

Part 2: Analysis of Property Rights Issues Related to Underground Space Used for Geologic Storage of Carbon Dioxide

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Several legally recognized interests might exist in property where underground pore space in a particular interval or intervals is to be used for carbon capture and geological storage (CCGS). Surface owners, mineral owners, lessees of solid minerals, oil and gas lessees, and owners of non-operating interests in production all might have legal rights that could be affected by CCGS.¹ Because the law recognizes an ownership interest in subsurface pore space, a regulatory program that manages storage (as opposed to water protection) should include clear rules about how these rights will be recognized and protected, as well as a process for assuring that the storer secures the legal property right to store CO₂.

The Interstate Oil and Gas Compact Commission (IOGCC) Geological CO₂ Sequestration Task Force identified three working models that can provide technological and regulatory guidance for CCGS: (1) injection of CO₂ into underground formations for enhanced oil

¹ See Williams and Meyers, *Oil and Gas Law Vol. 1*, §222 (Matthew Bender, 2006), for identification of property interests related to storage of natural gas in geologic reservoirs.

recovery (EOR) operations, (2) storage of natural gas in geologic reservoirs, and (3) injecting acid gas into underground formations. Legal paradigms associated with storage of natural gas in geologic reservoirs are most closely related to activities expected to occur in CCGS projects. This paper will discuss how various states address subsurface property rights and liabilities of parties engaged in and affected by activities involving the use of underground pore space for storage, and relate observations from various commentaries.

Case law from various states relating to natural gas storage provides an effective comparison for CCGS. Even though natural gas is stored for relatively short periods of time and carbon dioxide likely will be stored for very long periods of time, the storage time should not impact determining who has legal interests in the structure used for storage and how a regulatory program should treat them.

Case Law Survey

In Texas, there is no clear general rule on which estate, surface or mineral, possesses ownership of the pore space for storage purposes unless the severance contract expressly specifies. The natural gas storage case law in Texas gives conflicting results because in one case, *Mapco v. Carter*, the mineral owner prevailed² while another case, *Emeny v. U.S.*, held in favor of the surface owner.³ The Texas Supreme Court in *Humble Oil v. West* cited *Emeny*, but the court's holding did not rely on *Emeny*.⁴

In *Mapco*, the court held that the subsurface storage area was owned by the mineral owner, who was entitled to compensation for the use of the storage area.⁵ The mineral owner had created the cavern within a salt dome for the purpose of storing natural gas.⁶

²*Mapco, Inc. v. Carter*, 808 S.W.2d 262 (Tex. App.—Beaumont 1991), *rev'd in part*, 817 S.W.2d 686 (Tex. 1991).

³*Emeny v. United States*, 412 F.2d 1319 (Ct. Cl. 1969).

⁴*Humble Oil & Refining Co. v. West*, 508 S.W.2d 812 (Tex. 1974).

⁵*Mapco*, 808 S.W.2d at 274.

⁶*Id.* at 264.

The cavern walls were constructed of salt, a mineral in Texas (and specifically reserved to the mineral owner in lease documents); therefore, the mineral owner in this case had the exclusive right to the storage.⁷ This decision was overruled in part by the Texas Supreme Court, but not on the matter of ownership of the storage space.⁸

In *Emeny*, the Federal Court of Claims, applying Texas law, held that the surface owners retained all property rights, except the mineral rights for oil and gas operations, and the geological subsurface pore space belonged to the surface owners for storage purposes.⁹ The natural gas produced elsewhere was transported through the mineral owner's pipeline into the pore space and stored there until the gas was needed.¹⁰ The contracted rights of the mineral owners contained in the oil and gas lease were "for the sole and only purpose of mining and operating for oil and gas and of laying pipe lines . . . to produce, save, and take care of said products."¹¹ The court reasoned that this language allowed the mineral owner to store gas produced only from the leased premises, not extraneous gas produced elsewhere.¹² *West* cited *Emeny*, stating the surface owner retained the pore space for storage purposes of natural gas.¹³ However, ownership of the pore space was conceded to the surface estate, and *West* turned on the issue of whether the pore space could be used for storage purposes prior to all gas being produced from the pore space.¹⁴

In the current analysis, it is fair to conclude that in Texas, *Mapco* applies only when the storage space is created and comprised of a mineral. Arguably, *Mapco* is inapplicable for CCGS because the space will be a geological non-mineral pore space. Surface owners in Texas have a solid interest because the *Mapco* court did emphasize that the storage space was comprised of salt and not a geological pore space.¹⁵

⁷*Id.* at 274.

