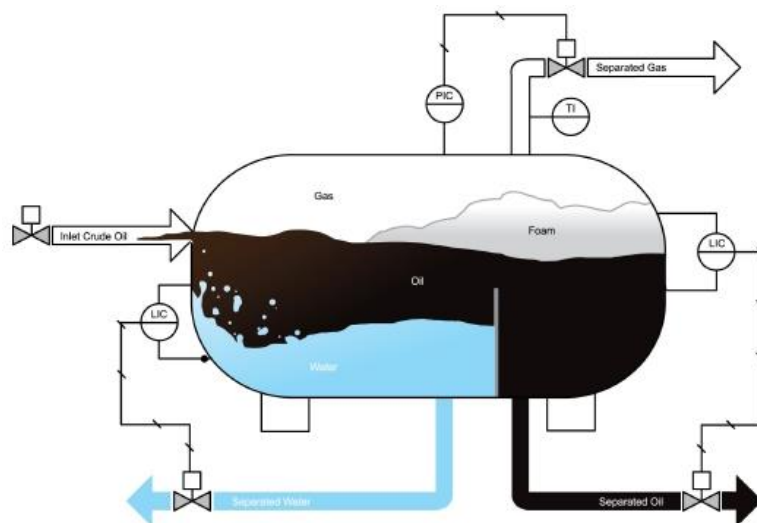
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- 179) Saving Clauses: A category of lease provisions that allows constructive production (not actual production), in certain circumstances, to maintain the Oil and Gas Lease in full force and effect after expiration of the Primary Term when the leased property or lands pooled therewith (if the lease provides for the latter) does not contain a well that is producing, or is capable of producing, in paying quantities. The types of Saving Clauses are as follows:
- Operations Clause
 - a) Well Completion Clause
 - b) Continuous Operations Clause
 - Cessation of Production Clause
 - Shut-in Royalty Clause
 - Force Majeure Clause
 - Pooling and Unitization Clause
- 180) Secondary Recovery: An oil production technique to recover oil beyond what can be recovered by normal pumping operations. The objective of maintaining reservoir pressure is accomplished by injecting water (water flooding) or gas into the reservoir. Secondary Recovery produces 20% to 50% of the oil in the reservoir.

- 181) Secondary Term Clause: An Oil and Gas Lease provision (which typically uses language such as “as long thereafter as oil and gas is produced from the property or on land pooled therewith”) that establishes how long the Oil and Gas Lease will remain in full force and effect after expiration of the Primary Term. Production, operations, continuous drilling and Shut-in Royalty Payments often extend an Oil and Gas Lease into the Secondary Term. The purpose of the Secondary Term is to give the Lessee the right to hold a producing lease as long as it is economically viable. Because the duration of the Secondary Term is of potentially unlimited duration, legal disputes often arise, particularly in relation to the following:
- A) Definition of Production: The majority rule (followed in all but a few states) is that actual production is required to extend an Oil and Gas Lease to the Secondary Term and maintain it in full force and effect as the Habendum Clause specifically states that the lease term shall be extended as long as there is “production” (unless another provision of the lease dictates otherwise).
 - B) Marketing is Required: The majority rule is that marketing is a required element of production.
- 182) Sedimentary Rock: A type of rock (including sandstone, limestone and shale) which is a product of sediment deposits on the floor of ancient oceans and other bodies of water.
- 183) Separate Ownership Clause: An Oil and Gas Lease provision, closely related to the “No Increase of Burden Clause” which addresses the problem that arises when a Lessee assigns an interest via an assignment of Oil and Gas Lease. When a Lessee assigns the lease interest in a separate portion of the leased tract, the Lessee’s failure to perform may subject the Lessee to liability or cause the Lessee to lose the whole lease because of the general principle that while benefits can be assigned, burdens cannot. Sample lease language is as follows:

“In the event of an assignment hereof in whole or part, liability for breach of any obligation issued hereunder shall rest exclusively upon the owner of this lease, or portion thereof, which commits such breach.”

- 184) Separator: A piece of equipment used at the well site to separate oil, water, and gas produced in solution with oil. Basic separators simply heat oil to speed the natural separation process. More complex separators may use chemicals.



