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POLLUTION SOLUTIONS:

A SYMPOSIUM ON
CARBON CAPTURE AND SEQUESTRATION
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Issues Pertinent to the Surface, Mineral Leases and Mineral Servitudes

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Presentation 1

Pore Space: Porosity & Permeability

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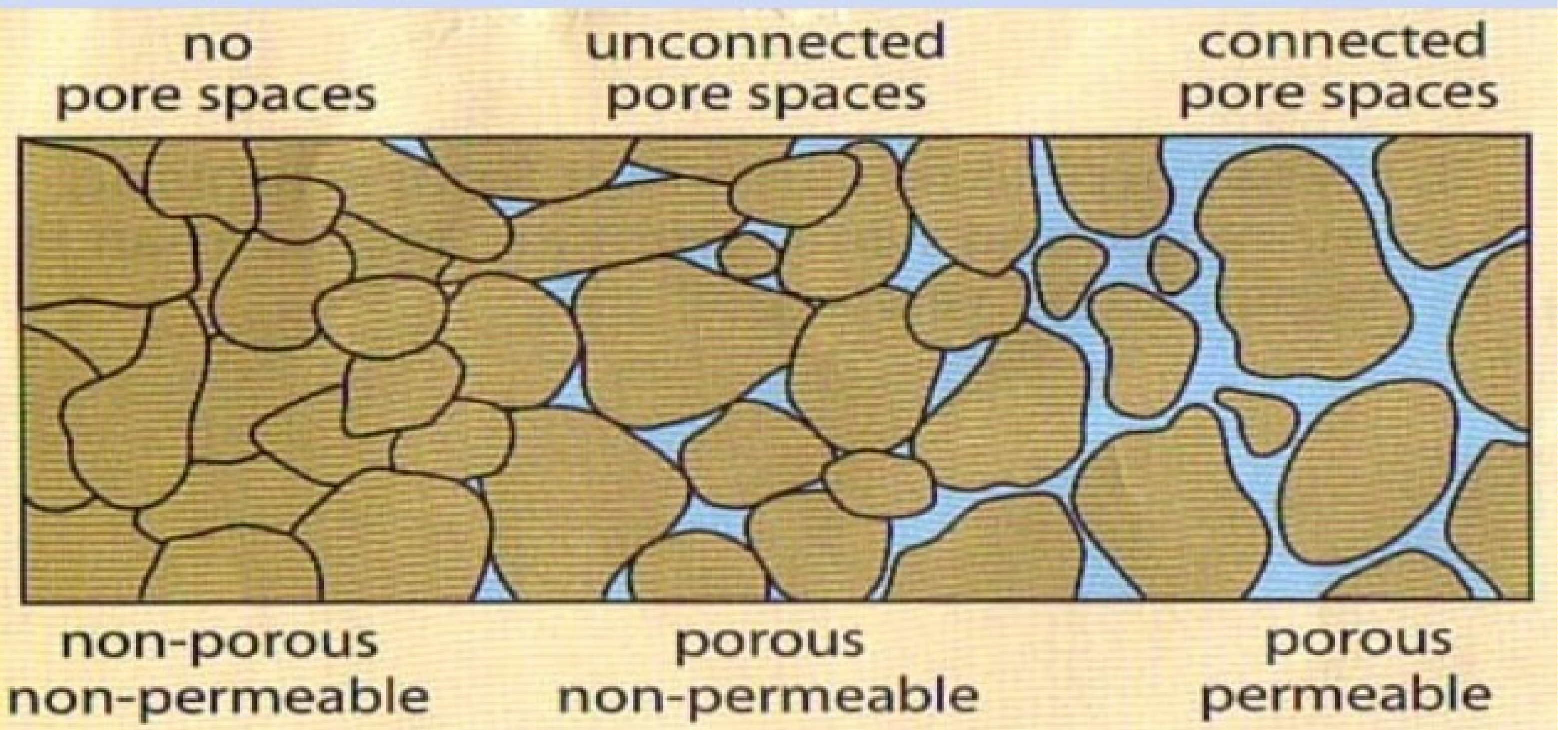


- **Porosity** is the relative volume of the pore spaces between mineral grains as compared to the total rock volume. It measures the capacity of the rock to hold oil, gas, and water. Pore space is nothing more than the microscopic voids within rocks that are unoccupied by solid material.
- **Permeability** is a measure of the resistance offered by rock to the movement of fluids through it.
- Graphic adapted from https://www.slideshare.net/FORCEjyotisharma/grain-size-analysis-at-mdu-rohtak.

Ownership of Pore Space – Container or Contents?

- If a gas or liquid is injected into a hole penetrating a tract of land, who owns the pore space that will be occupied by the substance?
- The landowner, unless the right to fill the pore spaces has been severed from the land ownership.