⁸*Mapco, Inc. v. Carter*, 817 S.W.2d 686, 688 (Tex. 1991).

⁹*Emeny*, 412 F.2d at 1323.

¹⁰*Id.* at 1322.

¹¹*Id.* at 1323.

¹²*Id.*

¹³*Humble Oil*, 508 S.W.2d at 815.

¹⁴*Id.*

¹⁵*Mapco*, 808 S.W.2d at 274.

Texas case law on storage ownership seems to indicate that surface owners have a stronger argument for the right to authorize the pore space for storage. However, the case law is uncertain, and the mineral owners have valid arguments that a potential purchaser of the pore space should be required to obtain their consent as well, particularly if the CCGS project could adversely affect mineral exploration or production. Perhaps the most important aspect of Texas law is that the question of pore space ownership is not clearly settled, highlighting the need for statutory and regulatory clarity.

In a West Virginia Supreme Court of Appeals case, *Tate v. United Fuel*, the judges held that ownership of the storage space belonged to the surface owner because the mineral exception contained in the deed to the surface owner only excepted the right to *produce* minerals.¹⁶ (Emphasis added). The exception in the deed stated, “[t]he oil, gas and brine and all minerals, except coal underlying the surface of the land hereby conveyed are expressly excepted and reserved . . .”¹⁷ The deed further defined and limited the term mineral as not including “clay, sand, stone, or surface minerals except such as may be necessary for the operation for the oil and gas and other minerals reserved and excepted herein.”¹⁸ The court found that limiting of the term “mineral” in the deed exception created a situation in which clay, sand, and stone for purposes other than mining and drilling operations were expressly conveyed to the surface owner.¹⁹

Tate can be analyzed in more ways than one concerning storage space rights. Surface owners would state that *Tate* should stand for the proposition that once the minerals are extracted and production has ceased, the underground storage space belongs to the surface. Mineral owners’ response would be that because of the peculiar language in the deed that limited the general meaning of the term “mineral” the court did not issue a rule that the storage space belongs to the surface owner in every instance. The totality of the circumstances were analyzed in *Tate* and the surface owner prevailed; however, under

¹⁶*Tate v. United Fuel Gas Co.*, 71 S.E.2d 65, 72 (W. Va. 1952).

¹⁷*Id.* at 67.

¹⁸*Id.* at 68.

¹⁹*Id.* at 70-71.

different circumstances without the term “mineral” being limited, the court might have reached a different decision. Furthermore, it has been argued, “[a]bout as far as the *Tate* case can be stretched is to say that in West Virginia, an oil and gas owner probably lacks the power to grant storage rights.”²⁰

In *Ellis v. Arkansas Louisiana Gas*, an Oklahoma case, the Tenth Circuit held that in general the pore space belonged to the surface owner for gas storage purposes; however, in this particular case the mineral owner prevailed because the court found a prescriptive easement.²¹ The mineral owner appealed the trial court’s ruling concerning the prescriptive easement, but did not challenge the court’s determination that the surface owner held the rights to the pore space.²² Once again, an issue aside from the right to the storage space prevents a general rule being derived. One could assume that had there not been a prescriptive easement, the surface owner would have prevailed.

In *U.S. v. 43.42 Acres of Land*, applying Louisiana law, the court held that after the extraction of minerals, the storage space that remained belonged to the surface owner, and the mineral owner had no claim for compensation.²³ Compensation for the value of the storage space taken by eminent domain is not necessarily determined by the right to produce and mine the minerals.²⁴ The court further added that regardless of a state’s ownership or non-ownership policy pertaining to mineral rights, in no instance should the mineral owner be found to have ownership of the pore space for storage purposes.²⁵ This decision is important because it involved who was owed compensation for the taking of the storage space, which tells us who under the law had the right to authorize the storage of natural gas. The court seemed clear that in Louisiana the surface owner had the prevailing interest in the storage space in all facets.