- 185) Setting Pipe: If it appears that a well has located commercial quantities of oil and gas, a continuous string of production casing pipe is placed into the wellbore and cement is forced around the outside of the pipe, sealing off the space between the rock wall and the pipe exterior.
- 186) Shale: A fine-grained sedimentary rock that can be a rich source of oil and natural gas. Shale gas and shale oil production have rejuvenated the petroleum industry in the United States.
- 187) Share of Value Royalty: The Royalty Clause of an Oil and Gas Lease may provide in relation to gas production, that the Lessor be paid in cash after the gas is sold (at a point off of the leased property as it is difficult to store gas) and receive a percentage of the value of the revenue of the sale. The costs to bring the gas to the point of sale (Post-Production Costs) are deducted from the percentage paid to Lessor.
- 188) Shut-in Royalty: A payment issued by the Lessee to the Lessor when production royalties are not being paid. A well is “shut-in” when it is capable of production; however, is not producing due to maintenance or other reasons.
- 189) Shut-in Royalty Clause: An Oil and Gas Lease provision which causes an Oil and Gas Lease to remain in full force and effect after expiration of the Primary Term despite lack of production on the leased property, when a well capable of production has been drilled on the leased property, and the Lessee makes a payment to the Lessor in lieu of production. Sample lease language is as follows:

“If any well, capable of producing oil and/or gas, whether or not in paying quantities, located on said land, or on lands pooled or communitized with all or part of said land, is at any time shut-in and production therefrom is not sold or used off the premises, nevertheless such shut-in well shall be considered a well producing oil and/or gas and this lease will continue in force while such well is shut-in, whether before or after expiration of the primary term. Lessee shall use reasonable diligence to market oil and/or gas capable of being produced from such shut-in well, but shall be under no obligation to reinject or recycle gas, or to market such oil and/or gas under terms, conditions, or circumstances which in Lessee’s judgment are uneconomic or otherwise unsatisfactory. If all wells on said land, or on lands pooled or communitized with all or part of said land are shut-in, then within 60 days after expiration of each period of one year in length (annual period) during which all such wells are shut-in, Lessee shall be obligated to pay or tender, as royalty, to Lessor, or it’s successors, as Lessor’s agent, which shall remain as the depository regardless of change in ownership of royalties, shut-in royalties or other money, the sum of \$1.00 multiplied by the number of acres subject to this lease, provided however, that if production from a well or wells is sold or used off the premises before the end of any such period or, if at the end of any such annual period this lease is being maintained in force and effect other than solely by reason of the shut-in wells, Lessee shall not be obligated to pay or tender said sum of money for that annual period. This shut-in royalty payment may be made in currency, draft or check at the option of Lessee, and the depositing of such payment in any post office, with sufficient postage and properly addressed to Lessor, or said bank, within 60 days after expiration of the annual period shall be deemed sufficient payment as herein provided.”

- 190) Slander of Title: A legal remedy available to a mineral owner for trespass. If the mineral owner can prove that the operator who trespassed (1) made a false claim of title, (2) with malicious intent, and (3) that caused actual pecuniary damage, the trespasser may be held liable for the amount of damage suffered by the owner.

- 191) “Subject to” Clause: A clause in a mineral deed which states that the conveyance is subject to an existing Oil and Gas Lease. The purposes of the clause is to (1) protect the grantor against claims of breach of warranty because of the outstanding lease, and to avoid any potential Duhig problems, and (2) to make clear that the grantee is to receive an interest in future rentals and royalties under the lease.

- 192) Surface Interest: A type of ownership interest that includes those “bundle of sticks” rights in real property that remain after the Mineral Interest is severed from the surface and all rights not conveyed or reserved in the Mineral Interest. The owner is entitled to all substances found in or under the soil that are not defined as minerals. The right of the owner to use the surface is subject to the right of the Mineral Interest owner to use the surface in such ways as are reasonably necessary to search for, develop, and produce minerals. The right of the surface owner is encumbered by and is servient to the easement of the Mineral Interest owner. The Mineral Interest owner does not need the permission of the surface owner to use the land surface for oil and gas development.

- 193) Surrender Clause: An Oil and Gas Lease provision which permits the Lessee to release its rights to all or any portion of the leased property, at any time, and be relieved of further obligations relating to the acreage surrendered. Sample lease language is as follows:

“Lessee may at any time surrender this lease as to all or part of said land, by delivering or mailing a release to Lessor if the lease is not recorded, or by placing a release of record in the proper county if the lease is recorded. If this lease is surrendered only as to part of said land, any shut-in royalties which may thereafter be payable hereunder shall be reduced proportionately.

- 194) State Regulatory Agencies: State governmental agencies (which may be referred to by various names, including the Department of Environmental Quality, the Department of Natural Resources, and the Department of Conservation) that enforce Petroleum Conservation Laws by approving, monitoring and inspecting all wells drilled (including casing, completing, producing and plugging) to prevent Physical Waste of oil and gas, and migration and commingling of oil, gas, brine and fresh water. Inspectors may be present at the well during the cementing of well casings, drilling through the productive formation and the final well-plugging. Before a drilling permit can be issued, producers must post a bond or other financial security to guarantee that the well will be plugged and the site reclaimed.