Common Usage Affecting Concepts

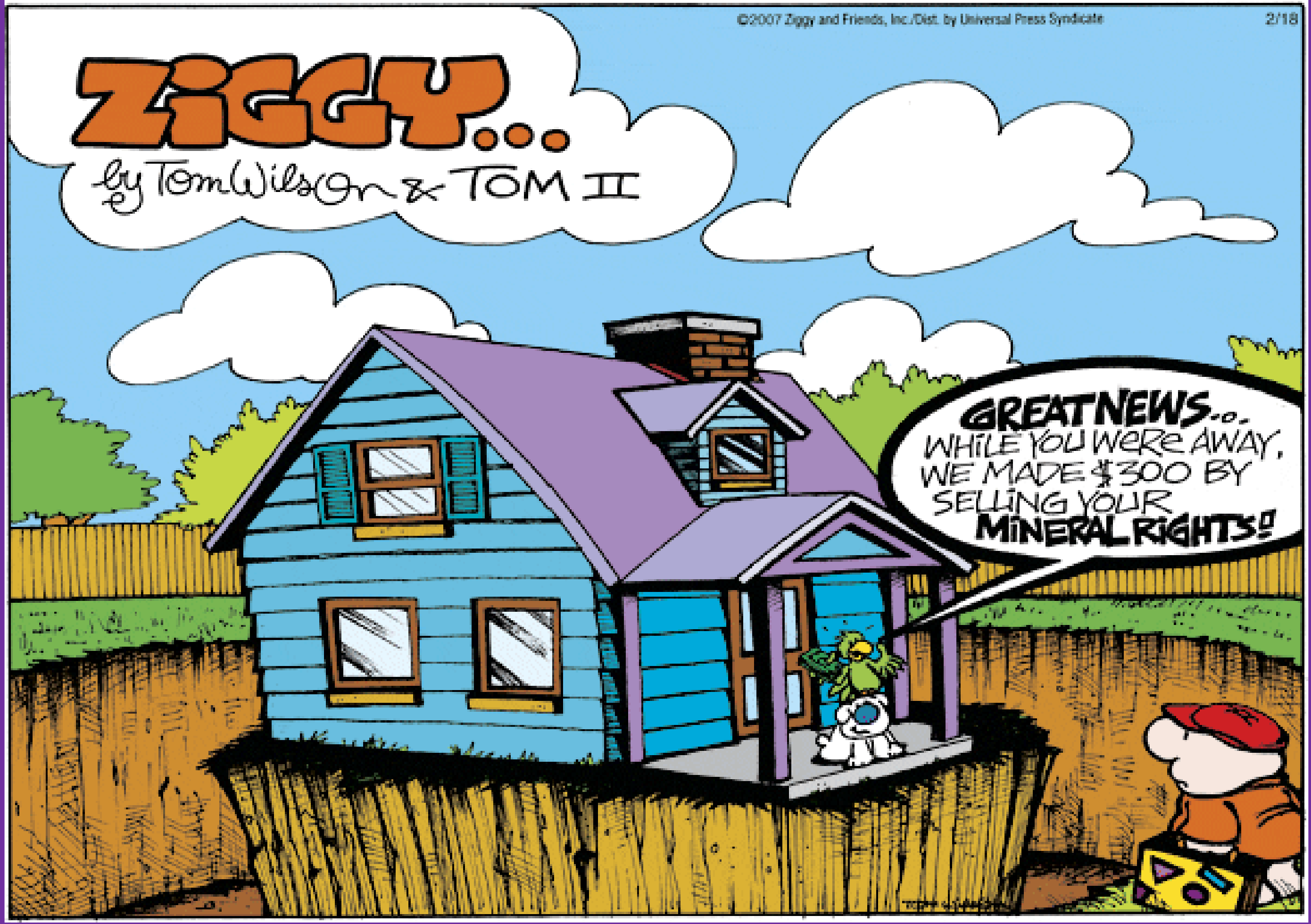
- Surface Estate – Surface Owner
- Subsurface Estate – Subsurface Owner
- Mineral Estate – Mineral Owner
- Land – Land Owner
- Servitude – Servitude Owner

Surface & Subsurface

Surface Owner

Subsurface Owner

Landowner & Mineral Owner
What is a Mineral? Is a Void a Mineral?



Landowner & Servitude Owner

- A common misconception is that the so-called surface owner owns a thin layer of topsoil while the so-called subsurface owner owns the remaining 3,950 miles of substance (or void) to the center of the earth. It seems patently preposterous that this result is intended whenever a party has given or reserved rights to minerals beneath the surface.
- In *Mosser v. Denbury Resources, Inc*., 2017 ND 169, 898 N.W.2d 406, the North Dakota Supreme Court adopted a "three-dimensional concept" of an estate in land, "consisting of a portion of the earth's surface, the space above and below the surface, and everything growing on or permanently affixed to it." Land thus encompasses "pore space," with a consequence that the surface owner is authorized to recover compensation for a mineral developer's use of pore space for salt water disposal under the North Dakota surface damages act. It ruled that unless conveyed before 2009, pore space belongs to landowner (surface) citing N.D.C.C. § 47-31-03. 2.