²⁰ Williams & Meyers, 1 Oil & Gas Law § 222 (Matthew Bender 2006) (citing Holland, “Underground Storage of Natural Gas: A Legal Overview,” 3 Eastern Min. L. Inst. 19 – 1 at 19 – 13 (1982).

²¹ *Ellis v. Ark. La. Gas Co.*, 609 F.2d 436, 439 (10th Cir. 1979).

²² *Id.* at 439.

²³ *United States v. 43.42 Acres of Land*, 520 F.Supp. 1042, 1045 (W.D. La. 1981).

²⁴ *Id.* at 1044.

²⁵ *Id.* at 1046.

In *Department of Transportation v. Goike*, the Michigan Court of Appeals held that the storage space left after the minerals had been excavated belonged to the surface owner.²⁶ The court reasoned that a mineral owner possesses a right solely to the minerals, not to the other property surrounding the minerals.²⁷ However, the court made it clear that when native oil or gas remains in the pore space, the mineral owner may preclude the surface owner from using the storage space as “[o]nly the surface owner . . . possesses the right to use the cavern for storage of foreign minerals or gas, and then only after [the mineral owners] have extracted the native gas from the cavern.”²⁸ As long as there is no debate whether native gas remains in the pore space, it appears that the approach in Michigan would be to grant the right to authorize storage to the surface owner.

In *Central Kentucky Natural Gas v. Smallwood*, the Kentucky Court of Appeals held that rentals from a storage space must be paid to the mineral owner.²⁹ The justices added that to reach their decision clarification was not needed on whether ownership of the pore space belonged to the mineral or surface owner.³⁰ The court cited the English Rule, which provides that the mineral owner possesses the exclusive right of production as well as the exclusive right to the storage space left after production has ceased.³¹ This case was overturned, but only concerning the issue of the stored gas being personal property, and not on the issues of ownership of the pore space or the rentals accruing from the pore space.³² In opposition to the court’s view, surface owners would argue that *Smallwood* was overturned and should not be influential even though it was overturned on grounds not related to pore space ownership.³³ Furthermore, *Smallwood* seems to employ the

²⁶ *Dep’t of Transp. v. Goike*, 560 N.W.2d 365, 366 (Mich. Ct. App. 1996).

²⁷ *Id.* at 365-66.

²⁸ *Id.* at 366.

²⁹ *Cent. Ky. Natural Gas Co. v. Smallwood*, 252 S.W.2d 866, 868 (Ky. Ct. App. 1952).

³⁰ *Id.* at 868.

³¹ *Id.*

³² *Tex. Am. Energy Corp. v. Citizens Fid. Bank & Trust Co.*, 736 S.W.2d 25, 28 (Ky. 1987).

³³ *Id.*

English rule in regard to ownership and surface owners would argue that the English rule should not be adopted in their jurisdiction, wherever that may be.³⁴

While not found in case law, a recent state report from New Mexico provides that deep aquifers would belong to the surface owner for the right to use and authorize them for storage purposes, even though by statute the water in the aquifer is deemed within the public domain.³⁵ New Mexico's policy towards ownership of pore space is somewhat ambiguous because the state and public entities have the right to use aquifer storage to recharge the aquifer, but the report states that use for other purposes may require compensation.³⁶ The New Mexico paper indicates that New Mexico would side with the theory that "the subsurface geologic structures – including the pore space as distinct from the mineral estate – belong to the surface property owner . . ."³⁷

Commentary

Commentators have varied perspectives on whether the surface or mineral owner should have title to the pore space for gas storage purposes. Elizabeth Wilson and Mark de Figueiredo note that while surface owners in most states prevail in pore space ownership of stored natural gas situations, mineral owners have valid interest as well and it would be prudent for a potential purchaser to secure the rights from both estates.³⁸ While the commentators' suggestion may be unsatisfactory to potential purchasers who prefer not obtaining consent from both the mineral owner and the surface owner, as well as paying just compensation to both estates, this approach may be highly beneficial in that a

³⁴ *Smallwood*, 252 S.W.2d at 868.