- 195) Subrogation Clause: An Oil and Gas Lease provision which permits the Lessee to pay taxes, mortgages, or other encumbrances on the leased property and to recover those payments out of future revenue from the lease. Sample lease language is as follows:

“Lessor agrees that Lessee may at any time pay all or part of any land contract, mortgage, taxes, or other liens or charges with respect to the leased property, either before or after maturity, and be subrogated to the Right of the holder thereof, and may reimburse itself by applying to such payments any royalty or other monies payable to Lessor hereunder.

- 196) Subsurface Storage: Natural gas utilities and industrial users often utilize underground formations (depleted by production) to store natural gas for availability during peak seasons. It is difficult to meet seasonal demand by pipeline delivery only, so many states have enacted statutes that regulate gas storage and which grant the right to condemn.

- 197) Surface Trespass: An operator may not enter upon the surface of real property without first obtaining approval. Should an operator enter upon land without approval, the operator has committed a surface trespass and is legally liable.

T

- 198) Tcf: One Tcf equals one trillion cubic feet of gas.

- 199) Temporary Cessation of Production Doctrine: The rule that an Oil and Gas Lease term “for so long thereafter as oil and gas are produced” will not terminate once the lease owner attains production unless the cessation of production is for an unreasonable length of time, taking into account all the facts and circumstances.
- 200) Tenancy by the Entirety: Co-tenant ownership where joint owners are husband and wife. It is similar in effect to a joint tenancy in that each spouse’s right is subject to survivorship, but different in concept in that the spouses are treated as one person; spouses have “unity of person,” in addition to unities of time, title, interest, and possession. One spouse cannot sever a tenancy by the entirety by a conveyance, but a divorce will convert it to a Tenancy in Common or a Joint Tenancy.
- 201) Tenancy in Common: Co-tenant ownership where joint owners have separate and distinct but undivided interests in the property, which may differ in proportion (percentage of ownership). Each owns a separate fraction, but it is not possible to identify which part belongs to any owner, so each owner has the right to use the entire property. Mineral Interests are frequently divided into tiny fractions in this manner.

A Tenancy in Common is generally established when co-tenants are not married or have contributed different amounts to the acquisition of the property. When a joint tenancy or tenancy by the entirety is intended yet not successfully created, the joint owners would be Tenants in Common by default and when there is a lack of evidence that intent of the grantor was to create a Joint Tenancy or Tenancy by the Entirety, courts will determine that a Tenancy in Common was created.

Tenants in Common do not have Right of survivorship. When one owner dies, that party’s interest in the property passes by inheritance to devisees or heirs by last will and testament or by intestate succession.

A Tenant in Common can break the co-tenancy via a “partition” of the property, which is either a voluntary or court-ordered division of the land into distinctly owned parcels, when such a division is permitted by zoning and/or local land use restrictions. When division of the land is not permitted, the property is subject to a force sale imposed by The Court and the proceeds of the sale are divided pursuant to the share of ownership.

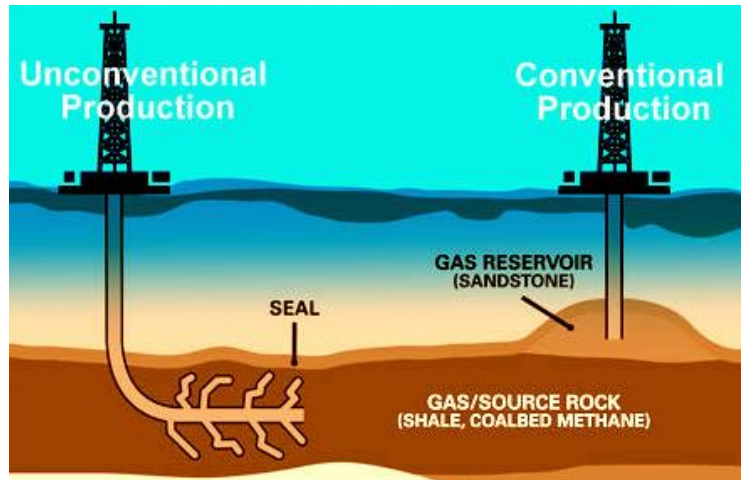
The most common issue with concurrent ownership is whether one or more of the owners has the right to develop or lease minerals without the consent of the other owners. The majority rule, based on *Prairie Oil & Gas Co. v. Allen* (Alabama, California, Florida, Georgia, Kansas, Kentucky, Missouri, Montana, North Dakota, Oklahoma, Pennsylvania and Texas) is that (1) any Tenant in Common has the right to remove minerals from the jointly owned land because the only way to enjoy an interest in minerals is to produce them, and (2) a Tenant in Common can exercise the right to remove the minerals over the objection of the other co-tenants. The minority rule (West Virginia) is that a Tenant in Common commits waste by developing and producing minerals without the consent of all other co-tenants.