Implied Right to Inject/Dispose

- The case law and common practice show that a mineral estate or servitude owner or a mineral lessee has a right to use the land, including pore space, as a corollary to the right to produce the minerals embraced within the deed. For example, when a lessee produces brine as it produces oil or natural gas, it has an implied right to dispose of that brine through an injection well on the property.
- But this correlative right to use the land as an extension of the right to capture oil and gas or other mineral is not a right to use the land to dispose materials brought from off the land.
- E.g. *see Corbello v. Iowa Production,* La. 2002-0826, 850 So. 2d 686 (La. 2003), on remand, La. App. 01-567, 851 So. 2d 1253 -- Breach of surface lease by disposing of saltwater generated by other producers. Damages for this unauthorized disposal were in part measured not by the injury to the property but rather by the money the defendant saved by not having to dispose of the saltwater at a commercial disposal facility. .

Federal and State Statutes

- Gas storage projects have been affected by both Federal and State laws and regulations. The federal component arises from the Natural Gas Act giving powers to the FERC.
- A number of states have enacted statutes authorizing condemnation of underground structures for gas storage purposes, the constitutionality of which has been regularly sustained, but even under such statutes the question is posed as to the persons having interests in the structure for which compensation must be paid when condemnation procedures are followed.
- Responding in part to the public interest in geologic carbon sequestration, some states have enacted statutes that expressly provide that the surface owner is vested with ownership of subsurface pore space. Among these are Wyoming, Montana, and North Dakota.
- E.g. Wyo.Stat. Ann. § 34-1-152(a) -- "The ownership of all pore space in all strata below the surface lands and waters of this state is declared to be vested in the several owners of the surface above the strata."

Alaska Analysis for Certain State Interests

- *City of Kenai v. Cook Inlet Natural Gas Storage Alaska, LLC*, 373 P.3d 473 (Alaska 2016): the surface estate owner (City of Kenai) claimed it owned the empty pore space that could be used for storage of natural gas.
- The lessee of the owners of the mineral rights in the land (State of Alaska and Cook Inlet Region, Inc.) asserted the mineral owners own the pore space and attendant storage rights because of the State's reservation of subsurface interests.
- Rejecting what it termed the "American rule" the Alaska Supreme Court interpreted a statutory reservation of minerals to include pore space storage rights in favor of the mineral owners. The court's analysis was that porous rock formations are mineral, so, too, the parts that make them up are mineral, including the microscopic pore space that constitutes much of mineral formations.
- See also *Kenai Landing, Inc. v. Cook Inlet Natural Gas Storage Alaska, LLC*, 441 P.3d 954 (Alaska 2019) .

Louisiana Natural Gas & Carbon Storage: Expropriation

- LSA-R.S. 19:2, the general expropriation statute, authorizes the expropriation by various entities for specified purposes:
- (5) "the piping and marketing of natural gas for the purpose of supplying the public with natural gas . . . ."
- (10) "the piping or marketing of carbon dioxide for use in connection with a secondary or tertiary recovery project for the enhanced recovery of liquid or gaseous hydrocarbons approved by the commissioner of conservation." [Also] "for the transportation of carbon dioxide for underground injection in connection with such projects located in Louisiana or in other states or jurisdictions."
- (12) "the injection of carbon dioxide for the underground storage of carbon dioxide approved by the commissioner of conservation. Property located in Louisiana may be so expropriated for including but not limited to surface and subsurface rights, mineral rights, the underground storage of carbon dioxide in connection with such storage facility projects located in Louisiana, and other property interests necessary or useful for the purpose of constructing, operating, or modifying a carbon dioxide storage facility or transporting carbon dioxide by pipeline to such storage facility."

Louisiana Natural Gas Storage: Conservation Office

- LSA-R.S. 30:22 adopted in 1962 provides for the issuance by the Commissioner of Conservation authority for a gas company to utilize the property for the underground storage of natural gas. Prior to the use of any underground reservoir or other exercise of the right of eminent domain by the public utility, the Commissioner must make certain findings.
- B. (1) That the underground reservoir sought to be used for the injection, storage, and withdrawal of natural gas is suitable and feasible for such use, provided no reservoir, any part of which is producing or is capable of producing oil in paying quantities, shall be subject to such use, unless all owners in such underground reservoir have agreed thereto, and no reservoir shall be subject to such use (a) unless the volumes of original reservoir gas and condensate content therein which are capable of being produced in paying quantities have all been produced; or (b) unless such reservoir has a greater value or utility as an underground reservoir for gas storage than for the production of the remaining volumes of original reservoir natural gas and condensate content, and at least three-fourths of the owners, in interest, exclusive of any "lessor" defined in R.S. 30:148.1, have consented to such use in writing.
- .