³⁵ *Carbon Dioxide Sequestration: Interim Report on Identified Statutory & Regulatory Issues*, New Mexico Energy, Minerals, Natural Resources Dep't, Oil Conservation Division, pp. 12-13 (June 27, 2007).

³⁶ *Id.* at 12 – 13.

³⁷ *Id.* at 10.

³⁸ Elizabeth J. Wilson & Mark A. de Figueirdo, *Geologic Carbon Dioxide Sequestration: An Analysis of Subsurface Property Law*, 36 ELR 10114, 21 (2006).

potential purchaser will clearly know who to contact and pay to secure the storage space rights without the fear of litigation.

Williams & Meyers suggest four different conclusions regarding subsurface storage of gas.³⁹

First, the mineral owner should be granted the exclusive right to the storage space “for all purposes relating to minerals, whether ‘native’ or ‘injected’, absent contrary language in the instrument severing such minerals.”⁴⁰ Under this view, the surface owner should not have any rights or be owed any compensation concerning the pore space unless some use of the surface is needed for the storage,⁴¹ which might be a reasonable approach when the subject is a mineral such as natural gas, but not so reasonable for CCGS.

Second, the owners of non-operating interests in the production of minerals should not be compensated and their consent should not be needed if the pore space no longer contains minerals; i.e., if the pore space is empty and using the space for storage as the next logical step, then those owners have no interest in the space.⁴²

Third, the operating rights owner should not be compensated and consent should not be needed for the right to store natural gas unless the operating rights owner will be negatively impacted by the injection of natural gas.⁴³

Finally, the consent of the mineral owner should be required regardless of whether the pore space still contains oil and gas.⁴⁴

³⁹ Williams & Meyers, 1 Oil & Gas Law § 222 at 334.

⁴⁰ *Id.* at 335.

⁴¹ *Id.* at 334.

⁴² *Id.* at 336-337.

⁴³ *Id.* at 337.

⁴⁴ *Id.* at 338.

Through their conclusions, it appears that Williams & Meyers strongly believe that the dominant interest in the storage space belongs to the mineral owner, not the surface owner. Extrapolating their view, the mineral owner's rights must be secured in every situation where a potential purchaser seeks to acquire the storage space, whereas the surface owner's rights need not be secured unless the use of the surface is required.

Subsurface Trespass

Subsurface Trespass cases offer an indication of how the law treats ownership interests in underground pore space. Based on case law, subsurface trespass is probably a cause of action, and adjacent property owners may be able to prevail if they can demonstrate reasonable and foreseeable damages caused by unauthorized use of their pore space. An analysis comparing secondary oil and gas recovery and hazardous waste case law to the storage of carbon dioxide will be undertaken to help develop reasonable policy for property rights affected by CCGS.

Trespass by EOR

In Texas, a cause of action for damages probably exists for subsurface trespass attributable to secondary recovery operations; however, the issue of subsurface trespass is far from certain because the case law is on both sides of the trespass debate. In *Railroad Commission of Texas v. Manziel*, the Texas Supreme Court held that a permit from the Texas Railroad Commission for oil and gas recovery precludes a trespass cause of action seeking injunctive relief.⁴⁵ The issue in *Manziel* was whether the water from the secondary recovery projects would constitute trespassing when it crossed ownership lines.⁴⁶ The court announced the “negative rule of capture” whereby “[j]ust as under the rule of capture a land owner may capture such oil and gas as will migrate from adjoining premises . . . so also may [a landowner] inject into a formation substances which may migrate through the structure to the land of others”⁴⁷ In conclusion, the court found

⁴⁵*R.R. Comm'n of Tex. v. Manziel*, 361 S.W.2d 560, 568 (Tex. 1962).

⁴⁶*Id.* at 567.