- 202) Term Interest: An interest in oil and gas for a less than perpetual duration, which can be either a fixed term interest (granted for a specified number of years, e.g. 20 years) or a defeasible term interest (granted until an event occurs, e.g. for 20 years and so long thereafter as oil and gas is produced).
- 203) Term Royalty: A Mineral Interest or Royalty Interest (also known as term royalty) that is for an indefinite period of time rather than perpetual (for example 25 years and so long thereafter as there is production from the leased property).
- 204) Tertiary Recovery: An enhanced oil and production technique (also known as Enhanced Oil Recovery). Rather than using pressure to force oil to the wellbore, which is the basis of Primary Recovery and Secondary Recovery, this recovery method modifies the nature of oil to make it easier to capture. Methods include thermal recovery, gas injection, and chemical injection to make oil less viscous and/or to release it from the formation.
- 205) Three-Dimensional Seismology: An exploration technique that projects sound waves underground, which bounce back off structures to create an accurate depiction of the subsurface.
- 206) Top Lease: A second or subsequent Oil and Gas Lease granted on property that is already covered by an Oil and Gas Lease, which grants rights to the Lessee that become effective if and when the existing lease expires.
- 207) Trespass: An invasion of an interest in real property. In jurisdictions where oil and gas is classified as real property, the cause of action for injury to real property is trespass.

U

- 208) Unconventional Gas: The sources of natural gas production that are, in a given era and location, considered to be new and different, including coalbed methane, shale gas, and tight and gas production.
- 209) Unconventional Oil: The oil produced or extracted using techniques other than the conventional (oil well) method, including oil sands, tight oil, and oil shale.

- 210) Unconventional Resource: The sources of oil and gas that were not historically produced due to the characteristics of the associated reservoir or the lack of technology and/or production techniques.



- 211) Unitization: Bringing together some or all of the Drilling Units located over a common producing reservoir for the joint operation, either by the agreement of all owners or by Forced Pooling. Unitization is usually undertaken after primary production has begun to fall off substantially to permit efficient secondary or tertiary recovery operations, although the term Unitization is often used interchangeably with the term Pooling.
- 212) “Unless” Lease: An Oil and Gas Lease with a Delay Rental Clause that requires the Lessee to either (1) commence drilling operations or (2) tender Delay Rental Payments (generally annually) during the Primary Term. The Lessee may defer drilling and extend the lease by tendering Delay Rental Payments but is not obligated to drill or to tender Delay Rental Payments. If the Lessee opts not to pay or drill, the lease automatically terminates. Sample lease language is as follows:

“It is agreed that this lease shall remain in force for a term of 3 years and as long thereafter as oil or gas, or either of them, is produced from said land by Lessee. If no well is completed on said land on or before January 17, 1917, (one year from the execution of this lease) this lease shall terminate as to both parties, unless the Lessee on or before that date shall pay or tender to the Lessor the sum of \$300, which shall operate as a rental and cover the privilege of deferring the completion of a well for 12 months from said date. In like manner and upon like payments or tenders the completion of a well may be further deferred for like periods of the same number of months successively.”

- 213) Upstream: The sector of the petroleum exploration, production and delivery cycle (also known as exploration and production) that searches for crude oil and natural gas, drills wells, operates producing wells and sells production.

V

- 214) Vertical Pugh Clause: An Oil and Gas Lease provision which limits the Oil and Gas Lease to the depths named therein, leaving other depths open and available for lease.

W

- 215) Warranty Clause: An Oil and Gas Lease provision which requires that the Lessor defend and guarantee title to the leased property. Sample lease language is as follows:

“Lessor hereby warrants and agrees to defend the title to the leased property.”