Liquid Hydrocarbons & Carbon Storage: Conservation Office

- Among the other findings necessary for storage of liquid hydrocarbons or carbon dioxide, under this statute:
- C (1) That the underground reservoir sought to be used for the injection, storage, and withdrawal of liquid hydrocarbons or carbon dioxide is suitable and feasible for such use, provided no reservoir, any part of which is producing or is capable of producing oil in paying quantities, shall be subject to such use, unless all owners in such underground reservoir have agreed thereto, and no reservoir shall be subject to such use (a) unless the volumes of original reservoir gas and condensate content therein which are capable of being produced in paying quantities have all been produced; or (b) unless such reservoir has a greater value or utility as an underground reservoir for gas storage than for the production of the remaining volumes of original reservoir natural gas and condensate content, and at least three-fourths of the owners, in interest, exclusive of any “lessor” defined in R.S. 30:148.1, have consented to such use in writing.

Case Law on Owner under the Statutes

- *Mid-Louisiana Gas Co. v. Sanchez,* 280 So.2d 406 (La. App. 4 Cir.1973), writ denied, 282 So.2d 142 : "the language of LSA-R.S. 30 :22 presupposes the right of a public utility to expropriate property [La.R.S. 19:2] in this situation. Were we to hold otherwise, the effect of LSA-R.S. 30 :22 would be completely nugatory."
- *Southern Natural Gas Co. v. Poland*, 406 So.2d 657 (La. App. 2 Cir.1981), writ denied, 412 So.2d 86: "Compensation is payable for the value of the recoverable natural gas and condensate remaining in the reservoir, the value of the underground storage right, and the value of the servitude rights on the surface." The "storage rights" component was for the landowner even if a servitude owner owned a fraction of the minerals. The compensation to the mineral right owner was for lost production, not for storage.
- *Southern Natural Gas Co. v. Sutton*, 406 So.2d 669 (La.App. 2 Cir. 1981). The same storage project expropriation was at issue. The Sutton defendants were not land owners, but owned small fractional mineral interests in the reservoir underlying two 40 acre tracts whose minerals were valued at $73.23. The Sun Fresh defendants owned the surface of a two acre tract, but did not own any mineral rights: "Surface ownership, however, includes the right to the use of the reservoir underlying the two acres for storage purposes. This was the right expropriated in the Sun Fresh case and it is the value of that storage right which is primarily at issue in the Sun Fresh case." The value of the storage rights for two acres was $295 per acre.

Negative Rule of Capture? NIMPS! [Not In My Pore Space]

- Rule of Capture: a mineral owner can produce from their property even if it has migrated from adjacent property. Does the reverse apply? I. e. Can I deposit gases and liquids into my property that migrate to neighboring property without consent of the owner? Must my neighbor receive my migrating fluids?
- "Is an injector whose fluids migrate to adjacent property liable in trespass or in nuisance?"
  - If we call it a *trespass*, the typical remedy is to require cessation and damages.
  - If *nuisance*, the activity may continue but with compensation to the adjacent owner.
- One line of cases says that the state authorization of a project means a migration is not an unlawful activity and insulates injector from trespass; damages may be sought if proven.
  - Raymond v. Union Texas Petroleum Corp., 697 F. Supp. 270 (E.D. La. 1988); Boudreaux v. Jefferson Island Storage & Hub, LLC, 255 F.3d 271 (5th Cir. 2001); Chance v. BP Chemicals, 77 Ohio St. 3d 17, 670 N.E.2d 985 (1996); Baatz v. Columbia Gas Transmission, LLC, 929 F.3d 767, 772 (6th Cir. 2019); Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1 (Tex. 2008).
- Another line says migration even with a permit does not protect an injector from civil claims, whether sounding in trespass or nuisance.
  - Mongrue v. Monsanto Co., 249 F.3d 422 (5th Cir. 2001); Sanders v. Gary, 657 So.2d 1085 (La.Ct.App.1995); Young v. Ethyl Corp., 521 F.2d 771 (8th Cir. 1975); Starrh and Starrh Cotton Growers v. Aera Energy LLC, 63 Cal. Rptr. 3d 165 (2007)

Presentation 2

EOR = Enhanced Oil Recovery

- **The most prevalent circumstance in an E&P operation in which a lessee utilizes CO_2 obtained from a CCS project is an Enhanced Oil Recovery, or "EOR," project.**
- **EOR is defined (Schlumberger Oilfield Glossary) as follows:**

  An oil recovery enhancement method using sophisticated techniques that alter the original properties of oil. . . .. Its purpose is not only to restore formation pressure, but also to improve oil displacement or fluid flow in the reservoir. The three major types of enhanced oil recovery opera-tions are . . ., miscible displacement (carbon dioxide [CO_2] injection or hydrocarbon injection), ... Enhanced oil recovery is also known as improved oil recovery or tertiary recovery and it is abbreviated as EOR.
- **In Louisiana, an EOR project can be approved by the Commissioner of Conservation in accordance with La. R.S. 30:5C.**

Authority for Creation of a Unit for EOR Purposes

- La. R.S. 30:5C grants to the Commissioner of Conservation authority:

  to enter an order requiring the unit operation of any pool or a combin-ation of two pools in the same field, productive of oil or gas, or both, in connection with the institution and operation of systems of pressure maintenance by the injection of gas, water, or any other extraneous substance, or in connection with any program of secondary or tertiary recovery.