⁴⁷*Id.* at 568.

that trespass was not a cause of action when the state regulatory body permitted the injection project. The court was without power to issue an injunction sought by the adjacent property owner.⁴⁸

In *Mission Resources v. Garza Energy Trust*, the Corpus Christi Court of Appeals found that Texas recognizes a cause of action for subsurface trespassing for secondary recovery fracture treatment.⁴⁹ The court declined to settle the conflict between two previous cases in which one held subsurface trespass by fracture treatment was a cause of action, and the other held there was no cause of action.⁵⁰ The decision in *Garza Energy Trust* was appealed and thereafter the Texas Supreme Court granted review. The appellate court's holding was somewhat narrow in that it was not a blanket acceptance of a cause of action for subsurface trespass but limited the cause of action allowed to subsurface trespass for fracture treatment.⁵¹

The implication of these cases for carbon dioxide storage is debatable. Whether a court would find the storage of carbon dioxide to be a public necessity where adjacent property owners' rights are trumped by the importance of carbon sequestration is uncertain. On the one hand, the storage of carbon dioxide may lower greenhouse gas pollution, but on the other it is questionable whether the potential benefit of lowered greenhouse gas is more important than the property rights of the adjacent property owners. Secondary recovery methods are producing fungible resources in the form of oil and gas whereas the storage of carbon dioxide will not yield fungible resources. Both *Manziel* and *Garza Energy Trust* seem to key on the importance of secondary recovery of oil and gas, and the arguments why a trespass cause of action should not be actionable is based on fungible resources being produced. A regulatory program for CCGS should include a declaration that the activity is of high public importance.

⁴⁸*Id.*

⁴⁹*Mission Res., Inc. v. Garza Energy Trust*, 166 S.W.3d 301, 310 (Tex. App.—Corpus Christi 2005, review granted).

⁵⁰*Id.* at 310-11.

⁵¹*Garza Energy Trust*, 166 S.W.3d at 310-11.

Trespass by Hazardous Waste Injection

Hazardous waste case law seems to permit a cause of action for subsurface trespass. The Ohio Supreme Court in *Chance v. BP Chemicals* held that regardless of the fact that the defendant was operating under a valid permit, trespass as a cause of action is not precluded.⁵² Even though ultimately the adjacent property owners lost the suit due to not meeting their burden of proof in proving that trespass had indeed occurred, the court allowed the cause of action.⁵³

In *Mongrue v. Monsanto Co.* the Fifth Court of Appeals found that subsurface trespass was a valid cause of action, and stated that a valid permit “does not necessarily bar claims of trespass when authorizing the disposal of waste through injection wells.”⁵⁴ Subsurface trespass as a cause of action was not a primary issue for the court due to the trespassing claim being dropped,⁵⁵ but the court briefly addressed the issue anyway,⁵⁶ which might illustrate that the justices wanted to clarify whether there was a cause of action for subsurface trespass. Even though in both cases the party bringing the trespass action did not ultimately prevail for various reasons, subsurface trespass was allowed as a cause of action, which further highlights the law’s recognition of property rights in subsurface pore space.

These cases also raise a couple of principles applicable to CCGS: Plaintiffs in both cases were surface owners, and it was difficult for the plaintiffs to prove they had suffered damages because they could not show that they actually used the subsurface and that the use had been compromised. The inability to show damages played a larger role in the outcome of these subsurface trespass situations cases than whether a cause of action existed in the first place. The law recognized the ownership right in the subsurface, but

⁵²*Chance v. BP Chemicals, Inc.*, 670 N.E.2d 985 (Ohio 1996).

⁵³*Id.* at 991.

⁵⁴*Mongrue v. Monsanto Co.*, 249 F.3d 422, 433 n. 17 (5th Cir. 2001).

⁵⁵*Id.* at 425.

⁵⁶*Id.* at 433 n. 17.

the plaintiff was not able to show an intended use was compromised or damaged. CCGS will be a new legitimate use of the subsurface.

Conclusion

The law recognizes an ownership interest in subsurface pore space. Therefore, a regulatory program that manages storage (as opposed to water protection) should include clear rules about how these rights will be recognized and protected as well as a process for assuring that the legal property right to store CO₂ is secured. Based on the foregoing review of subsurface property law, CCGS statutes and rules would best serve the public by clearly declaring that CCGS is an important activity for the public interest, clearly identifying the surface owner as the person with the right to lease pore space for storage, while protecting other stakeholders from potential damage attributable to sequestration activities.