- 216) Wash Out: A frequent problem after a Lessee has transferred operating rights in a lease and retained a non-operating interest is the “wash out,” which can occur if the transferee permits the lease to terminate and then re-leases the property. The question is whether the original Lessee’s non-operating interest should be recognized under the new lease. Some jurisdictions have extended the transferor protection on the grounds that either (1) a constructive trust is created by a special or confidential relationship between the parties as shown by the particular facts, or (2) the facts give rise to an inference of bad faith by the transferee. Most cases have held that one who transfers operating rights but retains a non-operating interest is not protected by implied covenants against wash out. Generally, when the first lease expires, the Overriding Royalty Interest is extinguished. So frequently, assignments contain Extension Clauses and/or Renewal Clauses to avoid extinguishment of the Overriding Royalty Interest. An extension is a continuation of the old lease, whereas a renewal is a different lease but has essentially the same terms as the first lease.

- 217) Water-Oil Ratio: A limit to a production allowable that requires an operator to stop producing when the operator produces more than a designated ratio of water to oil; e.g., six barrels to one. A water-oil ratio is designed to preserve the pressure in a water drive reservoir.

- 218) Well Commencement Clause: An Oil and Gas Lease provision which allows the Lessee to avoid the obligation to tender Delay Rentals Payments to the Lessor by commencing the drilling of a well on the leased property within the time period specified in the lease (often the lease anniversary date). Numerous factual issues arise when determining whether the Lessee has complied with the commencement of drilling operations requirement. Sample lease language is as follows:

“The lease shall terminate...unless Lessee shall make or tender the payments hereinafter provided or shall within said period commence drilling operations for a well for oil and gas on the leased land and prosecute the drilling of such well within reasonable diligence until oil and gas is found in quantities deemed paying by Lessee or until Lessee deems that further drilling would be unprofitable or impractical in which event Lessee may abandon the well.”

- 219) Well Completion Clause: This clause is a variation of the Operations Clause and causes the lease to remain in full force and effect after expiration of the Primary Term when (1) the Lessee is in the process of drilling a well before expiration of the Primary Term, (2) the Lessee completes the well after expiration of the Primary Term, and (3) the well produces oil and/or gas. If the well is a dry hole, absent a Dry Hole Clause or other lease provision, the Lessee may not continue to drill other wells and the lease automatically terminates.
- 220) Well Setback Requirements: A limitation imposed by Petroleum Conservation Laws that restricts the drilling of a well within a specified distance of Drilling Unit boundaries. These requirements may mandate a minimum distance of 330 feet between the surface well location and the outside boundary of a Drilling Unit, depending upon the well type, and the statutes enacted in the state where the well is located.
- 221) Well Spacing Requirements: A limitation imposed by Petroleum Conservation Laws that restricts how many wells can be drilled in a given area and requires a minimum distance between existing wells, designed prevent over-drilling. These requirements may mandate a minimum distance of 1,320 feet between the surface location of wells, depending upon the well type, and the statutes enacted in the state where the well is located.
- 222) Wellhead: The mechanism of an oil or gas well located above ground that provides the suspension point and pressure seals for the casing strings that run from the well to the surface pressure control equipment. The wellhead is comprised of a system of spools, valves and assorted adapters that provide pressure control of a production well. Wellheads are typically welded onto the first string of casing (which are cemented into place during drilling operations) to form an integral structure of the well. A wellhead must be present in order to utilize a Christmas tree but is used without a Christmas tree during drilling operations.



- 223) West Texas Intermediate (WTI) Standard: The benchmark price at which U.S. crude oil futures contracts are traded on the New York Mercantile Exchange and which applies to crude oil imported into the United States from Canada, Mexico, and South America. This price index pertains to light sweet crude oil (of higher quality than Brent Crude Oil) and is set in Cushing, Oklahoma, which has the largest storage capacity in the country and serves as the point of delivery of New York Mercantile Exchange contracts.
- 224) Wet Gas: A type of natural gas that contains significant heavy hydrocarbons (propane, butane, and ethane) and other hydrocarbons that can be liquefied (known as natural gas liquids or NGLs), and which contains less methane (typically less than 85% methane). The production of liquids from gas wells complicates the design and operation of surface process facilities required to handle and export the produced gas.
- 225) Working Interest: A type of ownership interest (also known as a Leasehold Interest) that does not exist before an Oil and Gas Lease is executed and terminates when the lease terminates. The owner (generally an oil and gas producer) is granted the rights under an Oil and Gas Lease to search, develop, and produce oil and gas from the leased property. Due to the fact that the Working Interest owner must pay all of the Production Costs; the Working Interest is always stated to be 100%. After oil and gas are brought to the surface (being the point in time when Production Costs cease and Post-Production Costs commence) and after the Lease Burdens and Post-Production Costs are paid, the Working Interest owner is paid the remaining production revenue. If a lease has a 12.5% Royalty Interest and no Overriding Royalty Interest, the Working Interest owner pays 100% of the Production Costs and is entitled to receive 87.5% of the production revenue.