- CO_2 would be an "extraneous substance" that might be injected "in connection with any program of secondary or tertiary recovery."
- La. R.S. 30:5C(2)(d) requires the approval of not less than 75% of the "owners," a term defined in La. R.S. 30:3(8), as "the person, including operators and producers acting on behalf of the person, who has or had the right to drill into and to produce from a pool and to appro-priate the production either for himself or for others."

Accounting for Royalties and Costs in an EOR Operation

- An E&P operator electing to implement or participate in an EOR project must be mindful of the project's implications on accounting for lessor's royalty or costs of the operation.
- Issues are presented in these contexts:

1. Must the lessee share with its lessor any "economic benefits" gained by lessee from carbon capture?
2. How do the associated costs of a EOR activity pertain to the issue of whether the mineral lease is producing in "paying quantities"?
3. Is any portion of the EOR-related costs chargeable to the lessor's royalty interest as being characterized as a "post-production cost"?
4. Are the EOR-related costs chargeable to other unit participants, such as unleased mineral owners or third-party lessees not under a JOA with the operator?

Must the lessee share with its lessor any “economic benefits” gained by lessee from carbon capture?

Frey v. Amoco Production Co. (La. 1992)

- The Fifth Circuit certified this question to the Supreme Court:

  Whether under Louisiana law and the facts concerning the Lease executed by Amoco and Frey, the Lease's clause that provides Frey a 'royalty on gas sold by the Lessee of one-fifth (1/5) of the amount realized at the well from such sales' requires Amoco to pay Frey a royalty share of the take-or-pay payments that Amoco earns as a result of having executed the Lease and under the terms of a gas sales contract with a pipeline-purchaser.
- Amoco was party to a gas sales contract with Columbia containing a "take or pay" clause.
- This clause provided that Columbia would pay for gas as "taken," but if not "taken," it would still pay for the gas, which might be taken at a later date.

Frey v. Amoco Production Co. (La. 1992)

- These "take or pay" clauses are used to ensure that a pre-dictable stream of revenue would flow to the lessee who had incurred expenses in constructing pipelines, etc., unin-terrupted by the failure of the gas purchaser to take gas.
- Amoco and Columbia settled a dispute and Columbia paid to Amoco $66.5 million, and Mr. Frey demanded his roy-alty share of these proceeds.
- Frey sues after Amoco refused to pay royalties on the monies it received in settlement of a lawsuit with Columbia.

Frey v. Amoco Production Co. (La. 1992)

- **Taking up the question certified to it by the Fifth Circuit, the Supreme Court conducted an exhaustive examination of the Louisiana law of lease, sales, gas production, etc., and answered the question in the affirmative:**

  > **. . ., we find the take-or-pay payments under the facts of this case and the royalty clause at issue are subject to the lessor's royalty in favor of Frey.**

- **Hence, Amoco owed royalties to its lessor (Mr. Frey) on the "economic benefits" which it enjoyed under the lease.**
- **The court viewed the mineral lease relationship as a cooperative joint venture, and stated:**

  > **The ultimate objective of the royalty provision of the lease is to fix the division between the lessor and lessee of the *economic benefits* anticipated from the development of the minerals.**

The Rule of *Frey*

- **The Supreme Court then announced this rule:**

  The lease represents a bargained-for exchange, with the benefits flowing directly from the leased premises to the lessee and the lessor, the latter via royalty. An economic benefit accruing from the leased land, *generated solely by virtue of the lease*, and which is not expressly negated . . . is to be shared between the lessor and the lessee in the fractional division contemplated by the lease.

- **Finding that the monies from the Columbia settlement met this test, Amoco had to account to Mr. Frey for his royalty share of the allocated portion of the settlement monies.**

Is the Rule of *Frey* Applicable to CCS Benefits?

- **The court's statement that the lessee should share with the lessor "the *economic benefits* anticipated from the development of the minerals" is indeed a broad statement.**
- **Does a lessor under a mineral lease have a basis to invoke this *Frey* rule to claim its royalty share of benefits inuring to the lessee who participates in an EOR project utilizing CO_2 injection?**

Is the Rule of *Frey* Applicable to CCS Benefits?

No case has taken up this issue, but relevant considerations militate against the relevance of *Frey* to CCS benefits inuring to the CO_2-injecting lessee:

1. **Typically, a CCS project is not implemented "at the lease," but at a more remote location, such as a natural gas processing plant (if not further downstream).**
2. **The tax benefits to which an operator is entitled are in the nature of a tax *credit*, not any sort of direct monetary remuneration.**
3. **The tax credit is distinctly not a benefit that "accru[es] from the leased land."**
4. **The tax credit is created by Federal tax law, not "solely by virtue of the lease."**
5. **Per IRS Regulations, the ability to receive the tax credit is limited to qualifying persons.**
6. **Unlike the facts in *Frey*, such carbon as might be captured in the CCS project does not correlate to production to which royalty typically pertains.**
7. **Under an "at the well" lease, the benefit accrues well after the point of sale, and this is not relevant to the calculation of royalty in the first instance.**

How do the associated costs of a EOR activity pertain to the issue of whether the mineral lease is producing in "paying quantities"?

Production in “Paying Quantities”

- The determination of production in “paying quantities” involves a comparison of a certain revenue stream to certain relevant expenses.
- The revenue stream is the “total original right of the lessee to share in production under the lease,” meaning 1.0 <u>minus</u> the lessor’s royalty.
- The relevant expenses are often called “lifting expenses,” which are costs [excluding original drilling costs (capital in nature)] that are incurred to “lift” the oil or gas to the surface.
- These costs are ordinary, recurring and operational in nature.
- Costs that are not relevant are those that are extraordinary, non-recurring and capital in nature.

Production in "Paying Quantities"

- When a mineral lease is maintained by production, such production must be in "paying quantities."
- "It is considered to be in paying quantities when production allocable to the total original right of the lessee to share in production under the lease is sufficient to induce a reasonably prudent operator to continue production in an effort to secure a return on his investment or to minimize any loss."
  - ✓Article 124, Louisiana Mineral Code.

A "PIPQ" Case Involves a Comparison of Two Baskets

A Basket of Bills versus **A Basket of Revenue**

The lessor will want this basket to be "full to the brim," including every expense incurred.

The lessee will want to limit this to "lifting expenses," eliminating capital or extra-ordinary, non-recurring expenses.

This basket is always the revenue allocable to 1.0 minus the lessor's royalty under the mineral lease (Mineral Code article 124).

Since this basket is a simple function of math, the battle in a "PIPQ" case essentially concerns the content of the other basket.

If the value of the basket of revenue exceeds the value of the basket of bills (even by a little), the lease continues; absent a speculative motive, the lease is producing in "paying quantities."

A critical issue is the period of time during which the comparison is made; courts tend to view the matter in a longer time frame to avoid anomalies.

Are any EOR-Related Costs Relevant?

- CO_2 may be injected into a reservoir in connection with an EOR project.
- The authority for the Commissioner of Conservation to permit and regulate pipelines for the injection of CO_2 for these purposes is set forth in La. R.S. 30:4C(17)(a), granting the Commission statutory authority:

> To regulate the construction design and operation of pipelines transmitting carbon dioxide to serve secondary and tertiary recovery projects for increasing the ultimate recovery of oil or gas, including the issuance of certificates of public convenience and necessity for pipelines serving such projects approved hereunder.

Are any EOR-Related Costs Relevant?

- **How are costs associated with an EOR project involving the injection of CO_2 to be classified?**
- **Although no case directly has taken up this issue, the conclusions reached by the court in *Merritt v. Southwestern Electric Power Co*. might be instructive.**

Merritt v. Southwestern Electric Power Co.

- At issue in *Merritt* was whether costs of compression constituted "post-production costs" such that a portion might be chargeable against the lessor's royalty payment.
- The court stated:

  Thus, if compression charges are necessary in order for the well to produce, *i.e*. for the gas to reach the wellhead, then such charges are not deductible from royalty payments. If, on the other hand, the compression charges are necessary only to push the gas from a producing well into the pipeline, then this cost is a post-production or marketing cost and is therefore deductible from royalty payments.

Merritt v. Southwestern Electric Power Co.

- **In similar or analogous fashion, if the costs to implement the EOR project are "necessary in order for the well to produce, *i.e*. for the gas to reach the wellhead, then such charges are not deductible from royalty payments."**
- ***Merritt* involved the propriety of charging a portion of costs against a lessor's royalty as "post-production costs."**
- **Nevertheless, the case's analysis would seem to characterize such costs as capital in nature (incurred prior to the wellhead, part of the "production phase"), and thus, these costs would not enter the analysis of whether the lease is producing in "paying quantities."**

Is any portion of the EOR-related costs chargeable to the lessor's royalty interest as being characterized as a "post-production cost"?

"Production Phase" v. "Post-production Phase"

- **A lessee who implements an EOR project by injecting CO_2 is doing so in order to enhance the recovery of oil and gas that might otherwise not be produced.**
- **Thus, the related costs of implementation *vis-à-vis* the oil to be recovered are incurred *prior* to the wellhead, which is the recognized point of demar-cation between the "production phase" and the "post-production phase."**
- **Under article 7 of the Mineral Code, "[m]inerals are reduced to possession when they are under physical control that permits delivery to another."**
- **This "reduction to possession" occurs at the wellhead.**
- **In *Babin v. First Energy Corp.*, it was explained:**

  It is generally accepted that the production phase of oil and gas operations terminated upon reduction of the minerals to possession at the well.

EOR Costs Not a "Post-production Cost"

- Since these costs are incurred prior to the wellhead, they are incurred in the "production phase," or "pre-wellhead" phase.
- This has also been called the "pre-extraction phase."
- Hence, these costs are solely the responsibility of the lessee, and no portion of such should be assessable against the lessor's royalty share of production.

Are the EOR-related costs chargeable to other unit participants, such as unleased mineral owners or third-party lessees not under a JOA with the operator?

Agreement as to Cost Responsibility

- The unitization agreement required by the statute typically provides with respect to liability of a signatory for costs of the unitized EOR project.
- Further, La. R.S. 30:5C(3) provides:

> The order requiring the unit operation shall designate a unit operator and shall also make provision for the proportionate allocation to the owners (lessees or owners of unleased interests) of the costs and expenses of the unit operation, which allocation shall be in the same proportion that the separately owned tracts share in unit production. The cost of capital investment in wells and physical equipment and intangible drilling costs, in the absence of voluntary agreement among the owners to the contrary, shall be shared in like proportion; however, no such owner who has not consented to the unitization shall be required to contribute to the costs or expenses of the unit operation or to the cost of capital investment in wells and physical equipment and intangible drilling costs except out of the proceeds of production accruing to the interest of such owner out of production from such unit operation. However, no well costs credit allowable shall be adjusted on the basis of less than the average well costs within the unitized area. The order requiring unit operation shall not vary nor alter any of the terms of the above required written contract or contracts evidencing approval nor impose any terms or operations upon the non-signers of the contract or contracts more onerous than the terms and operations set out in the contract or contracts.

Costs are Assessable Against UMOs and Other Lessees

- **A UMO is generally treated in the same manner as a working interest owner, with certain exceptions not here pertinent.**
- **If the UMO or the other lessee has signed the requisite unit agreement, it is bound by the cost-responsibility provisions in that agreement.**
- **If it has *not* joined in the unit agreement, costs *are* assessable, but may only be recovered out of production.**
- **Additionally, the last sentence of La. R.S. 30:5C(3) provides:**

  The order requiring unit operation shall not . . . impose any terms or operations upon the non-signers of the contract or contracts more onerous than the terms and operations set out in the contract or contracts.

Presentation 3

Acquiring subsurface storage rights (1)

- Purchase land over which plume will spread? Probably too expensive.
- Purchase of subsurface only? Might work in some states. Not allowed under Louisiana law, which does not allow separate estates in the same land. *See, e.g.*, La. Rev. Stat. 31:5.
- Lease of subsurface? Duration of a lease is limited to 99 years in La. Civ. Code art. 2679. Some other states may have limits on length of term.

Acquiring subsurface storage rights (2)

- Mineral lease?
- In some states, mineral leases have granted exploration and production (E&P) rights, as well as subsurface storage rights, and courts have enforced clause that provided lease would remain in effect so long as E&P or storage activity is conducted.
- In Louisiana, limit on term of mineral lease might be a problem. *See* La. Rev. Stat. 31:115.

Limit on term of mineral lease

- Under Louisiana law, "if a mineral lease permits continuance for a period greater than ten years without drilling or mining operations or production, the period is reduced to ten years." *See* La. Rev. Stat. 115.

Acquiring subsurface storage rights (3)

- Perpetual "storage estate"? Could work in some states. Louisiana does not allow separate estates.
- Personal servitude—in particular, a "right of use"? This might be the best option for acquiring rights in Louisiana.

Right of use

- Right of use is one of three types of personal servitudes. La. Civ. Code art. 533.
- "The personal servitude of right of use confers in favor of a person a specified use of an estate less than full enjoyment." La. Civ. Code art. 639.
- A "pipeline servitude" or "pipeline right-of-way" is a commonly encountered example of a "right of use."

Prescription of nonuse

- Servitudes generally will terminate by ten years prescription of nonuse. See La. Civ. Code arts. 621, 645, 3448.
- The injection of CO_2 into the subsurface pursuant to a storage servitude should constitute a use.
- After injections are complete, the continuing passive and presumably permanent use of the storage should qualify as use.

Acquiring subsurface storage rights (4)

- Subsurface disposal unit?
- Some people have advocated the use of subsurface storage units that would be analogous to oil & gas drilling or fieldwide units.
- A few states have passed legislation to authorize the regulator to enter orders creating storage units.
- Mont., N.D., Wyo. have authorized CO_2 storage units.

Subsurface storage unit

- Operator of a subsurface disposal unit would have a right to inject into fluids that will migrate through subsurface of pooled area, and operator must share economic benefits with owners of tracts in the unit.
- Sharing of benefits would be analogous to sharing benefits amongst mineral owners of tracts in an oil and gas drilling or fieldwide unit.

Sharing of Benefits for Disposal Unit

Which benefits to share if a storage unit is formed?

- To the extent that someday the emitters of CO_2 might pay for the disposal of their CO_2, that benefit almost certainly should be shared.
- To the extent that one of the economic benefits is a tax credit, would operator have to pay a fraction of the value of the credit to tract owners in unit?
- What about sharing of costs?

Sharing of Benefits for Disposal Unit

How to allocate the shared benefits?

- By surface acreage in unit?
- By estimated pore space volume?
- Should tracts whose surface is used get a share of benefits for the surface use?
- What if some tracts still had recoverable hydrocarbons in the storage reservoir?

Subsurface trespass liability? (1)

Is there trespass liability if operator does not acquire subsurface rights for the entire subsurface area where the plume of CO_2 spreads?

- In common law states, the *ad coelum* doctrine provides that the landowner’s ownership extends down to the center of the earth.
- In La., Civil Code 490 generally provides the same rule.
- Authorities have recognized concept of subsurface trespass.

Subsurface trespass liability? (2)

- Some courts have denied trespass liability for subsurface migration of fluids absent actual harm to the landowner whose subsurface has experienced an intrusion.
- *Coastal Oil & Gas v. Garza Energy Trust*, 268 S.W.3d 1 (Tex. 2008) (frack fluid; Texas law)
- *Chance v. BP Chemicals, Inc.*, 670 N.E.2d 985, 986 (Ohio 1996) (injection disposal; Ohio law)
- *Boudreaux v. Jefferson Island Storage & Hub, LLC*, 255 F.3d 271, 272 (5th Cir. 2001) (injection disposal; *Erie* guess under La. law)

Subsurface trespass liability? (3)

- But not all courts have found that there was no trespass liability in absence of actual harm to plaintiff landowner. *See, e.g.*, Stone v. Chesapeake Appalachia, LLC, 2013 WL 2097397 (N.D. W. Va.) (*Erie* guess under W. Va. law; decision vacated after settlement).

- Further, …

Subsurface trespass liability? (4)

- The "no-liability" court decisions have been based in part on theory that landowner's interest in excluding others was attenuated at deep depths and in part on court's recognizing the social utility of subsurface injection and not wanting to interfere with it.
- Will courts be less willing to find "no trespass liability" if operator can acquire subsurface rights to neighboring lands via eminent domain or unitization?

Right to conduct EOR that is not PPQ

- Under most oil and gas leases, an operator could
  - Conduct enhanced oil recovery operations
  - Not use leased premises to dispose of wastes unrelated to operations from lease or unit that includes portion of leased premises
- Suppose that an EOR project would produce oil, but not in paying quantities. The project nevertheless is worthwhile if one considers revenue and/or tax benefits from CO_2 injection.
- In that circumstance would EOR be authorized under lease?

Drilling through storage reservoir? (1)

- If storage operator acquires rights to storage formation, but not rights to deeper formations, someone might have a right to drill through the storage formation seeking deep oil/gas.
- Drilling often can be safely done through multiple formations without breaching containment.
- Storage operator and owner of deep rights would have to give due regard to each other's rights.

Drilling through storage reservoir? (2)

- What if storage operator wants to prevent drilling through the storage reservoir?
- In most states, operator could attempt to acquire severed mineral estate for all depths (or at least for depths beneath the storage reservoir).
- Might also need to acquire an exclusive use. Otherwise, landowner might be able to authorize drilling through. *See* Lightning Oil Co. v. Anadarko E&P Onshore, 520 S.W.3d 39 (Tex. 2017).

Drilling through storage reservoir? (3)

- In Louisiana, the law does not allow someone to acquire a severed mineral estate that is perpetual.
- Non-landowner can acquire mineral servitude, which is somewhat like mineral estate, except mineral servitude terminates by prescription of nonuse if it is not used for any period of 10 consecutive years. *See* La. Rev. Stat. 31:27.
- This prescription of nonuse is a significant limitation in use of servitude to prevent drilling through.

Workarounds for prescription? (1)

- Things that will not work include
  - contracting for a longer prescriptive period
  - contracting that prescription will not apply
  - granting of both a current servitude and a right to acquire new servitudes in the future
- Change Mineral Code to allow imprescriptible mineral servitude in this context? *See, e.g.*, La. Rev. Stat. 31:149.

Workarounds for prescription? (2)

- What if a party acquires a storage servitude that includes both an exclusive right to store and exclusive right to drill through certain depths?
- Would courts count that as a single servitude or would they see that as actually two servitudes—a storage servitude for the storage reservoir and a mineral servitude for deeper depths—with each servitude subject to its own prescription?

The End